Lucent Technologies
Bell Labs Innovations

CentreVu® Call Management System

Software Installation and Setup

585-215-866
Comcode 108365404
Issue 3
March 1999

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P.O. Box 4100
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Order: *CentreVu®* CMS Software Installation and Setup
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108365404
Issue 3, March 1999

For additional documents, refer to the section entitled "Related Documents" in the Preface.

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Comments

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Acknowledgment

This document was developed by the Lucent Technologies Information Development Organization for Global Learning Solutions.

CentreVu ® Call Management System Software Installation and Setup

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Preface

Overview

This document is written for technicians and Lucent Technologies call center customers who install and maintain the *CentreVu*® Call Management System (CMS) using the *Solaris** 2.5.1 operating system.

This document assumes a minimum level of technical knowledge on the part of its readers. It assumes, for example, that a reader knows how to load a CD into a CD-ROM drive, but does not assume that the reader knows the *UNIX*† commands required to use the CD once it is loaded.

Reasons for Reissue

This document is being reissued for the following reasons:

- Change the title from *Software Installation and Maintenance* to *Software Installation and Setup*
- Add information about the *Sun*‡ *Enterprise*§ 3500 computer
- Add information about local area network (LAN) connections to *DEFINITY*® switches
- Add information about new *INFORMIX*¶ packages
- Remove information that is duplicated in other documents
- Make corrections to erroneous information.

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Organization

This document is organized as follows:

- **Chapter 1 —** Introduction

  Provides an overview of the supported CMS software, supported hardware platforms, required software, and supported switch releases. It also includes support contact information.

- **Chapter 2 —** Installing Software and Setting Up CMS

  Outlines the software installation and setup procedures. These procedures are used by technicians at customer sites and personnel at the factory.

- **Chapter 3 —** Turning the System Over to the Customer

  Provides the procedures that a technician performs before system cutover and a worksheet that the technician fills out for the customer.

- **Chapter 4—** Maintaining the CMS Software

  Discusses file system backups and other maintenance procedures.

- **Chapter 5—** Solving Installation-Related Problems

  Discusses how to fix various software installation problems.

- **Glossary**
- **Index**

Conventions

The following conventions are used in this document:

- Unless specified otherwise, all information and procedures in this document apply to the *Sun SPARCserver** computers, the *Sun Enterprise* 3000 computer, the *Sun Enterprise* 3500 computer, and the *Sun Ultra*† 5 computer.
- The R3V5u CMS software load is a companion version of the R3V5 CMS software load. The R3V5u load is used on *Enterprise* 3000 and *Ultra* 5 computers; the R3V5 load is used on *SPARCserver* computers and is documented in *CentreVu® CMS Sun® SPARCserver™ Installation and Maintenance* (585-215-827). In this document, the term R3V5 is used to refer to the R3V5u software load.
- The term “CMS” in this document always implies “*CentreVu* CMS.”
- Commands you enter from the console are shown in `courier` font.
- Screens are shown to represent responses from the system. Because of display constraints in this document, some screen representations are not identical to the screens on your system.
- *`Italic`* text in screen displays represents variable information.
- Many procedures in this document instruct you to “Enter” a command or some data. What is meant is that you must type the command or data as shown, and then press Enter or Return on your keyboard.
- Automatic Call Distribution (ACD) is a feature on the *DEFINITY* switch. The ACD feature is used to route incoming calls to groups of agents. When this document refers to “connecting to an ACD,” it refers to connecting to a switch that has ACD capabilities.

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Related Documents

The document set that supports the different CMS computers and the *DEFINITY* switches is being reorganized with this release. This section lists where you can find specific information about CMS. To order any of these documents, call the BCS Publications Center at 1-800-457-1235 or +1-317-361-5353.

Title	Document Number
Installing CMS Computers	
CentreVu® Call Management System Sun® Enterprise™ 3500 Computer Hardware Installation	585-215-873
CentreVu® Call Management System Sun® Enterprise™ 3500 Computer Connectivity Diagram	585-215-877
CentreVu® Call Management System Sun® Ultra™ 5 Computer Hardware Installation	585-215-871
CentreVu® Call Management System Sun® Ultra™ 5 Computer Connectivity Diagram	585-215-872
CentreVu® Call Management System Release 3 Version 6 Sun® Enterprise™ 3000 Computer Hardware Installation	585-215-867
CentreVu® Call Management System Release 3 Version 6 Sun® Enterprise™ 3000 Computer Connectivity Diagram	585-215-865
CentreVu® Call Management System Release 3 Version 6 Sun® SPARCserver™ Computers Hardware Installation	585-215-857
CentreVu® Call Management System Release 3 Version 6 Sun® SPARCserver™ Computers Connectivity Diagram	585-215-858
CentreVu® Call Management System Release 3 Version 5 Sun® SPARCserver™ Installation and Maintenance	585-215-827
CentreVu® Call Management System Release 3 Version 5 Sun® SPARCserver™ Connectivity Diagram	585-215-828
Connecting and Administering the Switch	
CentreVu® Call Management System Switch Connections and Administration	585-215-876
Installing and Setting Up Terminals, Printers, and Modems	
CentreVu® Call Management System Terminals, Printers, and Modems	585-215-874

Title	Document Number
Maintaining and Troubleshooting a CMS Computer	
CentreVu® Call Management System Sun® Enterprise™ 3500 Computer Maintenance and Troubleshooting	585-215-875
CentreVu® Call Management System Hardware Maintenance and Troubleshooting	585-215-861
Upgrading a CMS Computer	
CentreVu® Call Management System Release 3 Version 6 Upgrades and Migrations	585-215-856
CentreVu® Call Management System Release 3 Version 5 Upgrades and Migrations	585-215-826
Administering a CMS Computer	
CentreVu® Call Management System Release 3 Version 6 Administration (Volumes 1 and 2)	585-215-850
CentreVu® Call Management System Release 3 Version 5 Administration (Volumes 1 and 2)	585-215-820
Other Documents	
CentreVu® Call Management System Release 3 Version 6 Open Database Connectivity	585-215-852
CentreVu® Call Management System Release 3 Version 6 External Call History Interface	585-215-854
CentreVu® Call Management System Release 3 Version 6 Planning, Configuration, and Implementation	585-215-879
CentreVu® Call Management System Release 3 Version 5 Real-Time and Historical Reports	585-215-821
CentreVu® Call Management System Release 3 Version 5 External Call History Interface	585-215-824
CentreVu® Call Management System Release 3 Version 5 Open Database Connectivity	585-215-839
CentreVu® Call Management System Release 3 Version 5 Custom Reports	585-215-822
CentreVu® Call Management System Release 3 Version 5 Forecast	585-215-825
Lucent Call Center Change Description	585-215-853
Lucent Call Center Documentation CD-ROM	585-215-892

Introduction

Overview

CentreVu® Call Management System (CMS) is a software application offered in association with the Automatic Call Distribution (ACD) feature of Lucent Technologies *DEFINITY*® switches. The CMS application provides monitoring and recording of ACD calls and agents handling these calls, and the use of Vector Directory Numbers (VDNs) for these calls to measure Call Center performance.

Supported Hardware Platforms

CMS Computer Platform	Releases Supported	
	R3V5	R3V6
*Sun** *Enterprise*† 3500 computer	No	Yes
Sun Ultra‡ 5 computer.	Yes	Yes
Sun Enterprise 3000 computer	Yes	Yes
Sun SPARCserver§ 5 computer	Yes	Yes
Sun SPARCserver 10 computer	Yes	Yes
Sun SPARCserver 20 computer.	Yes	Yes
NCR 3332	Yes	No

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§*SPARCserver* is a trademark of SPARC International, Inc.

Required and Optional Software

To operate properly, CMS requires the following software packages (optional packages are noted as such):

- *Sun Solaris*[*] 2.5.1 operating system (Hardware: 11/97 version)
- Common Desktop Environment (CDE) 1.0.2
- *Sun* Validation Test Suite (VTS) 2.1.1
- High-Speed Serial Interface (HSI) (optional, required for systems having multiple ACDs or when the customer requires a high-speed data link)
- Serial Asynchronous Interface/PCI (SAI/P) drivers (optional, *Ultra* 5 only)
- Aurora Ports Card drivers (optional, *SPARCserver* only)
- Bay Networks Annex R10.0-R4.2 *Network Terminal Server*[†] (NTS) drivers (optional)
- *Solstice*[‡] for Server Connect X.25 Version 9.1 drivers (optional)
- *INFORMIX*[§]
  - — Structured Query Language (SQL) (optional)
  - — Standard Engine (SE)
  - — Runtime Enhanced SQL (ESQL) (R3V6 only)
  - — International Language Supplement (ILS) (R3V6 only)
- *Solstice DiskSuite*[¶] 4.1
- *Sun Solaris* patches
- CMS
- CMS patches
- CMS Supplemental Services (R3V6 only)
- CMS Open Database Connectivity (ODBC) (optional).

More details about these software packages, including release and platform dependencies, are given in Chapter 2, “Installing Software and Setting Up CMS.”

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†_Network Terminal Server_ is a trademark of Sun Microsystems, Inc.
‡_Solstice_ is a trademark of Sun Microsystems, Inc.
§_INFORMIX_ is a registered trademark of Informix Software, Inc.
¶_Solstice DiskSuite_ is a trademark of Sun Microsystems, Inc.

Roles and Responsibilities

This document is written for:

- Lucent Technologies on-site technicians
- Lucent Technologies Technical Service Center (TSC) personnel
- Lucent Technologies factory personnel
- CMS customer administrators.

The following table lists the major software installation tasks, who is responsible for performing each task, and the chapter where the task is described.

Task	On-Site Tech	TSC	Factory	Customer
Chapter 2 — Installing Software and Setting Up CMS				
Installing the *Solaris* operating system	X	X	X	
Installing the *Sun* environment packages	X	X	X	
Installing link and port packages	X	X	X	
Installing *INFORMIX*	X	X	X	
Installing *DiskSuite*	X	X	X	
Installing CMS packages	X	X	X	X (limited)
Authorizing feature packages and system parameters		X		
Setting up CMS	X	X	X	
Installing feature packages		X		X
Setting up the remote console	X	X	X	
Setting up the NTS	X		X	
Backing up the system	X		X	
Chapter 3 — Turning the System Over to the Customer				
Verifying the system date and time	X			
Testing the connection to the TSC		X		
Testing the ACD link	X			
Testing the CMS software	X			
Assigning customer passwords				X

Task	On-Site Tech	TSC	Factory	Customer
Turning the system over to the customer	X			
Chapter 4 — Maintaining the CMS Software				
Backing up the system	X			X
Restoring the system	X	X		X
Removing *INFORMIX* to add SQL	X	X		
Chapter 5 — Solving Installation-Related Problems				
Solving installation-related problems	X	X		

CentreVu CMS Helplines

If an installation problem arises that requires assistance, customers or Lucent Technologies technicians may call the numbers shown below.

Customer Support

1-800-242-2121

By calling this number, the customer reports the problem and generates a trouble ticket so that the problem can be worked by the services organization.

The customer will be prompted to identify the type of problem (ACD, hardware, or *CentreVu* CMS) and will be connected to the appropriate service organization.

Technician Support

1-800-248-1234

Lucent Technologies technicians can receive help during installations by using this number.

International Support

For international support, contact your Lucent Technologies representative or distributor for more information.

Installing Software and Setting Up CMS

Overview

This chapter contains the procedures used to install and set up the *CentreVu*® Call Management System (CMS) software, and other required and optional software. These procedures are done at the Lucent Technologies factory for all CMS computers. When done at the factory, these procedures are known as the Assembly, Load, and Test (ALT) procedures.

If the software has already been installed at the factory, the only procedures you need to do in this chapter are in the following sections:

- Setting up CMS (Page 2-129)
- Installing feature packages (Page 2-171)
- Backing up the system (Page 2-193).

NOTE:

If the CMS computer you are installing requires disk mirroring, you must use information from this chapter and the *CentreVu® CMS Disk-Mirrored Systems* (585-215-841) document.

If the CMS computer has not been through the ALT process at the factory, you must use the procedures in this chapter to bring the CMS computer up to factory standards after a system reconfiguration or repair. See *CentreVu® CMS Hardware Maintenance and Troubleshooting* (585-215-861) or *CentreVu® CMS Sun* Enterprise† 3500 Computer Maintenance and Troubleshooting* (585-215-875) for more information about field repairs.

The ALT procedures in this chapter are grouped into the following areas:

- Installing the *Solaris*‡ operating system
- Installing the *Sun* environment packages
- Installing link and port packages
- Installing *INFORMIX*§
- Installing *DiskSuite*¶
- Installing CMS packages
- Setting up CMS

Sun is a registered trademark of Sun Microsystems, Inc.
†*Enterprise* is a trademark of Sun Microsystems, Inc.
‡*Solaris* is a registered trademark of Sun Microsystems, Inc.
§*INFORMIX* is a registered trademark of Informix Software, Inc.
¶*Solstice DiskSuite* is a trademark of Sun Microsystems, Inc.

- Installing feature packages
- Setting up the remote console
- Setting up the Network Terminal Server (NTS)
- Backing up the system.

Summary of Procedures

The following table lists each of the factory software installation procedures, to which software release it applies (R3V5, R3V6, or both), for which computer models it applies (E3000, E3500, *Ultra*[*] 5, *SPARCserver*[†], or some combination), and if it is required or optional. All procedures must be performed in the order shown.

Procedure	Software Release	Computer Platform[*]	Required/ Optional
Installing the *Sun Solaris* 2.5.1 operating system (Hardware: 11/97 version)	Both	All	Required
Installing the Common Desktop Environment (CDE) 1.0.2	Both	All	Required
Installing the *Sun* Online Validation Test Suite (VTS) 2.1.1	Both[†]	All	Required
Installing the *SunLink*[‡] High-Speed Serial Interface/Sbus (HSI/S) Version 2.0 drivers	Both	E3000 E3500 *SPARCserver*	Optional
Installing the High-Speed Serial Interface/PCI Bus (HSI/P) Adapter 1.0 drivers	Both	*Ultra* 5	Optional
Installing the Serial Asynchronous Interface/PCI Bus (SAI/P) Adapter 1.0 drivers	Both	*Ultra* 5	Optional
Installing the Aurora ports card drivers	Both	*SPARCserver*	Optional
Installing the Bay Networks Annex *Network Terminal Server* (NTS) drivers	Both	All	Optional
Installing the *Solstice*[§] for Server Connect X.25 package	Both	All	Optional

**Ultra* is a trademark of Sun Microsystems, Inc.
†*SPARCserver* is a registered trademark of SPARC International, Inc.

Procedure	Software Release	Computer Platform*	Required/ Optional
Installing the *INFORMIX* software:			
- Structured Query Language (SQL) Version 7.20	R3V6	All	Optional
- Standard Engine (SE) Version 7.22	R3V6	All	Required
- Runtime Enhanced SQL (ESQL) Version 9.14	R3V6	All	Required
- International Language Supplement (ILS) Version 2.11	R3V6	All	Required
- SQL Version 6.05	R3V5	*Ultra* 5, E3000	Optional
- SE Version 7.13	R3V5	*Ultra* 5, E3000	Required
Installing the *Solstice DiskSuite* 4.1 software	Both	All	Required
Installing the *Sun Solaris* patches	Both	All	Required
Setting up *Solstice DiskSuite*	Both	All	Required
Installing the CMS software	¶	All	Required
Installing the CMS patches	Both	All	As needed
Installing the CMS Supplemental Services software	R3V6	All	Required
Installing the Open Database Connectivity (ODBC) software	Both	All	Optional
Setting up the CMS software	Both	All	Required
Installing feature packages	Both	All	Required
Setting up the remote console	Both	All	Required
Setting up the NTS	Both	All	Optional
Backing up the system	Both	All	Required

*The *Enterprise* 3500 computer only supports the CMS R3V6 load, not the CMS R3V5 load.
†The VTS package is not supported on the *Enterprise* 3000 with the CMS R3V5 load.
‡*SunLink* is a registered trademark of Sun Microsystems, Inc.
§*Solstice* is a trademark of Sun Microsystems, Inc.
¶For R3V5 systems, the R3V5 software is installed; for R3V6 systems, the R3V6 software is installed.

Conventions

- When executing commands remotely that may take a long time to complete (such as `cpio` and `/olds` commands), use the `nohup` command to ensure that the command will complete without interruption in case the data line disconnects. An example using the `nohup` command is shown below:

  ```
  nohup cpio -icmudf -C 10240 -I /dev/rmt/0c "/cms" | tee
  ```

- When doing these procedures remotely, verify that you set your terminal type correctly after each reboot.

Prerequisites

- Before beginning any of these procedures, you must verify that all components of the system are installed, are plugged into the appropriate power source, and are turned on. This includes port cards, external disk drives, and tape drives. If this is not done, the system hardware will not be recognized during the software installation procedures.

Installing the *Solaris* Operating System

Overview

The *Solaris* installation program is a menu-driven, interactive program that guides you step by step through installing the *Solaris* software. It also has on-line help to answer your questions.

You navigate through the *Solaris* installation program with the mouse. Your keyboard, however, provides similar functionality. For example, you can use the Tab or arrow keys to move through fields and the Enter key to initiate actions.

NOTE:

If the CMS computer you are installing requires disk mirroring, you must use information from this section and the *CentreVu® CMS Disk-Mirrored Systems* (585-215-841) document.

Installing the *Solaris* 2.5.1 operating system on the CMS computer consists of the following tasks:

- Booting from the *Solaris* 2.5.1 Hardware 11/97 CD (Page 2-5)
- Identifying the system (Page 2-7)
- Setting the date and time (Page 2-13)
- Selecting the *Solaris* 2.5.1 system files (Page 2-15)
- Partitioning the hard disks (Page 2-20)
- Installing the selected options (Page 2-31)
- Assigning a root password (the default is no password) (Page 2-33)
- Enabling Korn shell and the backspace key (Page 2-34)
- Setting the EEPROM parameters for the A and B ports (Page 2-34)
- Turning on the system activity recorder (Page 2-37)
- Removing the CD (Page 2-38).

Release and Platform Considerations

- All releases
- All platforms.

Prerequisites

Obtain or perform the following:

- "*Solaris* 2.5.1 Hardware: 11/97" CD
- The system's name (as designated by Lucent Technologies' Technical Service Center [TSC])
- The system's Internet Protocol (IP) address (this may be the factory default or an address in a customer's network)
- The number and size of the disks equipped with the system
- Verify that all power cords are fully-connected to all hardware devices (such as disk drives and tape drives), and that power is applied to all hardware devices.

Booting from the *Solaris* 2.5.1 Hardware 11/97 CD

This section describes how to boot the system from the *Solaris* 2.5.1 CD-ROM using the local console.

To perform this operation using a remote terminal, see *CentreVu® CMS Hardware Maintenance and Troubleshooting* (585-215-861) or *CentreVu® CMS Sun® Enterprise™ 3500 Computer Maintenance and Troubleshooting* (585-215-875).

NOTE:

The screens in this section are representative of a typical installation. Not all screens will match your installation. When possible, the recommended selections are shown with boxes highlighting the selection.

1. Apply power to all of the external devices, such as disk drives and tape drives.
2. Turn on the system. Depending on the model, it can take several minutes for the system to boot up.
3. As the console shows that the system is booting up, press the Stop and A keys simultaneously. The system responds as follows:

```
ok
```

4. Load the "*Solaris* 2.5.1 Hardware: 11/97" CD into the CD-ROM drive.

5. Boot the system from the CD-ROM by entering the following:

   ```
   boot cdrom
   ```

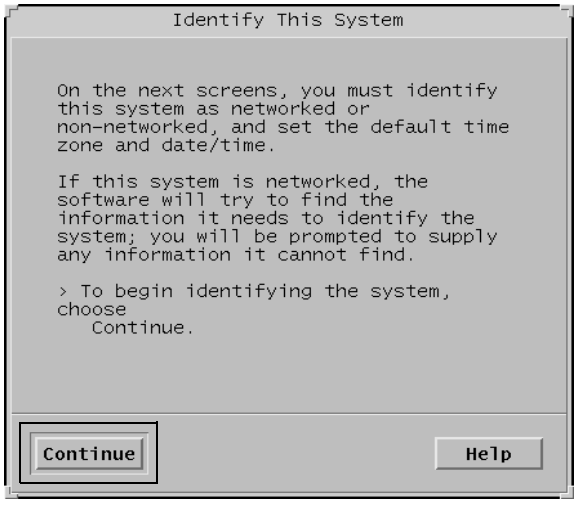
   The boot process takes between 2 to 10 minutes depending upon the platform.

   The *Solaris* Installation Program screen appears:

6. Select Continue.

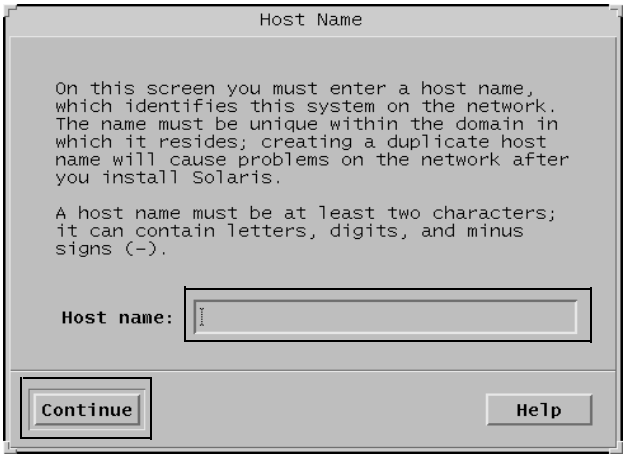
Identifying the System

The Identify This System screen appears:



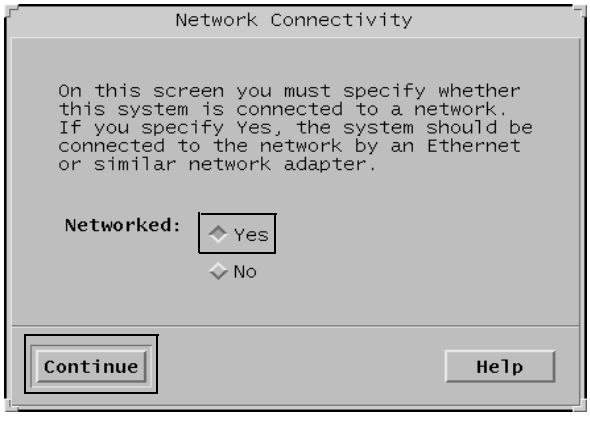
1. Select Continue.

   The Host Name screen appears:



2. Select the Host name box and enter the host name for the system. The host name for a specific system was designated by the TSC Provisioning personnel. Host names are case-sensitive and cannot start with a number. When finished, select Continue.

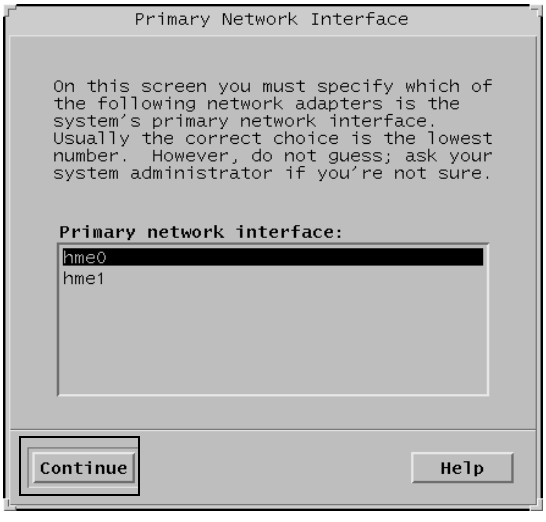
   The Network Connectivity screen appears:



3. Select Yes, and then select Continue.

   NOTE:

   If the system is equipped with more than one network interface, the Primary Network Interface screen appears (otherwise, the IP Address screen appears):

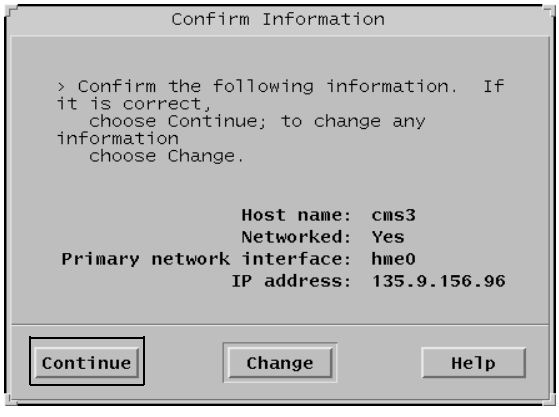


4. Select "hme0" for an *Enterprise* 3000, *Enterprise* 3500, or *Ultra* 5 computer, or "le0" for a *SPARCserver* computer, and then select Continue.

   The IP Address screen appears:

5. Select the IP address box and enter the IP address. IP address 192.168.2.1 is the factory default. You should enter the factory default address unless there is an actual network address for this site. Select Continue when finished.

   The Confirm Information screen appears:

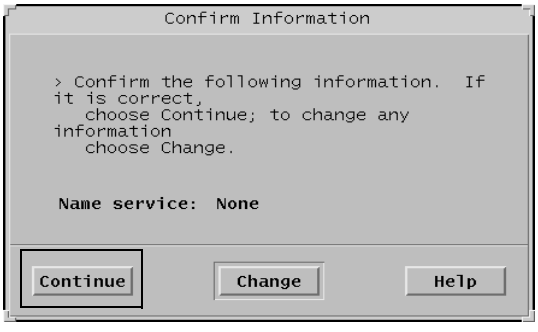


6. Select Continue if the displayed information is correct. If you select Change, the program returns to the Host Name screen.

   The Name Service screen appears:

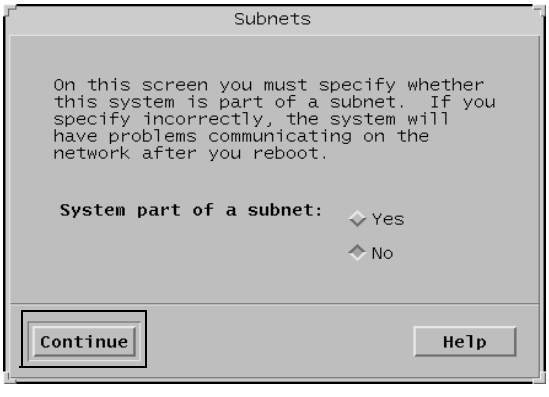
7. Select None, and then select Continue.

   The Confirm Information screen appears:



8. Select Continue if the displayed information is correct. If you select Change, the program returns to the Name Service screen.

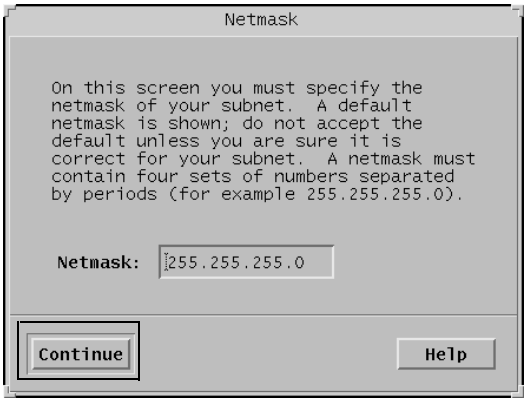
   The Subnets screen appears:



9. If this CMS computer is using LAN connectivity to the switch and is part of a subnet on the customer's network, you may need to select Yes to administer a subnet mask. If you select Yes, continue with Steps 10 and 11.

   If you select No, continue with Setting the Date and Time.

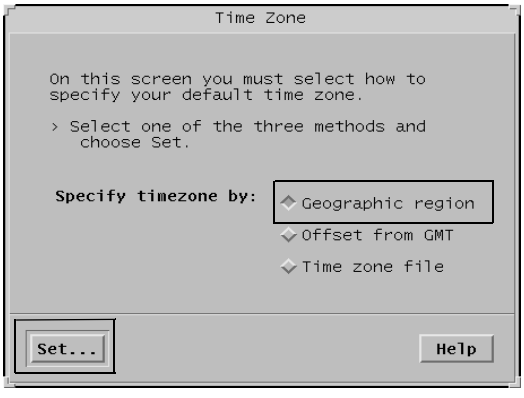
10. After selecting Yes if the system is part of a subnet, the Netmask screen appears:



11. Enter the desired subnet mask, and then select Continue. The default of `255.255.255.0` is recommended.

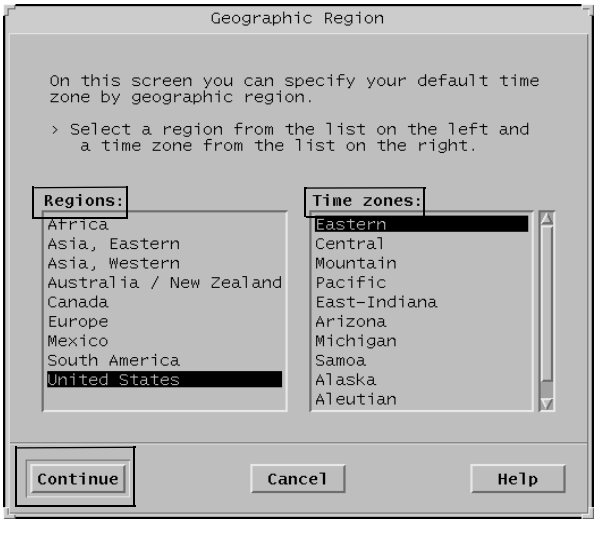
Setting the Date and Time

The Time Zone screen appears:



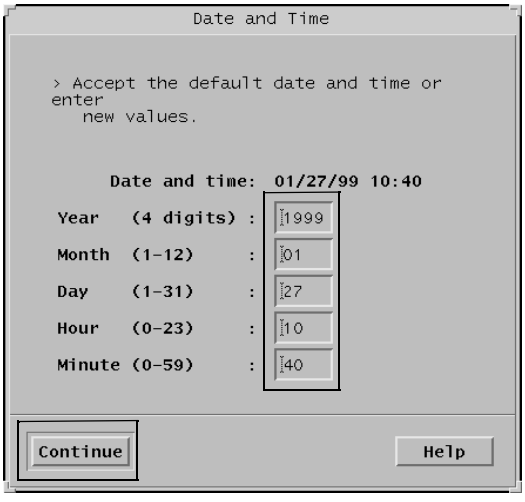
1. Select Geographic region, and then select Set.

   The Geographic Region screen appears:



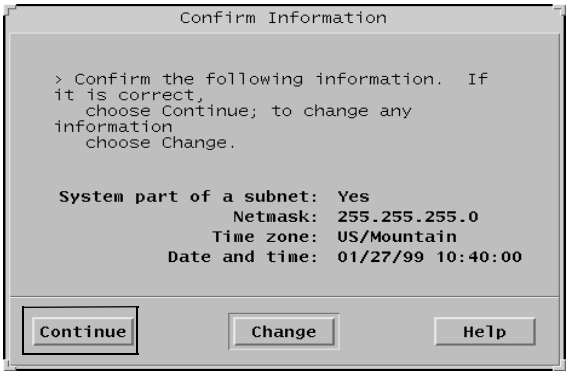
2. Select the region and time zone where this system is located, and then select Continue.

   The Date and Time screen appears:



3. Select Continue to accept the displayed date and time, or enter the correct date and time. Select Continue when all the information is correct.

   The Confirm Information screen appears:

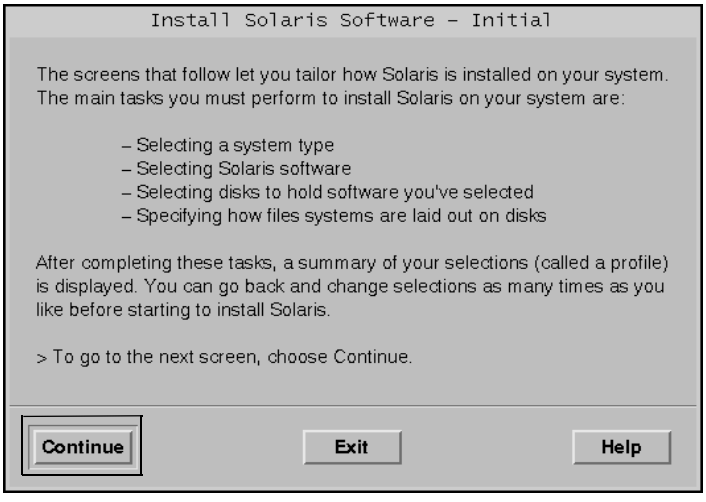


4. If the displayed information is correct, select Continue. If you select Change, the program returns to the Subnets screen.

   The system date and time are now set. The program continues with the selection of *Solaris* 2.5.1 system files.

Selecting the *Solaris* 2.5.1 System Files

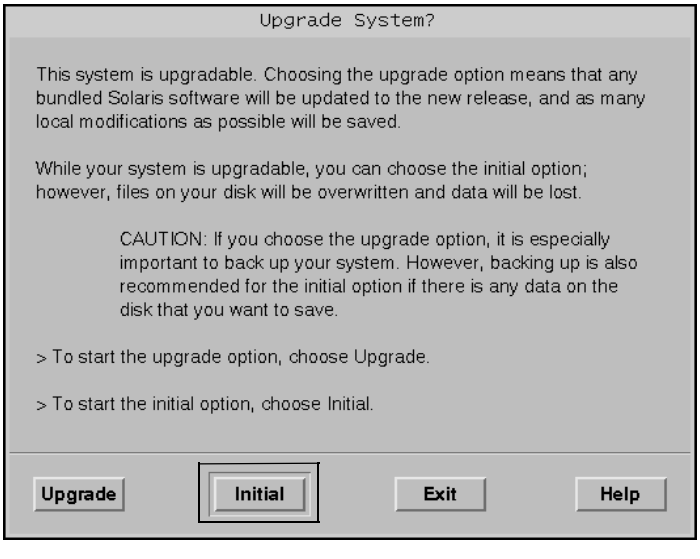
After a few minutes, the Install *Solaris* Software screen appears:



1. Select Continue.

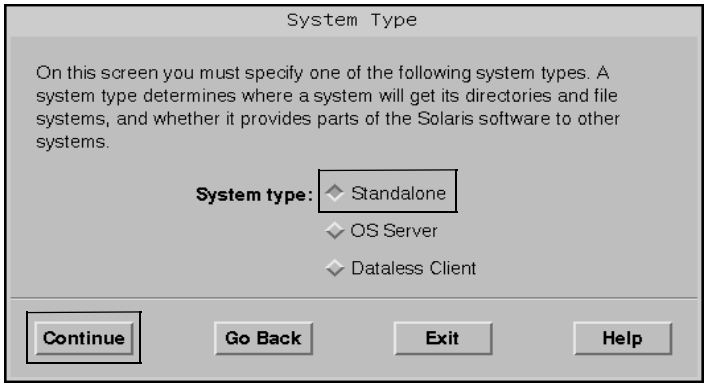
NOTE:

If *Solaris* is already installed on the machine, which is the case for machines in the field, the Upgrade System screen appears.



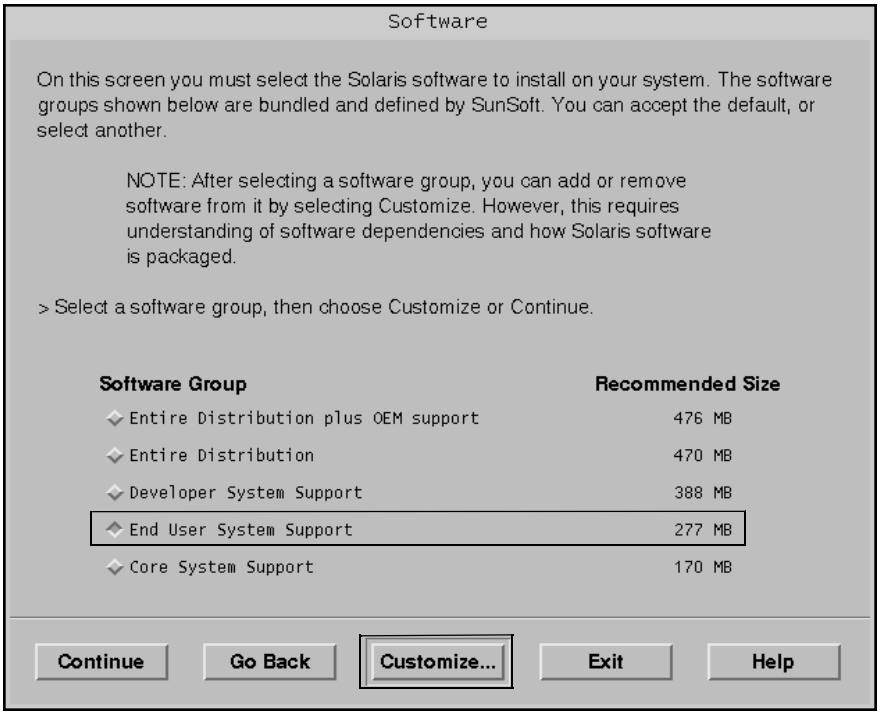
2. Select Initial to reinstall the operating system.

   The System Type screen appears:



3. Select Standalone, and then select Continue.

   The Software screen appears:

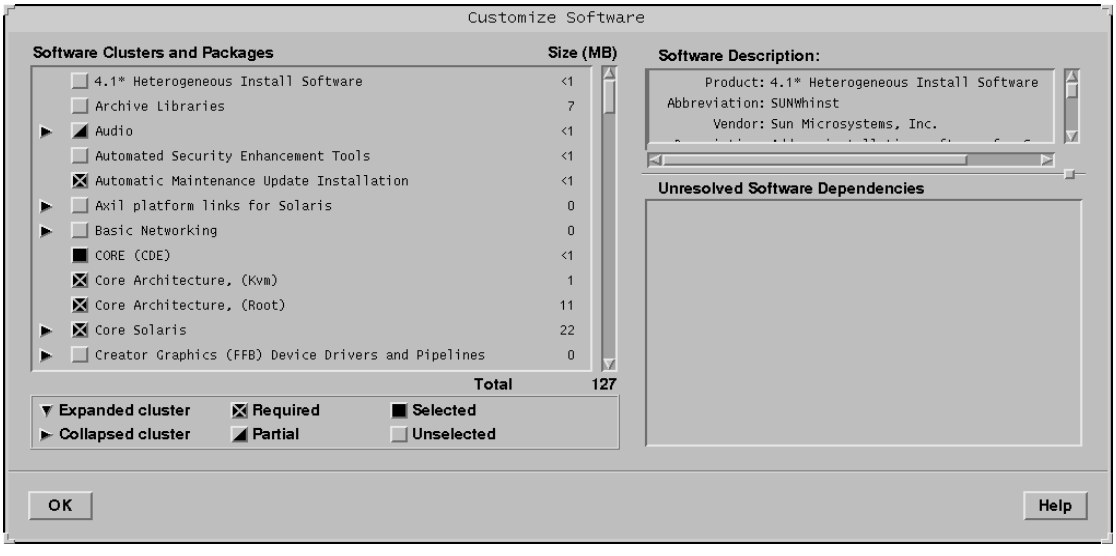


4. Select End User System Support, and then select **Customize** (*NOT* Continue).

NOTE:

If you select Continue instead of Customize, the Disks screen (shown on Page 2-20) appears, which is incorrect. If this happens, select Go Back from the Disks screen.

The Customize Software screen appears:



5. Select the following packages (using the scroll bar when necessary to bring the package names into view):
   - Basic Networking
   - On-Line Manual Pages
   - Point-to-Point Protocol
   - System Accounting
   - Terminal Information.

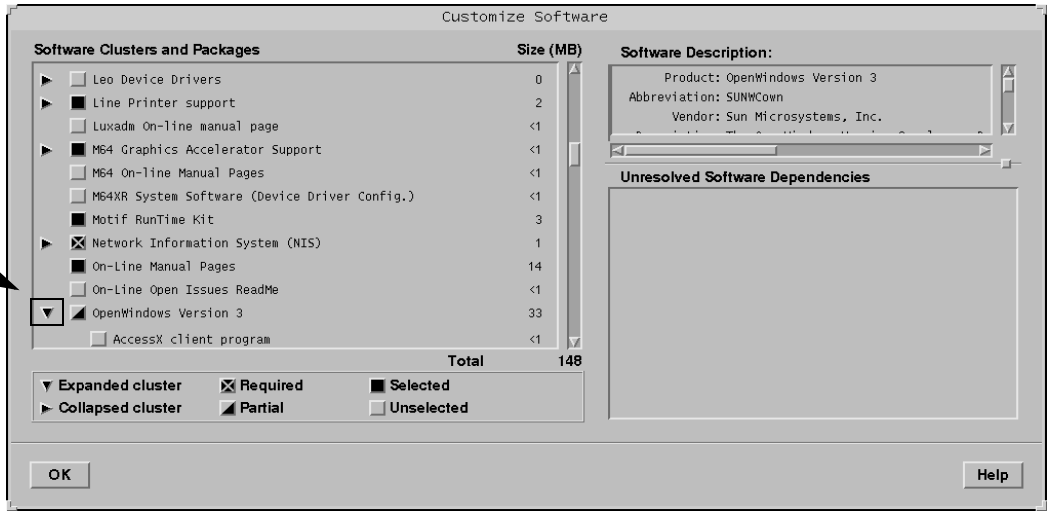
NOTE:

Packages are “selected” when the box is solid black. Do not deselect any packages that are already selected.

6. Scroll up, and then select the triangular icon to expand the "*OpenWindows** Version 3" cluster.

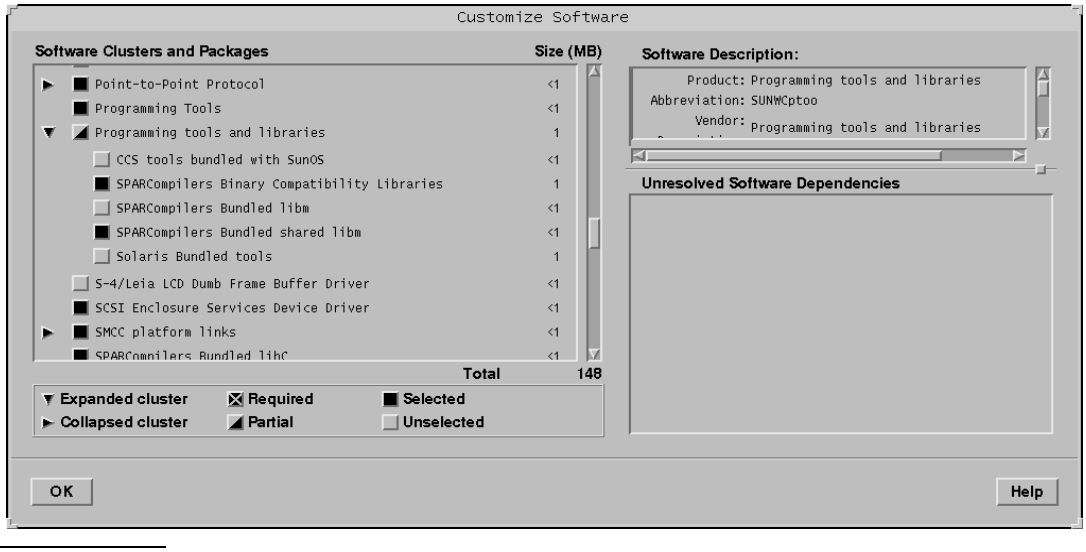
   The program responds as follows:

Trianular Icon



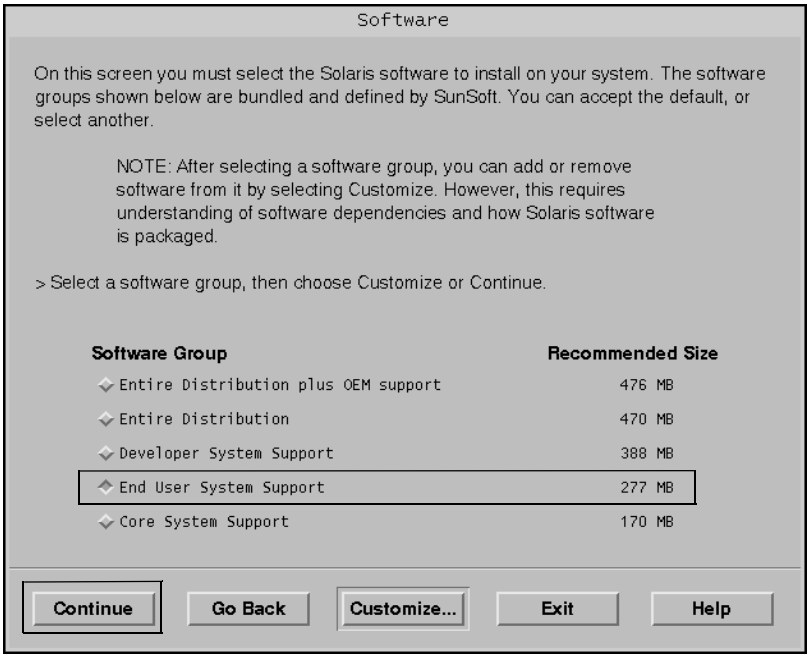
7. Scroll down and select the "X Windows online user man pages" package.
8. Scroll up, then select the triangular icon to collapse the "*OpenWindows* Version 3" cluster.
9. Scroll down and then select the triangular icon to expand the "Programming tools and libraries" cluster.

   The program responds as follows:



**OpenWindows* is a trademark of Sun Microsystems, Inc.

10. Select the “CCS tools bundled with *Sun*OS” package.
11. Select the triangular icon to collapse the “Programming tools and libraries” cluster.
12. Select OK. The Software screen appears again.

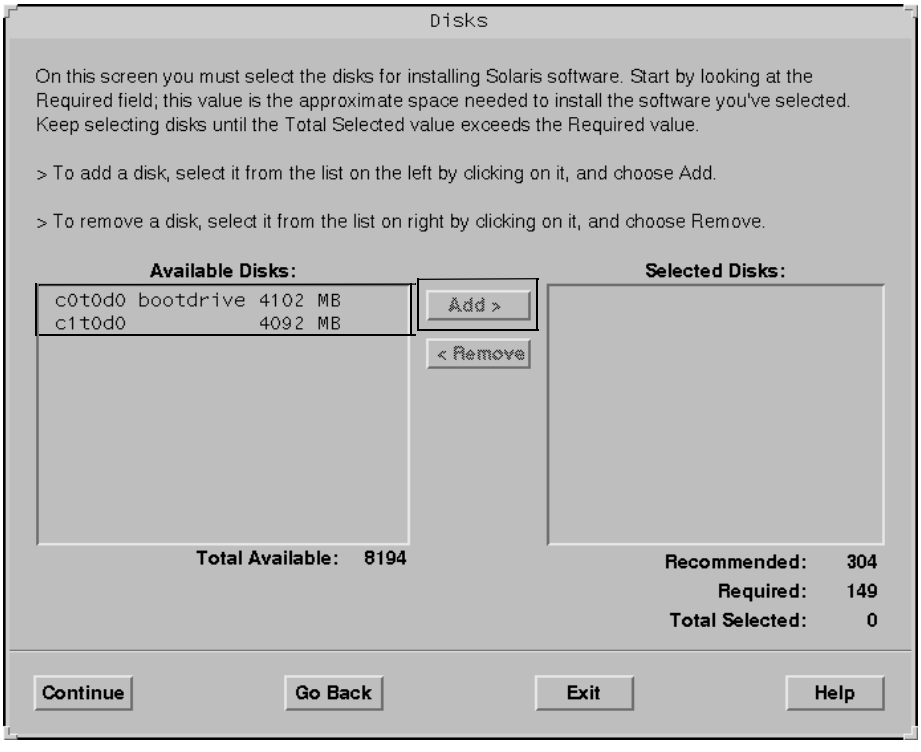


13. Select Continue.

    The *Solaris* 2.5.1 software packages are now selected and will be installed after the disks are partitioned.

Partitioning the Hard Disks

The Disks screen appears:



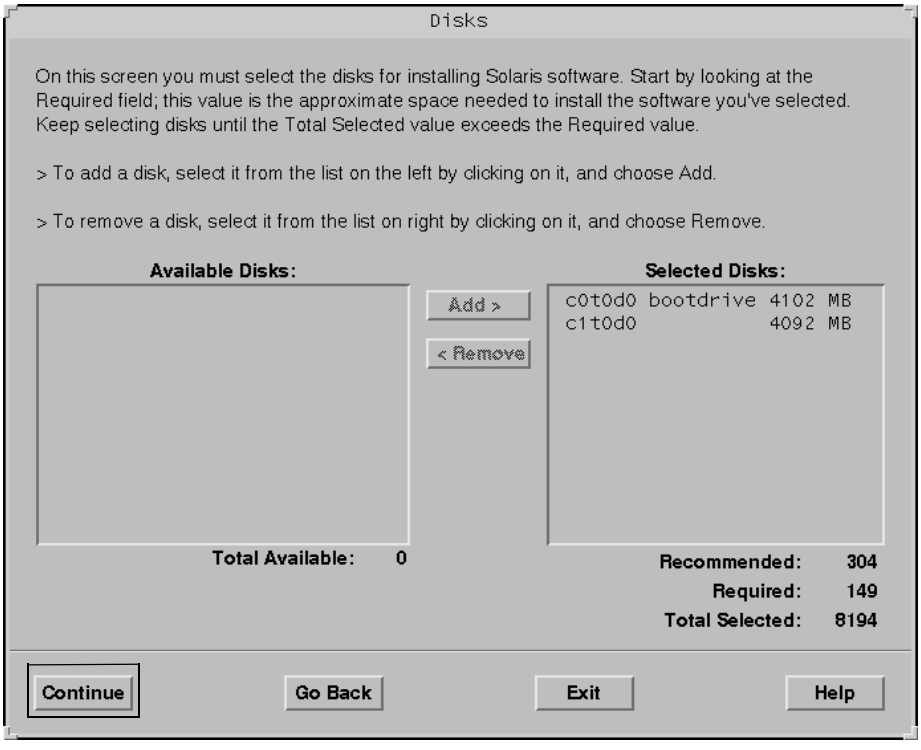
NOTE:

In the above screen, all the disks equipped with the system should be listed as available. If not, you may have a connectivity or power problem. Check all cables and verify that the power is switched on for the disk drives.

The screen examples in this section may differ according to your system's disk configuration. The example above shows one 4.2-GB disk and one 4.3-GB disk.

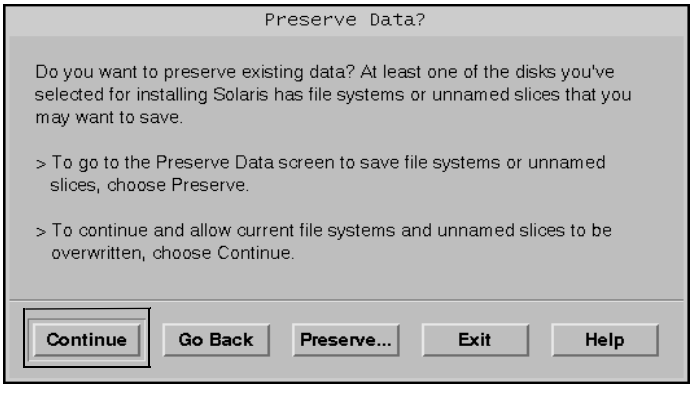
1. Select the first disk in the "Available Disks" column.
2. Select Add so the available disk moves to the "Selected Disks" column.

3. Move all disks into the “Selected Disks” column by repeating Steps 1 and 2. The Disks screen now appears as the following:



4. After all of the disks have been moved to the “Selected Disks” column, select Continue.

   The Preserve Data screen appears:

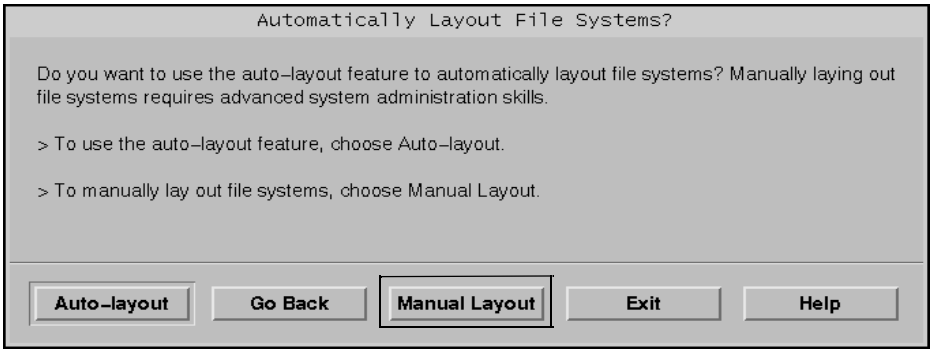


NOTE:

The Preserve Data screen may not display if this is the first time the operating system has been installed on your machine.

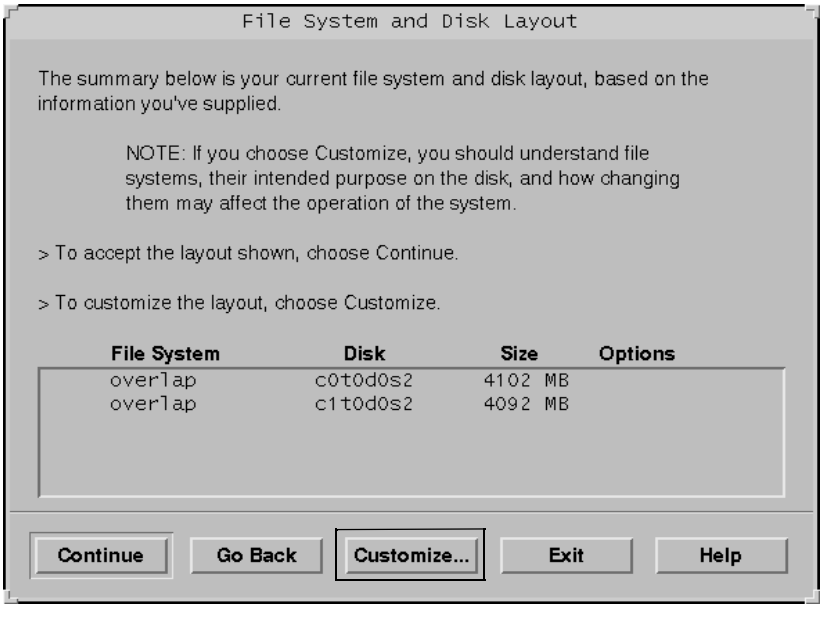
5. Select Continue.

   The Automatically Layout File Systems screen appears:



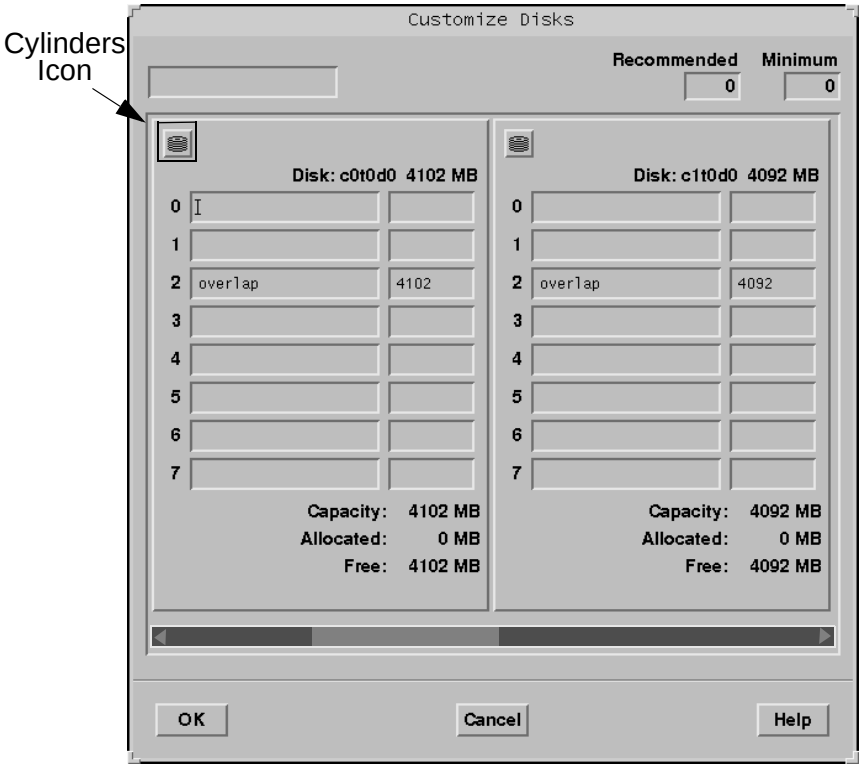
6. Select Manual Layout.

   The File System and Disk Layout screen appears:



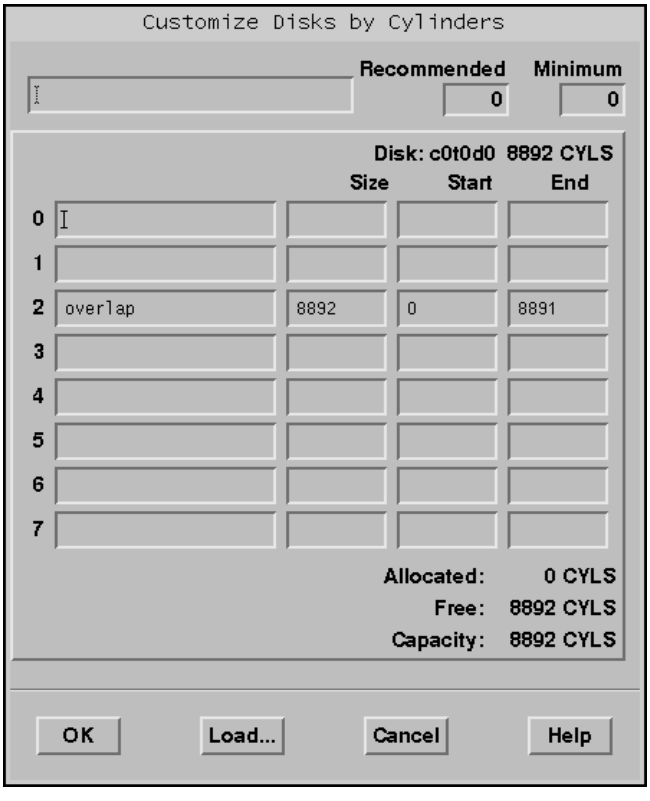
7. Select **Customize** (*NOT* Continue).

   The Customize Disks screen appears (this example shows one 4.3-GB disk and one 4.2-GB disk):



8. Disk partitioning should be done in cylinders, not MB. To do this, select the cylinders icon in the upper left-hand corner of the disk 1 column.

   The Customize Disks by Cylinders screen appears:



9. Use the information from the following table to partition disk 1 by filling in the file system name and cylinder size for each partition. As you move the cursor to each new partition, notice that the Start and End fields display the computed cylinder values.

   NOTE:

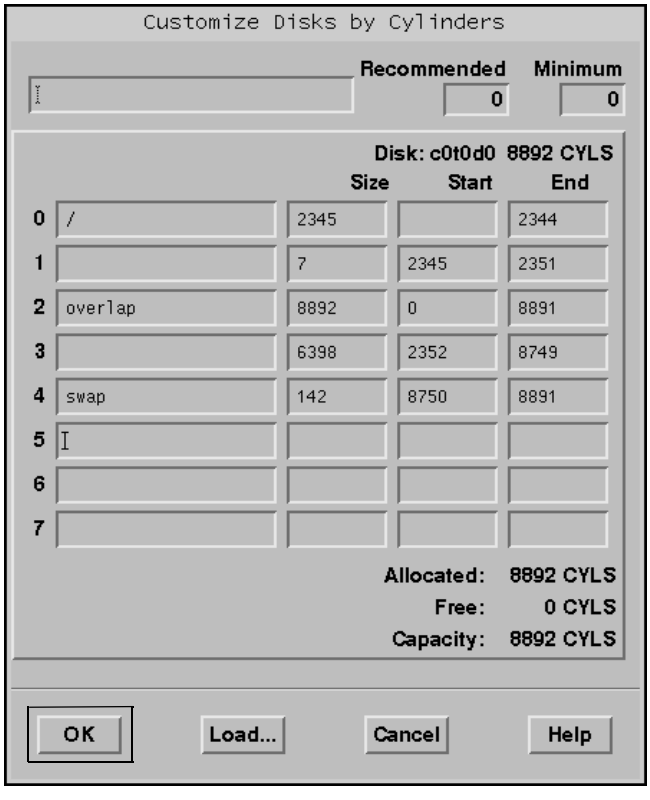
   The size of the overlap file system always defaults to the size of the entire disk. Do not change this value.

Disk 1 Partition Values

Partition	File System Name	Size (Cylinders)			
		9-GB Disk (FC-AL)	4.3-GB Disk (IDE)	4.2-GB Disk* (SCSI)	2.1-GB Disk
0	/	616	2345	1023	1441
1	*(blank)*	7	7	7	7
2	overlap	4924*	8892*	3880*	2733*
3	*(blank)*	4155	6398	2788	1197
4	swap	146	142	62	88

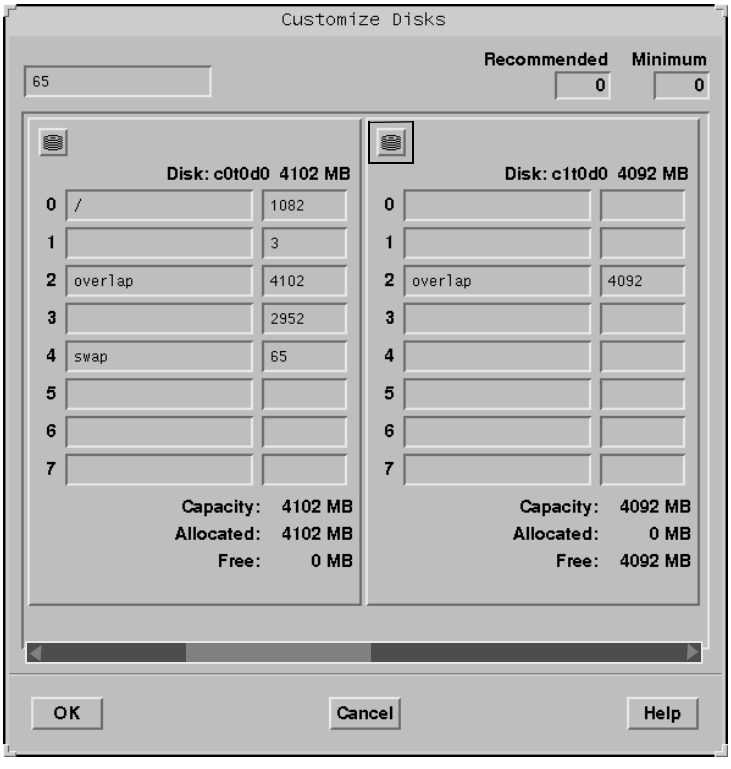
*This figure represents the total number of cylinders for this model of disk drive. If the disk drive you are partitioning does not match this figure (see the Capacity value as shown in the example below), you have a nonstandard disk. Escalate the issue to technical support. The system will not operate if the disk partitioning is not accurate.

The following example shows how the Customize Disks by Cylinders screen appears when Disk 1 is a 4.3-GB IDE disk:



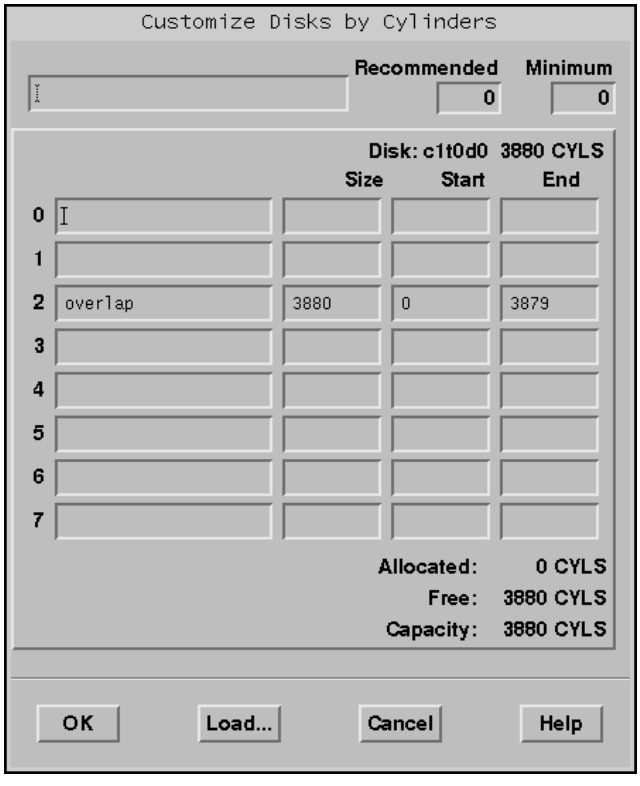
10. Select OK after setting up the partitions for disk 1.

    The Customize Disks screen appears again:



11. If there is another disk, select the cylinders icon for the next disk to be partitioned; otherwise, go to Step 14.

    The Customize Disks by Cylinders screen appears for the selected disk (in this example, a 4.2-GB disk):



12. Use the information from the following table to partition each additional disk by filling in the file system name and cylinder value for each partition. As you move the cursor to each new partition, notice that the Start and End fields display the computed cylinder values.

NOTE:

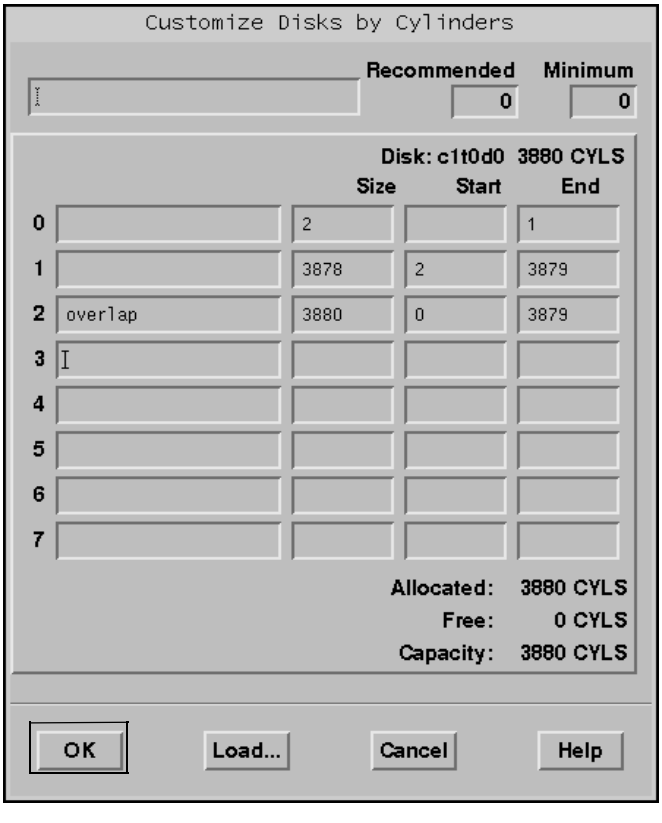
The size of the overlap file system always defaults to the size of the entire disk. Do not change this value.

Additional Disk Partition Values

Partition	File System Name	Size (Cylinders)			
		9-GB Disk (FC-AL)	4.2-GB Disk (SCSI)	2.1-GB Disk	1.05-GB Disk
0	*(blank)*	2	2	2	2
1	*(blank)*	4922	3878	2731	2034
2	overlap	4924*	3880*	2733*	2036*

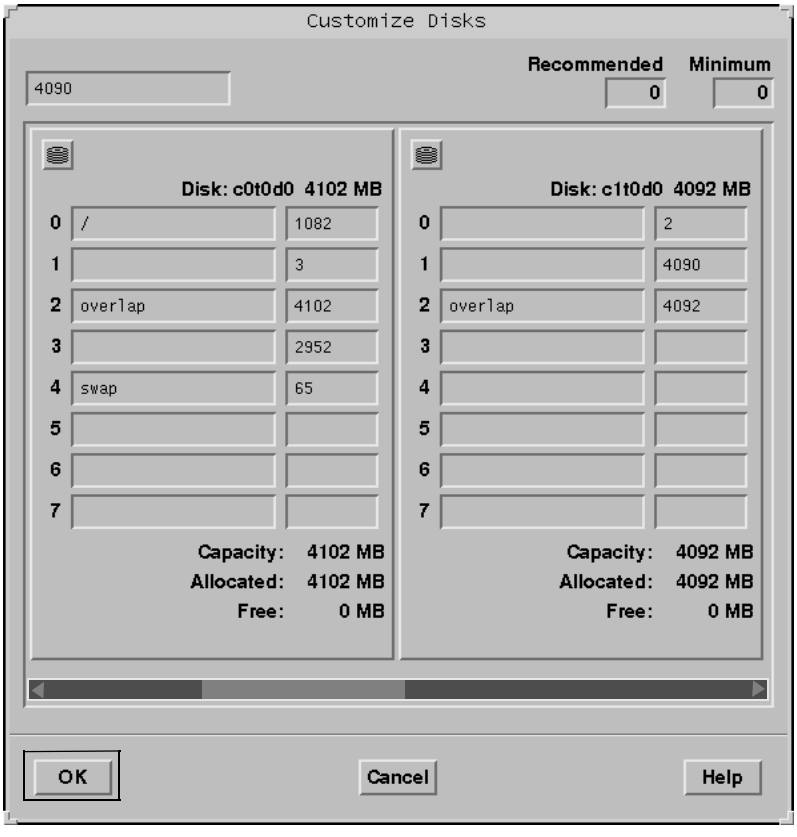
*This figure represents the total number of cylinders for this model of disk drive. If the disk drive you are partitioning does not match this figure (see the Capacity value as shown in the example below), you have a nonstandard disk. Escalate the issue to technical support. The system will not operate if the disk partitioning is not accurate.

Properly set up, the Customize Disks by Cylinders screen for a 4.2-GB SCSI disk would appear as follows:



13. Select OK.

    The Customize Disks screen appears again:

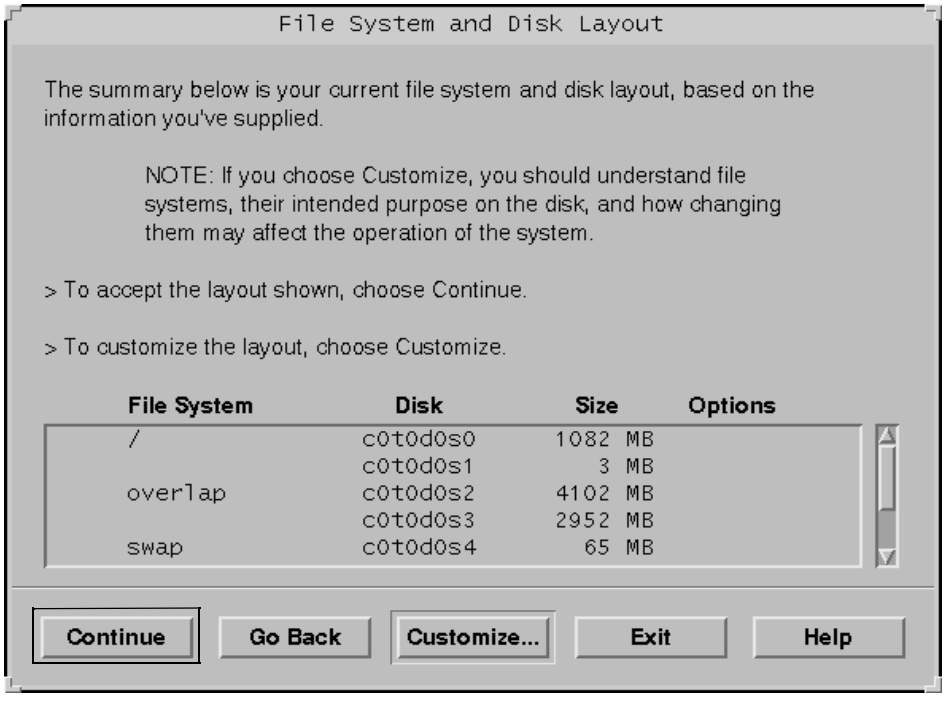


CAUTION:

If there are more disks installed on your system, repeat Steps 11 through 13 for each additional disk. Use the scroll bar on the screen to display the additional disks. Go to Step 14 only when you have partitioned every disk on your system.

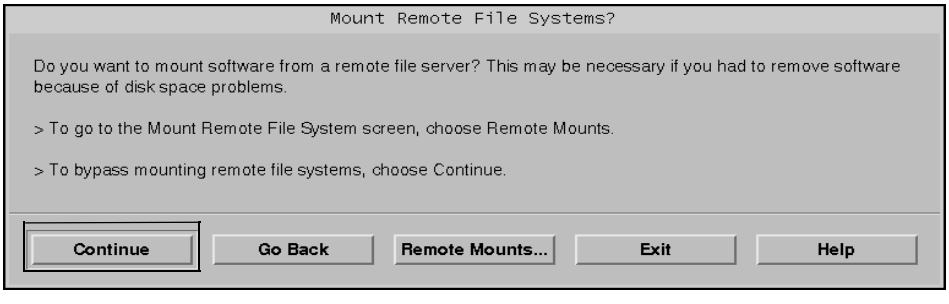
14. Select the OK button on the Customize Disks screen.

    The File System and Disk Layout screen appears:



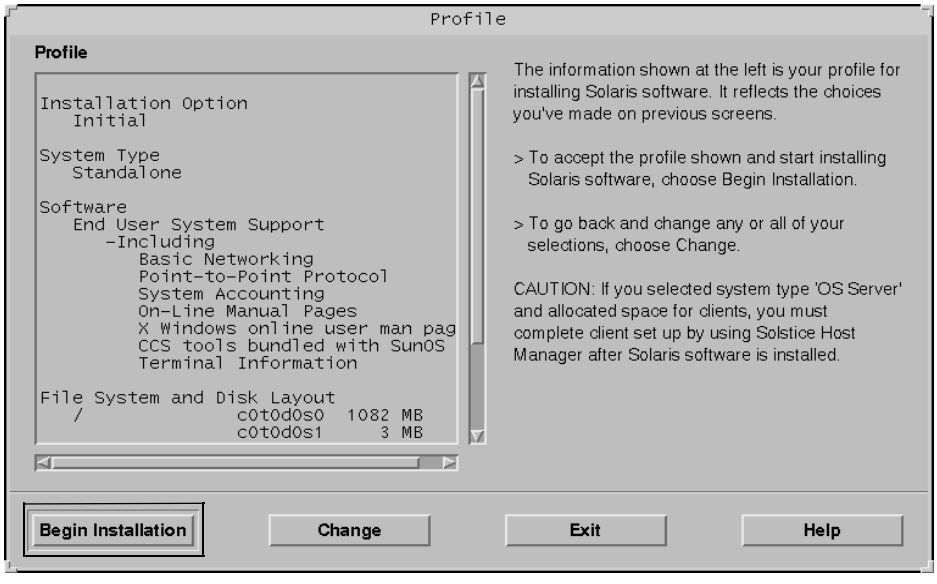
15. Select Continue.

    The Mount Remote File Systems screen appears:



16. Select Continue.

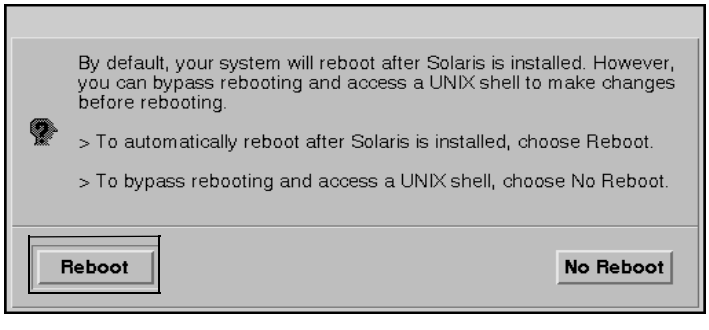
    The Profile screen appears:



Installing the Selected Options

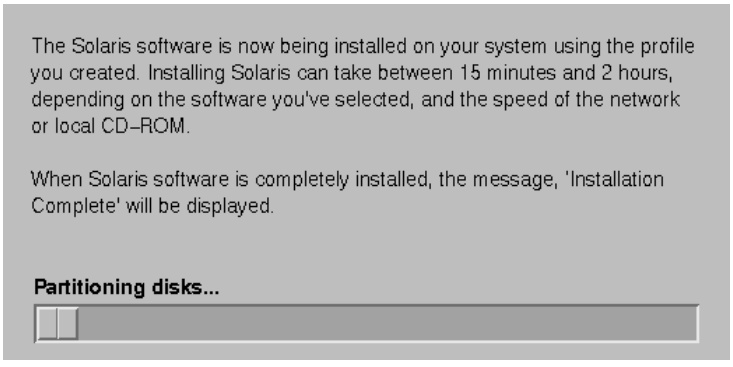
1. Select Begin Installation.

   The program responds as follows:



2. Select Reboot.

   The disk partitioning process begins with the display of the Installing *Solaris* - Progress screen as shown below:



   This process may take from one to several hours depending on the number of disks being partitioned, the hardware platform, and the speed of your CD-ROM drive. As the disks are partitioned and *Solaris* 2.5.1 system files are copied to the disk, the progress gauge is updated to indicate the progress of the installation.

   The progress screen may disappear during the process. However, the *Solaris* Install Console screen should remain in the upper left hand corner of your monitor screen and keep you posted on the progress of the load.

   When the process finishes, the system reboots and the “create a root password” screen appears.

Assigning a Root Password

When the installation completes, the machine reboots and responds as follows:

```
On this screen you can create a root password.

A root password can contain any number of characters, but
only the first eight characters in the password are
significant. (For example, if you create ‘a1b2c3d4e5f6’ as
your root password, you can use ‘a1b2c3d4’ to gain root
access.)

You will be prompted to type the root password twice; for
security, the password will not be displayed on the screen
as you type it.

> If you do not want a root password, press RETURN twice.

Root password:
```

1. Enter the root password. Until it is time to turn the system over to the customer, it is recommended that you press Enter to assign a blank password. The program responds as follows:

```
Re-enter your root password.

Press Return to continue.
```

2. Reenter the root password or press Enter for a blank password. The program responds:

```
System identification is completed
Setting netmask of hme0 to 255.255.255.0
Setting default interface for multicast; add net 224.0.0.0:
gateway <hostname>
syslog services starting.
Print services started.
volume management starting.
The system is ready.

hostname console login:
```

3. Log in as *root*. The system prompt displays.

Enabling Korn Shell and the Backspace Key

Enter the following commands to enable the Korn shell and the backspace key:

```
ksh -o vi
stty erase <Backspace>
```

where *<Backspace>* is entered by pressing the backspace key.

NOTE:

If you log off and log back in to the system, the Korn shell and the backspace key will not work unless you reenter these commands. After you install the *DiskSuite* software (Page 2-96) and reboot the system, these options will work automatically every time you log in.

Displaying and Setting the EEPROM Parameters

This section describes how to set the firmware `eeprom` values for a CMS computer. You must first display the current settings to determine if the setting must be changed from the factory setting. To display the current settings, enter the following command:

```
eeprom | more
```

This will display the current `eeprom` settings. Compare these settings with the following table.

Option Name	Required Setting
#power-cycles	7
ansi-terminal?	true
auto-boot?	true
boot-command	boot
boot-device	disk
configuration-policy	component
diag-device	net
diag-level	min
diag-switch?	false
fcode-debug?	false

Option Name	Required Setting
input-device	keyboard
keyboard-click?	false
load-base	16384
local-mac-address?	false
memory-interleave	max
mfg-mode	off
mfg-switch?	false
name	options
oem-banner?	false
oem-logo?	false
output-device	screen
pcia-probe-list	sb=1,2,3,4
pcib-probe-list	sb=1,2,3
powerfail-time	0
sbus-probe-default	d3120
sbus-probe-list	541230
screen-#columns	80
screen-#rows	34
scsi-initiator-id	7
security-#badlogins	0
selftest-#megs	1
security-mode	none
silent-mode?	false
sunmon-compat?	false
testarea	0
tpe-link-test?	true
ttya-ignore-cd	false
ttya-mode	9600,8,n,1,-
ttya-rts-dtr-off	true

Option Name	Required Setting
ttyb-ignore-cd	false
ttyb-mode	9600,8,n,1,-
ttyb-rts-dtr-off	true
use-nvramrc?	false
watchdog-reboot?	false

NOTE:

Not all options will display for all CMS computers. Check only those options that display for your computer. In addition, some options will show “data not available” messages. Ignore those options.

To change an eeprom option, use the following command:

```
eeprom <option_name>=<option_value>
```

For example, to set the ttyA port for 9600 bps, 8 bit characters, no parity, and 1 stop bit, you would enter:

```
eeprom ttya-mode=9600,8,n,1,-
```

NOTE:

The character “1” in the `ttya-mode` and `ttyb-mode` option settings is the number one, not the letter `l`.

Turning On the System Activity Recorder

1. Enter `su - sys` to log in with the `sys` login id. The prompt changes to a $.
2. Enter `id` to confirm that you are using the `sys` id. The program responds as follows:

```
uid=3(sys) gid=3(sys)
```

Enter the following commands to create and edit the `cron.sys` file:

```
cd /var/opt
crontab -l > cron.sys
vi cron.sys
```

The `cron.sys` file looks similar to the following:

```
#ident  "@(#)sys 1.5     92/07/14 SMI"   /* SVr4.0 1.2   */
#
# The sys crontab should be used to do performance collection.
# See cron and performance manual pages for details on startup.
#
# 0 * * * 0-6 /usr/lib/sa/sa1
# 20,40 8-17 * * 1-5 /usr/lib/sa/sa1
# 5 18 * * 1-5 /usr/lib/sa/sa2 -s 8:00 -e 18:01 -i 1200 -A
```

3. Remove the pound signs at the beginning of the last three lines in the file. That is, change the lines to look like the following:

```
#ident  "@(#)sys 1.5     92/07/14 SMI"   /* SVr4.0 1.2   */
#
# The sys crontab should be used to do performance collection.
# See cron and performance manual pages for details on startup.
#
0 * * * 0-6 /usr/lib/sa/sa1
20,40 8-17 * * 1-5 /usr/lib/sa/sa1
5 18 * * 1-5 /usr/lib/sa/sa2 -s 8:00 -e 18:01 -i 1200 -A
```

4. Enter `:wq` to write and quit the file.

5. Enter the following commands:

   ```
   crontab -r
   ```

   ```
   crontab cron.sys
   ```

6. Enter the following to confirm that the changes you made are intact:

   ```
   crontab -l
   ```

   The program responds as follows:

```
#ident  "@(#)sys 1.5     92/07/14 SMI"   /* SVr4.0 1.2   */
#
# The sys crontab should be used to do performance collection.
# See cron and performance manual pages for details on startup.
#
0 * * * 0-6 /usr/lib/sa/sa1
20,40 8-17 * * 1-5 /usr/lib/sa/sa1
5 18 * * 1-5 /usr/lib/sa/sa2 -s 8:00 -e 18:01 -i 1200 -A
```

7. Enter `exit` to leave superuser mode (you may have to do this twice).

   The prompt changes back to `#`.

Removing the CD

1. Enter `eject cdrom` to eject the CD-ROM from the computer.
2. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case.

Installing the *Sun* Environment Packages

Installing the *Sun* environment packages includes the following:

- Installing Common Desktop Environment (CDE) 1.0.2
- Installing Online Validation Test Suite (VTS) 2.1.1.

Installing CDE 1.0.2

Overview

The CDE 1.0.2 provides the user interface to the *Solaris* operating system.

Release and Platform Considerations

- All releases
- All platforms.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- Verify that you are logged in as *root* at the console.
- Obtain the "*Solaris* Desktop 1.1" CD.

Procedure

1. Load the "*Solaris* Desktop 1.1" CD into the CD-ROM drive.
2. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      .
      .
      .
/cdrom/solaris_2_5_1_desktop_1_1 on
/vol/dev/dsk/c0t2d0/solaris_2_5_1_desktop_1_1 read only on
Wed Feb 4 17:06:27 1998
```

3. Change to the CD's installation directory by entering the following:

   `cd /cdrom/cdrom0/CDE/sparc`

4. Run the installation program by entering the following:

   `./install-cde`

The program responds as follows:

```
        Solaris Common Desktop Environment
               Installation Script
                    Main Menu
_____________________________________________________________

1. Begin Installation (With Default Configuration Settings)
2. Modify Configuration Settings
3. Cancel Installation

   DEFAULT CONFIGURATION SETTINGS
   Installation Location:          [ /usr/dt ]
   End User CDE Package (28M):     [ YES   ]
   Developer CDE Packages (24M):   [ NO    ]
   Answerbook CDE Package (120M):  [ NO    ]
   Interactive Installation:       [ NO    ]
   Solaris Desktop Login
    at System Boot:                [ YES   ]
   Installation Locale:            [ EN    ]
_____________________________________________________________
   SELECT A NUMBER [1]
```

5. Press Enter. The program responds as follows:

```
    Begin CDE Installation Now? (Y/N) [Y]
```

6. Press Enter. The program responds as follows:

```
CDE packages will now be automatically installed...
The average install time on a Sparc 2 is 30 minutes...
Cleaning up any existing CDE packages...
Starting Install.....
     .
  (copyright and trademark messages)
     .
Installation of <SUNWdtft> was successful.
     .
     .
Installation of <SUNWdtrme> was successful.
_____________________________________________________________



Note: A pkgadd log which contains a complete log of all the
output from the “pkgadd” utility can be found at:

  pkgadd log: /usr/tmp/SunSoft_CDE1.0.1_pkgadd.log <date-time>

Note: CDE has been installed on this system, please reboot this
machine before starting CDE

The install-cde script has completed.
_____________________________________________________________
#
```

7. Install the CDE manual pages by entering the following:

   `/usr/sbin/pkgadd -d ./cde-developer SUNWdtma`

   The program displays licensing information, and then installs SUNWdtma as shown in the following example:

```
Processing package instance <SUNWdtma> from
</cdrom/solaris_2_5_1_desktop_1_1/CDE/sparc/cde-developer>

CDE man pages
(sparc) 1.0.2
      .
      .
/usr/dt/share/man/man5/dttrashaction.5
/usr/dt/share/man/man6/ttsnoop.6
[ verifying class <none> ]

Installation of <SUNWdtma> was successful
#
```

8. Enter `cd` to move to the root directory.
9. Enter `eject cdrom` to eject the CD-ROM from the computer.
10. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case.

Installing the *Sun* Online VTS 2.1.1

Overview

Installing the *Sun* Online VTS 2.1.1 software provides test facilities for the system.

Release and Platform Considerations

- All releases
- All platforms.

NOTE:

The *Enterprise* 3000 with CMS R3V5 does not use the VTS package.

Prerequisites

- The *Solaris* 2.5.1 operating system and the CDE must be installed.
- Verify that you are logged in as *root* at the console.
- Obtain the “Updates for *Solaris* Operating Environment 2.5.1 Hardware: 11/97” CD.

Procedure

1. Load the “Updates for *Solaris* Operating Environment 2.5.1 Hardware: 11/97” CD into the CD-ROM drive.
2. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      .
      .
      .
/cdrom/upd_sol_2_5_1_hw1197_smcc on
/vol/dev/dsk/c0t2d0/upd_sol_2_5_1_hw1197_smcc read only on
Wed Jan 21 11:08:05 1998
```

3. Enter the following:

   ```
   /usr/sbin/pkgadd -d /cdrom/cdrom0/SMCC SUNWvts SUNWvtsmn
   ```

   The program responds as follows:

```
Processing package instance <SUNWvts> from
</cdrom/upd_sol_2_5_1_hw1197_smcc/SMCC>

Online Validation Test Suite
   .
   .
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of <SUNWvts>
[y,n,?] y
```

4. Enter y. The program responds with installation feedback for the SUNWvts and SUNWvtsmn packages as follows:

```
Installing Online Validation Test Suite as <SUNWvts>

## Installing part 1 of 1.
/opt/SUNWvts/README
/opt/SUNWvts/bin/.customtest
   .
   .
/usr/share/man/man1m/vtsui.1m
/usr/share/man/man1m/vtsui.ol.1m
[ verifying class <none> ]

Installation of <SUNWvtsmn> was successful.
#
```

5. Enter `eject cdrom` to eject the CD-ROM from the computer.
6. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case.

Installing Link and Port Packages

Installing the link and port packages includes the following:

- Installing *Sunlink* HSI/S software
- Installing HSI/P software
- Installing SAI/P adapter drivers
- Installing Aurora ports card drivers
- Installing Bay Networks Annex NTS drivers
- Installing the *Solstice* for Server Connect X.25 package.

Installing the *SunLink* HSI/S Software

Overview

The *SunLink* HSI/S card(s) provides interface ports to the CMS computer. If your system does not have an HSI/S card, skip this section.

Release and Platform Considerations

- All releases
- *Enterprise* 3000, *Enterprise* 3500, and *SPARCserver*.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- The HSI/S card(s) must be installed before installing the software.
- Verify that you are logged in as *root* at the console.
- Obtain the "*SunLink* HSI/S 2.0" CD.

Procedure

1. Load the "*SunLink* HSI/S 2.0" CD into the CD-ROM drive.
2. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      .
      .
      .
/cdrom/unnamed_cdrom on /vol/dev/dsk/c0t2d0/unnamed_cdrom read
only on Wed Jan 21 11:08:05 1998
```

3. Enter the following:

   `/usr/sbin/pkgadd -d /cdrom/cdrom0 SUNWhsis`

   The program responds as follows:

```
Processing package instance <SUNWhsis> from
</cdrom/unnamed_cdrom>

HSI/S Driver/Utilities 2.0 v1.6
(sparc) 2.0
    Copyright 1993 Sun Microsystems, Inc. All Rights Reserved.
      . . .
      . . .
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of <SUNWhsis>
[y,n,?]
```

4. Enter y. The program responds as follows:

```
Installing HSI/S Driver/Utilities 2.0 v1.6 as <SUNWhsis>
## Installing part 1 of 1.
/opt/SUNWconn/hsis/drv/HSI
    .
    .
NOTE: HSI driver will be loaded when it is referenced

Installation of <SUNWhsis> was successful.
#
```

5. Enter `eject cdrom` to eject the CD-ROM from the computer.
6. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case.

Installing the HSI/P Software

Overview

The HSI/P card(s) provides interface ports to the CMS computer. If your system does not have an HSI/P card, skip this section.

Release and Platform Considerations

- All releases
- *Ultra* 5.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- The HSI/P card(s) must be installed before installing the software.
- Verify that you are logged in as *root* at the console.
- Obtain the “SunHSI/P Adapter 1.0” CD.

Procedure

1. Load the “SunHSI/P Adapter 1.0” CD into the CD-ROM drive.
2. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      .
      .
      .
/cdrom/sunhsip_1_0 on /vol/dev/dsk/c0t2d0/sunhsip_1_0 read only
on Fri Jun  5 14:11:42 1998
```

3. Enter the following:

   `/usr/sbin/pkgadd -d /cdrom/cdrom0/Product SUNWhsip`

   The program responds as follows:

```
Processing package instance <SUNWhsip> from
</cdrom/sunhsip_1_0/Product>

HSI/P Driver/Utilities for PCI Bus
(sparc) 1.0
SunHSI/P 1.0
   .
   .
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of <SUNWhsip>
[y,n,?] y
```

4. Enter y. The program responds as follows:

```
Installing HSI/P Driver/Utilities for PCI Bus as <SUNWhsip>

## Installing part 1 of 1.
/opt/SUNWconn/hsip/drv/HSIP
   .
   .

## Executing postinstall script.

Adding entries to /etc/devlink.tab
   .
   .
   .
Installation of <SUNWhsip> was successful.
#
```

5. Enter `eject cdrom` to eject the CD-ROM from the computer.
6. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case.

Installing the SAI/P Adapter Drivers

Overview

The SAI/P card/cards provides serial asynchronous interface ports to the CMS computer. If your system does not have an SAI/P card, skip this section.

Release and Platform Considerations

- All releases
- *Ultra* 5.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- The SAI/P card(s) must be installed before installing the software.
- Verify that you are logged in as *root* at the console.
- Obtain the “SunSAI/P Adapter 1.0” CD.

Procedure

1. Load the “SunSAI/P Adapter 1.0” CD into the CD-ROM drive.
2. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      . . .
      . . .
      . . .
/cdrom/sunsaip_1_0 on /vol/dev/dsk/c0t2d0/sunsaip_1_0 read
only on Mon Mar 30 13:38:55 1998
```

3. Enter the following:

```
/usr/sbin/pkgadd -d /cdrom/cdrom0/Product SUNWsaip SUNWsaipu
```

The program responds as follows:

```
Processing package instance <SUNWsaip> from
</cdrom/sunsaip_1_0/Product>

Serial Asynchronous Interface Driver (PCI)
(sparc) 1.0.0
Copyright 1997 Sun Microsystems, Inc. All rights reserved.

The installation has detected 2 SunSAI/P serial boards.

Would you like to automatically install the default
configuration?
```

4. Enter y. The program responds as follows (this example shows a two-board system):

```
The following has been automatically configured for board 1:
Board Type: 8-port PCI Async Intelligent Board.

        Module  Port Names
      ---------------------------
        1       term/a000 - term/a007 -- also /dev/cua/axxx
The following has been automatically configured for board 2:
Board Type: 8-port PCI Async Intelligent Board.

        Module  Port Names
      ---------------------------
        1       term/b000 - term/b007 -- also /dev/cua/bxxx
Using </> as the package base directory.
## Processing package information.
## Processing system information.
   3 package pathnames are already properly installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with super
user permission during the process of installing this package.

Do you want to continue with the installation of <SUNWsaip>
[y,n,?]
```

5. Enter y. The program responds as follows:

```
Installing Serial Asynchronous Interface Driver (PCI) as
<SUNWsaip>

## Executing preinstall script.
Executing Pre-Installation script...
## Installing part 1 of 1.
   .
   .
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with super
user permission during the process of installing this package.

Do you want to continue with the installation of <SUNWsaipu>
[y,n,?]
```

6. Enter y. The program responds as follows:

```
Installing Serial Asynchronous Interface Utilities (PCI) as
<SUNWsaipu>

## Installing part 1 of 1.
/opt/SUNWsaipu/saip.7d
/opt/SUNWsaipu/saip.h
/opt/SUNWsaipu/sitty
   .
   .
/opt/SUNWsaipu/spm_info7
[ verifying class <none> ]
## Executing postinstall script.

Installation of <SUNWsaipu> was successful.
#
```

7. Enter `eject cdrom` to eject the CD-ROM from the computer.
8. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case.

Installing the Aurora Ports Card Drivers

Overview

The following procedures are used to install the Aurora ports card drivers.

Release and Platform Considerations

- R3V6
- *SPARCserver*.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- Verify that you are logged in as *root* at the console.
- Obtain the “Aurora Drivers” CD.

Procedure

1. Load the “Aurora Drivers” CD into the CD-ROM drive.
2. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      . . .
      . . .
      . . .
/cdrom/aurora_drivers on /vol/dev/dsk/c0t2d0/aurora_drivers
read only on Wed Apr  1 12:10:33 1998
```

3. Add the Aurora package by entering the following:

   ```
   /usr/sbin/pkgadd -d /cdrom/cdrom0
   ```

   The program responds as follows:

```
The following packages are available:
  1  AURAacs   Aurora 40X, 80X, WMS 2000/3000 Base Driver
                  (sparc) 6.14
  2  AURAacsa  Aurora 40X, 80X, WMS 2000/3000 Asynchronous Drive
                  (sparc) 3.14
  3  AURAsio16 Aurora 1600SE device driver
                  (sparc) 5.13
Select package(s) you wish to process (or 'all' to process
all packages). (default: all) [?,??,q]:
```

4. Select `1` and `2` to install the 8-port card drivers, select `3` to install the 16-port card drivers, or press Enter to select both sets of drivers.

   NOTE:

   Do *not* try to install the 16-port card drivers and then install the 8-port card drivers; you will get errors during installation. The following screens show the installation for both sets of drivers. If you select one or the other, your installation screens will differ.

   The program responds as follows:

```
Processing package instance <AURAacs> from
</cdrom/aurora_drivers>
Aurora 40X, 80X, WMS 2000/3000 Base Driver
(sparc) 6.14
   .
   .
This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of <AURAacs>
[y,n,?]
```

5. Enter y. The program responds as follows:

```
Installing Aurora 40X, 80X, WMS 2000/3000 Base Driver
as <AURAacs>
## Installing part 1 of 1.
/etc/rc2.d/S91AURAacs
   .
   .
[ verifying class <sed> ]
## Executing postinstall script.

Installation of <AURAacs> successful.

There are 2 more packages to be installed.

Do you want to continue with installation [y,n,?]
```

6. Enter y. The program responds as follows:

```
Processing package instance <AURAacsa> from
</cdrom/aurora_drivers>
Aurora 40X, 80X, WMS 2000/3000 Asynchronous Driver
(sparc) 3.14
   .
   .
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
## Verifying package dependencies.
Do you want to continue with the installation of <AURAacsa>
[y,n,?]
```

7. Enter y. The program responds as follows:

```
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with super-
user permission during the process of installing this package.

Do you want to continue with the installation of <AURAacsa>
[y,n,?]
```

8. Enter y. The program responds as follows:

```
Installing Aurora 40X, 80X, WMS 2000/3000 Asynchronous Driver as
<AURAacsa>
## Installing part 1 of 1.
/etc/rc2.d/S92AURAacsa
   .
   .
## Executing postinstall script.

Installation of <AURAacsa> successful.

There is 1 more package to be installed.

Do you want to continue with installation [y,n,?]
```

9. Enter y. The program responds as follows:

```
Processing package instance <AURAsio16> from
</cdrom/aurora_drivers>
Aurora 1600SE device driver
(sparc) 5.13
   .
   .
This package contains scripts which will be executed with super
user permission during the process of installing this package.

Do you want to continue with the installation of <AURAsio16>
[y,n,?]
```

10. Enter y. The program responds as follows:

```
Installing Aurora 1600SE device driver as <AURAsio16>
## Installing part 1 of 1.
/kernel/drv/sio16
   .
   .
Installation of <AURAsio16> successful.

The following packages are available:

  1  AURAacs   Aurora 40X, 80X, WMS 2000/3000 Base Driver
                  (sparc) 6.14
  2  AURAacsa  Aurora 40X, 80X, WMS 2000/3000 Asynchronous Drive
                  (sparc) 3.14
  3  AURAsio16 Aurora 1600SE device driver
                  (sparc) 5.13

Select package(s) you wish to process (or 'all' to process
all packages). (default: all) [?,??,q]:
```

11. Enter q.
12. Enter `eject cdrom` to eject the CD-ROM from the computer.
13. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case.

Installing the Bay Networks Annex NTS Drivers

Overview

This procedure installs the NTS drivers. If your system is not using an NTS, skip this section

NOTE:

If you are reinstalling the NTS drivers, the options presented will have minor differences.

Release and Platform Considerations

- All releases
- All platforms.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- Verify that you are logged in as *root* at the console.
- Obtain the “Bay Networks Annex Release 10.0(B) with Release 4.2 Host Tools, Annex Manager 2.3, and Quick2Config 2.3” CD.

NOTE:

There are two versions of the Bay Networks CDs now available. One is labeled as Release 10.0, and the other is labeled as Release 10.0B. Either disk will work for this installation procedure.

Procedure

1. Load the “Bay Networks Annex Release 10.0(B) with Release 4.2 Host Tools, Annex Manager 2.3, and Quick2Config 2.3” CD into the CD-ROM drive.
2. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      . . .
      . . .
      . . .
/cdrom/baynet_annex_system on /vol/dev/dsk/c0t2d0/baynet_annex_
system read only on Wed Feb  4 14:47:40 1998
```

3. Enter one of the following commands depending on the release of software you have:

   For Release 10.0:

   `/cdrom/cdrom0/unix/install`

   For Release 10.0B:

   `/cdrom/cdrom0/install`

4. The program responds as follows:

```
This command is used to install Comm. Server Software (boot
images, security, command line management) and Annex Manager
(X-Motif GUI management application). The versions that will
be installed are:

     Comm. Server Software   R10.0-R4.2HT
     Annex Manager           R2.3
     .
     .
     .
Do you want to continue (y/n/q=quit)  [y]:
```

5. Press Enter. The program responds as follows:

```
After installing one product you will be asked if you want
to install the other product.
Indicate desired action:
   1) Install Comm.Server Software
   2) Install Annex Manager
   3) Quit

Enter desired action [1]:
```

6. Press Enter. The program responds as follows:

```
For the installation to proceed, we must copy software to a
directory on a hard disk on the host. Please enter the name
of the directory to be used.

Enter the name of the Comm. Server Software installation
directory.
Directory name [/usr/annex/cs_R10.0-R4.2HT]:
```

7. Press Enter. The program responds as follows:

```
            Comm. Server Software Installation Script

This installation shell script will examine your system and
possibly ask you questions to generate the needed configuration
to allow you to compile the Comm. Server host utilities.
     .
     .
     .
Type carriage return to continue. Your cursor should be here-->
```

8. Press Enter. The program responds as follows:

```
Locating common programs...
     .
     .
     .
Where do you want the Annex utilities installed?
Utility directory [/usr/annex]:
```

9. Press Enter. The program responds as follows:

```
WARNING: The directory already exists. Host tools in this
directory will be renamed prior to installation of new
versions.

Please indicate the directory where the Comm.Server
operational images and boot files are to be installed.  You
will need at least 2408 KB of disk space in this directory
just to install the images.  In addition you will need 1 to
3 megabytes for dump files for each Annex serviced by this
file server.  Enter "?" for more help.

BFS directory [/usr/spool/erpcd/bfs]:
```

10. Press Enter. The program responds as follows:

```
Do you wish to install manual pages at this time? [y]:
```

11. Press Enter. The program responds as follows:

```
On-line manual pages will be installed in the appropriate
subdirectory (i.e., ANNEX and index) of the manual base
directory.

What is the the manual page base directory? (q=quit)
[/usr/man]:
```

12. Press Enter. The program responds as follows:

```
Manual pages there will be packed after being installed.

Binary images exist for this host.  You also have a C compiler
so you could also install source code and compile it.  The
recommended option is to install binary images only.

Available installation options are:
    1. Install binary images only (7MB)
    2. Install source code only, but do not compile (11MB)
    3. Get both binary images and source code, but do not
compile (13MB)
    4. Quit

Enter installation choice [1]:
```

13. Press Enter. The program responds as follows:

```
To continue with this installation you need 7 MB of disk
space in directory /usr/annex/cs_R10.0-R4.2HT.
Please ensure that this disk space is available.

You may quit the installation or you may escape to a shell
now to free up disk space and then continue with this
installation (to do this answer "!" at the prompt below).

Are you ready to continue (y/q=quit) [y]:
```

14. Press Enter. The program responds as follows:

```
1)      Com-Server Annex 3

2)      Com-Server MicroAnnex

3)      Install all images

Please select the annex model(s) you will be using.
You can specify a list separated by spaces or 'N' for none:
```

15. Enter `3` to select the `Install all images` option. The program responds as follows:

```
Calling command: tar -xf
/cdrom/baynet_annex_system/unix/software.tar  bfs/config.annex
bfs/modems.annex bfs/oper.42.enet bfs/oper.52.enet man bin/SOL2
src/examples src/snmp src/erpcd
This may take some time.
*** Installing Comm.Server images ***
*** Installing manual pages ***

Executing "du -s bin/[A-Z]*"
    3386bin/SOL2

To save room on your system, the above directories can be
removed. You may want to enter "?" at the prompt below to get
more help.

Remove these directories (y/n) [n]:
```

16. Enter `y`. The program responds as follows:

```
The access control protocol server (ACP) that handles
security requests depends on data in a file named acp_regime.
This file does not exist and must be created with a line that
specifies a security policy for your site.

What is your default security regime:
    1) acp
    2) native UNIX
    3) SecureID
    4) safeword
    5) kerberos
    6) deny (access will be denied)
    7) none (access is unconditionally granted)
    8) radius

Enter security regime [1]:
```

17. Enter 7 to select the none option. The program responds as follows:

```
Do you want the host restrictions specified in acp_restrict
to apply to PPP and SLIP (IP) connections as well as CLI
telnet and rlogin connections?

Do you want the restrictions to apply to PPP and SLIP? [n]:
```

18. Press Enter. The program responds:

```
Do you want the erpcd daemon to provide access control (y/n)
[y]:
```

19. Enter n. The program responds as follows:

```
Copies of the following files have been updated:
         service annex-initd
Do you want to install any of these files (y/n) [y]:
```

20. Press Enter. The program responds as follows:

```
Copy file save/modified/service to /etc/services (y/n) [y]:
```

21. Press Enter. The program responds as follows:

```
Copy file save/modified/annex-initd /etc/rc2.d/annex-initd
(y/n) [y]:
```

22. Press Enter. The program responds as follows:

```
WARNING: The file annex-initd will have to be linked or copie
to an appropriate file in /etc/rc2.d to have the erpcd daemon
started and shut-down automatically.


No more system files to create or update

Do you want to start-up the new version of the erpcd daemon?
(y/n) [y]:
```

23. Press Enter. The program responds as follows:

```
Starting-up the new version of the erpcd daemon.
            Comm.Server Software Installation Script
************************************************************
***                          Done                        ***
************************************************************

Do you wish to install the Annex Manager (y/n/q=quit) [y]:
```

24. Enter n. The program responds with the system prompt.
25. Enter the following commands to create a symbolic link to the S99annex-initd file so that the system will start up, and then check to verify that the file was linked successfully:

    ```
    ln -s /etc/rc2.d/annex-initd /etc/rc2.d/S99annex-initd
    ls -l /etc/rc2.d/S99annex-initd
    ```

26. Enter the following commands to change permissions on the startup file and verify that the permissions were set correctly:

    ```
    chmod 744 /etc/rc2.d/annex-initd
    ls -l /etc/rc2.d/annex-initd
    ```

27. Enter the following commands to link the binary files and verify that the links were set up correctly:

    ```
    ln -s /usr/annex/na /usr/bin/na
    ls -l /usr/bin/na
    ln -s /usr/annex/rtelnet /usr/bin/rtelnet
    ls -l /usr/bin/rtelnet
    ln -s /usr/annex/aprint /usr/bin/aprint
    ```

```
ls -l /usr/bin/aprint
```

28. Enter `eject cdrom` to eject the CD-ROM from the computer.
29. Remove the CD-ROM from the disk tray, place the CD-ROM back in its case, and close the CD-ROM tray.

Installing the *Solstice* for Server Connect X.25 Package

Overview

This procedure installs the X.25 drivers used for connections to the switch. If the CMS computer is using LAN connectivity for TCP/IP instead of X.25 connectivity to the switch, skip this section.

Release and Platform Considerations

- All releases
- All platforms.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- Verify that you are logged in as *root* at the console.
- Obtain the "*Solstice* for Server Connect, Version - March 1997" CD.
- Obtain the 21-character password for your X.25 license.

  If the password for your X.25 license is not included with your CD, you must contact *Sun* directly. See the Proof of License Certificate that is included with the CD for procedures you must follow to obtain your password. Note that the only way *Sun* will deliver this password is with a FAX or by electronic mail.

Retrieving System Information

If you already know your `hostname`, `hostid`, and X.25 license password, fill in the table below, skip this procedure, and go to the "Installing the Solstice for Server Connect X.25 Package" procedure. If you do not already know your `hostname` and `hostid`, use this procedure to determine that information:

1. Enter `showrev`.

   The program displays something similar to the following:

```
Hostname: XXXXXXXX
Hostid: XXXXXXX
Release: 5.5.1
Kernel architecture: sun4m
Application architecture: sparc
Hardware provider: Sun_Microsystems
Domain:
Kernel version: SunOS 5.5.1 Generic <number & date>
```

2. Identify the `Hostname` and `Hostid` (similar to that shown in bold on the previous screen). Use the following table to record this information, along with your X.25 password.

Hostname	
Hostid	
X.25 Password	

Installing the *Solstice* for Server Connect X.25 Drivers

1. Load the "*Solstice* for Server Connect, Version - March 1997" CD into the CD-ROM drive.
2. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      . . .
      . . .
      . . .
/cdrom/server_connect_397 on /vol/dev/dsk/c0t2d0/server_connect_
397 read only on Wed Jun 10 12:06:06 1998
```

3. Change directories by entering the following:

   `cd /cdrom/cdrom0/products`

4. Enter the following:

   `/usr/sbin/pkgadd -d x25/Image/sparc`

The program responds as follows:

```
The following packages are available:
  1   SUNWllc2a    LLC2 kernel modules and include files for Solaris/SPARC
                    (sparc) 9.1
  2   SUNW11c2b    LLC2 user programs and man pages for Solaris/SPARC
                   (sparc) 9.1
  3   SUNWx25a     X.25 kernel modules and include files for Solaris/SPARC
                   (sparc) 9.1
  4   SUNWx25b     X.25 user programs and libraries for Solaris/SPARC
                   (sparc) 9.1
  5   SUNWx25h     Solstice X.25 9.1 documentation in HTML
                   (all) 1.1


Select package(s) you wish to process (or 'all' to process
all packages). (default: all) [?,??,q]:
```

5. Enter 1 2 3 4. The program responds as follows:

```
Processing package instance <SUNWllc2a> from
</cdrom/server_connect_397/products/x25/Image/sparc>

       .....
       .....
       .....

This package contains scripts which will be executed with super-user
permission during the process of installing this package.

Do you want to continue with the installation of <SUNWllc2a> [y,n,?]
```

6. Enter y. The program responds as follows:

```
Installing llc2a

   ,
   ,
   ,
The following files are already installed on the system and are being
used by another package:
*/opt/SUNWconn/man <attricute change only>
*/opt/SUNWconn/man/man7 <attribute change only>

* - conflict with a file which does not belong to any package.

Do you want to install these conflicting files [y,n,?,q]
```

7. Enter y. The program responds as follows:

```
Installing LLC2 kernel modules and include files for Solaris/SPARC as <SUNWllc2a

## Installing part 1 of 1.
       .....
       .....
       .....

This package contains scripts which will be executed with super-user
permission during the process of installing this package.

Do you want to continue with the installation of <SUNWx25a> [y,n,?]
```

8. Enter y. The program responds as follows:

```
Installing X.25 kernel modules and include files for Solaris/SPARC as <SUNWx25a>

## Installing part 1 of 1.
       .....
       .....
       .....

This package contains scripts which will be executed with super-user
permission during the process of installing this package.

Do you want to continue with the installation of <SUNWx25b> [y,n,?]
```

9. Enter y. The program responds as follows:

```
Installing X.25 user programs and libraries for Solaris/SPARC as <SUNWx25b>

## Installing part 1 of 1.
       .....
       .....
       .....
[verifying class <none>]
## Executing postinstall script.
Make sure to run the license insertion tool or the license configuration scrip
on this machine to install additional licenses.

Installation of <SUNWx25b> was successful.

The following packages are available:
  1   SUNWllc2a    LLC2 kernel modules and include files for Solaris/SPARC
                    (sparc) 9.1
  2   SUNW11c2b    LLC2 user programs and man pages for Solaris/SPARC
                   (sparc) 9.1
  3   SUNWx25a     X.25 kernel modules and include files for Solaris/SPARC
                   (sparc) 9.1
  4   SUNWx25b     X.25 user programs and libraries for Solaris/SPARC
                   (sparc) 9.1
  5   SUNWx25h     Solstice X.25 9.1 documentation in HTML
                   (all) 1.1

Select package(s) you wish to process (or 'all' to process
all packages). (default: all) [?,??,q]:
```

10. Enter q.

    The program responds with the system prompt.

11. Enter the following:

    ```
    /usr/sbin/pkgadd -d licenses/Image/sparc SUNWcclit SUNWlicsw
    ```

    The program responds as follows:

```
Processing package instance <SUNWcclit> from
</cdrom/server_connect_397/products/Image/sparc>

       ....
       ....

This package contains scripts which will be executed with super-user
permission during the process of installing this package.

Do you want to continue with the installation of <SUNWcclit> [y,n,?]
```

12. Enter y. The program responds as follows:

```
Installing Solstice Connect Center license information as <SUNWcclit>

## Installing part 1 of 1.
       .....
       .....
This package contains scripts which will be executed with super-user
permission during the process of installing this package.

Do you want to continue with the installation of <SUNWlicsw> [y,n,?]
```

13. Enter y. The program responds as follows:

```
Installing FlexLM License System as <SUNWlicsw>

## Installing preinstall script.
## Installing part 1 of 1.
       .....
       .....
Installation of <SUNWlicsw> was successful.
#
```

14. Enter `cd` to move to the root directory.
15. Enter `eject cdrom` to eject the CD-ROM from the computer.
16. Remove the CD-ROM from the disk tray, place the CD-ROM back in its case, and close the CD-ROM tray. You must now set up the X.25 license.

Setting Up the X.25 License

CAUTION:

*Do **not** change the host name of your computer after installing the X.25 license. Changing the system's host name disables the X.25 software license.*

1. Enter the following:

   `/etc/opt/licenses/lit_tty`

   The program responds by displaying the following screen:

```
Select Product


[ ]  Solstice Frame Relay 2.0 for SPARC
[ ]  Solstice Frame Relay 2.0 for x86
[ ]  Solstice PPP 3.0.1 for SPARC
[ ]  Solstice PPP 3.0.1 for x86
[ ]  Solstice OSI (Stack) 8.1 for SPARC
[ ]  Solstice OSI (Stack) 8.1 for x86
[ ]  Solstice FTAM 8.0.2 for SPARC
[ ]  Solstice FTAM 8.0.2 for x86
[x]  Solstice x.25 for Solaris 2 SPARC 9.1
[ ]  Solstice x.25 for Solaris 2 x86 9.1
[ ]  Solstice x.400 MTA 9.0 for SPARC
[ ]  Solstice x.400 Message Store 9.0 for SPARC
[ ]  Solstice SMTP/x.400 Internet Adaptor 9.0 for SPARC



                                                Page 1 of 2
[ ]  Exit - Save Licenses         [ ]  Exit - Don't Save License
** x=select product and go to license screen **
** Return=next product **
** n=Next Page    p=Previous Page$
```

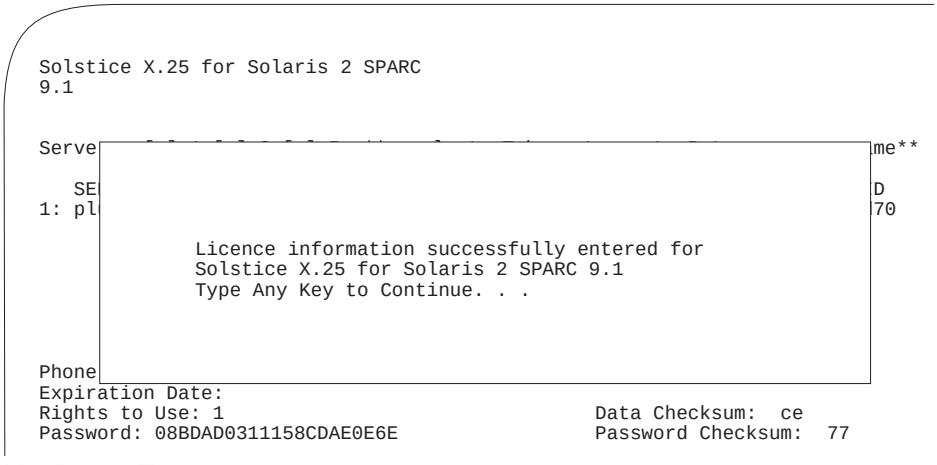
2. Press Enter repeatedly (do not use the Tab or arrow keys) until the cursor moves to the brackets in front of the line that reads `Solstice X.25 for Solaris 2 SPARC 9.1`.

3. Enter an x in the brackets. The program responds with the following screen:

```
Solstice X.25 for Solaris 2 SPARC
9.1


Servers: [x] 1 [ ] 3 [ ] 5  **x=select. Tab=next count. Return=server name**

   SERVER NAME                                                    HOST ID
1: <hostname>                                                    <hostid>




Phone Number List [ ]  USA:      (+1) 800-872-4786
Expiration Date:
Rights to Use:  1                                Data Checksum:  aa
Password:                                        Password Checksum:  xx

Done setting Up This License [x]      Cancel This License [ ]


** x=select/deselect  Return=next field **
```

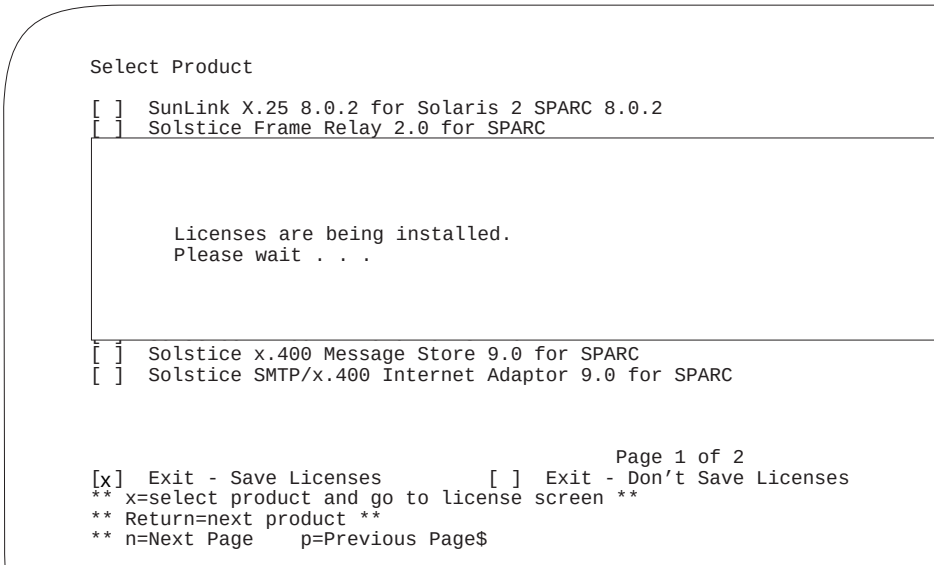
4. Enter an `x` in the brackets between `Servers:` and `1`. Press Enter.
5. Enter the SERVER NAME (Hostname) as recorded earlier in the section "Retrieving System Information." Press Enter.
6. Enter the HOST ID (Hostid) as recorded earlier in the section "Retrieving System Information." Press Enter.
7. Pressing Enter, position the cursor on the `Rights to Use:` field. Enter a `1,` and press Enter.
8. With the cursor on the `Password:` field, enter the 21-character password, and press Enter.
9. Before you continue, compare the `Data Checksum` and `Password Checksum` values shown on this screen (in the example on Page 2-70, `ce` and `77`). If the `Rights to Use` and the X.25 password were entered correctly, these checksum values should match the checksum values that are printed on your license information that you received by FAX or electronic mail. These checksum values are identified on your license as the DC and PC values, and are found just to the right of your password.

10. Enter an `x` in the brackets for the `Done Setting Up This License [ ]` field. The program displays a popup screen similar to the following:



11. Press Enter.

12. Pressing Enter, move the cursor to the `[ ] Exit - Save Licenses` field. Enter an `x` in that field. The program displays a popup screen as follows:



When the license installation completes, the program responds as follows:

```
     Licenses are being installed.
     Please wait . . .


[ ]  Solstice x.400 Message Store 9.0 for SPARC
[ ]  Solstice SMTP/x.400 Internet Adaptor 9.0 for SPARC



                                                Page 1 of 2
[ ]  Exit - Save Licenses         [ ]  Exit - Don't Save Licenses
** x=select product and go to license screen **
** Return=next product **
** n=Next Page    p=Previous Page
License Successfully Installed for:
Solstice X.25 for Solaris 2 SPARC 9.1
The license daemon log file is located in /tmp/license_log
Now Execute the Script
/etc/opt/license/LIC_CONFIG_SCRIPT
On Any Other Servers Containing the Product Software
#
```

Disregard the `Now Execute the Script` statement on this screen. This has already been done. The licensing of the X.25 software is complete.

13. Check the `/tmp/license_log` file to verify that the license was installed correctly. The following is an example of a successful log file.

```
16:21:22 (lmgrd) FLEXlm (v4.1) started on cmshost (Sun) (11/5/98)
16:21:22 (lmgrd) FLEXlm Copyright 1988-1994, Globetrotter Software, Inc
16:21:22 (lmgrd) License file: "/etc/opt/licenses/licenses_combined"
16:21:22 (lmgrd) Starting vendor daemons ...
16:21:22 (lmgrd) Started lic.SUNW
16:21:24 (lic.SUNW) Not logging IN messages
16:21:24 (lic.SUNW) Not logging OUT messages
16:21:24 (lic.SUNW) Not logging QUEUED messages
16:21:24 (lic.SUNW) Server started on cmshost for: solstice_x.25
```

Installing *INFORMIX*

There are two different *INFORMIX* installation procedures in this section: one for R3V6 and one for R3V5. The R3V6 procedure begins on Page 2-72; the R3V5 procedure begins on Page 2-89. Use the procedure that applies to your CMS software release.

INFORMIX for R3V6

Overview

Installing the *INFORMIX* software for R3V6 consists of the following tasks:

- Set the environment
- Install the *INFORMIX* Structured Query Language (SQL) 7.20 package (optional)
- Install the *INFORMIX* Standard Engine (SE) 7.22 package (required)
- Install the *INFORMIX* Runtime ESQL 9.14 package (required)
- Install the *INFORMIX* International Language Supplement (ILS) 2.11 package (required).

Release and Platform Considerations

- R3V6
- All platforms.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- Verify that you are logged in as *root* at the console.
- Obtain the "*INFORMIX* SQL Version 7.20" CD, License serial number (S/N), and Serial Number Key (optional).
- Obtain the "*INFORMIX* SE Version 7.22 and Runtime ESQL 9.14" CD, License S/N, and Serial Number Key (required).
- Obtain the "*INFORMIX* ILS Version 2.11" CD (required).

Setting Up the *INFORMIX* Environment

1. Enter the following commands to set the terminal type:

   ```
   TERM=sun-cmd
   export TERM
   ```

2. Add a new group and user to the system by entering the following commands:

   ```
   groupadd -g 100 informix
   useradd -g informix -u 100 -m -d /opt/informix informix
   ```

3. Set the environment variables by entering the following commands:

   ```
   INFORMIXDIR=/opt/informix
   export INFORMIXDIR
   PATH=$PATH:$INFORMIXDIR/bin
   export PATH
   ```

The *INFORMIX* installation environment is now set.

Installing the *INFORMIX* SQL 7.20 Package (Optional)

This software package is optional and is needed only if you are using custom reports. If you do not need this package, skip this section and go to the "Installing the INFORMIX SE 7.22 Package (Required)" section on Page 2-75.

1. Use the following table to record the Serial Number and Serial Number Key for this *INFORMIX* package.

Serial Number	
Serial Number Key	

2. Load the "*INFORMIX* SQL 7.20" CD into the CD-ROM drive.
3. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      . . .
      . . .
      . . .
/cdrom/unnamed_cdrom on /vol/dev/dsk/c0t2d0/unnamed_cdrom read
only on Fri Jun 12 14:05:33 1998
```

4. Change to the *INFORMIX* directory by entering:

   ```
   cd $INFORMIXDIR
   ```

5. To verify that you are in the *INFORMIX* directory, enter `pwd`. The system should respond as follows:

```
/opt/informix
```

6. Enter the following command to copy the *INFORMIX* SQL files from the CD-ROM to the current directory:

   `tar xvf /cdrom/cdrom0/sql.tar`

   The program responds as follows:

```
x installsql, XXX bytes, XX tape blocks
x bin/cace, XXX bytes, XX tape blocks
. . . . .
. . . . .
. . . . .
x gls/lc11/os/sv.lc, XXX bytes, XX tape blocks
#
```

7. Enter the following to start the installation of the *INFORMIX* SQL software package:

   `./installsql`

   The program responds as follows:

```
INFORMIX-SQL Version 7.20.UC1
Copyright (C) 1984-1996 Informix Software, Inc.

Installation Script

This installation procedure must be run by root (super-
user). It will change the owner, group, and mode of all
files of this package in this directory.  There must be a
user "informix" and a group "informix" known to the system.

Press RETURN to continue,
or the interrupt key (usually CTRL-C or DEL) to abort.
```

8. Press Enter to continue with the installation procedure. The program responds as follows:

```
Enter your serial number (e.g.,INF#R999999) >
```

9. Enter the 11-character License S/N (serial number) that is on your license. The program responds as follows:

```
Enter your serial number KEY (uppercase letters only) >
```

10. Enter the 6-character Serial Number Key that is on your license. The program responds as follows:

```
WARNING!
         This software, and its authorized use and number of
users, are subject to the applicable license agreement with
Informix Software, Inc. If the number of users exceeds the
licensed number, the excess users may be prevented from using
the software.  UNAUTHORIZED USE OR COPYING MAY SUBJECT YOU AND
YOUR COMPANY TO SEVERE CIVIL AND CRIMINAL LIABILITIES.

Press RETURN to continue,
or the interrupt key (usually CTRL-C or DEL) to abort.
```

11. Press Enter to continue with the installation procedure. The program responds as follows:

```
Installing directory .
. . . . .
. . . . .
. . . . .
Installation of INFORMIX-SQL complete.
#
```

12. Enter `eject cdrom` to eject the CD-ROM from the computer.
13. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case. You must now install the *INFORMIX* SE software.

Installing the *INFORMIX* SE 7.22 Package (Required)

1. Use the following table to record the Serial Number and Serial Number Key for this INFORMIX package.

Serial Number	
Serial Number Key	

2. Load the "*INFORMIX* SE Version 7.22 and Runtime ESQL Version 9.14" CD into the CD-ROM drive.
3. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file

systems currently mounted. The last line should display the installed CD as shown below:

```
      . . .
      . . .
      . . .
/cdrom/unnamed_cdrom on /vol/dev/dsk/c0t2d0/unnamed_cdrom read
only on Fri Jun 12 14:05:33 1998
```

4. Change to the *INFORMIX* directory by entering the following:

   ```
   cd $INFORMIXDIR
   ```

5. To verify that you are in the *INFORMIX* directory, enter `pwd`. The system should respond as follows:

   ```
   /opt/informix
   ```

6. Enter the following command to copy the *INFORMIX* SE files from the CD-ROM to the current directory:

   ```
   tar xvf /cdrom/cdrom0/se.tar
   ```

   The program responds as follows:

   ```
   x installse, XXX bytes, XX tape blocks
   x bin/secheck, XXX bytes, XX tape blocks
   . . . . .
   . . . . .
   . . . . .
   x gls/lc11/os/sv.lc, XXX bytes, XX tape blocks
   #
   ```

7. Enter the following to start the installation of the *INFORMIX* SE software package:

   ```
   ./installse
   ```

   The program responds as follows:

```
INFORMIX-SE Version 7.22.UC1
Copyright (C) 1984-1996 Informix Software, Inc.

Installation Script

This installation procedure must be run by root (super-user).
It will change the owner, group, and mode of all files of this
package in this directory. There must be a user “informix” and
a group “informix” known to the system.

Press RETURN to continue,
or the interrupt key (usually CTRL-C or DEL) to abort.
```

8. Press Enter to continue with the installation procedure. The program responds as follows:

```
Enter your serial number (e.g.,INF#R999999) >
```

9. Enter the 11-character License S/N (serial number) that is on your license. The program responds as follows:

```
Enter your serial number KEY (uppercase letters only) >
```

10. Enter the 6-character Serial Number Key that is on your license. The program responds as follows:

```
WARNING!
         This software, and its authorized use and number of
users, are subject to the applicable license agreement with
Informix Software, Inc. If the number of users exceeds the
licensed number, the excess users may be prevented from using the
software. UNAUTHORIZED USE OR COPYING MAY SUBJECT YOU AND YOUR
COMPANY TO SEVERE CIVIL AND CRIMINAL LIABILITIES.

Press RETURN to continue,
or the interrupt key (usually CTRL-C or DEL) to abort.
```

11. Press Enter to continue with the installation. The program responds as follows:

```
Installing directory .
. . . . .
. . . . .
. . . . .
Installation of INFORMIX-SE complete.
#
```

12. Do NOT remove the CD-ROM. You must now install the *INFORMIX* Runtime ESQL software, which is on the same CD-ROM disk.

Installing the *INFORMIX* Runtime ESQL 9.14 Package (Required)

1. Use the following table to record the Serial Number and Serial Number Key for this *INFORMIX* package.

Serial Number	
Serial Number Key	

2. Verify that the "*INFORMIX* SE Version 7.22 and Runtime ESQL Version 9.14" CD is already loaded in the CD-ROM drive.
3. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      . . .
      . . .
      . . .
/cdrom/unnamed_cdrom on /vol/dev/dsk/c0t2d0/unnamed_cdrom read
only on Fri Jun 12 14:05:33 1998
```

4. Change to the *INFORMIX* directory by entering:

   `cd $INFORMIXDIR`

5. To verify that you are in the *INFORMIX* directory, enter `pwd`. The system should respond as follows:

```
/opt/informix
```

6. Enter the following command to copy the *INFORMIX* ESQL files from the CD-ROM to the current directory:

   ```
   tar xvf /cdrom/cdrom0/conn.tar
   ```

   The program responds as follows:

   ```
   x installconn, 10704 bytes, 21 tape blocks
   x conncontent.tar, 22489600 bytes, 43925 tape blocks
   #
   ```

7. Enter the following to start the installation of the *INFORMIX* ESQL software package:

   ```
   ./installconn
   ```

   The program responds as follows:

   ```
   INFORMIX-Connect Version 2.02.UC4
   Copyright (C) 1984-1998 Informix Software, Inc.
   cat: cannot open /opt/informix/etc/ClientSDK-cr

   Your existing INFORMIX shared libraries, if any, will be
   replaced and upgraded.
   Are you sure? [yes/no]
   ```

8. Ignore the “cat” message, and enter y. The program responds as follows:

   ```
   Is I-Connect being installed along with Informix Dynamic
   Server with Universal Data Option (Release 9, requires to
   be run as user "informix")?
   (yes or no)
   ```

9. Enter n. The program responds as follows:

```
Extracting files from conncontent file...

Installing I-Connect as user "root"...

Installation Script

Installation Script Requirements:
- A user "informix" and a group "informix" must be known
  to the system.
- The product source files must have been loaded by user
  root

- This installation procedure must be run by user root.
This script will change the owner, group, and mode of
many of the files of this package in this directory.
Press RETURN to continue, or the interrupt key
(usually CTRL-C or DEL) to abort.
```

10. Press Enter to continue with the installation procedure. The program responds as follows:

```
Enter your serial number (e.g.,INF#R999999) >
```

11. Enter the 11-character License S/N (serial number) that is on your license. The program responds as follows:

```
Enter your serial number KEY (uppercase letters only) >
```

12. Enter the 6-character Serial Number Key that is on your license. The program responds as follows:

```
WARNING!
         This software, and its authorized use and number of
users, are subject to the applicable license agreement with
Informix Software, Inc. If the number of users exceeds the
licensed number, the excess users may be prevented from using
the software.  UNAUTHORIZED USE OR COPYING MAY SUBJECT YOU AND
YOUR COMPANY TO SEVERE CIVIL AND CRIMINAL LIABILITIES.

Press RETURN to continue,
or the interrupt key (usually CTRL-C or DEL) to abort.
```

13. Press Enter to continue with the installation procedure. The program responds as follows:

```
Installing directory .
. . . . .
. . . . .
. . . . .
Installation of INFORMIX-Connect complete.
#
```

14. Enter `eject cdrom` to eject the CD-ROM from the computer.
15. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case. You must now install the *INFORMIX* ILS software.

Installing the *INFORMIX* ILS 2.11 Package (Required)

1. Load the "*INFORMIX* ILS Version 2.11" CD into the CD-ROM drive.
2. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      . . .
      . . .
      . . .
/cdrom/volume_1 on /vol/dev/dsk/c0t2d0/volume_1 read only
on Fri Jun 12 14:05:33 1998
```

3. Change to the *INFORMIX* directory by entering the following:

   `cd $INFORMIXDIR`

4. To verify that you are in the *INFORMIX* directory, enter `pwd`. The system should respond as follows:

```
/opt/informix
```

5. Enter the following command to start the *INFORMIX* ILS installation program:

   `sh /cdrom/cdrom0/install`

The program responds as follows:

```
       INTERNATIONAL LANGUAGE SUPPLEMENT USER INTERFACE LANGUAGE

     (1)  English            (5)  Russian
     (2)  German             (6)  Polish
     (3)  French             (7)  Czech
     (4)  Spanish            (8)  Slovak

     (9)  Help
     (10) Exit

Select installer language?
```

6. Enter the number that corresponds with the language you wish to use during the installation program (for example, enter `1` to select `English`). If you select a language other than English, you must also select a display character set. After you make that selection, the program responds as follows:

```
              INFORMIX INTERNATIONAL LANGUAGE SUPPLEMENT (ILS)
                   INSTALLER FOR ALL UNIX PLATFORMS

Choose install type:
    (1) Express Install
          Installs everything relating to one or more languages.

    (2) Custom Install
          You specify exactly what you want to install.
Other options:
    (3) Help
          Displays information on the contents of this package,
          and explains the options on this screen.
    (4) Exit
          Exit this installer.

  (E)nglish (D)eutsch/German (F)rancais/French e(S)panol/Spanish
  (R)ussian (P)oliski/Polish (C)ekych/Czech    s(L)ovych/Slovak

Enter one choice, and hit ENTER:
```

7. Enter `2` to select `Custom Install`. The program responds as follows:

```
                    Custom Install
                    --------------

    (1) User interface
          Installs a localised user interface for Servers and Tools.

    (2) Locale
          Installs locales by language, territory and code page.

    (3) Operating System locales
          Installs operating system equivalent locales.

    (4) Code set conversion
          Installs code set conversion files between code pages.

    (5) Help                      (6) GLS source install [Enabled]
    (7) Previous Screen           (8) Exit

     (E)nglish (D)eutsch/German (F)rancais/French e(S)panol/Spanish
     (R)ussian (P)oliski/Polish (C)ekych/Czech    s(L)ovych/Slovak

Select the components to install:
```

8. Enter `2 4` to select the `Locale` and `Code set conversion` options. The program responds as follows:

```
LOCALES - LANGUAGES

  Install locales and associated character maps for what languages?

     (1)  Arabic           (11) Greek            (21) Romanian
     (2)  Bulgarian        (12) Hebrew           (22) Russian
     (3)  Chinese          (13) Icelandic        (23) Serbo-Croatian
     (4)  Czech            (14) Italian          (24) Slovak
     (5)  Danish           (15) Japanese         (25) Spanish
     (6)  Dutch            (16) Korean           (26) Swedish
     (7)  English          (17) Latvian          (27) Thai
     (8)  Finnish          (18) Norwegian        (28) Turkish
     (9)  French           (19) Polish           (29) Ukrainian
     (10) German            (20) Portuguese

     (30) Help              (31) All Of The Above
     (32) Custom Screen     (33) Exit

     (E)nglish (D)eutsch/German (F)rancais/French e(S)panol/Spanish
     (R)ussian (P)oliski/Polish (C)ekych/Czech    s(L)ovych/Slovak

Enter one or more choices, separated with spaces, and hit ENTER:
```

9. Enter `7 15` to select `English` and `Japanese`. The program responds as follows:

```
LOCALES - TERRITORIES

  Install English language locales for what territories?

     (1)  Australia
     (2)  United Kingdom
     (3)  United States

     (4)  Help              (5)  All Of The Above
     (6)  Custom Screen     (7)  Exit

     (E)nglish (D)eutsch/German (F)rancais/French e(S)panol/Spanish
     (R)ussian (P)oliski/Polish (C)ekych/Czech    s(L)ovych/Slovak

Enter one or more choices, separated with spaces, and hit ENTER:
```

10. Enter `3` to select `United States`. The program responds as follows:

```
LOCALE - CODESETS

  Install English language locales for what codesets?

     (1)  ISO 8859-1
     (2)  DOS Code Page 850
     (3)  Windows CP 1252
     (4)  UNICODE
     (5)  UTF8

     (6)  Help              (7)  All Of The Above
     (8)  Custom Screen     (9)  Exit

     (E)nglish (D)eutsch/German (F)rancais/French e(S)panol/Spanish
     (R)ussian (P)oliski/Polish (C)ekych/Czech    s(L)ovych/Slovak

Enter one or more choices, separated with spaces, and hit ENTER:
```

11. Enter 5 to select UTF8. The program responds as follows:

```
LOCALE - CODESETS

Install Japanese language locales for what codesets?

     (1)  Standard-Shift-JIS
     (2)  Shift-JIS+JISX0212
     (3)  UJIS/EUC
     (4)  UTF8

     (4)  Help               (5)  All Of The Above
     (6)  Custom Screen      (7)  Exit

     (E)nglish (D)eutsch/German (F)rancais/French e(S)panol/Spanish
     (R)ussian (P)oliski/Polish (C)ekych/Czech    s(L)ovych/Slovak

Enter one or more choices, separated with spaces, and hit ENTER:
```

12. Enter 4 to select UTF8. The program responds as follows:

```
CODESET CONVERSION REGIONS

  Choose the regions for which you require codeset conversion tables.
     (1)  Arabic             (7)  Japanese
     (2)  Baltic             (8)  Korean
     (3)  Cyrillic           (9)  Simplified Chinese
     (4)  Eastern European   (10) Trad. Chinese
     (5)  Greek              (11) Turkish
     (6)  Hebrew             (12) Western European

     (13) Help               (14) All Of The Above
     (15) Custom Screen      (16) Exit

     (E)nglish (D)eutsch/German (F)rancais/French e(S)panol/Spanish
     (R)ussian (P)oliski/Polish (C)ekych/Czech    s(L)ovych/Slovak

Enter one or more choices, separated with spaces, and hit ENTER:
```

13. Enter `7 12` to select `Japanese` and `Western Europe`. The program responds as follows:

```
CODESET CONVERSION TABLES - CODESETS
  Install Japanese codeset conversion tables for what codesets?

  (1)  Shift-JIS+JISX0212
  (2)  Standard-Shift-JIS
  (3)  UJIS/EUC
  (4)  UNICODE
  (5)  UTF8

     (6)  Help              (7)  All Of The Above
     (8)  Custom Screen     (9)  Exit

     (E)nglish (D)eutsch/German (F)rancais/French e(S)panol/Spanish
     (R)ussian (P)oliski/Polish (C)ekych/Czech    s(L)ovych/Slovak

  Select two or more options.  All available combinations of the
  selected options will be installed.
```

14. Enter `1 2 5` to select `Shift-JIS+JISX0212`, `Standard-Shift-JIS`, and `UTF8`. The program responds as follows:

```
CODESET CONVERSION TABLES - CODESETS
  Install Western European codeset conversion tables for what codesets?

  (1)  ASCII 7-bit        (9)  IBM CCSID 00273    (17) IBM CCSID 871
  (2)  DOS Code Page 437  (10) IBM CCSID 00277    (18) ISO-7-Danish
  (3)  DOS Code Page 850  (11) IBM CCSID 00278    (19) ISO-7-German
  (4)  DOS Code Page 860  (12) IBM CCSID 00280    (20) ISO 8859-1
  (5)  DOS Code Page 863  (13) IBM CCSID 00284    (21) UNICODE
  (6)  DOS Code Page 865  (14) IBM CCSID 00285    (22) UTF8
  (7)  EBCDIC             (15) IBM CCSID 00297    (23) Windows CP 1252
  (8)  HP-Roman8          (16) IBM CCSID 00500

     (24) Help              (25) All Of The Above
     (26) Custom Screen     (27) Exit

     (E)nglish (D)eutsch/German (F)rancais/French e(S)panol/Spanish
     (R)ussian (P)oliski/Polish (C)ekych/Czech    s(L)ovych/Slovak

  Select two or more options.  All available combinations of the
  selected options will be installed.
```

15. Enter `20 22` to select `ISO 8859-1` and `UTF8`. The program responds as follows:

```
 SUMMARY: You have chosen to install the following
-------------------------------------------------------------

Installing locales:

  English            United States      UTF8

  Japanese           Japan              UTF8

Installing codeset conversion tables:

  Japanese           Shift-JIS+JISX0212
                     Standard-Shift-JIS
                     UTF8

  Western European   ISO 8859-1
                     UTF8

Hit ENTER to confirm or ‘q‘ to return to main menu.
```

16. Press Enter to begin installation. The program responds as follows:

```
 Installing international software  Please wait...
    Installing gls...
    Installation complete.
    See $INFORMIXDIR/ils.log for a list of installed files.
    See $INFORMIXDIR/release/README and
        $INFORMIXDIR/release/ILS_COMPAT for further information.

Hit ENTER to return to main menu...
```

17. Press Enter. The program responds as follows:

```
                INFORMIX INTERNATIONAL LANGUAGE SUPPLEMENT (ILS)
                     INSTALLER FOR ALL UNIX PLATFORMS

Choose install type:
    (1) Express Install
          Installs everything relating to one or more languages.

    (2) Custom Install
          You specify exactly what you want to install.
Other options:
    (3) Help
          Displays information on the contents of this package,
          and explains the options on this screen.
    (4) Exit
          Exit this installer.

   (E)nglish (D)eutsch/German (F)rancais/French e(S)panol/Spanish
   (R)ussian (P)oliski/Polish (C)ekych/Czech    s(L)ovych/Slovak

Enter one choice, and hit ENTER:
```

18. Enter `4` to exit the installation program. The program responds as follows:

```
     Exiting the International Language Supplement installer.
```

19. Enter `eject cdrom` to eject the CD-ROM from the computer.
20. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case.

INFORMIX for R3V5

Overview

Installing the *INFORMIX* software for R3V5 consists of the following tasks:

- Set the environment
- Install the *INFORMIX* Structured Query Language (SQL) 6.05 package (optional)
- Install the *INFORMIX* Standard Engine (SE) 7.13 package (required).

Release and Platform Considerations

- R3V5
- *Ultra* 5, *Enterprise* 3000, and *SPARCserver*.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- Verify that you are logged in as *root* at the console.
- Obtain the "*INFORMIX* SQL Version 6.05" CD, License serial number (S/N), and Serial Number Key (optional).
- Obtain the "*INFORMIX* SE Version 7.13" CD, License S/N, and Serial Number Key (required).

NOTE:

This CD also contains the *INFORMIX* ESQL software package. This package is not used and should not be installed.

Setting Up the *INFORMIX* Environment

1. Enter the following commands to set the terminal type:

   ```
   TERM=sun-cmd
   export TERM
   ```

2. Add a new group and user to the system by entering the following commands:

   ```
   groupadd -g 100 informix
   useradd -g informix -u 100 -m -d /opt/informix informix
   ```

3. Set the environment variables by entering the following commands:

   ```
   INFORMIXDIR=/opt/informix
   export INFORMIXDIR
   PATH=$PATH:$INFORMIXDIR/bin
   export PATH
   ```

The *INFORMIX* installation environment is now set.

Installing the *INFORMIX* SQL 6.05 Package (Optional)

NOTE:

This software package is optional and is needed only if you are using custom reports. If you do not need this package, skip this section and go to the "Installing the INFORMIX SE 7.13 Package (Required)" section on Page 2-93.

1. Use the following table to record the Serial Number and Serial Number Key for this INFORMIX package.

Serial Number	
Serial Number Key	

2. Load the "*INFORMIX* SQL 6.05" CD into the CD-ROM drive.
3. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      . . .
      . . .
      . . .
/cdrom/unnamed_cdrom on /vol/dev/dsk/c0t2d0/unnamed_cdrom read
only on Fri Jun 12 14:05:33 1998
```

4. Change to the *INFORMIX* directory by entering:

   ```
   cd $INFORMIXDIR
   ```

5. To verify that you are in the *INFORMIX* directory, enter pwd. The system should respond as follows:

   ```
   /opt/informix
   ```

6. Enter the following command to copy the *INFORMIX* SQL files from the CD-ROM to the current directory:

   ```
   tar xvf /cdrom/cdrom0/sql.tar
   ```

   The program responds as follows:

   ```
   x installsql, XXX bytes, XX tape blocks
   x bin/isql, XXX bytes, XX tape blocks
   . . . . .
   . . . . .
   . . . . .
   x demo/sql2/stock.unl, XXX bytes, XX tape blocks
   #
   ```

7. Enter the following to start the installation of the *INFORMIX* SQL software package:

   ```
   ./installsql
   ```

   The program responds as follows:

   ```
   INFORMIX-SQL Version 6.05.UC1
   Copyright (C) 1984-1996 Informix Software, Inc.

   Installation Script

   This installation procedure must be run by root (super-
   user). It will change the owner, group, and mode of all
   files of this package in this directory.  There must be a
   user "informix" and a group "informix" known to the system.

   Press RETURN to continue,
   or the interrupt key (usually CTRL-C or DEL) to abort.
   ```

8. Press Enter to continue with the installation procedure. The program responds as follows:

```
Enter your serial number (e.g.,INF#R999999) >
```

9. Enter the 11-character License S/N (serial number) that is on your license. The program responds as follows:

```
Enter your serial number KEY (uppercase letters only) >
```

10. Enter the 6-character Serial Number Key that is on your license. The program responds as follows:

```
WARNING!
         This software, and its authorized use and number of
users, are subject to the applicable license agreement with
Informix Software, Inc. If the number of users exceeds the
licensed number, the excess users may be prevented from using
the software.  UNAUTHORIZED USE OR COPYING MAY SUBJECT YOU AND
YOUR COMPANY TO SEVERE CIVIL AND CRIMINAL LIABILITIES.

Press RETURN to continue,
or the interrupt key (usually CTRL-C or DEL) to abort.
```

11. Press Enter to continue with the installation procedure. The program responds as follows:

```
Installing directory .
. . . . .
. . . . .
. . . . .
Installation of INFORMIX-SQL complete.
#
```

12. Enter `eject cdrom` to eject the CD-ROM from the computer.
13. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case. You must now install the *INFORMIX* SE software.

Installing the *INFORMIX* SE 7.13 Package (Required)

1. Use the following table to record the Serial Number and Serial Number Key for this *INFORMIX* package.

Serial Number	
Serial Number Key	

2. Load the "*INFORMIX* SE Version 7.13" CD into the CD-ROM drive.
3. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      . . .
      . . .
      . . .
/cdrom/unnamed_cdrom on /vol/dev/dsk/c0t2d0/unnamed_cdrom read
only on Fri Jun 12 14:05:33 1998
```

4. Change to the *INFORMIX* directory by entering the following:

   `cd $INFORMIXDIR`

5. To verify that you are in the *INFORMIX* directory, enter `pwd`. The system should respond as follows:

```
/opt/informix
```

6. Enter the following command to copy the *INFORMIX* SE files from the CD-ROM to the current directory:

   `tar xvf /cdrom/cdrom0/se.tar`

   The program responds as follows:

```
x installse, XXX bytes, XX tape blocks
x bin/secheck, XXX bytes, XX tape blocks
. . . . .
. . . . .
. . . . .
x demo/dbaccess/c_trig.sql, XXX bytes, XX tape blocks
#
```

7. Enter the following to start the installation of the *INFORMIX* SE software package:

   ```
   ./installse
   ```

   The program responds as follows:

```
INFORMIX-SE Version 7.13.UC1
Copyright (C) 1984-1996 Informix Software, Inc.

Installation Script

This installation procedure must be run by root (super-user).
It will change the owner, group, and mode of all files of this
package in this directory. There must be a user “informix” and
a group “informix” known to the system.

Press RETURN to continue,
or the interrupt key (usually CTRL-C or DEL) to abort.
```

8. Press Enter to continue with the installation procedure. The program responds as follows:

```
Enter your serial number (e.g.,INF#R999999) >
```

9. Enter the 11-character License S/N (serial number) that is on your license. The program responds as follows:

```
Enter your serial number KEY (uppercase letters only) >
```

10. Enter the 6-character Serial Number Key that is on your license. The program responds as follows:

```
WARNING!
         This software, and its authorized use and number of
users, are subject to the applicable license agreement with
Informix Software, Inc. If the number of users exceeds the
licensed number, the excess users may be prevented from using the
software. UNAUTHORIZED USE OR COPYING MAY SUBJECT YOU AND YOUR
COMPANY TO SEVERE CIVIL AND CRIMINAL LIABILITIES.

Press RETURN to continue,
or the interrupt key (usually CTRL-C or DEL) to abort.
```

11. Press Enter to continue with the installation. The program responds as follows:

```
Installing directory .
. . . . .
. . . . .
. . . . .
Installation of INFORMIX-SE complete.
#
```

12. Enter `eject cdrom` to eject the CD-ROM from the computer.
13. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case.

Installing *DiskSuite*

Installing *DiskSuite* includes the following:

- Installing *Solstice DiskSuite* software
- Installing *Sun Solaris* patches
- Setting up *Solstice DiskSuite*.

Installing the *Solstice DiskSuite* Software

Overview

The *Solstice DiskSuite* software package allows the disks of the system to be managed as if they were a single file system.

Release and Platform Considerations

- All releases
- All platforms.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- Verify that you are logged in as *root* at the console.
- Obtain the "*Solstice DiskSuite* 4.1" CD.
- You must have partitioned the hard disks for the *Solstice DiskSuite* system as specified in "Partitioning the Hard Disks" on Page 2-20.

Procedure

1. Load the "*Solstice DiskSuite* 4.1" CD into the CD-ROM drive.
2. Enter `cd` to move to the root directory.
3. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      .
      .
/cdrom/disksuite_4_1 on /vol/dsk/c0t2d0/disksuite_4_1 read
only on Mon Jan 19 12:36:55 1998
```

4. Begin the installation by entering the following:

   `/usr/sbin/pkgadd -d /cdrom/cdrom0/sparc SUNWmd`

   The program responds as follows:

```
Processing package instance <SUNWmd> from </cdrom/disksuite_4_1/sparc>

Solstice DiskSuite.
   .
   .
   10 package pathnames are already properly installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with super-user
permissions during the process of installing this package.

Do you want to continue with installation of <SUNWmd> [y,n.?]
```

5. Enter y. The program responds as follows:

```
Installing Solstice DiskSuite as <SUNWmd>

## Executing preinstall script.
## Installing part 1 of 1.
    .
    .
[ verifying class <preserve> ]
## Executing postinstall script.
Installation of <SUNWmd> was successful.

*** IMPORTANT NOTICE ***
This machine must now be rebooted in order to ensure sane
operation. Execute
        shutdown -y -i6 -g0
and wait for the “Console Login:” prompt.
#
```

6. Enter `eject cdrom` to eject the CD-ROM from the computer.
7. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case.

Installing the *Sun Solaris* Patches

Overview

The *Sun Solaris* patches are delivered with the CMS software.

Release and Platform Considerations

- All releases
- All platforms.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- All *Solaris* packages must be installed (HSI/S, HSI/P, SAI/P, X.25).
- The *Solstice DiskSuite* software must be installed.
- Verify that you are logged in as *root* at the console.
- Obtain the "*CentreVu* Call Management System" CD appropriate for your load (R3V6 or R3V5).

Procedure

1. Load the "*CentreVu* Call Management System" CD into the CD-ROM drive.
2. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
  ...
  ...
/cdrom/cms on /vol/dev/dsk/c0t2d0/cms read only on
Mon Jan 19 12:36:55 1998
```

3. Begin the installation by entering the following:

   ```
   /usr/sbin/pkgadd -d /cdrom/cdrom0 spatches
   ```

   The program responds as follows:

```
Processing package instance <spatches> from </cdrom/cms>

CMS Supplied Solaris Patches
(sparc) 1.0
Lucent Technologies
## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing
this package.

Do you want to continue with the installation of
<spatches> [y,n,?]
```

4. Enter y to continue. The program responds as follows:

```
Installing CMS Supplied Solaris Patches as <spatches>

## Installing part 1 of 1.
101130-12 is not needed
Spooling 103461-18
Spooling 103566-24
. . .
. . .
Installation of <spatches> was successful.
#
```

5. Enter the following to continue installing the patches:

   ```
   /tmp/patches/install_patches | tee -a /var/sadm/spatch.log
   ```

   The program responds as follows:

   ```
   Checking installed packages and patches...
   Generating list of files to be patched...
   Verifying sufficient filesystem capacity (exhaustive method)
   Installing patch packages...

   Patch number 103461-18 has been successfully installed.
   See /var/sadm/patch/103461-18/log for details

   Patch packages installed:
     SUNWmfrun
      .
      .
   ```

   The program generates various lists of files to be patched. This can take from 30 minutes to several hours to process, depending on the number of patches and the CMS computer. When it finishes, the program displays the system prompt.

6. Reboot the system by entering the following:

   ```
   /usr/sbin/shutdown -y -i6 -g0
   ```

   The system comes up with the CDE prompt.

7. Log in as *root*. The *Sun Solaris* patches have been successfully installed and the system kernel has been rebuilt. Do *not* remove the "*CentreVu* Call Management System" CD from the CD-ROM drive.

Setting Up *Solstice DiskSuite*

Overview

Running the *Solstice DiskSuite* setup scripts consists of three separate procedures:

1. Prepare the disk subsystem
2. Run the setup scripts
3. Set up the swap files.

NOTE:

If the CMS computer you are installing requires disk mirroring, you must use information from this section and the *CentreVu® CMS Disk-Mirrored Systems* (585-215-841) document.

Release and Platform Considerations

- All releases
- All platforms.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- The *Solstice DiskSuite* software must be installed.
- The *Solaris* patches must be installed.
- Verify that you are logged in as *root* at the console.
- The "*CentreVu* Call Management System" CD should be loaded in the CD-ROM drive.

Preparing the Disk Subsystem

1. Use a right mouse click to display the Workspace Menu.
2. Select Programs.

   The Programs submenu appears.
3. Select Terminal from the submenu.

   A terminal window appears.
4. In the terminal window, select **Options/Font Size/13.5** to increase the usable size of the window.

5. Prepare to run the *Solstice DiskSuite* setup scripts by entering the following commands:

   ```
   mkdir  /olds
   cp  /cdrom/cdrom0/cms/reloc/rdonly/olds_install/*  /olds
   chmod +x /olds/olds
   ```

6. Create system files for the *Solstice DiskSuite* software by entering these commands:

   ```
   PATH=$PATH:/usr/opt/SUNWmd/sbin
   export  PATH
   /olds/olds  -check_disks
   ```

   The system responds as follows:

```
scsi=c1
number of external scsi controllers with disks  is = 1
number of disks is = 2
checking device: c0t0d0
Warning: Current Disk has mounted partitions.
checking device: c0t2d0
device: c0t2d0 will not be used
checking device: c1t0d0
checking device: c[0-3]t1[0-9]d0
device: c[0-3]t1[0-9]d0 will not be used
valid disks are c0t0d0 c1t0d0
Warning: Current Disk has mounted partitions.
disk:c0t0d0 is partitioned ok
disk:c1t0d0 is partitioned ok
Success, checking disks.
```

NOTE:

If this command fails, see “Troubleshooting a Solstice DiskSuite Software Installation” in the “Solving Installation-Related Problems” chapter.

7. Enter the following:

   ```
   /olds/olds  -mk_files
   ```

The system responds as follows:

```
scsi=c1
number of external scsi controllers with disks  is = 1
number of disks is = 2
Success, creating md.tab.new and/or vfstab.new.
```

8. When the system prompt reappears, verify that all the disk drives on your system have been recognized. To do that, enter the following:

   `cat /olds/md.tab.new`

   Find the `#/cms` section; it should reflect the precise number of disk drives on your system. The example below shows two disk drives on the system:

```
#state database replicas
mddb00 c0t0d0s1
mddb01 c1t0d0s0

#/cms
d19 2 1 /dev/rdsk/c0t0d0s3 1 /dev/rdsk/c1t0d0s1
d21 -m d19
```

9. If everything appears to be correct, continue with Step 10.

   If there is a discrepancy in the number of disks, check for disk recognition errors using the procedure, “Checking for Disk Recognition Errors” on Page 2-109.

10. Save the original `vfstab` and `md.tab` files with the following commands:

    `cp /etc/vfstab /etc/vfstab.orig`

    `cp /etc/opt/SUNWmd/md.tab /etc/opt/SUNWmd/md.tab.orig`

11. Continue with the “Running the Setup Scripts” section.

Running the Setup Scripts

Run the *Solstice DiskSuite* setup scripts by entering the commands shown below.

NOTE:

Run the commands in the order shown, and be sure to enter both commands. Otherwise, your system will not be set up to run the *Solstice DiskSuite* software.

1. Enter the following command:

   ```
   /olds/olds  -metadbs
   ```

   The program responds as follows:

   ```
   scsi=c1
   number of external scsi controllers with disks  is = 1
   number of disks is = 2
   checking device: c0t0d0
   Warning: Current Disk has mounted partitions.
   checking device: c0t2d0
   device: c0t2d0 will not be used
   checking device: c1t0d0
   checking device: c[0-3]t1[0-9]d0
   device: c[0-3]t1[0-9]d0 will not be used
   valid disks are c0t0d0 c1t0d0
   Warning: Current Disk has mounted partitions.
   disk:c0t0d0 is partitioned ok
   disk:c1t0d0 is partitioned ok
   Success, setting up metadb replicas.
   ```

2. Enter the following command:

   ```
   /olds/olds  -setup
   ```

   The `olds -setup` command may take some time. It should take about 1 minute of run time for each gigabyte of hard disk space on your system.

If all of the commands succeed, the system responds with a series of lines reflecting the structure of your disk system. Those lines will look something like the following (the specific disk names will vary from system to system):

```
scsi=c1
number of external scsi controllers with disks  is = 1
number of disks is = 2
checking device: c0t0d0
Warning: Current Disk has mounted partitions.
checking device: c0t2d0
device: c0t2d0 will not be used
checking device: c1t0d0
checking device: c[0-3]t1[0-9]d0
device: c[0-3]t1[0-9]d0 will not be used
valid disks are c0t0d0 c1t0d0
Warning: Current Disk has mounted partitions.
disk:c0t0d0 is partitioned ok
disk:c1t0d0 is partitioned ok
d19: Concat/Stripe is setup
   .
   .
```

The program begins to construct the new file system. When the "Success..." message displays and the system prompt reappears, the file system is complete and you are ready to continue with the installation. The program responds as follows:

```
setting optimization for space with minfree less than 10%
/dev/md/rdsk/d19:14422590 sectors in 15262 cylinders of 15 tracks, 63
sectors
      7042.3MB in 954 cyl groups (16 c/g, 7.38MB/g, 3584 i/g)
super-block backups (for fsck -F ufs -o b=#) at:
 32, 15216, 30400, 45584, 60768, 75952, 91136, 106320, 121504, 136688,
 167056, 182240, 197424, 212608, 227792, 241952, 257136, 272320, 287504,
   .
   .
   .
 14198416, 14213600, 14228784, 14243968, 14259152, 14273312, 14288496,
 14303680, 14318864, 14334048, 14349232, 14364416, 14379600, 14394784,
 14409968,
ufs fsck: sanity check: /dev/md/rdsk/d19 okay
Success, system set up successfully
```

If these commands should fail, make a note of the error message and see the "Solving Installation-Related Problems" chapter.

3. Create and mount `/cms` and verify the disk space by entering the following commands:

   ```
   mkdir /cms
   mount /cms
   df -k
   ```

   The system responds as follows:

```
Filesystem             kbytes    used   avail capacity  Mounted on
/dev/dsk/c0t0d0s0    1039785  257252  678563    28%    /
/proc                      0       0       0     0%    /proc
fd                         0       0       0     0%    /dev/fd
swap                  137648     200  137448     1%    /tmp
/vol/dev/dsk/c0t2d0/cms
                      437878      -1       0   100%    /cdrom/cms
/dev/md/dsk/d19      xxxxxxx       9 6768599     1%    /cms
```

The `/cms` "kbytes" figure (shown in bold as **xxxxxxx**) is a critical number. Use this number to verify that the *Solstice DiskSuite* software is administering all the available disks. Use the following tables to make the necessary calculations for the disk sizes on your system.

Calculation	Result
(1a) Divide the `/cms` line's "kbytes" figure by 1000 (move the decimal point three places to the left) and record the result.	(1a)
(1b) Enter the figure from the "/cms Size (in MB)" column below corresponding to the type and number of hard disks in your system.	(1b)

Number of Disks	/cms Size (in MB)		
	2.1-GB Disks	4.2/4.3-GB Disks	9-GB Disks
1	876	2874	7017
2	2875	6872	15443
3	4874	10870	23869
4	6873	14868	32295

Number of Disks	/cms Size (in MB)		
	2.1-GB Disks	4.2/4.3-GB Disks	9-GB Disks
5	8872	18866	NA
6	10871	22864	NA
7	12870	26862	NA
8	14869	30860	NA
9	16868	34858	NA
10	18867	38856	NA

(1a) and (1b) should be *approximately* equal. The two will not correspond exactly, but they should be reasonably close — within about 10% of each other.

4. A major discrepancy between the two figures usually indicates a connectivity problem. You can check connectivity by entering the following:

   `/usr/opt/SUNWmd/sbin/metastat`

   The system responds by listing the devices making up each metadevice. The relevant metadevice for the purposes of this check is d19 as shown in the following example:

```
     .
     .
     .
d19: Concat/Stripe
    Size: xxxxxxxx blocks
    Stripe 0:
        Device         Start Block  Dbase
        c0t0d0s3             0    No
    Stripe 1:
        Device         Start Block  Dbase
        c1t0d0s1             0    No
```

   If the stripes of d19 do not account for all the disk drives on your system, check your disk drive connections. If discrepancies persist, telephone the Lucent National Customer Care Center at 1-800-242-2121, or contact your Lucent representative or distributor.

Setting up the Swap Files

The system requires a swap file for the `/cms` file system. You must create the swap file with the olds script. The script determines how big the files need to be.

1. Create the files by running the olds script with swap file options, as follows:

   ```
   /olds/olds -addswapfile /cms
   ```

   After about one minute, the program responds as follows:

   ```
   Success, Swap file created.
   ```

2. Reboot the system by entering `init 6`.
3. Log in as *root* at the CDE login screen.
4. Use a right mouse click to display the Workspace Menu.
5. Select Programs.

   The Programs submenu displays.
6. Select Terminal from the submenu.

   A terminal window displays.
7. In the terminal window, select **Options/Font Size/13.5** to increase the usable size of the window.
8. Verify that the default disk swap partition has been allocated by entering `swap -l`. The program responds as follows:

   ```
   swapfile             dev  swaplo blocks   free
   /dev/dsk/c0t3d0s4   32,28      8 133752  103040
   ```

9. Enter the following command to create the `/cms` swap file:

   ```
   swap -a /cms/swap
   ```

10. Reenter the `swap -l` command to verify that the default disk swap partition is intact and that the `/cms` swap file has been created. The program should respond similar to the following:

```
swapfile             dev  swaplo blocks   free
/dev/dsk/c0t3d0s4   32,28       8 133752  103040
/cms/swap             -         8 124920   92512
```

11. Continue by installing the CMS packages.

Checking for Disk Recognition Errors

The procedures in the section will help you to diagnose problems with unrecognized disk drives. This procedure is different for the different hardware platforms.

CAUTION:

Use this procedure only if the DiskSuite scripts indicate there is a disk recognition error. Do NOT do this as part of the normal installation procedure.

Disk Recognition Errors on *Ultra* 5

1. Reboot the system with an `init 0` command. The system reboots and displays the `ok` prompt.
2. Turn off the system unit.
3. Turn off the system monitor.
4. Turn off all external devices (such as disk drives, tapes drives, and NTSs) starting with the device closest to the system unit and working toward the farthest device.
5. Check all external device connections to verify that they are secure. Also check the SCSI IDs on the disk drives to verify that no two drives have the same ID.
6. Turn on the power to the system units in the opposite order in which you powered them off. That is, power on the external devices first, working your way toward the system unit. Then power on the system unit itself and, finally, the system monitor.

   When you power on the system unit, the system begins to boot. Interrupt the boot by pressing the Stop and A keys simultaneously. The system responds with the `ok` prompt.

7. Enter the following:

   `setenv auto-boot? false`

   This keeps the system from rebooting when you do a reset.

8. Enter the following:

   `reset-all`

   The system resets and responds with the `ok` prompt.

9. To verify that the system sees all IDE devices, enter the following:

   `probe-ide`

   The program responds similar to the following:

```
Device 0  ( Primary Master )
        ATA Model: ST34342A

Device 1  ( Primary Slave )
       Not present

Device 2  ( Secondary Master )
       Removeable ATAPI Model: CRD-8240B

Device 3  ( Secondary Slave )
       Removeable ATAPI Model:
```

10. To verify that the system sees all SCSI devices, enter the following:

    `probe-scsi-all`

    The program responds similar to the following:

```
/pci@1f,0/pci@1/pci@1/SUNW,isptwo@4
Target 0
  Unit 0  Disk      QUANTUM VK4550J SUN4.2G8610
Target 4
  Unit 0  Removeable Tape     TANDBERG SLR5         0906
```

11. Verify that all of the disk drives are recognized. If the devices are still not recognized, see *CentreVu® CMS Hardware Maintenance and Troubleshooting* (585-215-861) for more information.

12. When you have verified that the system is recognizing all of its disk drives, enter the following:

    ```
    setenv auto-boot? true
    ```

    CAUTION:

    If you fail to enter this command, future reboots will stop at the boot prompt instead of proceeding through the normal boot-up.

13. Enter `boot -r`. The system reboots.
14. Log in as *root*.
15. Repeat Steps 6 through 8 of "Preparing the Disk Subsystem" on Page 2-101.

Disk Recognition Errors on *Enterprise* 3500

1. Reboot the system with an `init 0` command. The system reboots and displays the `ok` prompt.
2. Turn off the system unit.
3. Turn off the system monitor.
4. Turn off all external devices (such as disk drives, tapes drives, and NTSs) starting with the device closest to the system unit and working toward the farthest device.
5. Check all external device connections to verify that they are secure. Also check the SCSI IDs on the disk drives to verify that no two drives have the same ID.
6. Turn on the power to the system units in the opposite order in which you powered them off. That is, power on the external devices first, working your way toward the system unit. Then power on the system unit itself and, finally, the system monitor.

   When you power on the system unit, the system begins to boot. Interrupt the boot by pressing the Stop and A keys simultaneously. The system responds with the `ok` prompt.
7. Enter the following:

   ```
   setenv auto-boot? false
   ```

   This keeps the system from rebooting when you do a reset.
8. Enter the following:

   ```
   reset-all
   ```

   The system resets and responds with the `ok` prompt.

9. To verify that the system sees all SCSI devices, enter the following:

   ```
   probe-scsi-all
   ```

   The program responds similar to the following:

```
/sbus@3,0/SUNW,fas@3,8800000
Target 5
  Unit 0   Removeable Tape    EXABYTE EXB-89008E030203V37f

                                              0060055614
Target 6
  Unit 0   Removeable Read Only device            TOSHIBA
                                    XM6201TASUN32XCD110312/12/97
```

10. Verify that all of the SCSI devices are recognized. If the devices are still not recognized, see *CentreVu® CMS Sun® Enterprise™ 3500 Computer Maintenance and Troubleshooting* (585-215-875) for more information.

11. To verify that the system sees all the fiber channel disk drives, enter the following:

    ```
    probe-fcal-all
    ```

    The program responds similar to the following:

```
/sbus@2,0/SUNW,socal@d,10000/sf@1,0

/sbus@2,0/SUNW,socal@d,10000/sf@0,0

WWN 20050800209a80fe  Loopid 1
WWN 21000020370e7255  Loopid ef
  Disk     SEAGATE ST19171FCSUN9.06117E9822U939
```

12. Verify that all of the fiber channel disk drives are recognized. If the disk drives are still not recognized, see *CentreVu® CMS Sun® Enterprise™ 3500 Computer Maintenance and Troubleshooting* (585-215-875) for more information.

13. When you have verified that the system is recognizing all of its devices, enter the following:

    ```
    setenv  auto-boot?  true
    ```

    ⚠ CAUTION:

    If you fail to enter this command, future reboots will stop at the boot prompt instead of proceeding through the normal boot-up.

14. Enter `boot -r`. The system reboots.
15. Log in as *root*.
16. Repeat Steps 6 through 8 of "Preparing the Disk Subsystem" on Page 2-101.

Disk Recognition Errors on *Enterprise* 3000

1. Reboot the system with an `init 0` command. The system reboots and displays the `ok` prompt.
2. Turn off the system unit.
3. Turn off the system monitor.
4. Turn off all external devices (such as disk drives, tapes drives, and NTSs) starting with the device closest to the system unit and working toward the farthest device.
5. Check all external device connections to verify that they are secure. Also check the SCSI IDs on the disk drives to verify that no two drives have the same ID.
6. Turn on the power to the system units in the opposite order in which you powered them off. That is, power on the external devices first, working your way toward the system unit. Then power on the system unit itself and, finally, the system monitor.

   When you power on the system unit, the system begins to boot. Interrupt the boot by pressing the Stop and A keys simultaneously. The system responds with the `ok` prompt.
7. Enter the following:

   ```
   setenv auto-boot? false
   ```

   This keeps the system from rebooting when you do a reset.
8. Enter the following:

   ```
   reset-all
   ```

   The system resets and responds with the `ok` prompt.
9. To verify that the system sees all SCSI devices, enter the following:

   ```
   probe-scsi-all
   ```

The program responds similar to the following:

```
/iommu@f,e0000000/sbus@f.e0001000/esp@3,200000
Target 1
  Unit 0 Disk SEAGATE ST14801 SUN04246266 Copyright (C) 1991
Target 3
  Unit 0 Disk SEAGATE ST14801 SUN04246266 Copyright (C) 1991
. . . . .
. . . . .
Target 6
  Unit 0 Disk Removable Read Only Device SONY CD-ROM CDU-8012
```

10. Verify that all of the disk drives are recognized. If the devices are still not recognized, see *CentreVu® CMS Hardware Maintenance and Troubleshooting* (585-215-861) for more information.

    When you have verified that the system is recognizing all of its disk drives, enter the following:

    ```
    setenv auto-boot? true
    ```

    CAUTION:

    If you fail to enter this command, future reboots will stop at the boot prompt instead of proceeding through the normal boot-up.

11. Enter `boot -r`. The system reboots.
12. Log in as *root*.
13. Repeat Steps 6 through 8 of "Preparing the Disk Subsystem" on Page 2-101.

Disk Recognition Errors on *SPARCserver*

1. Reboot the system with an `init 0` command. The system reboots and displays the `ok` prompt.
2. Turn off the system unit.
3. Turn off the system monitor.
4. Turn off all external devices (such as disk drives, tapes drives, and NTSs) starting with the device closest to the system unit and working toward the farthest device.
5. Check all external device connections to verify that they are secure. Also check the SCSI IDs on the disk drives to verify that no two drives have the same ID.
6. Turn on the power to the system units in the opposite order in which you powered them off. That is, power on the external devices first,

working your way toward the system unit. Then power on the system unit itself and, finally, the system monitor.

When you power on the system unit, the system begins to boot. Interrupt the boot by pressing the Stop and A keys simultaneously. The system responds with the `ok` prompt.

7. Enter the following:

   ```
   setenv auto-boot? false
   ```

   This keeps the system from rebooting when you do a reset.

8. Enter the following:

   ```
   reset
   ```

   The system resets and responds with the `ok` prompt.

9. To verify that the system sees all SCSI devices, enter the following:

   ```
   probe-scsi-all
   ```

   The program responds similar to the following:

```
/iommu@0,10000000/sbus@0,10001000/espdma@5,8400000/esp@5,8800000
Target 3
  Unit 0  Disk     IBM     DORS32160SUN2.1GWA7A96210Z5218
                     0933      000116
Target 4                      46H6081   07H1118
  Unit 0  Removeable Tape  TANDBERG TDC 4200  =07:08CREATED053195
Target 6
  Unit 0  Removeable Read Only device  TOSHIBA XM5401...
```

10. Verify that all of the disk drives are recognized. If the devices are still not recognized, see *CentreVu® CMS Hardware Maintenance and Troubleshooting* (585-215-861) for more information.

11. When you have verified that the system is recognizing all of its disk drives, enter the following:

    ```
    setenv auto-boot? true
    ```

    CAUTION:

    If you fail to enter this command, future reboots will stop at the boot prompt instead of proceeding through the normal boot-up.

12. Enter `boot -r`. The system reboots.

13. Log in as *root*.

14. Repeat Steps 6 through 8 of “Preparing the Disk Subsystem” on Page 2-101.

Installing CMS Packages

Installing the CMS packages includes the following:

- Installing CMS software
- Installing CMS patches
- Installing the CMS Supplemental Services software
- Installing the Open Database Connectivity (ODBC) software.

Installing the CMS Software

Overview

The following procedures are used to install the CMS software.

Release and Platform Considerations

The following table shows which CMS releases may be used on which hardware platforms:

CMS Release	Hardware Platform			
	***Ultra* 5**	***Enterprise* 3500**	***Enterprise* 3000**	***SPARCserver***
R3V5u	Yes	No	Yes	No
R3V6	Yes	Yes	Yes	Yes

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- All the preceding factory software installation requirements in this chapter must be completed.
- Verify that you are logged in as *root* at the console.
- The "*CentreVu* Call Management System" CD should already be loaded in the CD-ROM drive.

Procedure

1. Enter `who -r` to determine the computer's state. You should see a message similar to the following:

```
.    run-level 3 <date and time> 3   0 S
```

2. If the computer is *not* in run-level 3, enter the following:

   `/usr/sbin/shutdown -y -i6 -g0`

3. After the shutdown, log back in as *root*.

4. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      . . .
      . . .
      . . .
/cdrom/cms on /vol/dev/dsk/c0t2d0/cms read only on
Mon Jan 19 12:36:55 1998
```

5. Add the CMS package by entering the following:

   `/usr/sbin/pkgadd -d /cdrom/cdrom0 cms`

   The program responds as follows:

```
Processing package instance <cms> from </cdrom/cms>

Lucent Technologies CentreVu(R) Call Management System
(sparc) r3vXxx.x
     .
     .
/usr/sbin/mountall
* /var/crash <attribute change only>
  /var/spool/cron/crontabs/root

* - conflict with a file which does not belong to any package.

Do you want to install these conflicting files [y,n,?,q]
```

6. Enter y. The program responds as follows:

```
## Checking for setuid/setgid programs.

The following files are being installed with setuid and/or
setgid permissions:
  /cms/bin/mqpeek <setuid root>
  /cms/bin/spi <setuid root>
  /cms/perfbin/memsnap2 <setuid root setgid root>
  /cms/toolsbin/chk_ext <setuid root>
  /cms/toolsbin/cmsu <setuid root>
  /cms/toolsbin/initSimConf <setuid root setgid root>
  /cms/toolsbin/psx <setuid root setgid root>
  /cms/toolsbin/setSimLink <setuid root setgid root>
 /cms/toolsbin/shmdump <setgid sys>
  /usr/spool/lp/cmstermDSR <setuid root setgid lp>

Do you want to install these as setuid/setgid files [y,n,?,q]
```

7. Enter y. The program responds as follows:

```
This package contains scripts which will be executed with super-
user permission during the process of installing this package.

Do you want to continue with the installation of <cms> [y,n,?]
```

8. Enter y. The program responds as follows:

```
Installing Lucent Technologies CentreVu(R) Call Management
System as <cms>

## Executing preinstall script.
Creating cms group id
Creating cms user id
6 blocks
Assigning a new password for cms
New password:
```

9. Enter the password for the cms login. The program responds as follows:

```
Re-enter new password:
```

10. Reenter the password for cms. The program responds as follows:

```
Creating cmssvc user id
6 blocks
Assigning a new password for cmssvc
New password:
```

11. Enter the password for the cmssvc login. Please note that the cmssvc login is used only by services; protect the cmssvc password. The program responds as follows:

```
Re-enter new password:
```

12. Reenter the password for cmssvc. The program responds as follows:

```
## Installing part 1 of 1.
/usr/elog <symbolic link>
/cms/aas/db/acd1/baas_db.log
/cms/aas/db/acd2/baas_db.log
   .
   .
   .
```

The program takes up to 40 minutes to download the CMS software from the CD-ROM to the hard disk and to initialize the customer CMS data. A list of files is displayed as the software is downloaded. When the installation is finished, the program responds as follows:

```
Installation of <cms> was successful.

The machine must now be rebooted in order to ensure same
operation. Execute shutdown -y -i6 -g0 and wait for the
“console login” prompt.
#
```

13. Enter the following to begin the shutdown:

    `/usr/sbin/shutdown -y -i6 -g0`

14. Log in as *root*.
15. Select one of the xterm windows to make it active.

16. Verify that the `/cms/swap` file system is intact by entering `swap -l`. The program responds as follows:

```
swapfile             dev  swaplo blocks   free
/dev/dsk/c0t3d0s4   32,28      8 133752  103040
/cms/swap             -        8 124920   92512
```

Installing the CMS Patches

Overview

There are three occasions when you may have to install CMS patches:

- During a factory installation
- Immediately after upgrading CMS
- As a bug fix.

If you are loading patches just after upgrading your system, it is best to turn CMS off until you have the patches installed. The reason for that is that the prerequisites for patch installation differ with the patch. Some require that CMS be off, others require that data collection be off, and still others require CMS to be in single-user mode. To be absolutely safe, and to help the upgrade proceed as quickly as possible, turn CMS off.

If you are loading patches as a factory installation or a bug fix without upgrading your base load, you may install the patches without turning CMS off. Each patch will let you know if you need to do anything special to accomplish the load.

The readme file for CMS lists CMS run level requirements for the patch.

NOTE:

The features must be authorized on your system before patches can be installed. Call 1-800-242-2121 to have authorizations installed. We recommend that you always install all available patches. If you believe you should not be installing a particular patch, call the National Customer Care Center at 1-800-242-2121, or consult with your Lucent distributor or representative, before deciding to skip it.

Release and Platform Considerations

- All releases
- All platforms.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- All the preceding factory software installation requirements in this chapter must be completed.
- Verify that you are logged in as *root* at the console.
- You must have the current `cmssvc` password.
- The "*CentreVu* Call Management System" CD should already be loaded in the CD-ROM drive.

Procedure

1. Enter `cmssvc` to access the CMS Services menu as shown below:

```
 Lucent Technologies CentreVu(R) Call Management System Services Menu

Select a command from the list below.
   1) auth_display Display feature authorizations
   2) auth_set     Authorize capabilities/capacities
   3) run_cms      Turn CentreVu CMS on or off
   4) setup        Set up the initial configuration
   5) swinfo       Display switch information
   6) swsetup      Change switch information
   7) patch_inst   Install a single CMS patch from CD
   8) patch_rmv    Backout an installed CMS patch
   9) load_all     Install all CMS patches found on CD
  10) back_all     Backout all installed CMS patches from machine
Enter choice (1-10) or q to quit:
```

2. Enter `2` to select the `auth_set` option. The authorizations must be set before you can install the patches. Use the default or minimum values for now. The actual values will be entered later in another procedure.
3. Enter `cmssvc` to access the CMS Services menu.
4. Enter `9` to select the `load_all` option to load all of the patches. Enter `7` to select the `patch_inst` option if you want to load one patch at a time.
5. If no patches are found on the CD, the program responds as follows:

```
No CMS patches found on the CD.
Please check the CD and try again.
```

   Continue with Step 7.

6. If patches are found on the CD-ROM, enter y if you are loading all of the patches, or enter the patch number if you are loading only one patch. The system installs the patch or patches. As it does so, it displays messages similar to the following for each patch installed:

```
@(#) installpatch 1.0 96/04/01
cmspx-s
Generating list of files to be patched...
Creating patch archive area...
Saving a copy of existing files to be patched...
xxxx blocks
        File compression used
Installing patch packages...

Doing pkgadd of cmspx-s package:
Installation of <cmspx-s> was successful.

Patch packages installed:
        cmspx-s

Patch installation completed.
```

7. Enter `eject cdrom` to eject the CD-ROM from the computer.
8. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case.

Installing the CMS Supplemental Services Software

Overview

The following procedures are used to install the CMS R3V6 Supplemental Services software. The CMS Supplemental Services uses an installation manager program that, once installed, will check future CD installations of Supplemental Services for new software packages and updates to existing software packages. The Lucent Technologies provisioning group administers these packages for customers that purchase the features.

Release and Platform Considerations

- R3V6
- All platforms.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed.
- All the preceding factory software installation requirements in this chapter must be completed.
- Verify that you are logged in as *root* at the console.
- Obtain the "*CentreVu* CMS Supplemental Services R3V6" CD.

Procedure

1. Enter `who -r` to determine the computer's state. You should see a message similar to the following:

```
.    run-level 3 <date and time> 3   0 S
```

2. If the computer is *not* in run-level 3, enter the following:

   `/usr/sbin/shutdown -y -i6 -g0`

3. After the shutdown, log back in as *root*.
4. Load the "*CentreVu* CMS Supplemental Services R3V6" CD into the CD-ROM drive.
5. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      . . .
      . . .
      . . .
/cdrom/cms on /vol/dev/dsk/c0t2d0/cms read only on Wed
Apr 15 12:04:34 1998
```

6. Add the Installation Manager package by entering the following:

   `/usr/sbin/pkgadd -d /cdrom/cdrom0 LUim`

The program responds as follows:

```
Processing package instance <LUim> from </cdrom/cms#1>

Lucent Installation Manager
(sparc) 0.20

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## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with super-
user permission during the process of installing this package.

Do you want to continue with the installation of <LUim> [y,n,?]
```

7. Enter y. The program responds as follows:

```
Installing Lucent Installation Manager as <LUim>

## Installing part 1 of 1.
/opt/LUim/bin/examine_cd
/opt/LUim/bin/install
   .
   .
[ verifying class <none> ]
/opt/LUim/response/SUNWsbum <linked pathname>
/opt/LUim/response/SUNWsbus1 <linked pathname>
/opt/LUim/response/SUNWsbus2 <linked pathname>
## Executing postinstall script.
volume management starting.

Installation of <LUim> was successful.
```

After the Installation Manager package is installed, the program checks the CD for any new or updated packages. The status of the Installation Manager displays on a window labeled Installation Manager Log. On a new system, the program responds as follows:

```
package LUim is already properly installed
installing LUahl package

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Installation of <LUahl> was successful.
Installing jre1.1.5
Unpacking...
   .
   .
installing /cdrom/cdrom0/rwlibs/libstd4d.so
installing /cdrom/cdrom0/rwlibs/libthr12d.so
installing /cdrom/cdrom0/rwlibs/libtls12d.so
```

When the program finishes, the CD is automatically ejected. The log window displays for about 15 seconds, and then goes away. The installation details are logged to a temporary file found at `/tmp/cdlog`. This log file will remain intact until the next system reboot.

8. Remove the CD-ROM from the disk tray and place the CD-ROM back in its case.

Installing the Open Database Connectivity Software

Overview

The following procedures are used to install the *OpenLink** ODBC software. For more information about the ODBC feature, see *CentreVu® CMS R3V6 Open Database Connectivity* (585-215-852) or *CentreVu® CMS R3V5 Open Database Connectivity* (585-215-839).

Release and Platform Considerations

- All releases
- All platforms.

**OpenLink* is a trademark of OpenLink Software.

Prerequisites

- The *Solaris* 2.5.1 operating system must be installed
- All the preceding factory software installation requirements in this chapter must be completed
- Verify that you are logged in as *root* at the console
- Obtain the "*CentreVu* CMS *OPENLINK* ODBC Driver" CD.

Procedure

1. Load the "*CentreVu* CMS *OPENLINK* ODBC Driver" CD into the CD-ROM drive.
2. After about 15 seconds, enter `mount` to verify the name of the CD-ROM. The program responds with a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
      . . .
      . . .
      . . .
/cdrom/odbc_driver on /vol/dev/dsk/c0t2d0/odbc_driver read
only on Sat Jun  6 11:47:05 1998
```

3. Create the *OpenLink* ODBC driver directory by entering the following commands:

   `mkdir /usr/openlink`

   `cd /usr/openlink`

   `pwd` (to confirm you are in `/usr/openlink`)

4. Enter the following commands to copy the files from the CD-ROM and install the files:

   `cp /cdrom/cdrom0/server/* .`

   `./install.sh`

   The program responds as follows:

```
Extracting (inf5sol.taz) ...
Extracting (inf7sol.taz) ...
Extracting (odbcsol.taz) ...
Extracting (rqbsol.taz) ...
Enter the name of the user that owns the programs:
```

5. Enter `root` as the name of the user who will own the programs. The program responds as follows:

```
Enter the name of the group that owns the programs:
```

6. Enter `root` as the name of the group that will own the programs. The program responds as follows:

```
Registering ...
oplrqb is now registered to Lucent Technologies BCS.
This is a 5 concurrent users license
that will not expire.

Thank you for using OpenLink Software technology.
```

7. Enter the following to configure and initiate the ODBC software:

   `/cms/dc/odbc/odbc_init`

   The program responds as follows:

```
ODBC Driver initialization complete.
```

8. Enter the following to verify that the ODBC Request Broker is active on the server:

   ```
   ps -ef | grep oplrqb
   ```

   The program responds as follows:

   ```
   root  3354  3351  0 11:49:43 ?        0:00 /usr/openlink/bin/oplrqb -f
   +configfile /cms/dc/odbc/cmsrqb_init +loglevel 5 +l
   root  3359  3317  0 11:50:11 pts/5    0:00 grep oplrqb
   ```

9. Enter `cd` to move to the root directory.
10. Enter `eject cdrom` to eject the CD-ROM from the computer.
11. Remove the CD-ROM from the disk tray, place the CD-ROM back in its case, and close the CD-ROM tray.

Setting Up CMS

Overview

This section describes the following:

- Setting authorizations
- Setting up data storage parameters
- Setting up a local area network (LAN) connection to the switch (required only for a *DEFINITY* R7 switch)
- Setting up the CMS application.

TSC personnel verify authorizations, set up data storage parameters, and set up the CMS application remotely. On-site technicians should call the TSC to coordinate this process.

Release and Platform Considerations

- All releases
- All platforms.

Conventions

Throughout the setup, you will be prompted to enter values specific to the system being installed. These values differ between CMS software releases and switch releases. For each question, an appropriate range is displayed, usually in the format of 0-XXXXX (or some variation of this). These values represent the limits of each range.

Prerequisites

The TSC should verify that the on-site technicians have completed the following tasks:

- Connected the console to the CMS computer
- Connected the CMS computer to the TSC's Remote Maintenance Center (remote console)
- Connected additional terminals and printers to the NTS ports.

- Connected the link between the CMS computer and the switch

  NOTE:

  If the hardware link or the Automatic Call Distribution (ACD) feature and CMS is not properly administered, the CMS software cannot communicate with the switch. For switch administration procedures, see *CentreVu® CMS Switch Connections and Administration* (585-215-876).

- Connected the NTS and the CMS computer to the network hub unit. See *CentreVu® CMS R3V6 Sun® SPARCserver™ Computers Connectivity Diagram* (585-215-858), *CentreVu® CMS R3V6 Sun® Enterprise™ 3000 Computer Connectivity Diagram* (585-215-865), *CentreVu® CMS Sun® Enterprise™ 3500 Computer Hardware Connectivity Diagram* (585-215-877), or *CentreVu® CMS Sun® Ultra™ 5 Computer Connectivity Diagram* (585-215-872).

Setting Authorizations

Overview

Before setting up CMS, TSC personnel need to set authorizations for CMS features purchased by the customer. Authorizations apply to all administered ACDs.

You can use the `auth_set` option in the CMS Services menu (`cmssvc`) to do the following:

- Set the purchased version of CMS
- Authorize the following packages and features:
  - — Forecasting (if the package is not already installed)
  - — Vectoring (if no administered ACDs use vectoring)
  - — Graphics
  - — External Call History (if the package is not already installed)
  - — Expert Agent Selection (EAS) (if no administered ACDs use EAS)
  - — External Application
  - — More than 2000 Vector Directory Numbers (VDNs) (R3V6 only)

— *CentreVu* Supervisor

— *CentreVu* Report Designer.

- Change the number of agents, ACDs, or Supervisor logins.

Procedure

1. Access the CMS Services menu by entering the following command:

   `cmssvc`

   The program responds as follows:

```
Lucent Technologies CentreVu(R) Call Management System Services
Menu

Select a command from the list below.
  1) auth_display Display feature authorizations
  2) auth_set     Authorize capabilities/capacities
  3) run_cms      Turn CentreVu CMS on or off
  4) setup        Set up the initial configuration
  5) swinfo       Display switch information
  6) swsetup      Change switch information
  7) patch_inst   Install a single CMS patch from CD
  8) patch_rmv    Backout an installed CMS patch
  9) load_all     Install all CMS patches found on CD
 10) back_all     Backout all installed CMS patches from machine
Enter choice (1-10) or q to quit:
```

2. Enter `2` to select the `auth_set` option. The program responds as follows:

```
Password:
```

3. Enter the appropriate password. This password is available only to authorized personnel.

   NOTE:

   Some of the following questions may not appear if the authorization cannot be changed at this time.

   The program responds as follows:

```
Is this an upgrade? (y/n):
```

   NOTE:

   This question occurs the first time you run `auth_set` on the system.

   If this is not an upgrade and you enter `n`, the program responds as follows:

```
Purchased version is R3V X. Is this correct? (y/n):
```

4. Enter `y`.

   NOTE:

   The program uses the above information to populate the "Purchased CMS Release" field of the *System Setup:Switch Setup* screen.

   The program continues with the following questions:

```
Authorize installation of forecasting package? (y/n):(default: n)
```

5. Enter y if the customer purchased Forecasting; otherwise, press Enter. The program responds as follows:

```
Authorize installation of vectoring package? (y/n): (default: n)
```

6. Enter y if the customer purchased vectoring; otherwise, press Enter. The program responds as follows:

```
Authorize use of graphics feature? (y/n): (default: n)
```

7. Enter y if the customer purchased Graphics; otherwise, press Enter. The program responds as follows:

```
Authorize use of external call history feature? (y/n): (default: n)
```

8. Enter y if the customer purchased the External Call History feature; otherwise, press Enter. The program responds as follows (if the vectoring package is authorized):

```
Authorize use of expert agent selection feature? (y/n): (default: n)
```

9. Enter y if the customer purchased the Expert Agent Selection feature; otherwise, press Enter. The program responds as follows:

```
Authorize use of external application feature? (y/n): (default: n)
```

10. Enter y if the customer purchased the External Application feature; otherwise, press Enter. The program responds as follows (R3V6 only; for R3V5, skip to the response after Step 11):

```
Authorize use of more than 2000 VDNs (yes turns off VDN
permission checking)? (y/n): (default: n)
```

11. Enter y if the customer needs to use more than 2000 VDNs; otherwise, press Enter. The program responds as follows:

```
Enter the number of simultaneous Lucent Technologies CentreVu(R)
Supervisor logins the customer has purchased
(X-250): (default: X)
```

12. Enter the number of simultaneous logins purchased. The program responds as follows:

```
Has the customer purchased Lucent Technologies CentreVu(R)
Report Designer? (y/n): (default: n)
```

13. Enter y if the customer purchased report designer; otherwise, press Enter. The program responds as follows:

```
Enter the maximum number of split/skill members that can be
administered (1-10000): (default: 1)
```

14. Enter the maximum possible number of split or skill members that the customer might use based on the switch agent size purchased.

    For R3V6 only, “split or skill members” are defined as the number of CMS-measured agent-split and agent-skill combinations logged in at the same time. Each split an agent logs into is an agent-split combination. Each skill assigned to an agent while logged in is an agent-skill combination. The recommended numbers for Expert Agent Selection (EAS) and non-EAS systems are shown in the following table.

Switch Agent Size Range Purchased	Number of Split or Skill Members	
	Non-EAS	EAS
0-12	100	500
0-25	100	500
0-50	200	1000
0-75	300	1500
0-100	400	2000
0-200	800	4000
0-300	1200	6000
0-400	1600	8000
0-500	2000	10000
0-600	2400	10000
0-max. agents	10000	10000

NOTE:

The minimum size configuration for CMS is 0-25; that is the reason groups 0-12 and 0-25 have the same provisioning. You should also note that the customer will be able to limit the split or skill random access memory (RAM) allocation to the size actually needed for the current configuration of agents and splits or skills. That is accomplished by the “Total split/skill members summed over all splits/skills” field, which is accessed through the `setup` option of the `cmssvc` command.

The program responds as follows:

```
Enter the maximum number of ACDs that can be installed (1-8):
(default: 1)
```

15. Enter the number of ACDs the customer purchased.

    The prompt displays and all authorizations have been set.

16. Verify that authorizations were set by entering the following:

    `tail /cms/install/logdir/admin.log`

    The `admin.log` file contains information relating to CMS administration procedures. The file should display the following message:

```
Capabilities/capacities authorized <date/time>
```

You can also verify the authorizations by using the `auth_display` option of the `cmssvc` command. See Appendix A, "Using the CMSADM and CMSSVC Menu Options" for more information.

Setting Up Data Storage Parameters

Overview

TSC personnel modify specific data storage parameters on the CMS computer so that the CMS application can operate properly. The `storage.def` file contains these data storage parameters which are default values.

The default values may not correspond to the system you are installing. Use the values determined by the Account Executive, System Consultant, and Design Center based on the customer configuration.

Procedure

1. Change to the CMS installation directory by entering the following:

   ```
   cd /cms/install/cms_install
   ```

2. Edit the `storage.def` file by entering the following command:

   ```
   vi storage.def
   ```

   NOTE:

   If you delete or damage the `storage.def` file, you can find a copy of this file (`storage.skl`) in the same directory.

3. As needed for each authorized ACD, change the default values for each parameter. Place the value for each parameter on the line below the parameter. The following example shows the defaults for this file. The values you can change are shown in bold.

```
# Information for ACD 1 and any ACDs created using acd_create
# command
# Intrahour interval (15, 30, 60 minutes):
30
# Week start day (Sunday, Monday, Tuesday, Wednesday, Thursday,
  Friday, Saturday):
Sunday
# Week end day (Sunday, Monday, Tuesday, Wednesday, Thursday,
  Friday, Saturday):
Saturday
# Daily start time (regular time):
12:00 AM
# Daily stop time (data will be collected for seconds of last
  minute):
11:59 PM
# Number of agent login/logout records (0-999999):
10000
# Number of agent trace records:
10000
# Number of call records (0-5000 internal or 0-99999 external):
0
# Number of exceptions records (1-2000):
250
# Days of intrahour for splits (1-62):
31
# Days of daily splits (1-1825):
387
# Weeks of weekly splits (1-520):
0
# Months of monthly splits (1-120):
0
# Days of intrahour for agents (1-62):
31
# Days of daily agents (1-1825):
387
# Weeks of weekly agents (1-520):
0
# Months of monthly agents (1-120):
0
# Days of intrahour for trunk groups (1-62):
31
# Days of daily trunk groups (1-1825):
387
# Weeks of weekly trunk groups (1-520):
0
# Months of monthly trunk groups (1-120):
0
# Days of intrahour for trunks (1-62):
31
```

```
# Days of daily trunks (1-1825):
387
# Weeks of weekly trunks (1-520):
0
# Months of monthly trunks (1-120):
0
# Days of intrahour for call work codes (1-62):
0
# Days of daily call work codes (1-1825):
0
# Weeks of weekly call work codes (1-520):
0
# Months of monthly call work codes (1-120):
0
# Days of intrahour for vectors (1-62):
31
# Days of daily vectors (1-1825):
387
# Weeks of weekly vectors (1-520):
0
# Months of monthly vectors (1-120):
0
# Days of intrahour for VDNs (1-62):
31
# Days of daily VDNs (1-1825):
387
# Weeks of weekly VDNs (1-520):
0
# Months of monthly VDNs (1-120):
0
# Information for ACD 2
   .
   .
   .
   .
```

(The file repeats the same parameters for each ACD.)

4. After entering the appropriate values, enter `:wq` to write and quit the file.

After the CMS application is running, the system administrator can change the data storage parameters using the Data Storage Allocation window and the Storage Intervals window in the CMS System Setup menu. See the CMS System Setup chapter in *CentreVu® CMS R3V6 Administration* (585-215-850) or *CentreVu® CMS R3V5 Administration* (585-215-820) for more information.

Setting Up a LAN for Switch Connections

Overview

This section contains information about setting up a LAN connection between the CMS computer and a switch. This type of connection is used only with *DEFINITY* ECS Release 7 or later. To set up a LAN connection to the switch, you must coordinate the administration done on the CMS computer with the administration done on the switch and, if required, within the customer's own data network. In this section, there are sample configurations of "closed" CMS-switch networks and "open" CMS-switch networks.

References

CentreVu® CMS Switch Connections and Administration (585-215-876)

Prerequisites

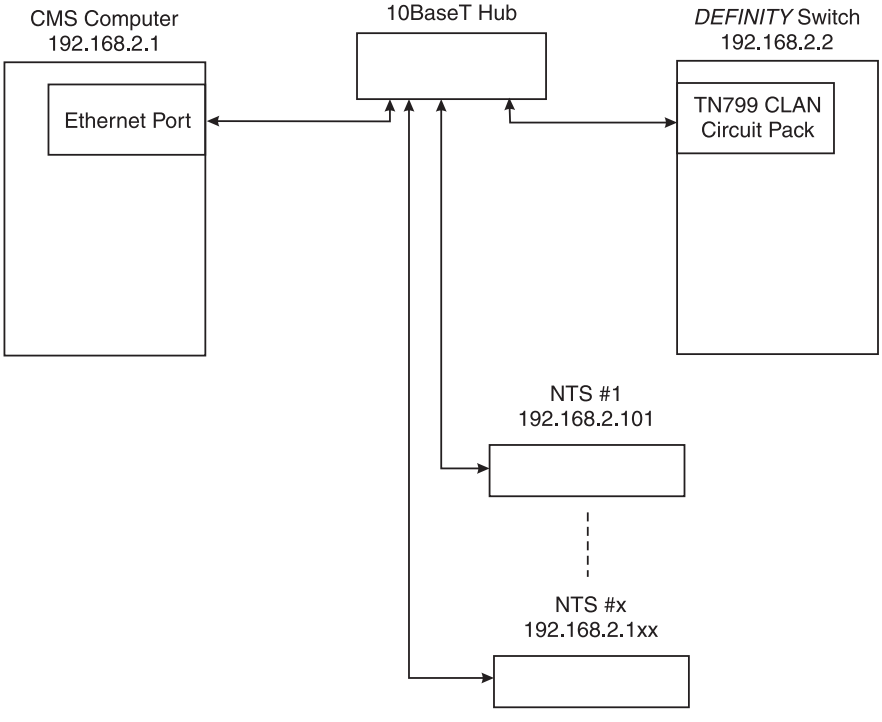
- Verify that you are logged in as *root.*
- The computer must be in run-level 3 (check this with the command `who -r`).
- CMS must be turned off.
- All file systems must be mounted.

Sample Configurations

The CMS computer can connect to a switch in a number of ways. This section shows some examples of how this can be done.

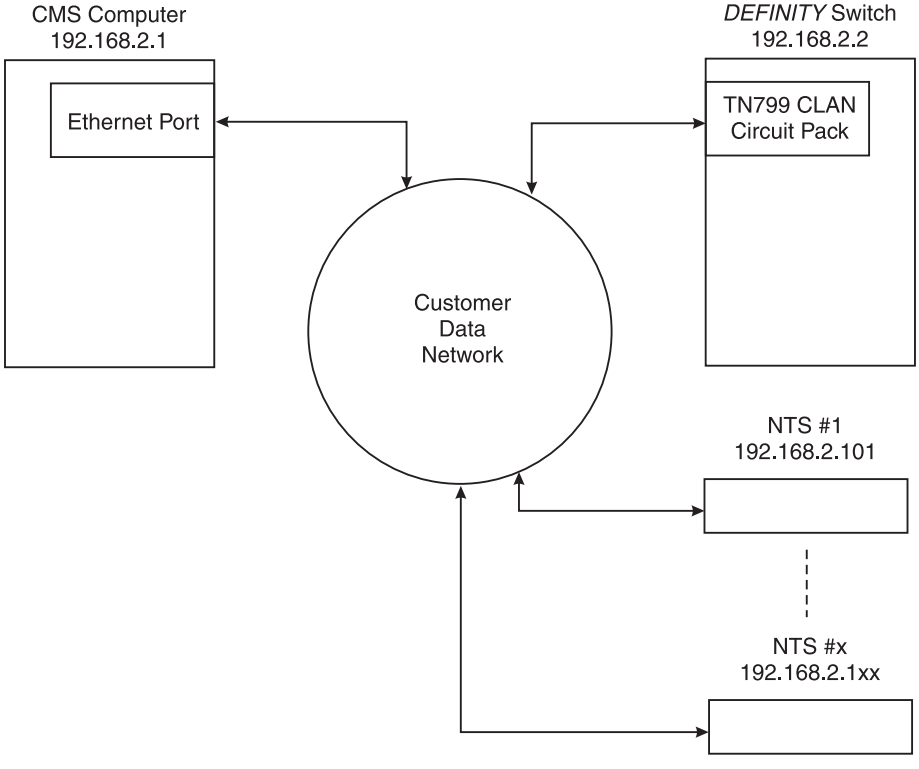
Private Network

In a private network, the CMS computer is directly connected to the switch, and neither is part of another network. The following figure shows the default IP addressing scheme that is recommended for use in a private network.



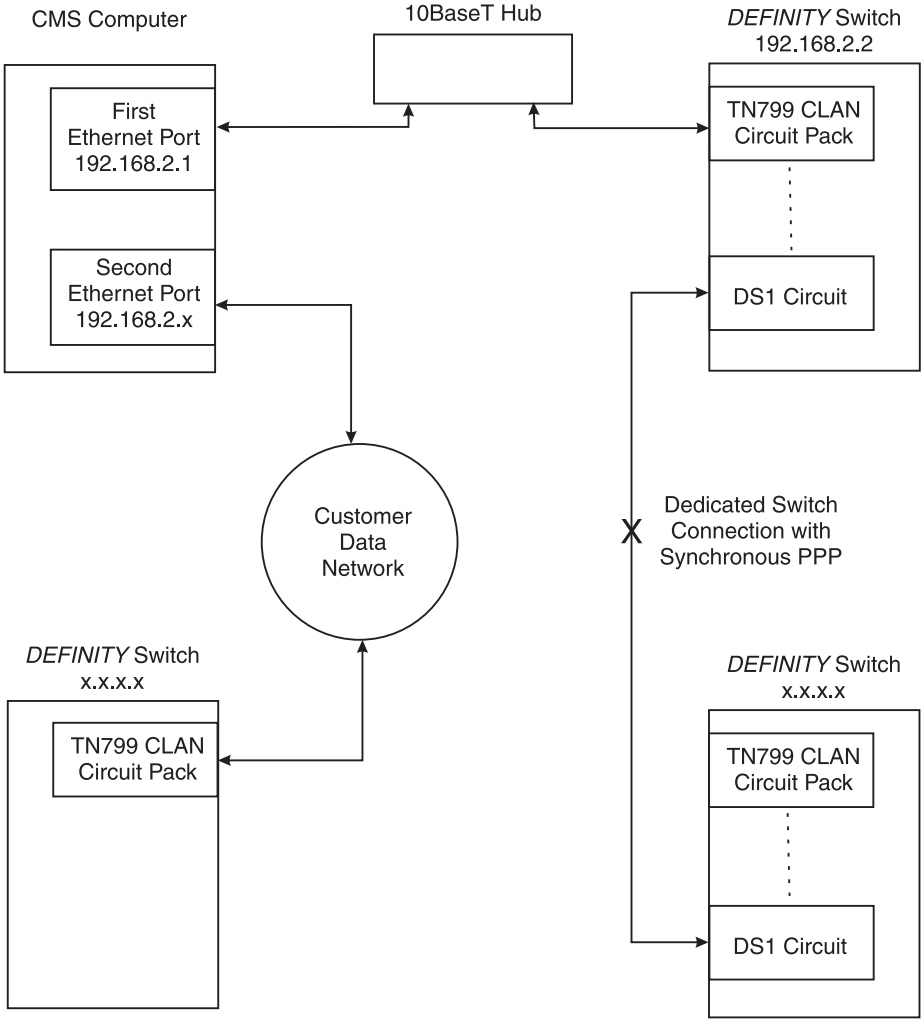
Public Network

In a public network, the default IP addressing can still be used unless the customer wants to set up a different scheme. The following figure shows a typical public network.



Remote Switch Network

Since one CMS computer may connect to several switches, you can connect to a remote switch using a LAN. The following figure shows two ways that a remote switch can connect to a CMS computer.



Procedures

To set up a network connection to an R7 switch and other CMS computer peripherals, you must to the following:

- Edit the /etc/hosts file.
- Set up a second network interface.
- Edit the /etc/defaultrouter file.

Editing the `/etc/hosts` File

1. Edit the `/etc/hosts` file by entering the following:

   ```
   vi /etc/hosts
   ```

2. Add a new line in this file for each ACD/switch that will connect to this computer using TCP/IP. You must enter the IP address and the host name.

   ```
   192.168.2.1     cms
   192.168.2.2     switch
   192.168.2.101   cmsterm1
   192.168.2.102   cmsterm2
   ```

   This example shows the recommended default IP addressing scheme for a closed network. There is one switch/ACD and two NTS units (cmsterm1 and cmsterm2).

3. Press the Esc key to leave the edit mode.
4. Enter `:w!` to overwrite the existing file.
5. Enter `:q` to quit editing the file.

Setting Up a Second Network Interface

If the CMS computer has two network interfaces (the native ethernet card and a *SunSwift* or FSBE network card), you must set up the second network interface. The primary network interface was set up during the *Solaris* installation.

1. Edit the `/etc/hosts` file by entering the following:

   ```
   vi /etc/hosts
   ```

2. Add a new line in this file for each ACD/switch that will connect to this computer using TCP/IP. You must enter the IP address and the host name.

```
192.168.2.1     cms
192.168.2.2     switch1
x.x.x.x         switch2
192.168.2.3     cms_1
192.168.2.101   cmsterm1
192.168.2.102   cmsterm2
```

This example shows the recommended default IP addressing scheme for a second network interface. The host name for the second network interface is the CMS computer hostname with "_1" as a suffix.

3. Press the Esc key to leave the edit mode.
4. Enter `:w!` to overwrite the existing file.
5. Enter `:q` to quit editing the file.
6. Create a new host name file for the second network interface by entering one of the following:
   - On an *Enterprise* 3000 or *Enterprise* 3500 with a second FSBE card, enter the following:

     `vi /etc/hostname.le0`
   - On a *SPARCserver* with a second FSBE card, enter the following:

     `vi /etc/hostname.le1`
   - On an *Enterprise* 3000, *Enterprise* 3500, or *Ultra* 5 with a second *SunSwift* card, enter the following:

     `vi /etc/hostname.hme1`
   - On a *SPARCserver* with a second *SunSwift* card, enter the following:

     `vi /etc/hostname.hme0`
7. Add a line to this new file with the host name you added to the `/etc/hosts` file. For example:

```
cms_1
```

8. Press the Esc key to leave the edit mode.
9. Enter `:wq` to write and quit editing the file.

Editing the `/etc/defaultrouter` File

If the connection between the CMS computer and the switch is going through a customer's network, you will have to set up a default network router.

1. Create a default router file by entering the following:

   ```
   vi /etc/defaultrouter
   ```

2. Add a line to this new file with the IP address for the default system router on the customer's network. This address must be obtained from the customer. For example:

   ```
   192.135.9.254
   ```

3. Press the Esc key to leave the edit mode.
4. Enter `:wq` to write and quit editing the file.

Setting Up the CMS Application

Overview

Use the procedures in this section to set up the CMS application.

Prerequisites

- Verify that you are logged in as *root.*
- The computer must be in run-level 3 (check this with the command `who -r`).
- CMS must be turned off.
- If using TCP/IP to connect to an ACD, the switch LAN setup must be done as described on Page 2-140.
- All file systems must be mounted.

Setup Methods

You can set up the CMS feature package using one of two methods:

a. **Interactively from a terminal** — Using the interactive option, the program prompts you for the necessary information to set up the CMS application (for example, system type, number of agents, trunks, vectors, VDNs, and so on).

   To set up the CMS application using this option, see "Setting Up CMS Interactively from a Terminal" in this chapter.

b. ***UNIX**** **System flat file** — Using the flat file option, you edit a *UNIX* System flat file containing the necessary information (for example, system type, number of agents, trunks, vectors, VDNs, and so on) to set up the CMS application. When you execute the program, it runs in the background and uses the *UNIX* System flat file data to set up the CMS application. To set up the CMS application using this option, see "Setting Up CMS Using a UNIX Flat File" in this chapter.

Setting Up CMS Interactively from a Terminal

Overview:

Using the interactive option, the program prompts you for the necessary information.

Procedure:

1. Access the CMS Services menu by entering the following:

   `cmssvc`

   The program responds as follows:

```
Lucent Technologies CentreVu(R) Call Management System Services Menu

Select a command from the list below.
  1) auth_display Display feature authorizations
  2) auth_set     Authorize capabilities/capacities
  3) run_cms      Turn CentreVu CMS on or off
  4) setup        Set up the initial configuration
  5) swinfo       Display switch information
  6) swsetup      Change switch information
  7) patch_inst   Install a single CMS patch from CD
  8) patch_rmv    Backout an installed CMS patch
  9) load_all     Install all CMS patches found on CD
 10) back_all     Backout all installed CMS patches from machine
Enter choice (1-10) or q to quit:
```

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2. Enter `4` to select the `setup` option.

   NOTE:

   If system setup has already been done, the program responds as follows:

```
Warning!!! Setup has already been performed.
Running this command will remove all CMS data in the database.
Do you wish to proceed and re-configure CMS? (y/n): (default: n)
```

3. Enter `y` to continue with the setup, or enter `n` to exit setup. If you enter `y`, the program responds as follows (for R3V6 only; for R3V5, skip to the response of Step 4):

```
Select the language for this server:

All languages are ISO Latin except Japanese. Selection of the
server language assumes that existing customer data is
compatible. (Upgrade from any ISO Latin language to any ISO
Latin language or from Japanese to Japanese is supported).

1) English
2) Dutch
3) French
4) German
5) Italian
6) Portuguese
7) Spanish
8) Japanese
Enter choice (1-8): (default: 1)
```

4. Enter the number for the language used on this system. If setup has been done previously, the customer CMS data is now initialized, which can take up to 30 minutes. When finished, the program responds as follows:

```
Enter a name for this UNIX system (up to 256 characters):
(default: XXXXXX)
```

5. Enter the host name of the computer. This name was assigned during the factory installation procedures and is used by the TSC to maintain and identify this specific system. The program responds as follows (the screen shown below is a composite example of all tape drives available with R3V5 and R3V6; the actual screen displayed will be different):

```
Select the type of backup device you are using
   1) SCSI QIC-150 cartridge tape - 150MB tape
   2) SCSI QIC-60 cartridge tape - 60MB tape
   3) 40.0 Gbyte 8mm tape
   4) 14.0 Gbyte 8mm tape
   5) 5.0 Gbyte 8mm tape
   6) SCSI QIC-2.5 cartridge tape - 2.5GB tape
   7) SCSI 4-8 SLR cartridge tape - 4GB tape (8GB compressed)
Enter choice (1-7):
```

6. Enter the number to specify the type of cartridge tape you are using as the backup device. The program responds as follows:

```
Enter the default backup device path:
(default: /dev/rmt/0c)
```

Enter the default backup device path. If you are not sure of the device path, do the following:

a. Insert a tape into the tape drive.

b. In another xterm window, enter the following commands:

```
mt -f /dev/rmt/0c status
mt -f /dev/rmt/1c status
```

The correct device path will show information similar to the following:

```
Tandberg 2.5 Gig QIC tape drive:
   sense key(0x0)= No Additional Sense   residual= 0   retries
   file no= 0   block no= 0
```

NOTE:

If you do not have another xterm window available, enter `^Z` to temporarily suspend the current command. You can then use the `mt` command to determine the correct device path. After determining the correct device path, enter `fg` to resume the command session.

7. After you enter the correct device path, the program responds as follows:

```
Enter number of ACDs being administered (1-8):
```

8. Enter the number of ACDs to be administered. This number may be less than the number of ACDs authorized. The program responds as follows:

```
Information for ACD 1

Enter switch name (up to 20 characters):
```

9. Enter the name for the switch associated with ACD 1. The program responds as follows:

```
Select the model of switch for this ACD
  1) Definity-G2.1
  2) Definity-G2.2
  3) Definity-G3i
  4) Definity-G3r
  5) Definity-G3V2
  6) Definity-G3V3
  7) Definity-G3V4
  8) Definity-G3V5
  9) Definity ECS R6

Enter choice (1-9):
```

10. Enter the number that represents the switch model associated with this ACD. Use the following table to determine the correct switch model. See *CentreVu® CMS Switch Connections and Administration* (585-215-876) for additional information.

If the switch release is...	...then use this CMS Setup switch model
G2.1	1) Definity-G2.1
G2.2 with Call Center features off	2) Definity-G2.1
G2.2 with Call Center features on	2) Definity-G2.2
G3i, V1	3) Definity-G3i
G3r, V1	4) Definity-G3r
G3V2	5) Definity-G3V2
G3V3	6) Definity-G3V3
G3V4	7) Definity-G3V4
ECS Release 5 ECS Release 6.1 ECS Release 6.2 ECS Release 6.3 as bugfix load*	8) Definity-G3V5
ECS Release 6.3 with R3V6 features† ECS Release 7	9) Definity ECS R6

*Does not include *CentreVu* Advocate or *CentreVu* Virtual Routing.
†Includes *CentreVu* Advocate and *CentreVu* Virtual Routing.

If the switch supports vectoring and vectoring is authorized, the following message appears; otherwise, go to Step 13:

```
Is Vectoring enabled on the switch? (y/n):
```

11. Enter y if vectoring is enabled on this switch; otherwise, enter n. The following message appears if vectoring is enabled, the switch supports EAS, and EAS is authorized. If the message does not appear, go to Step 13.

```
Is Expert Agent Selection enabled on the switch? (y/n):
```

12. Enter y if EAS is enabled on this switch; otherwise, enter n. The program responds as follows:

```
Does the Central Office have disconnect supervision?
(y/n): (default: y)
```

13. Enter y if the CMS is located in the U.S., then go to Step 15. If you answer n, the program responds as follows:

```
ACD calls shorter than the Phantom Abandon Call Timer value
will be counted as abandoned.
Enter the Phantom Abandon Call Timer value in seconds
(1-10): (default:10)
```

14. Enter the Phantom Abandon Call Timer value.

    NOTE:

    The Phantom Abandon Call Timer value can be changed through the `cmssvc` menu using the `swsetup` option.

    The program responds as follows:

```
Enter the local port assigned to switch. (1-64):
```

    NOTE:

    The local and remote port assignments must be symmetrical between the switch and the CMS. For example, if the CMS local port is 1 and the remote port is 10, the switch local port must be 10 and the remote port must be 1.

15. Enter the local port or channel number on the switch. The program responds as follows:

```
Enter the remote port assigned to switch (1-64):
```

16. Enter the remote port or channel number on the switch.

    For R3V5 systems, the program continues with Step 21.

    For R3V6 systems, you must now select how the CMS platform is connected to the *DEFINITY* switch for message transport. The program responds as follows:

```
Select the transport to the switch
   1) X.25
   2) TCP/IP
Enter choice (1-2):
```

17. If you enter `1` to select X.25, the program continues with Step 21.

    If you enter `2` to select TCP/IP, which is available with *DEFINITY* ECS Release 7, the program continues with Step 18.

18. The program responds as follows:

```
Enter DEFINITY ECS host name or IP Address:
```

19. Enter the host name or IP address of the *DEFINITY* ECS that is connected to this ACD. If you enter a host name that has not been added to the computer's `/etc/hosts` file, the program responds as follows:

```
Switch_name has not been administered in a DNS or
/etc/hosts file. The DNS or /etc/hosts file must be
corrected or the link to the switch will not work.
```

See the switch LAN setup on Page 2-140 for more information about setting up the hosts file. The program continues as follows:

```
Enter DEFINITY ECS TCP port number (5001-5999):
(default: 5001)
```

20. Press Enter to use the default TCP port number 5001. This number must match what is administered on the *DEFINITY* switch. The program continues with Step 23.
21. The program responds as follows (for example):

```
Select the device used for x.25 connectivity to the switch
 1) Serial Port A
 2) Serial Port B
 3) HSI link 0
 4) HSI link 1
 5) HSI link 2
 6) HSI link 3
 7) HSI link 4
 8) HSI link 5
 9) HSI link 6
10) HSI link 7
11) Software loopback link 0
12) Software loopback link 1
Enter choice (1-12):
```

22. Enter the number that corresponds to the device used for x.25 connectivity.

    NOTE:

    Except for the loopback links, which are for testing only, the choices on the menu correspond to the hardware connections that can be made between the CMS and the switch.

    If you choose a serial port, but you have a High-Speed Serial Interface (HSI) card, you receive an error message as follows:

```
Choose one of the HSI links for your x.25 connectivity.
Re-enter your selection.
```

    If you choose an HSI link but do not have an HSI card, you receive an error message as follows:

```
Without an HSI card you must use serial port X for your
x.25 connectivity.
Re-enter your selection.
```

    If you choose a loopback link, the program responds as follows:

```
This choice is used for testing only. If you make this
selection, you will not be able to collect data from your
ACD. Is this what you want to do (y/n)?
```

    If you choose y, the selection takes effect. If you choose n, the system redisplays the menu.

23. The program responds as follows:

```
Number of splits/skills (0-XXX):
```

24. Enter the number of splits/skills in this ACD. The program responds as follows:

```
Total split/skill members, summed over all splits/skills
(0-XXXX):
```

25. Enter the maximum number of split/skill members that will be logged into this ACD simultaneously, considering shift overlap.

    - For non-EAS, sum all agent-split combinations, counting each split an agent will log into (maximum is 4) as a split member.
    - For EAS, sum all agent-skill combinations that will be logged in at the same time, counting the maximum number of skills the supervisors expect to assign to each agent (up to 20) during a shift.

    If it is not possible to sum the number of splits/skills for each agent, you can determine the capacity needed by multiplying the total number of agents times the average number of splits/skills per agent. The program responds as follows:

```
Number of shifts (1-4):
```

26. Enter the number of shifts. The program responds as follows:

```
Enter the start time for shift 1 (hh:mmXM):
```

27. Enter the start time for shift 1; for example, `08:00am`. The program responds as follows:

```
Enter the stop time for shift 1 (hh:mmXM):
```

28. Enter the stop time for shift 1; for example, `05:00pm`. The program responds as follows:

```
Number of agents logged into all splits/skills during
shift 1 (0-XXX):
```

29. Enter the number of agents logged in during the shift.

    NOTE:

    Steps 27 through 29 repeat for the number of shifts entered in Step 26.

    When all shifts have been set up, the program responds as follows:

```
Number of trunk groups (0-XXX):
```

30. Enter the number of trunk groups associated with this ACD. The program responds as follows:

```
Number of trunks (0-XXXX):
```

31. Enter the number of trunks associated with this ACD. The program responds as follows:

```
Number of unmeasured facilities (0-XXXX):
```

32. Enter the number of unmeasured trunk facilities associated with this ACD. If the switch supports call work codes, the program responds as follows:

```
Number of call work codes (X-XXXX):
```

33. Enter the number of call work codes. The program responds as follows:

```
Creating database tables
.................
```

After a few minutes, if vectoring is enabled on the switch (that is, if a y was entered in Step 11), the program responds as follows:

```
Enter number of vectors (0-XXXX):
```

34. Enter the number of vectors. The program responds as follows:

```
Enter number of VDNs (0-XXXX):
```

35. Enter the number of VDNs.

The program repeats Steps 9 through 34 for each ACD entered in Step 8. After you define the last ACD, the program continues as follows:

```
Updating database.

Computing space requirements and file system space
availability.

Setup completed successfully.
```

If the setup determines that you do not have enough file space, you will get the following warning message:

```
Failed to find sufficient file space for CMS data.

WARNING: You do not currently have sufficient file space
for your existing CMS data. At this point you should turn
on CMS, go to the “Data Storage Allocation” screen, and
verify/modify the administration, or go to the “Free
Allocation” screen and verify/modify your existing free
space.

Setup completed with warnings.
```

36. Verify that the installation completed successfully by entering the following:

    `tail /cms/install/logdir/admin.log`

    All failure messages are logged in this file. The CMS software is successfully set up when you see a message similar to the following:

```
File systems/space available:
   /cms      12994480

File systems/current blocks free:
   /cms      12994480
/cms: VDN,TKGRP,VECTOR,TRUNK,AGENT_LOG_REC,
AGENT_TRACE_REC,SPLIT,AGENT,EXCEPTIONS_REC,WORKCODE
Number of calls to fill_fs():12
Setup completed successfully <data/time>
```

    You may edit this file and add comments about the packages that were installed or authorized.

If you need to install additional CMS-related feature packages (Forecasting or External Call History), go to “Installing Feature Packages” on Page 2-171.

If you are not installing any other feature packages, do the following to turn on CMS:

1. Access the CMS Services menu by entering `cmssvc`. The menu appears.
2. Enter `3` to select the `run_cms` option.
3. Enter `1` to turn on CMS.

   CMS turns on.

Setting Up CMS Using a *UNIX* Flat File

Overview:

Setting up the CMS feature package using a *UNIX* flat file consists of editing a copy of the `cms.inst.skl` file and starting the install program.

NOTE:

It is not necessary to run this procedure if you already did the CMS setup interactively.

Editing the File:

1. Change to the CMS installation directory by entering the following:

   ```
   cd /cms/install/cms_install
   ```

2. Make a copy of the CMS installation file by entering the following:

   ```
   cp cms.inst.skl cms.install
   ```

3. Change permissions on the copied CMS installation file by entering the following:

   ```
   chmod 644 cms.install
   ```

4. Edit the copied CMS installation file by entering the following:

   ```
   vi cms.install
   ```

   The file contains a series of questions and value ranges for the ACD/switch configuration. The following pages show a sample file with example values in bold. There is a separate example for R3V6 and R3V5.

   NOTE:

   When selecting a switch model in the file, refer to the table on Page 2-151.

R3V6 Example

```
# Enter a name for this UNIX system (up to 256 characters):
cms3
# Select the type of backup device you are using
#    1) SCSI QIC-150 cartridge tape - 150MB tape
#    2) 40.0 Gbyte 8mm tape
#    3) 14.0 Gbyte 8mm tape
#    4) 5.0 Gbyte 8mm tape
#    5) SCSI QIC-2.5 cartridge tape - 2.5GB tape
#    6) SCSI 4-8 SLR cartridge tape - 4GB tape (8GB compressed)
# Enter choice (1-6):
4
# Default backup device paths based on device type:
# Device                                    Default backup path
# SCSI QIC-150 cartridge tape - 150MB tape /dev/rmt/0
# 40.0 Gbyte 8mm tape                       /dev/rmt/0c
# 14.0 Gbyte 8mm tape                       /dev/rmt/0c
# 5.0 Gbyte 8mm tape                        /dev/rmt/0
# SCSI QIC-2.5 cartridge tape - 2.5GB tape /dev/rmt/0c
# SCSI 4-8 SLR cartridge tape - 4GB tape (8GB compressed) /dev/rmt/0c
# Enter the default backup device path:
/dev/rmt/0c
# Enter number of ACDs being administered (1-8):
3
# The following information is required per ACD:
# Information for ACD 1:
# Enter switch name (up to 20 characters):
retail1
# Select the model of switch for this ACD
#    1) Definity-G2.1
#    2) Definity-G2.2
#    3) Definity-G3i
#    4) Definity-G3r
#    5) Definity-G3V2
#    6) Definity-G3V3
#    7) Definity-G3V4
#    8) Definity-G3V5
#    9) Definity ECS R6
# Enter choice (1-9):
9
# Is Vectoring enabled on the switch? (y/n):
y
# Is Expert Agent Selection enabled on the switch? (y/n):
y
# Does the Central Office have disconnect supervision? (y/n):
y
# If the Central Office has disconnect supervision, enter 0. Otherwise,
# ACD calls shorter than the Phantom Abandon Call Timer
# value will be counted as abandoned.
# Enter the Phantom Abandon Call Timer value in seconds (0-10):
0
# Enter the local port assigned to switch (1-64):
1
# Enter the remote port assigned to switch (1-64):
1
```

```
# TCP/IP transport is only available with DEFINITY ECS R6 and later switch models
# Select the transport to the switch
#    1) X.25
#    2) TCP/IP
# Enter choice (1-2):
2
# Skip the next question if you did not enter choice 1. These are used
# for X.25 connections only.
# Select the device used for x.25 connectivity to the switch
#    1) Serial port A
#    2) Serial port B
#    3) HSI link 0
#    4) HSI link 1
#    5) HSI link 2
#    6) HSI link 3
#    7) HSI link 4
#    8) HSI link 5
#    9) HSI link 6
#   10) HSI link 7
#   11) Software loopback link 0
#   12) Software loopback link 1
# Enter choice (1-12):

# Skip the next question if you did not enter choices 11 - 12. These are
# used for testing only. If you select one of these, you will not be able
# to collect data from your ACD.
# Are you sure you want to do this? (y/n):

# Skip the next two questions if you did not enter choice 2 (TCP/IP).
# These are used for TCP/IP connections only.
# If a host name is entered, the host name must be administered in a DNS or
# /etc/hosts file or the link to the switch will not work.
# Enter DEFINITY ECS host name or IP Address:
192.168.2.2
# Enter DEFINITY ECS TCP port number (5001-5999):
5001
# Maximum number of splits/skills based on switch type:
# Release(s)                                          Value
# Definity-G2.1/Definity-G2.2                           60
# Definity-G3i/Definity-G3r                             99
# Definity-G3V2/Definity-G3V3/Definity-G3V4            255
# Definity-G3V5/Definity ECS R6/Definity-G2.2(EAS)     600
# Number of splits/skills (0-Maximum):
100
# Maximum number of split/skill members based on switch type:
# Release(s)                                    Value
# Definity-G3i                                    500
# Definity-G2.1/Definity-G2.2/Definity-G3r       1023
# Definity-G2.2(EAS)                             5115
# Definity-G3V2/Definity-G3V3/Definity-G3V4      5200
# Definity-G3V5/Definity ECS R6                 10000
# Total split/skill members, summed over all splits/skills (0-Maximum):
1000
```

```
# Number of shifts (1-4):
1
# Enter the start time for shift 1 (hh:mmXM):
08:00AM
# Enter the stop time for shift 1 (hh:mmXM):
05:00PM
# Number of agents logged into all splits/skills during shift 1
 (1-Maximum):
100
# Enter the start time for shift 2 (hh:mmXM):

# Enter the stop time for shift 2 (hh:mmXM):

# Number of agents logged into all splits/skills during shift 2
 (1-Maximum):
# Enter the start time for shift 3 (hh:mmXM):

# Enter the stop time for shift 3 (hh:mmXM):

# Number of agents logged into all splits/skills during shift 3 (1-Maximum):

# Enter the start time for shift 4 (hh:mmXM):

# Enter the stop time for shift 4 (hh:mmXM):

# Number of agents logged into all splits/skills during shift 4 (1-Maximum):

# Maximum number of trunk groups based on switch type:
# Release(s)                                  Value
# Definity-G3i                                  99
# Definity-G2.1/Definity-G2.2/Definity-G3r     255
# Definity-G3V2/Definity-G3V3/Definity-G3V4    666
# Definity-G3V5/Definity ECS R6                666
# Number of trunk groups (0-Maximum):
20
# Maximum number of trunks based on switch type:
# Release(s)                                  Value
# Definity-G3i                                  400
# Definity-G2.1/Definity-G2.2/Definity-G3r     4000
# Definity-G3V2/Definity-G3V3/Definity-G3V4    4000
# Definity-G3V5/Definity ECS R6                4000
# Number of trunks (0-Maximum):
100
```

```
# Number of unmeasured facilities (0 to (Maximum trunks - Number of trunks)):
10
# Minimum number of call work codes based on switch type:
# Release(s)                                              Value
# Definity-G2.1                                             0
# Definity-G2.2/Definity-G3i/Definity-G3r/Definity-G3V2     1
# Definity-G3V3/Definity-G3V4/Definity-G3V5                 1
# Definity ECS R6                                           1
# Maximum number of call work codes based on switch type:
# Release(s)                                              Value
# Definity-G2.1                                             0
# Definity-G2.2/Definity-G3i/Definity-G3r/Definity-G3V2    1999
# Definity-G3V3/Definity-G3V4/Definity-G3V5                1999
# Definity ECS R6                                          1999
# Number of call work codes (Minimum-Maximum):
100
# Maximum number of vectors based on switch type:
# Release(s)                                    Value
# Definity-G2.1                                   128
# Definity-G3i                                    256
# Definity-G2.2                                   511
# Definity-G3r/Definity-G3V2/Definity-G3V3        512
# Definity-G3V4/Definity-G3V5/Definity ECS R6     512
# Enter number of vectors (0-Maximum):
20
# Maximum number of VDNs based on switch type:
# Release(s)                                  Value
# Definity-G3i                                 500
# Definity-G2.1/Definity-G2.2/Definity-G3r    2000
# Definity-G3V2/Definity-G3V3/Definity-G3V4   2000
# Definity-G3V5                               2000
# Definity ECS R6                             8000
# Enter number of VDNs (0-Maximum):
10

# Information for ACD 2:
```

(The file repeats the preceding statements for ACDs 2 through 8; enter data for only the required number of ACDs.)

R3V5 Example

```
# Enter a name for this UNIX system (up to 256 characters):
cms3
# Select the type of backup device you are using
#    1) SCSI QIC-150 cartridge tape - 150MB tape
#    2) SCSI QIC-60 cartridge tape - 60MB tape
#    3) 14.0 Gbyte 8mm tape
#    4) 5.0 Gbyte 8mm tape
#    5) SCSI QIC-2.5 cartridge tape - 2.5GB tape
#    6) SCSI 4-8 SLR cartridge tape - 4GB tape (8GB compressed)
# Enter choice (1-6):
5
# Default backup device paths based on device type:
# Device                                              Default backup path
# SCSI QIC-150 cartridge tape - 150MB tape                 /dev/rmt/0
# SCSI QIC-60 cartridge tape - 60MB tape                   /dev/rmt/0
# 14.0 Gbyte 8mm tape                                      /dev/rmt/0c
# 5.0 Gbyte 8mm tape                                       /dev/rmt/0
# SCSI QIC-2.5 cartridge tape - 2.5GB tape                 /dev/rmt/0c
# SCSI 4-8 SLR cartridge tape - 4GB tape (8GB compressed) /dev/rmt/0c
# Enter the default backup device path:
/dev/rmt/0c
# Enter number of ACDs being administered (1-8):
2
# The following information is required per ACD:
# Information for ACD 1:
# Enter switch name (up to 20 characters):
retail2
# Select the model of switch for this ACD
# System 85-R2V4 and Definity-G1.1 are only valid if this load is being
# used as a bugfix
# Definity-G3V5 is only valid if the CMS release is R3V5 or greater.
#    1) System85-R2V4
#    2) Definity-G1.1
#    3) Definity-G2.1
#    4) Definity-G2.2
#    5) Definity-G3i
#    6) Definity-G3r
#    7) Definity-G3V2
#    8) Definity-G3V3
#    9) Definity-G3V4
#   10) Definity-G3V5
# Enter choice (1-10):
10
# Is Vectoring enabled on the switch? (y/n):
y
# Is Expert Agent Selection enabled on the switch? (y/n):
y
# Does the Central Office have disconnect supervision? (y/n):
y
# If the Central Office has disconnect supervision, enter 0.  Otherwise,
# ACD calls shorter than the Phantom Abandon Call Timer
# value will be counted as abandoned.
# Enter the Phantom Abandon Call Timer value in seconds (0-10):
0
# Enter the local port assigned to switch (1-64):
1
```

```
# Enter the remote port assigned to switch (1-64):
1
# Select the device used for x.25 connectivity to the switch
#    1) Serial port A
#    2) Serial port B
#    3) HSI link 0
#    4) HSI link 1
#    5) HSI link 2
#    6) HSI link 3
#    7) HSI link 4
#    8) HSI link 5
#    9) HSI link 6
#   10) HSI link 7
#   11) Software loopback link 0
#   12) Software loopback link 1
# Enter choice (1-12):
8
# Skip the next question if you did not enter choices 11 - 12. These are
used for testing only. If you select one of these, you will not be able to
collect data from your ACD.
# Are you sure you want to do this? (y/n):

# Maximum number of splits/skills based on switch type:
# Release(s)                                    Value
# System85-R2V4/Definity-G2.1/Definity-G2.2      60
# Definity-G1.1/Definity-G3i/Definity-G3r        99
# Definity-G3V2/Definity-G3V3/Definity-G3V4     255
# Definity-G3V5/Definity-G2.2(EAS)              600
# Number of splits/skills (0-Maximum):
100
# Maximum number of split/skill members based on switch type:
# Release(s)                                                  Value
# Definity-G1.1                                                 400
# Definity-G3i                                                  500
# System85-R2V4/Definity-G2.1/Definity-G2.2/Definity-G3r       1023
# Definity-G2.2(EAS)                                           5115
# Definity-G3V2/Definity-G3V3/Definity-G3V4                    5200
# Definity-G3V5                                               10000
# Total split/skill members, summed over all splits/skills (0-Maximum):
1000
# Number of shifts (1-4):
1
# Enter the start time for shift 1 (hh:mmXM):
08:00AM
# Enter the stop time for shift 1 (hh:mmXM):
05:00PM
# Number of agents logged into all splits/skills during shift 1 (1-Maximum):
100
# Enter the start time for shift 2 (hh:mmXM):

# Enter the stop time for shift 2 (hh:mmXM):

# Number of agents logged into all splits/skills during shift 2 (1-Maximum):

# Enter the start time for shift 3 (hh:mmXM):
```

```
# Enter the stop time for shift 3 (hh:mmXM):

# Number of agents logged into all splits/skills during shift 3 (1-Maximum):

# Enter the start time for shift 4 (hh:mmXM):

# Enter the stop time for shift 4 (hh:mmXM):

# Number of agents logged into all splits/skills during shift 4 (1-Maximum):

# Maximum number of trunk groups based on switch type:
# Release(s)                                                  Value
# Definity-G1.1/Definity-G3i                                    99
# System85-R2V4/Definity-G2.1/Definity-G2.2/Definity-G3r       255
# Definity-G3V2/Definity-G3V3/Definity-G3V4/Definity-G3V5      666
# Number of trunk groups (0-Maximum):
30
# Maximum number of trunks based on switch type:
# Release(s)                                                   Value
# Definity-G1.1/Definity-G3i                                     400
# System85-R2V4/Definity-G2.1/G2.2/G3r/G3V2/G3V3/G3V4/G3V5     4000
# Number of trunks (0-Maximum):
150
# Number of unmeasured facilities (0 to (Maximum trunks - Number of trunks)):
10
# Minimum number of call work codes based on switch type:
# Release(s)                                  Value
# System85-R2V4/Definity-G1.1/Definity-G2.1       0
# Definity-G2.2/G3i/G3r/G3V2/G3V3/G3V4/G3V5       1
# Maximum number of call work codes based on switch type:
# Release(s)                                  Value
# System85-R2V4/Definity-G1.1/Definity-G2.1       0
# Definity-G2.2/G3i/G3r/G3V2/G3V3/G3V4/G3V5    1999
# Number of call work codes (Minimum-Maximum):
100
# Maximum number of vectors based on switch type:
# Release(s)                                                                  Value
# Definity-G1.1                                                                 0
# System85-R2V4/Definity-G2.1                                                 128
# Definity-G3i                                                                256
# Definity-G2.2                                                               511
# Definity-G3r/Definity-G3V2/Definity-G3V3/Definity-G3V4/Definity-G3V5        512
# Enter number of vectors (0-Maximum):
20
# Maximum number of VDNs based on switch type:
# Release(s)                                                   Value
# Definity-G1.1                                                  0
# Definity-G3i                                                 500
# System85-R2V4/Definity-G2.1/G2.2/G3r/G3V2/G3V3/G3V4/G3V5    2000
# Enter number of VDNs (0-Maximum):
10
# Information for ACD 2:
```

(The file repeats the preceding statements for ACDs 2 through 8; enter data for only the required number of ACDs.)

5. Enter the appropriate values for your configuration. As shown in bold in the examples, the entries must be added on the blank lines after each question.

   CAUTION:

   Use the computer's host name for the UNIX system name. The computer's host name was assigned during the factory installation.

   After you have entered all the appropriate values, enter `:wq` to write and quit the file.

Running Setup with a Flat File

1. Enter `cd` to change to the root directory.
2. Access the CMS Services menu by entering the following:

   `cmssvc`

   The program responds as follows:

```
Lucent Technologies CentreVu(R) Call Management System Services
Menu

Select a command from the list below.
  1) auth_display Display feature authorizations
  2) auth_set     Authorize capabilities/capacities
  3) run_cms      Turn CentreVu CMS on or off
  4) setup        Set up the initial configuration
  5) swinfo       Display switch information
  6) swsetup      Change switch information
  7) patch_inst   Install a single CMS patch from CD
  8) patch_rmv    Backout an installed CMS patch
  9) load_all     Install all CMS patches found on CD
 10) back_all     Backout all installed CMS patches from machine
Enter choice (1-10) or q to quit:
```

3. Enter `4` to select the `setup` option. If setup has been done previously, the program responds as follows:

```
Warning!!! Setup has already been performed.
Running this command will remove all CMS data in the database.
Do you wish to proceed and re-configure CMS? (y/n): (default: n)
```

4. Enter y. The program responds as follows (R3V6 only; for R3V5, skip to the response of Step 5):

```
Select the language for this server:

All languages are ISO Latin except Japanese. Selection of the
server language assumes that existing customer data is
compatible. (Upgrade from any ISO Latin language to any ISO
Latin language or from Japanese to Japanese is supported).

1) English
2) Dutch
3) French
4) German
5) Italian
6) Portuguese
7) Spanish
8) Japanese
Enter choice (1-8): (default: 1)
```

5. Enter the number for the language used on this system. The program responds as follows:

```
The input will be read from
  1) the terminal
  2) a flat file
Enter choice (1-2):
```

6. Enter `2` to select the `flat file` option. The program responds as follows:

```
*** The rest of this command is running in the background ***
```

7. Verify that the installation completed successfully by entering the following:

   `tail -f /cms/install/logdir/admin.log`

   The `-f` option in the `tail` command updates the console as messages are written to the `admin.log` file. All failure messages are logged in this file. The CMS software is successfully set up when you see a message similar to the following:

```
File systems/space available:
   /cms      12994480

File systems/current blocks free:
   /cms      12994480
/cms: VDN,TKGRP,VECTOR,TRUNK,AGENT_LOG_REC,
AGENT_TRACE_REC,SPLIT,AGENT,EXCEPTIONS_REC,WORKCODE,
CALL_REC,
Number of calls to fill_fs():12
Setup completed successfully <data/time>
```

   You may edit this file and add comments about the packages that were installed or authorized.

8. Press Delete to break out of the `tail -f` command.

If you need to install additional CMS-related feature packages (Forecasting or External Call History), go to "Installing Feature Packages" on Page 2-171 and follow the procedures.

If you are not installing any other feature packages, do the following to turn on CMS:

1. Access the CMS Services menu by entering `cmssvc`.

   The menu appears.

2. Enter `3` to select the `run_cms` option.

3. Enter `1` to turn on CMS.

   CMS turns on.

Installing Feature Packages

Use the procedures in this section to install the following feature packages:

- Forecasting
- External Call History (ECH).

Customers can install these CMS feature packages if they have been authorized during CMS setup.

Installing the Forecasting Package

Overview

Use the procedure in this section to install the Forecasting feature package.

Prerequisites

- Verify that you are logged in as *root.*
- The computer must be in run-level 3 (check this with the command `who -r`).
- All file systems must be mounted.
- CMS must be turned off.

Procedure

1. Access the CMS Services menu by entering the following command:

   `cmssvc`

   The program responds as follows:

```
Lucent Technologies CentreVu(R) Call Management System Services
Menu

Select a command from the list below.
  1) auth_display Display feature authorizations
  2) auth_set     Authorize capabilities/capacities
  3) run_cms      Turn CentreVu CMS on or off
  4) setup        Set up the initial configuration
  5) swinfo       Display switch information
  6) swsetup      Change switch information
  7) patch_inst   Install a single CMS patch from CD
  8) patch_rmv    Backout an installed CMS patch
  9) load_all     Install all CMS patches found on CD
 10) back_all     Backout all installed CMS patches from machine
Enter choice (1-10) or q to quit:
```

2. Enter `1` to select the `auth_display` option. The system lists the current authorizations:

```
                              Version purchased:   R3V X

                            Capability/Capacity   Authorization
                            -------------------   -------------
                                      vectoring   authorized
                                    forecasting   authorized
                                       graphics   authorized
                             external call history   authorized
                           expert agent selection   authorized
                             external application   authorized
                    More than 2000 VDNs measured   authorized
     Lucent Technologies CentreVu(R) Supervisor   authorized
Lucent Technologies CentreVu(R) Report Designer   authorized
          Maximum number of split/skill members   10000
                           Maximum number of ACDs   2
        Simultaneous CentreVu Supervisor logins   250
```

3. Verify that the system is authorized to install the Forecasting package.

   NOTE:

   If Forecasting is not authorized but should be, go to "Setting Authorizations" on Page 2-130 and follow those procedures.

4. Access the CMS Administration menu by entering the following command:

   `cmsadm`

   The program responds as follows:

```
Lucent Technologies CentreVu(R) Call Management System
Administration Menu
Select a command from the list below.
   1) acd_create  Define a new ACD
   2) acd_remove   Remove all administration and data for an ACD
   3) backup      Filesystem backup
   4) diskmap     Estimate disk requirements
   5) memory      Estimate memory requirements
   6) realtime    Estimate real-time report refresh rate
   7) pkg_install Install a feature package
   8) pkg_remove  Remove a feature package
   9) run_cms     Turn CentreVu CMS on or off
  10) port_admin  Administer Modems, Terminals, and Printers
Enter choice (1-10) or q to quit:
```

5. Enter `7` to select the `pkg_install` option. The program responds as follows:

```
The CMS Features that can be installed are
  1) forecasting
  2) external call history
Enter choice (1-2) or q to quit:
```

   NOTE:

   The program displays only feature packages that are authorized and not yet installed.

6. Enter the number that corresponds to the Forecasting package (in this example, 1). The program responds as follows:

```
Creating database tables
.......
```

The dots continue to appear as the program sets up the Forecasting tables. After the Forecasting tables are completed, the program responds as follows:

```
Computing space requirements and file system space
availability.

Forecasting package installed.
```

If the program determines that you do not have enough file space, you will get the following warning message:

```
Failed to find sufficient file space for CMS data.

WARNING: You do not currently have sufficient file space
for your existing CMS data. At this point you should turn
on CMS, go to the “Data Storage Allocation” screen, and
verify/modify the administration, or go to the “Free
Allocation” screen and verify/modify your existing free
space.

Forecasting package installed with warnings.
```

7. Verify that the installation completed successfully by entering the following:

   `tail /cms/install/logdir/admin.log`

   The Forecasting package is successfully installed when you see this message:

   ```
   .
   .
   Forecasting package installed <date/time>
   ```

   You may edit this file and add comments about the packages that were installed or authorized.

If you need to install External Call History, go to "Installing the External Call History Package" on Page 2-175 and follow the procedures.

If you are not installing any other feature packages, do the following to turn on CMS:

1. Access the CMS Services menu by entering `cmssvc`.

   The menu appears.

2. Enter `3` to select the `run_cms` option.

3. Enter `1` to turn on CMS.

   CMS turns on.

Installing the External Call History Package

Overview

Use the procedure in this section to install the External Call History feature package.

Prerequisites

- The customer must have a separate computer for the storage and reporting of call records.
- Both the storage machine and the CMS machine must be administered in *UNIX*-to-*UNIX* copy (UUCP).
- If the storage machine is not running the *UNIX* system, use a DOS version of UUCP.

- Verify that you are logged in as *root.*
- The computer must be in run-level 3 (check this with the command `who -r`).
- All file systems must be mounted.
- CMS must be turned off.

NOTE:

Once the External Call History package is installed, you will no longer be able to access any call record data from CMS. For more information, see *CentreVu® CMS R3V6 External Call History Interface* (585-215-854). This document explains how to administer the UUCP link port on an NTS.

Procedure

Do these steps to install the External Call History feature package:

1. Access the CMS Services menu by entering the following:

   `cmssvc`

   The program responds as follows:

```
Lucent Technologies CentreVu(R) Call Management System Services
Menu

Select a command from the list below.
  1) auth_display Display feature authorizations
  2) auth_set     Authorize capabilities/capacities
  3) run_cms      Turn CentreVu CMS on or off
  4) setup        Set up the initial configuration
  5) swinfo       Display switch information
  6) swsetup      Change switch information
  7) patch_inst   Install a single CMS patch from CD
  8) patch_rmv    Backout an installed CMS patch
  9) load_all     Install all CMS patches found on CD
 10) back_all     Backout all installed CMS patches from machine
Enter choice (1-10) or q to quit:
```

2. Enter `1` to select the `auth_display` option. The program responds by displaying the current authorizations:

```
                              Version purchased:   R3VX

                            Capability/Capacity   Authorization
                            -------------------   -------------
                                      vectoring   authorized
                                    forecasting   installed
                                       graphics   authorized
                             external call history   authorized
                           expert agent selection   authorized
                             external application   authorized
                  More than 2000 VDNs measured   authorized
      Lucent Technologies CentreVu(R) Supervisor   authorized
Lucent Technologies CentreVu(R) Report Designer   authorized
           Maximum number of split/skill members   10000
                         Maximum number of ACDs   2
         Simultaneous CentreVu Supervisor logins   250
```

3. Verify that the system is authorized for the External Call History package.

   NOTE:

   If External Call History is not authorized but should be, go to "Setting Authorizations" on Page 2-130 and follow those procedures.

4. Access the CMS Administration menu by entering the following:

   `cmsadm`

   The program responds as follows:

```
Lucent Technologies CentreVu(R) Call Management System
Administration Menu
Select a command from the list below.
   1) acd_create  Define a new ACD
   2) acd_remove  Remove all administration and data for an ACD
   3) backup      Filesystem backup
   4) diskmap     Estimate disk requirements
   5) memory      Estimate memory requirements
   6) realtime    Estimate real-time report refresh rate
   7) pkg_install Install a feature package
   8) pkg_remove  Remove a feature package
   9) run_cms     Turn CentreVu CMS on or off
  10) port_admin  Administer Modems, Terminals, and Printers
Enter choice (1-10) or q to quit:
```

5. Enter `7` to select the `pkg_install` option. The program responds as follows:

```
The CMS Features that can be installed are
  1) forecasting
  2) external call history
Enter choice (1-2) or q to quit:
```

NOTE:

The system displays only feature packages that are authorized and not yet installed.

6. Enter the number that corresponds to the External Call History package (in this example, 2). The program responds as follows:

```
Enter name of computer to which to send call records
(up to 256 characters):
```

7. Enter the name of the computer where call records will be collected. The program responds as follows:

```
Enter full path of the program to transmit the external
call history files: (default: /cms/dc/chr/uucp_copy)
```

8. Press Enter. The program responds as follows:

```
Enter full path of the program to check the external call
history file transmission: (default:
/cms/dc/chr/uucp_check)
```

9. Press Enter. The program responds as follows:

```
Enter password for nuucp login on computer (up to 8
characters)
```

10. Enter the password for `nuucp` of the receiving computer that was administered in `uucp`. The program responds as follows:

```
Enter CMS port for connection to computer (s_pdevxxx):
```

11. Enter the CMS port administered for the Call History Reporting machine. This port can either be on one of the 64-port NTS patch panels or on one of the 8- or 16-port NTSs. For more information on administering the ports on the NTS, see *CentreVu® CMS Terminals, Printers, and Modems* (585-215-874). The program responds as follows:

```
Select a speed for this connection
1) 19200
2) 38400
Enter choice (1-2):
```

12. Enter the speed that the connection between the CMS and Call History Reporting machine will be using. The program responds as follows:

```
Number of call segments to buffer for ACD xxxxx (0-99999):
```

13. Enter the number of call records to be held in the buffer if the Call History machine cannot accept the data. (This step reserves disk space; therefore, sufficient disk space must be available.)

    NOTE:

    This step is repeated for each administered ACD.

    The program responds as follows:

```
Computing space requirements and file system space
availability.

External Call History package installed.
```

If the setup determines that you do not have enough file space, you will get the following warning message:

```
Failed to find sufficient file space for CMS data.

WARNING: You do not currently have sufficient file space
for your existing CMS data. At this point you should turn
on CMS, go to the “Data Storage Allocation” screen, and
verify/modify the administration, or go to the “Free
Allocation” screen and verify/modify your existing free
space.

External call history package installed with warnings.
```

14. Verify that the installation completed successfully by entering the following:

    `tail /cms/install/logdir/admin.log`

    The External Call History package is installed successfully when you see this message:

    ```
      . . . .
      . . . .
    External Call History package installed <date/time>
    ```

    You may edit this file and add comments about the packages that were installed or authorized.

If you need to install Forecasting, go to “Installing the Forecasting Package” on Page 2-171 and follow the procedures.

If you are not installing any other feature packages, do the following to turn on CMS:

1. Access the CMS Services menu by entering `cmssvc`.

   The menu appears.

2. Enter `3` to select the `run_cms` option.

3. Enter `1` to turn on CMS.

   CMS turns on.

Setting Up the Remote Console

Overview

This section describes how to redirect the remote console port using the *Solaris* software package. Redirecting the console allows the TSC to dial in and do remote maintenance. The port used for remote console access differs depending on the hardware platform:

Hardware Platform	Port A	Port B
SPARCserver Enterprise 3000 *Enterprise* 3500	Remote Console	Switch Link
Ultra 5	Switch Link	Remote Console

Release and Platform Considerations

- All releases
- All platforms.

Administering the Remote Console Port

To administer the remote console port on the back of the CMS computer, do the following:

1. Enter the following to remove the current port administration:

   `/cms/install/bin/abcadm -r ttyX` (where `X` is `a` or `b`)

   The program responds as follows:

```
ttyX is currently set to be incoming

Are you sure you want to change it? [y,n,?]
```

2. Enter y. The program responds as follows:

```
ttyX administration removed
```

3. Enter the following to administer the remote console port:

   `/cms/install/bin/abcadm -i -b 9600 ttyX` (where X is `a` or `b`)

   The program responds as follows:

```
ttyX set to incoming port 9600 baud
#
```

   The remote console port has been administered.

Testing the Remote Console Port

Test the remote console port on the back of a CMS computer by redirecting the console from the local console to the remote console, and then redirecting the console back to the local console from the remote console.

1. Dial in (from the remote console) to the remote console modem (that is, access the remote console port on the computer), and log in as *root*.
2. Remove the port monitor by entering the following:

   `/cms/install/bin/abcadm -r ttyX` (where X is `a` or `b`)

   The program responds as follows:

```
ttyX is currently set to be incoming

Are you sure you want to change it? [y,n,?]
```

3. Enter y. The program responds as follows:

```
ttyX administration removed
```

4. Redirect the console to the remote console port by entering the following:

   `/cms/install/bin/abcadm -c -b 9600 tty`*X*

   The program responds as follows:

```
This change requires a reboot to take affect

Are you ready to reboot? [y,n,?]
```

5. Enter y. The system will automatically reboot, and the remote console port will come up as the console.

   As the system reboots, the shutting down messages will appear on the local console. When the system starts to come back up, the local console should go blank, and the system boot diagnostics should appear on the remote console. After the system reboots, a login prompt should appear on the remote console.

6. Log in to the remote console as *root*. At this time, an *OpenWindows* login window appears on the local console.

   CAUTION:

   If you enter Control-D from the remote console to exit the system without first redirecting control back to the local console, you may lock yourself from using the console locally or remotely.

7. Redirect the console back to the local console by entering the following:

   `/cms/install/bin/abcadm -c local`

   The program responds as follows:

```
Console set to local

This change requires a reboot to take affect

Are you ready to reboot? [y,n,?]
```

8. Enter y. The system automatically reboots and the remote console port comes up as a regular dial-in port with the `login:` prompt displayed.

   As the system reboots, the shutting-down messages appears on the remote console. When the system starts to come back up, the system boot diagnostics should appear on the local console. After the system reboots, a login prompt should appear on the local console.

9. Log into the local console as *root*.

   The console has been redirected from the remote console to the local console.

Setting Up the NTS

Overview

Each NTS needs to be set up so it will be recognized on the network. The following networking items need to be set up:

- Internet address
- Subnet mask
- Preferred load host internet address (the address of one or more CMS computer)
- Broadcast address
- Type of IP packet encapsulation.

NOTE:

This procedure needs to be completed on each NTS being installed. If you set up more than one NTS for this system, the IP addresses must be unique (see the table in Prerequisites).

Release and Platform Considerations

- All releases
- All platforms.

Prerequisites

Obtain the network IP address and NTS IP address for each NTS you are administering. The actual number of NTSs depends on the total number of ports required for the system and the type of NTSs used.

Device	IP Address*	Network Name
Host Computer	192.168.2.1	*hostname*
First NTS	192.168.2.101	cmsterm1
Second NTS	192.168.2.102	cmsterm2
Third NTS	192.168.2.103	cmsterm3
Nth NTS	192.168.2.1*xx*	cmsterm*X*

* The IP addresses shown here are the factory defaults. Use the actual system addresses if available.

Procedure

1. Edit the *hosts* file by entering the following:

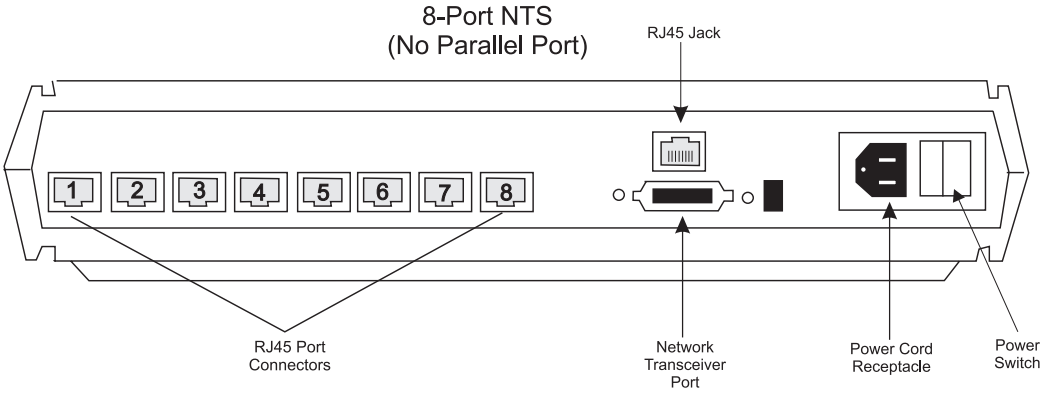
   ```
   vi /etc/hosts
   ```

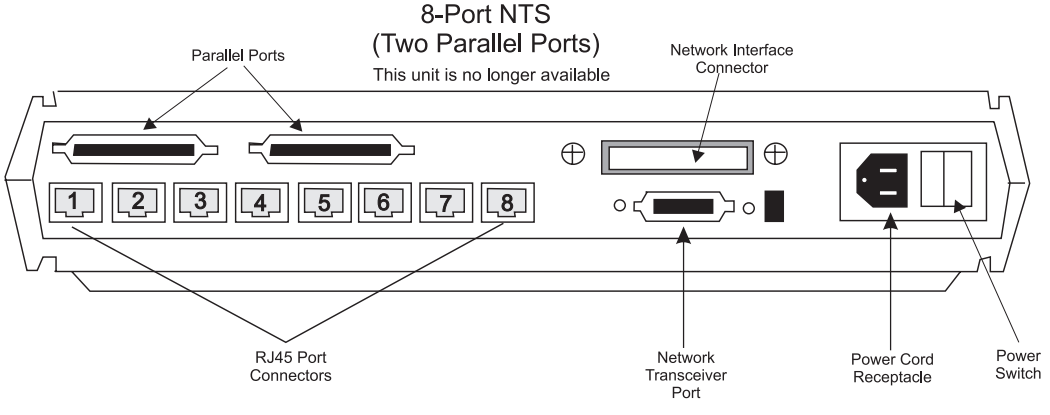
2. Add a separate line in this file for each NTS that corresponds to the addresses from the Prerequisites table. The following is an example hosts file:

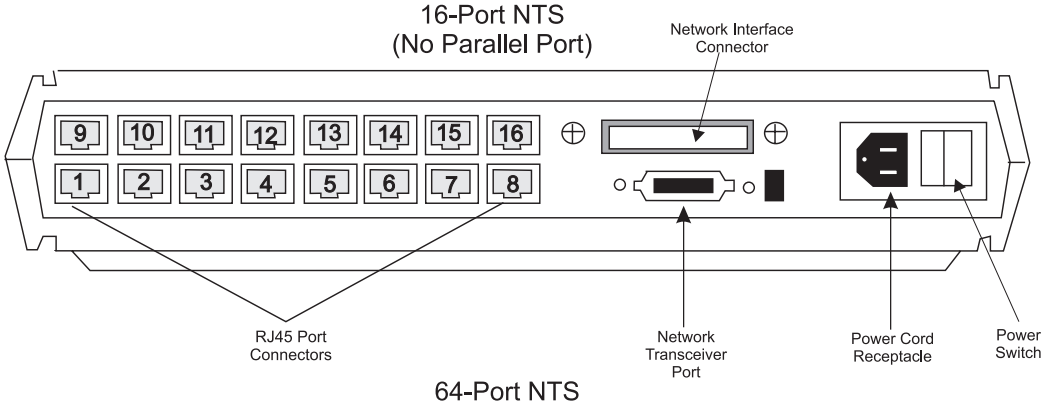
   ```
   192.168.2.1      cmshost
   192.168.2.101    cmsterm1
   192.168.2.102    cmsterm2
   192.168.2.103    cmsterm3
   192.168.2.104    cmsterm4
   ```

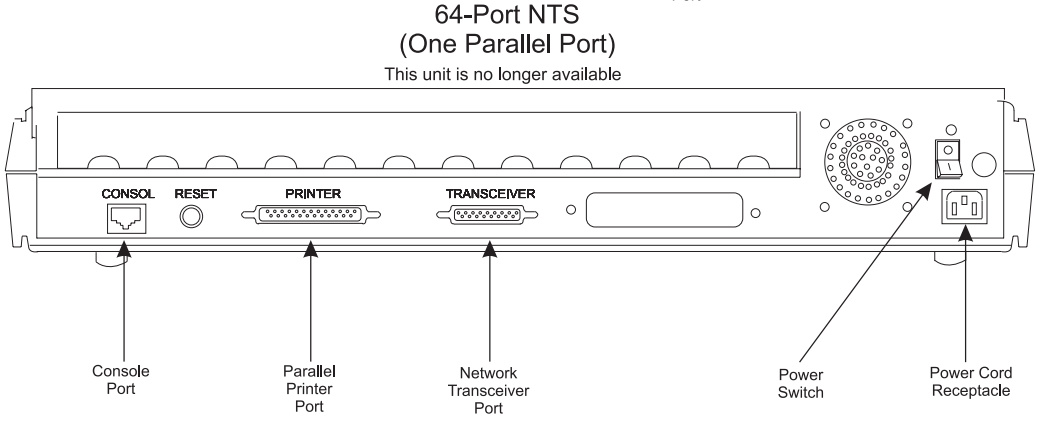
   This example shows the default IP address for the CMS computer and the factory defaults for the NTS units.

3. Press the Esc key to leave the edit mode.
4. Enter `:w!` to overwrite the existing file.
5. Enter `:q` to quit editing the file.
6. Connect the power cord to the NTS (see the following figure).


8-Port NTS
(No Parallel Port)
RJ45 Jack
1
2
3
4
5
6
7
8
RJ45 Port Connectors
Network Transceiver Port
Power Cord Receptacle
Power Switch


8-Port NTS
(Two Parallel Ports)
This unit is no longer available
Parallel Ports
Network Interface Connector
1
2
3
4
5
6
7
8
RJ45 Port Connectors
Network Transceiver Port
Power Cord Receptacle
Power Switch


16-Port NTS
(No Parallel Port)
Network Interface Connector
9
10
11
12
13
14
15
16
1
2
3
4
5
6
7
8
RJ45 Port Connectors
Network Transceiver Port
Power Cord Receptacle
Power Switch


64-Port NTS
(One Parallel Port)
This unit is no longer available
CONSOL
RESET
PRINTER
TRANSCEIVER
Console Port
Parallel Printer Port
Network Transceiver Port
Power Switch
Power Cord Receptacle

7. Connect the 10-T transceiver to the Network Transceiver Port on the back panel of the NTS.
8. Connect the network hub unit to the NTS (10-T transceiver) using a UTP network cable.
9. Connect a dumb terminal to the Console Port on the rear of the NTS using the console cable and adapter that came with the NTS. On the 8- and 16-port NTSs, the Console Port is port **#1**.

   You will need the following for the 8- and 16-port units:

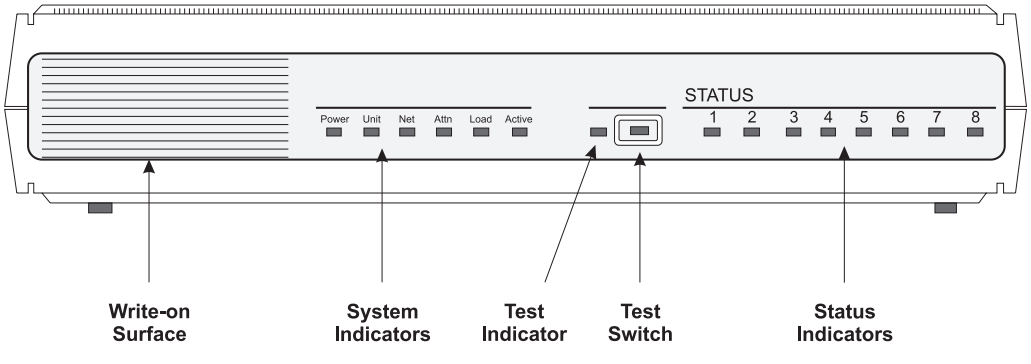
   - Console Cable
   - Adapter - comcode 407361823
   - Null Modem - comcode 407122043.

   You will need the following for the 64-port unit:

   - Console Cable
   - Adapter - part number 06-988-260-20.

   NOTE:

   The terminal options should be set to 9600 bps, 8 bits, no parity or space parity, and a stop bit.
10. Turn on the NTS, and within 15 seconds push the Test Switch on the front of the NTS (see the following figure).



11. The NTS goes through its hardware diagnostics, and the following prompt should appear:

```
Monitor:
```

12. Enter the `erase` command.

    NOTE:

    There are two types of information that can be erased:

    - EEPROM (configuration information)
    - FLASH (self-boot image).

    If only one type of information is present, the program begins to erase it. If there are two types of information, the program prompts you to select the information you want to erase. Erase both the EEPROM and the FLASH information.

    The program responds as follows:

```
Erase
   1) EEPROM (i.e., Configuration Information)
   2) FLASH (i.e., Self Boot Image)
Enter 1 or 2::
```

13. Enter `1` to erase EEPROM. The program responds as follows:

```
Erase all non-volatile EEPROM memory? (y/n) [n]::
```

14. Enter y. The program responds as follows:

```
Erasing xxxx bytes of non-volatile memory. Please wait....
.............................
Erased xxxx bytes of non-volatile memory complete.
Monitor::
```

15. Repeat Steps 12 through 14, but select `2` (FLASH) to erase the FLASH information.

16. After you have completed the `erase` command, enter `addr`. The program responds as follows:

```
Enter Internet address [<uninitialized>]::
```

17. Enter the IP address for this NTS. This should follow the IP address structure outlined earlier in the Prerequisites on Page 2-186. The program responds as follows:

```
     Internet address : xxx.xxx.xxx.xxx

Enter Subnet mask [255.255.255.0]::
```

18. Enter the appropriate Subnet mask, or press Enter to accept the default. The program responds as follows:

```
     Subnet mask: xxx.xxx.xxx.xxx

Enter preferred load host Internet address [<any host>]::
```

19. Enter the IP address of the CMS computer. The program responds as follows:

```
     Preferred load host address xxx.xxx.xxx.xxx

Enter Broadcast address [0.0.0.0]::
```

20. Press Enter to accept the default broadcast message address. The program responds as follows:

```
Enter Preferred dump address [0.0.0.0]::)
```

21. Enter the IP address of the CMS computer. The program responds as follows:

```
     Preferred dump address: xxx.xxx.xxx.xxx

Select type of IP packet encapsulation (ieee802/ethernet)
[<ethernet>] ::
```

22. Press Enter to accept the default IP packet encapsulation. The program returns to the `monitor::` prompt if you have a 64-port NTS. Continue with Step 24.

    The program responds with the following question if you have an 8- or 16-port NTS:

```
     Type of IP packet encapsulation: <ethernet>

Load Broadcast Y/N [Y]::
```

23. Enter `N`. The program returns to the `monitor::` prompt.
24. Enter the `boot` command at the monitor prompt to reinitialize the NTS with the new parameters. The program responds as follows:

```
Enter boot file name [oper.42.enet]::
```

NOTE:

The boot file name differs depending on the type of NTS. For the 8- and 16-port NTS, the boot file name is:

```
[(ip) “oper.52.enet”,(mop)“OPER_52_ENET.SYS”]
```

For the 64- port NTS, the boot file name is:

```
oper.42.enet
```

25. Press Enter to accept the default boot file name. The program responds as follows:

```
      Requesting boot file “oper.42.enet”.
      Unanswered requests shown as ‘?’,
                                transmission errors as ‘*’.

      Booting file: oper.42.enet from 192.168.2.1

      Loading image from 192.168.2.1
.....................
```

The periods (dots) continue to appear as the NTS is initialized and set up.

NOTE:

If the program displays “SELF” instead of the IP address (192.168.2.1 is the factory default; your IP address may be different), it means that you did not erase EEPROM. Go back to Step 12 to erase EEPROM.

When the initialization finishes, the program responds as follows:

```
annex::
```

26. Disconnect the dumb terminal from the NTS.

    The NTS has been administered.

Backing Up the System

The CMSADM file system backup saves all of the file systems on the computer onto a tape.

Overview

The CMSADM file system backup includes the following:

- *Solaris* 2.5.1 system files and programs
- CMS programs and data
- Non-CMS customer data placed on the computer (in addition to the CMS data).

The CMSADM file system backup should be done at the following times:

- After the system has been set up in the factory

  This backup contains the default factory configuration. These tapes should be saved if the system must be reinstalled in the field.

- After the CMS is provisioned

  This backup contains the *Solaris* system files and programs and CMS configuration data placed on the computer by TSC provisioning personnel. These tapes should also be saved and not reused.

  In addition, field technicians should perform a CMS full maintenance backup before they turn a new system over to the customer. See *CentreVu® CMS R3V6 Administration* (585-215-850) or *CentreVu® CMS R3V5 Administration* (585-215-820).

- Before and after the CMS software is upgraded (usually done by a field technician)
- Once a month (done by the customer).

  CAUTION:

  *The customer must use a new set of backup tapes for this CMSADM File System backup. The customer must **NOT** use the original set of factory or provisioning backup tapes.*

The number of cartridge tapes required to complete a CMSADM file system backup depends on the amount of data on the system and the capacity of the backup tape. The program estimates the number of tapes required and informs the user.

Release and Platform Considerations

- All releases
- All platforms.

Prerequisites

- Before starting the backup procedures in this section, log in as *root,* and enter `lp /etc/vfstab`. The output from the printer is necessary when doing a system restore. Bundle the printout of the `/etc/vfstab` file with the system backup tape(s) for future reference.
- Verify that the computer is in a *Solaris* multi-user state (2 or 3). To check if you are in the multi-user state, enter `who -r`.

CAUTION:

Verify that you are using the correct tape for the tape drive on your system. Many of the tape cartridges look alike, and using the wrong tape can damage the tape drive mechanism and tape heads. The following table lists the different model of tape drives, the accompanying tape cartridge model identification, and the CMS computers that use the tape drives.

Tape Drive	Tape Cartridge	CMS Computers
20/40-GB 8mm	*Exatape** 170m AME	*Enterprise* 3500
SLR5 4/8-GB QIC	*Sony*† SLR	*Ultra* 5
14-GB 8mm	*Exatape* 160mm AME	*Enterprise* 3000
5-GB 8mm	*Exatape* 112mm AME	*Enterprise* 3000
2.5-GB QIC	*3M*‡	*SPARCserver*
150 MB	*Maxell*§ DC6320	*SPARCserver*

**Exatape* is a trademark of *Exabyte* Corporation.
†*Sony* is a registered trademark of Sony Corporation.
‡*3M* is a registered trademark of Minnesota Mining and Manufacturing.
§*Maxell* is a registered trademark of Maxell, Inc.

Procedure

1. Enter `cmsadm` to access the CMS Administration menu. The CMS Administration menu appears as follows:

```
Lucent Technologies CentreVu(R) Call Management System
Administration Menu
Select a command from the list below.
  1) acd_create  Define a new ACD
  2) acd_remove  Remove all administration and data for an ACD
  3) backup      Filesystem backup
  4) diskmap     Estimate disk requirements
  5) memory      Estimate memory requirements
  6) realtime    Estimate real-time report refresh rate
  7) pkg_install Install a feature package
  8) pkg_remove  Remove a feature package
  9) run_cms     Turn CentreVu CMS on or off
 10) port_admin  Administer Modems, Terminals, and Printers
Enter choice (1-10) or q to quit:
```

2. Enter `3` to select the `backup` option.

   The program responds as follows (this screen is a composite of the tape drive options for R3V5 and R3V6):

```
Select the tape drive type:
  1) 150MB cartridge tape
  2) 60MB cartridge tape
  3) 14.0 Gbyte 8mm tape
  4) 5.0 Gbyte 8mm tape
  5) 2.5 Gbyte cartridge tape
  6) 4.0 - 8.0 Gbyte cartridge tape
  7) 40.0 Gbyte 8mm tape
Enter choice (1-7):
```

3. Enter the number for the tape drive installed on your system. The system responds as follows:

```
Calculating approximate number of tapes required. Please
wait.
```

   The system calculates the approximate the number of tapes required for the backup. Please note that this is an approximation, and more tapes may be needed once the backup is under way.

If the number of tapes required is one, the system responds as follows:

```
The backup will need approximately 1 tape.

Please insert the first cartridge tape into </dev/rmt/X>.

Press ENTER when ready:
```

If the number of tapes required is more than one, the system responds as follows:

```
The backup will need approximately <X> tapes.

Be sure to number the cartridge tapes consecutively in the
order they will be inserted.

Please insert the first cartridge tape into </dev/rmt/x>.

Press ENTER when ready:
```

4. To begin the backup, insert the cartridge tape, wait for the tape to rewind and reposition, and then press Enter.

   If CMS is turned on, the system responds as follows:

```
The backup is about to begin.  CMS is currently on.
CMS will be turned off automatically during that portion
of the backup which needs CMS off.
Press ENTER to proceed or Del to quit:
```

5. To continue the backup, press Enter. A CMSADM backup may take several hours, depending on the speed of the system and the tape drive.

   If only one tape is required, the system responds as follows:

```
Backing up files...

.............................................
.............................................
(dots continue to display as the system is backed up)
.............................................
XXXXXX blocks
Tape verification
XXXXXX blocks

Please label the backup tape(s) with the date and the
current CMS version (r3vXxx.x)
```

   If only one tape was required, continue with Step 9. If more than one tape is required, the system responds as follows:

```
Backing up files...

.............................................
.............................................
(dots continue to display as the system is backed up)
.............................................
End of medium on “output”.
Please remove the current tape, number it, insert tape
number X, and press ENTER
```

CAUTION:

Label all tapes with the tape number and the date of the backup. Set the tape write-protect switch to read-only.

6. Insert the next tape and press Enter to continue. When you insert the next tape, allow it to rewind and reposition before you press Enter. Repeat this step for any additional tapes.

   After the system completes the backup, the system responds as follows:

```
XXXXXXX blocks
Tape Verification
Insert the first tape
Press Return to proceed:
```

7. Insert the first tape and press Enter to continue. After the tape is verified, the system responds as follows:

```
End of medium on "input".
Please insert tape number X and press Return
```

8. Remove the first tape and insert the second tape. After the tape rewinds and repositions, press Enter to continue. Repeat this step for each additional tape.

   After the last tape is verified, the system responds as follows:

```
XXXXXXX blocks
Please label the backup tape(s) with the date and the
current CMS version (r3vXxx.x)
```

9. Wait for the tape drive light-emitting diode (LED) to stop blinking before you remove the tape. The CMSADM file system backup is complete.

CAUTION:

Label all tapes with the tape number and the date of the backup. Set the tape write-protect switch to read-only.

Turning the System Over to the Customer

Overview

This chapter describes how to test the *CentreVu*® Call Management System (CMS) software to ensure that the application is working properly. In addition, a worksheet is provided at the end of this chapter for turning the system over to the customer. You should do these tests after:

- Completing the initial computer installation and CMS setup
- Completing a CMS software package upgrade.

Before you begin the procedures described in this chapter, the switch technicians must complete the following:

- Connect the CMS computer to the switch.
- Translate the switch with the CMS feature enabled.
- Connect the switch to an active link.

The procedures in this chapter include the following:

- Verifying the system date and time
- Testing the connection between the computer and the Technical Service Center (TSC) or Center of Excellence (COE)
- Testing the link configuration between the computer and the switch
- Testing the CMS software
- Having the customer change/assign their login passwords
- Turning the system over to the customer.

If you encounter a problem that you cannot solve, escalate the problem through standard procedures.

Verifying the System Date and Time

Overview

This section describes how to verify that the *Solaris** 2.5.1 system time and the current local time are the same.

Checking the *Solaris* System Date and Time

Verify that the system time is correct by entering `date`.

If the system time is correct, go to the "Testing the Connection to the TSC or COE" on Page 3-5. Otherwise, continue with "Setting the System Date and Time" and "Setting the System Country and Time Zones."

Setting the System Date and Time

1. Log in as *root*.
2. Change to an OpenBoot mode by entering the following:

   ```
   /usr/sbin/shutdown -i0 -g0 -y
   ```

   NOTE:

   The `-i0` portion of the `shutdown` command string changes the system to an OpenBoot mode.
3. At the `ok` prompt, enter the following:

   ```
   boot -s
   ```

   The system responds as follows:

```
   .
   .
Resetting.....
Type Ctrl-d to proceed with normal startup
(or give root password for system maintenance):
```

Solaris is a registered trademark of Sun Microsystems, Inc.

4. Enter the *root* password. The system responds:

```
Entering System Maintenance Mode
Enter Terminal Type: (default is 615):
```

5. At the prompt, enter the type of terminal, and press Enter.
6. As *root*, enter the command `date mmddHHMM[[cc]yy]` to set the time and date. For example:
   - **mm (month):** Enter the month (numeric). Range: 01-12 (01=January, 02=February, and so on).
   - **dd (day):** Enter the day of the month. Range: 01-31.
   - **HH (Hour):** Enter the current hour of the day, military time. Range: 00-23.
   - **MM (minute):** Enter the minute of the hour. Range: 00-59.
   - **cc (century):** Enter the century minus 1 (for example, 19 for the 20th century).
   - **yy (year):** Enter the last two digits of the current year (for example, 98 for 1998).
7. Continue with the "Setting the System Country and Time Zones" section.

Setting the System Country and Time Zones

1. Edit the `/etc/default/init` file and set the `TZ` variable to equal the appropriate value in the `/usr/share/lib/zoneinfo` directory, as shown in the following example:

```
# vi /etc/default/init

<contents of the file is displayed>

# @(#)init.dfl 1.2 92/11/26
#
# This file is /etc/default/init. /etc/TIMEZONE is a symlink to this file.
# This file looks like a shell script, but it is not. To maintain
# compatibility with old versions of /etc/TIMEZONE, some shell constructs
# (i.e., export commands) are allowed in this file, but are ignored.
#
# Lines of this file should be of the form VAR=value, where VAR is one of
# TZ, LANG, or any of the LC_* environment variables.
#
TZ=US/Mountain
```

This is the line you modify.

   As an example for Mountain Standard Time, the `TZ` variable can be set to `MST` or `US/Mountain`. The entry in the `init` file is essentially a relative path name from the `/usr/share/lib/zoneinfo` directory. `MST` is a file in the `/usr/share/lib/zoneinfo` directory, and `Mountain` is a file in the `/usr/share/lib/zoneinfo/US` directory.

2. Write the read-only file using the `:w!` command.
3. Quit the file using the `:q` command.
4. Reboot the machine by entering `init 6`.

Testing the Connection to the TSC or COE

Overview

The information in this section is used to verify that the TSC or COE can connect to the CMS computer. This connection allows the TSC or COE to do remote maintenance.

Testing the Remote Access Port

This section describes how to redirect the remote console port using the *Solaris* software package. Redirecting the console allows the TSC or COE to dial in and do remote maintenance. The port used for remote console access differs depending on the hardware platform:

Hardware Platform	Port A	Port B
*SPARCserver** *Enterprise*† 3000 *Enterprise* 3500	Remote Console	Switch Link
Ultra‡ 5	Switch Link	Remote Console

**SPARCserver* is a trademark of SPARC International, Inc.
†*Enterprise* is a trademark of Sun Microsystems, Inc.
‡*Ultra* is a trademark of Sun Microsystems, Inc.

Test the remote console port on the back of the computer by redirecting the console from the local console to the remote console, and then redirecting the console from the remote console back to the local console.

Redirecting the Console to the Remote Console

1. Dial in from the remote console to the remote console modem (port A on a *SPARCserver, Enterprise* 3000, or *Enterprise* 3500; port B on an *Ultra* 5), and log in as *root*.
2. Remove the port monitor by entering the following:

   `/cms/install/bin/abcadm -r ttyX` (where X is `a` or `b`)

   The program responds as follows:

   ```
   ttyX is currently set to be incoming

   Are you sure you want to change it? [y,n,?]
   ```

3. Enter `y`. The program responds as follows:

   ```
   ttyX administration removed
   ```

4. To check the speed of the modem, enter the following:

   `/cms/install/bin/abcadm -k`

   NOTE:

   All remote access ports have a default speed of 9600 bps.

5. Redirect the console to the remote console port by entering the following:

   `/cms/install/bin/abcadm -c -b 9600 ttyX` (where X is `a` or `b`)

   The program responds as follows:

   ```
   This change requires a reboot to take affect

   Are you ready to reboot? [y,n,?]
   ```

6. Enter y. The program responds as follows:

```
Starting port monitor.
Setting console parameters.
Proceeding to reboot.
```

   The system automatically reboots. As the system reboots, shutting down, reset, and rebooting messages appear on the local console. When the system starts to come back up, the local console should go blank, and the system boot diagnostics should appear on the remote console. After the system reboots, a `console login:` prompt should appear on the remote console.

7. Log in to the remote console as *root*. At this time, an XDM login window for the *OpenWindows** interface appears on the local console.

   CAUTION:

   If you enter Control-D from the remote console to exit the system without first redirecting control back to the local console, you may lock yourself from using the console locally or remotely.

**OpenWindows* is a trademark of Sun Microsystems, Inc.

Redirecting the Console Back to the Local Console

1. Redirect the console back to the local console by entering the following:

   `/cms/install/bin/abcadm -c local`

   The program responds as follows:

```
Console set to local

This change requires a reboot to take affect

Are you ready to reboot? [y,n,?]
```

2. Enter `y`. The system automatically reboots and the remote console port comes up as the console. As the system reboots, shutting down messages appear on the remote console. When the system starts to come back up, the system boot diagnostics should appear on the local console. After the system reboots, a `console login:` prompt should appear on the local console. A `login:` prompt should appear on the remote console.
3. Log in to the local console as *root*.
4. Log in to the remote console as *root*.

   The console has been redirected from the remote console back to the local console.

Testing the ACD Link

Overview

The following procedure should be completed by the on-site technician after the CMS software has been installed or upgraded to verify the link from the CMS computer to the switch that is using the Automatic Call Distribution (ACD) feature.

Prerequisites

- The Common Desktop Environment (CDE) must be active.
- CMS must be turned on.

Procedure

1. In one of the windows at a console, log into the system by using a CMS administrator's login ID (`su - cms`). Supply the correct password if prompted.
2. Access the CMS main menu by typing `cms` and entering the correct terminal type.

   The CMS Main Menu has indicators that show if the link to the ACD is active. The link indicator consists of the "carets" ("∧" and "∨") at the right side of the banner line. There should be one caret for each ACD, and all should be **up** (^). If you have four ACDs, for example, the link indicator should look like this: ∧∧∧∧. That means that all four ACDs are up and running.
3. To further test the ACD link, select Maintenance from the CMS Main Menu.
4. Select Connection Status from the Maintenance menu. The Connection Status should display the following:
   - The name of the ACD
   - That the application is in data transfer
   - That the session is in data transfer
   - That the connection is operational
   - The date, time, and any errors.
5. Return to the CMS Main Menu by pressing the Exit screen-labeled key (SLK) once.
6. Continue with the next section, "Test the CMS Software."

Testing the CMS Software

Overview

The following procedure should be completed by the on-site technician after the CMS software has been installed or upgraded to verify the sanity of CMS software.

NOTE:

If any of the steps in this test fail, see the "Solving Installation-Related Problems" chapter and try to solve the problem associated with the step that failed. If you encounter a problem that you cannot solve, escalate the problem through normal procedures.

Prerequisites

- The Common Desktop Environment (CDE) must be active
- CMS must be turned on.

Procedure

1. Test the Real-Time Reports subsystem by doing the following from the CMS Main Menu:
   a. Select the `Reports` option.
   b. Select the `Real-time` option.
   c. Select the `Split/Skill` option.
   d. Select the `Split Status` or `Skill Status` option.
   e. Verify that the Split/Skill Status Report Input window appears.
   f. Enter a valid split number in the `Split:` or `Skill:` field.
   g. Select the `Run` action list item, and run the report.
   h. Verify that the Split or Skill Status Report window appears.

      If the switch link is down, the report fields will be blank and the status line will read "Switch link down."

   i. Press the **Commands** SLK.
   j. Select the `Print window` option to send the report to the printer.

k. Look at the message line near the bottom of the window, and verify that there is a confirmation message about sending the report to the printer.

l. Verify that the report printed by checking the printer for the report.

m. Return to the CMS Main Menu screen by pressing the Exit SLK twice.

2. Test the Historical Reports subsystem by doing the following from the CMS Main Menu:

   a. Select the `Reports` option.

   b. Select the `Historical` option.

   c. Select the `Split/Skill` option.

   d. Select the `Status` option.

   e. Verify that the Split/Skill Status Report Input window appears.

   f. Enter a valid split number in the `Split/Skill:` field.

   g. Enter `-1` in the `Date:` field.

   h. Select the `Run` action list item, and run the report.

   i. Verify that the report window appears and that the information is displayed in the appropriate fields.

      NOTE:

      If no historical data exists, the fields in the report window should be blank.

   j. Return to the CMS Main Menu by pressing the Exit SLK twice.

3. Test the Dictionary subsystem by doing the following from the CMS Main Menu:

   a. Select the `Dictionary` option.

   b. Select the `Login Identifications` option.

   c. Enter an * in the `Login ID:` field.

   d. Select the `List all` action list item to list all the login IDs.

   e. Verify that the logins are displayed (on a new system, the fields will be blank).

   f. Return to the CMS Main Menu by pressing the Exit SLK twice.

4. Test the Exceptions subsystem by doing the following from the CMS Main Menu:
   a. Select the `Exceptions` option.
   b. Select the `Real-time Exception Log` option.
   c. Verify that the window is accessible.

      NOTE:

      For a new installation, this window may be blank.

   d. Return to the CMS Main Menu by pressing the Exit SLK once.
5. Test the Call Center Administration subsystem by doing the following from the CMS Main Menu:
   a. Select the `Call Center Administration` option (R3V6) or the `ACD Administration` option (R3V5).
   b. Select the `Call Work Codes` option.
   c. Press Enter.
   d. Select the `List all` action list item, and list all the call work codes currently defined.
   e. Verify that the displayed information is correct (on a new system, the fields will be blank).
   f. Return to the CMS Main Menu by pressing the Exit SLK twice.
6. Test the Custom Reports subsystem by doing the following from the CMS Main Menu:
   a. Select the `Custom Reports` option.
   b. Select the `Real-time` option, and verify that the names of existing custom reports are listed. If there are no reports, you receive a message saying the submenu is empty.
   c. Return to the CMS Main Menu by pressing the Exit SLK once.

7. Test the User Permissions subsystem by doing the following from the CMS Main Menu:
   a. Select the `User Permissions` option.
   b. Select the `User Data` option.
   c. Verify that the User Data Input window appears.
   d. Return to the CMS Main Menu by pressing the Exit SLK once.
8. Test the System Setup subsystem by doing the following from the CMS Main Menu:
   a. Select the `System Setup` option.
   b. Select the `CMS state` option.
   c. Verify that CMS is operating in the `Multi-user mode`.
   d. Return to the CMS Main Menu by pressing the Exit SLK once.
9. Test the Maintenance subsystem by doing the following from the CMS Main Menu:
   a. Select the `Maintenance` option.
   b. Select the `Printer Administration` option.
   c. Enter a valid printer name in the `CMS printer name:` field.
   d. Select the `List all` action list item, and list the printer parameters.
   e. Verify that the printer has been administered correctly.
   f. Return to the CMS Main Menu by pressing the Exit SLK twice.
10. If the Graphics feature package has been enabled, test the Graphics subsystem by doing this from the CMS Main Menu:
    a. Select the `Graphics` option.
    b. Verify that a Real-time Graphics screen can be accessed.
    c. Return to the CMS Main Menu by pressing the Exit SLK once.
11. At each CMS terminal, log in as `cms` and choose the correct terminal type to verify that the terminals are working properly. To log off, select the `Logout` option from the CMS Main Menu.

Assigning Customer Passwords

Overview

This section describes how the customer needs to assign passwords to each of their logins on the CMS computer. Prior to testing the CMS software, the customer must assign passwords to each of the following logins:

- root
- cms
- any other administration logins that have been added for a customer.

NOTE:

Have the customer record the passwords for each login on the provided “System Acceptance Worksheet” at the end of this chapter. The technician should NOT know these passwords.

Procedure

1. Log in as *root*.
2. At the system prompt, have the customer enter the following:

   `passwd <login>`

   where `<login>` is root, cms, and so on. The system responds as follows:

```
New password:
```

3. Have the customer enter the new password. The system responds as follows:

```
Re-enter new password:
```

4. Have the customer enter the password again.
5. Repeat this procedure for each customer login.

Turning the System Over to the Customer

Overview

This section contains the final check before turning the system over to the customer.

Procedure

1. There are two sets of backup tapes delivered with a new system: the original set from the factory, and the set created after provisioning has been completed. Set these tapes to write-protect mode and store them in a safe place.
2. After the on-site installation, back up the system again by following the procedures outlined in the "Backing Up the System" section in the "Installing Software and Setting Up CMS" chapter.

   CAUTION:

   *Use a new set of backup tapes for this CMSADM File System backup. Do **NOT** use the original set of factory backup tapes or provisioning backup tapes. Make sure that the customer has extra backup tapes for their CMS computer.*
3. If you have not already done so, back up the customer's historical data by doing a full maintenance backup from the Maintenance subsystem in CMS. See the "Backup Strategy" section of *CentreVu® CMS R3V6 Administration* (585-215-850) or *CentreVu® CMS R3V5 Administration* (585-215-820).
4. Give the customer all of the CMS documentation, software CDs, and X.25 license information.
5. Copy and complete the Customer System Acceptance Worksheet from the following page, attach the indicated printouts and screen dumps, and give the resulting package to the customer's CMS administrator. Have the customer enter their logins and passwords. The technician should NOT know the customer login passwords.

   CAUTION:

   For system security, the CMS administrator must store written passwords, INFORMIX serial numbers and key license information, and X.25 license information in a secure place.*

**INFORMIX* is a registered trademark of Informix Software, Inc.*

Customer System Acceptance Worksheet

❒ **Passwords for system login IDs:**

Login ID: root Password: _____
Login ID: _____ Password: _____
Login ID: _____ Password: _____
Login ID: _____ Password: _____

❒ **CMS administrator login IDs and passwords:**

Login ID: cms Password: _____
Login ID: _____ Password: _____
Login ID: _____ Password: _____
Login ID: _____ Password: _____

❒ **`df -t` results** (attach screen dump showing `df -t` command results, or record results here):

_____
_____
_____
_____
_____
_____
_____
_____
_____

❒ **X.25 Password:**
Enter the X.25 password: _____

❒ **Printer administration:**
Print out the CMS `Maintenance - Printer Administration - List all` window

❒ **Free Space Allocation:**
Print out the CMS `System Setup - Free Space Allocation` window

❒ **Data Storage Allocation parameters:**
Print out the CMS `System Setup - Data Storage Allocation` window for each ACD

❒ **Storage Intervals parameters:**
Print out the CMS `System Setup - Storage Intervals` window for each ACD

Maintaining the CMS Software

Overview

This chapter explains procedures used to maintain the *CentreVu®* Call Management System (CMS) software. Refer to *CentreVu® CMS Hardware Maintenance and Troubleshooting* (585-215-861) or *CentreVu® CMS Sun* Enterprise† 3500 Computer Maintenance and Troubleshooting* (585-215-875) for additional maintenance information.

This chapter discusses the following maintenance procedures:

- Backing up and restoring software
- Removing *INFORMIX*‡ to add the Structured Query Language (SQL) package.

Personnel at the Technical Service Center (TSC) will need assistance from an on-site technician or the customer's CMS administrator to do most of the procedures in this chapter.

NOTE:

When executing commands remotely that may take a long time to complete (such as `cpio` and `/olds` commands), use the `nohup` command to ensure that the command will complete without interruption in case the data line disconnects. An example using the `nohup` command is shown below:

```
nohup  cpio  -icmudf  -C  10240 -I /dev/rmt/0c "/cms" | tee
```

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†*Enterprise* is a trademark of Sun Microsystems, Inc.
‡*INFORMIX* is a registered trademark of Informix Software, Inc.

Backing Up and Restoring Software

Overview

A backup copies the data stored on the CMS computer hard disk to a removable tape. Regular backups provide a way to recover data that would otherwise be lost. CMS provides two different types of backups:

- CMS Administration (CMSADM) File System Backup
- CMS Maintenance Backup — Full and Incremental.

From backup tape(s), you can restore your software and data. For more information about backups and restores, see *CentreVu® CMS R3V6 Administration* (585-215-850) or *CentreVu® CMS R3V5 Administration* (585-215-820).

If you are restoring software after a system failure or disk crash, see *CentreVu® CMS Hardware Maintenance and Troubleshooting* (585-215-861) or *CentreVu® CMS Sun® Enterprise™ 3500 Computer Maintenance and Troubleshooting* (585-215-875) for the correct restore procedures.

CAUTION:

*Use a designated set of backup tapes when doing a backup. Do **NOT** use the original set of factory or provisioning backup tapes.*

Doing CMSADM File System Backups

The CMSADM file system backup saves all the file systems on the machine onto a tape. See “Backing Up the System” in the “Installing Software and Setting Up CMS” chapter for file system backup procedures.

Checking the Contents of the CMSADM Backup Tape

To determine if the a backup tape has saved the correct information, or to see if a particular file has been saved, you can list the files on the backup tape.

NOTE:

It can take a long time to display the file names on the backup tape.

Procedure

1. Insert the first backup tape.
2. To list the files on the tape, enter the following command on a single line:

   ```
   nohup cpio -ivct -C 10240 -I /dev/rmt/0c -M "Insert
   tape %d and press Enter" | tee
   ```

   The system displays a list of files.
3. If you are not sure of the device path, enter the following commands:

   ```
   mt -f /dev/rmt/0c status
   mt -f /dev/rmt/1c status
   ```

   The correct device path will show information similar to the following:

   ```
   Tandberg 2.5 Gig QIC tape drive:
      sense key(0x0)= No Additional Sense residual= 0 retries= 0
      file no= 0   block no= 0
   ```

4. After you have seen the files you are looking for, or have confirmed that data on the tape is accurate, press Delete to stop the display.

Restoring from a CMSADM File System Backup

If CMSADM file system backups are available, the complete file systems can be restored if an accidental loss of data occurs.

CAUTION:

Use this procedure only if you have a CMSADM file system backup available.

Procedure

1. Obtain the tape(s) that contain the CMSADM file system backups.
2. Obtain the printout of the `/etc/vfstab` file that was stored with the backup tapes.
3. Load the first backup tape.
4. If you have only one backup tape, enter the following command:

   ```
   cpio -icmudv -C 10240 -I /dev/rmt/0c
   ```

   If you have more than one backup tape, enter the following command on a single line:

   ```
   cpio -icmudv -C 10240 -I /dev/rmt/0c -M "Insert tape %d and press Enter"
   ```

   As the restore proceeds, the console displays the files being copied from the tape to the disk, and the light-emitting diode (LED) on the tape drive will alternately flash and light steadily. The program, which can take several hours depending on the amount of data being restored, responds as follows:

```
cpio: Cannot create temporary file, errno 18, Cross-device link
(There is a time delay between the first message and the rest of the
messages)
cpio: Cannot chmod() "/home", errno 89, Operation not applicable
cpio: Unable to reset modification time for "/home", errno 89,
Operation not applicable
cpio: Cannot chmod() "/home", errno 89, Operation not applicable
cpio: Cannot chown() "/home", errno 89, Operation not applicable
cpio: Cannot chmod() "/xfn", errno 89, Operation not applicable
cpio: Unable to reset modification time for "/xfn", errno 89, Operation
not applicable
cpio: Cannot chmod() "/xfn", errno 89, Operation not applicable
cpio: Cannot chown() "/xfn", errno 89, Operation not applicable
602780 blocks
9 error(s)
```

NOTE:

You may see some error messages about the `/home and /xfn` directories. These errors display when the directories are already present and can be ignored.

5. If you are not sure of the device path, enter the following commands:

   ```
   mt -f /dev/rmt/0c status
   mt -f /dev/rmt/1c status
   ```

   The correct device path will show information similar to the following:

```
Tandberg 2.5 Gig QIC tape drive:
   sense key(0x0)= No Additional Sense residual= 0 retries= 0
   file no= 0   block no= 0
```

6. If you have CMS maintenance backups dated after the latest CDMADM backup, restore the latest maintenance backups. See *CentreVu® CMS R3V6 Administration* (585-215-850) or *CentreVu® CMS R3V5 Administration* (585-215-820) for more information.

Doing CMS Maintenance Backups

CMS maintenance backups save only CMS data (administration and historical). The CMS data for each Automatic Call Distribution (ACD) should be backed up as follows:

- After the CMS is provisioned
- After the CMS software is upgraded
- On a daily or weekly basis.

You can do these backups within CMS using the “Maintenance: Back Up Data” window. See the “Maintenance” chapter in *CentreVu® CMS R3V6 Administration* (585-215-850) or *CentreVu® CMS R3V5 Administration* (585-215-820).

Doing CMS Maintenance Restores

The CMS software application allows you to restore CMS data lost due to system failure, disk crashes, and so on. You can restore all CMS data that you previously backed up during a CMS maintenance backup.

If a disk crash does occur, you may have to reinstall the *Solaris* operating system, the supporting *Sun* applications, and CMS before you can perform a CMS maintenance restore. See *CentreVu® CMS Hardware Maintenance and Troubleshooting* (585-215-861) or *CentreVu® CMS Sun® Enterprise™ 3500 Computer Maintenance and Troubleshooting* (585-215-875) for more information.

After the CMSADM restore is completed or after you have the system in an operable state, restore the CMS administration and historical data from the most recent CMS maintenance backups. See the “Maintenance” chapter in *CentreVu® CMS R3V6 Administration* (585-215-850) or *CentreVu® CMS R3V5 Administration* (585-215-820) for more information about backup strategy.

Depending on which backups are available, there are two possible scenarios when doing a CMS maintenance restore:

- Restoring data when only full maintenance backups are available
- Restoring data when both full and incremental maintenance backups are available.

Prerequisites

- CMS must be in the single-user state (System Setup:CMS State)
- Data collection must be turned off (System Setup:Data Collection).

Using Only Full Maintenance Backups

If only full CMS maintenance backups are available, the following steps are the fastest way to get the system running:

1. Load the most recent full maintenance backup tape.
2. In one of the windows at a console, log into the system by using a CMS administrator’s login ID (`su - cms`). Supply the correct password if prompted.
3. Access the CMS main menu by typing `cms` and entering the correct terminal type.
4. Select the `Maintenance` option.
5. Select the `Restore Data` option.
6. Do an automatic restore of the system administration data, ACD-specific data, historical data, and non-CMS data by entering `y` in the `Restore from last backup (y/n):` field.

7. After the restore is finished, access the CMS Services menu by entering `cmssvc`.

   The menu appears.

8. Enter `3` to select the `run_cms` option.
9. Enter `2` to turn off CMS.

   CMS turns off.

10. Access the CMS Services menu again by entering `cmssvc`.

    The menu appears.

11. Enter `3` to select the `run_cms` option.
12. Enter `1` to turn on CMS.

    CMS turns on.

Using Both Full and Incremental Maintenance Backups

If both full and incremental CMS maintenance backups are available, the following steps are the fastest way to get the system running:

1. Load the most recent full maintenance backup tape.
2. In one of the windows at a console, log into the system by using a CMS administrator's login ID (`su - cms`). Supply the correct password if prompted.
3. Access the CMS main menu by typing `cms` and entering the correct terminal type.
4. Select the `Maintenance` option.
5. Select the `Restore Data` option.
6. Do a manual restore of the system administration data, ACD-specific data, historical data, and non-CMS data by entering `n` in the `Restore from last backup (y/n):` field.
7. After the full restore is finished, load the most recent incremental maintenance backup tape.
8. Restore the historical data and non-CMS data.
9. After the incremental restore is finished, access the CMS Services menu by entering `cmssvc`.

   The menu appears.

10. Enter `3` to select the `run_cms` option.

11. Enter `2` to turn off CMS.

    CMS turns off.

12. Access the CMS Services menu again by entering `cmssvc`.

    The menu appears.

13. Enter `3` to select the `run_cms` option.

14. Enter `1` to turn on CMS.

    CMS turns on.

Removing *INFORMIX* to Add the SQL Package

Overview

This section describes how to remove the *INFORMIX* packages, and then reinstall all *INFORMIX* packages when the *INFORMIX* Structured Query Language (SQL) package was not originally installed.

NOTE:

The *INFORMIX* SQL package is optional. Only the *INFORMIX* Standard Engine (SE) and International Language Supplement (ILS) (R3V6 only) packages are required for installation.

To install the *INFORMIX* SQL software after the system has been installed, you must complete the following tasks:

CAUTION:

If you do not follow these steps, CMS errors will occur.

1. Copy the `sqlhosts` file to a temporary location.
2. Remove the currently-installed *INFORMIX* software.
3. Install the *INFORMIX* SQL package.
4. Reinstall the *INFORMIX* SE package.
5. Reinstall the *INFORMIX* ESQL package (R3V6 only).
6. Reinstall the *INFORMIX* ILS package (R3V6 only).
7. Restore the `sqlhosts` file to its original location.

Prerequisites

- The *Solaris* operating system must be installed
- Log in as *root* at the console.

Procedure

1. At the system prompt, enter `cmsadm`.

   The CMSADM menu displays.

2. Enter `9` to select the `run_cms` option.

3. Enter `2` to turn off the CMS.

   CMS turns off. You are returned to the system prompt.

4. Enter the following to make a copy of the *INFORMIX* "sqlhosts" file:

   ```
   cp -p /opt/informix/etc/sqlhosts /cms/tmp/sqlhosts
   ```

   CAUTION:

   The following command removes every file and subdirectory under the INFORMIX directory. Make sure that you enter the command accurately.

5. Remove the existing *INFORMIX* software by entering the following:

   ```
   rm -fr /opt/informix/*
   ```

   The *INFORMIX* software is now removed.

6. Reinstall the appropriate *INFORMIX* packages. See the "Installing Software and Setting Up CMS" chapter for *INFORMIX* installation instructions.

7. After the *INFORMIX* packages have been installed, enter the following to restore the original "sqlhosts" file:

   ```
   cp -p /cms/tmp/sqlhosts /opt/informix/etc/sqlhosts
   ```

8. At the system prompt, enter `cmsadm`.

   The CMSADM menu displays.

9. Enter `9` to select the `run_cms` option.

10. Enter `3` to turn on the CMS.

    CMS turns on.

Solving Installation-Related Problems

Overview

This chapter provides some suggestions for solving problems that could arise during an installation. The following installation-related problems are described:

- Troubleshoot a *Solstice DiskSuite** Software Installation
- Fix a *Solaris*† Patch Installation
- Listing Pkgchk Errors
- Solving X.25 License Installation Problems
- Check Installed *Solaris* Patches
- Recognize New Hardware Devices.

NOTE:

When executing commands remotely that may take a long time to complete (such as `cpio` and `/olds` commands), use the `nohup` command to ensure that the command will complete without interruption in case the data line disconnects. An example using the `nohup` command is shown below:

```
nohup  cpio  -icmudf  -C  10240 -I /dev/rmt/0c “/cms” | tee
```

**Solstice DiskSuite* is a registered trademark of Sun Microsystems Inc.
†*Solaris* is a registered trademark of Sun Microsystems, Inc.

Troubleshooting a *Solstice DiskSuite* Software Installation

The *Solstice DiskSuite* software package allows multiple disk partitions to be logically combined to create a single large partition. Using the *Solstice DiskSuite* package allows CMS databases to span multiple disks, and therefore grow quite large.

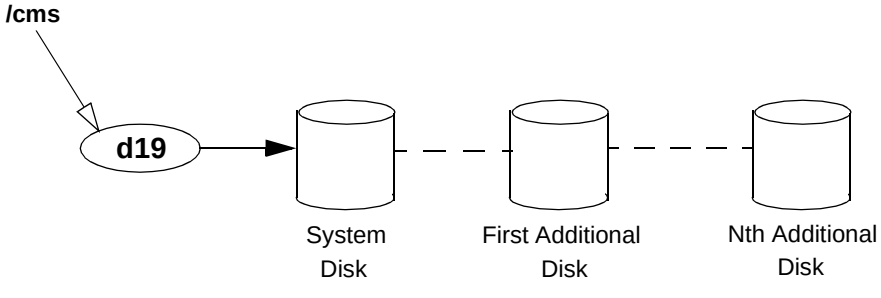
To troubleshoot problems with the *Solstice DiskSuite* software or the `/cms` file system, you must understand two basic concepts of *Solstice DiskSuite* operation: **state databases** and **metadevices.**

A state database contains the *Solstice DiskSuite* configuration information for the system, and is stored on a raw disk partition created for that purpose. At boot time, the operating system accesses the state database to configure the system. Typically, a system contains multiple copies of the state database.

A metadevice is a logical device that consists of a set of physical disk partitions. A system controlled by *Solstice DiskSuite* software can contain any number of metadevices; the state database contains a record of which disk partitions belong to which metadevices. Once a metadevice has been set up, the underlying disk partitions can be accessed only through the metadevice.

For a complete description of *Solstice DiskSuite* software and its basic technical concepts, see the *Solstice DiskSuite 4.1 Administration Guide,* published by Sun Microsystems, Inc.

CMS uses the *Solstice DiskSuite* software to set up three state databases, and to create a single metadevice containing all the disk partitions used to store CMS data. See the following illustration.



Identifying Problems

Use the procedures and hints in this section to help identify and resolve problems with the CMS scripts that administer *Solstice DiskSuite* software, with the physical disks, with the state databases, with the metadevice, or with the `/cms` file system.

Problems with CMS Administration Scripts

Use the `pkginfo -l SUNWmd` command to verify that the *Solstice DiskSuite* software is installed.

If it has not been installed, you may have to reinstall the operating system and repartition your disks. Once the software has been installed, you must use the `olds` script to set up the environment so CMS can access the disks. See the "Installing Software and Setting Up CMS" chapter for a step-by-step description of installing *Solstice DiskSuite* software and using the `olds` script. If you receive an error message from the `olds` script, see "Common Error Messages" on Page 5-7.

Disk I/O Problems

Check the system console and the `/var/adm/messages` log for messages that indicate problems with a specific hard disk. If a disk is generating errors, it may need to be replaced. For procedures related to recovering from disk crashes and replacing hard disk drives, see *CentreVu® CMS Hardware Maintenance and Troubleshooting* (585-215-861) or *CentreVu® CMS Sun® Enterprise* 3500 Computer Maintenance and Troubleshooting* (585-215-875).

State Database Problems

Check the system console and the `/var/adm/messages` log for messages that indicate problems with a state database. Be aware that on a multiple-disk system, there should always be two copies of the state database on the first internal disk drive, and a third copy on the second internal disk drive. On a single-disk system, there should be three copies of the state database on the single disk.

Use the `/usr/opt/SUNWmd/sbin/metadb -i` command to check the status of the state database.

If the response indicates a state database problem, you must remove and re-create the state database that is causing the problem. Follow these steps:

1. Check whether the error is caused by an underlying disk problem. If it is, recover or replace the disk. See *CentreVu® CMS Hardware Maintenance and Troubleshooting* (585-215-861) or *CentreVu® CMS Sun® Enterprise™ 3500 Computer Maintenance and Troubleshooting* (585-215-875).
2. If you find no disk problem, or if the state database problem persists after the disk has been repaired, use the `metadb` command to remove and re-create the state database causing the problem. For example, use the following commands:

   ```
   /usr/opt/SUNWmd/sbin/metadb -d mddb01
   /usr/opt/SUNWmd/sbin/metadb -a mddb01
   ```

* *Enterprise* is a trademark of Sun Microsystems, Inc.

Metadevice Problems

Use the `/usr/opt/SUNWmd/sbin/metastat` command to verify that the metadevice is set up correctly. The program responds as follows:

```
d19: Concat/Stripe
    Size: 1819440 blocks
    Stripe 0:
        Device              Start Block  Dbase
        c0t3d0s3                  0     No
```

To verify the metadevice setup, you must examine the response to the command. You are looking for two things:

a. All your disk drives must be accounted for.

   You can verify that simply by checking the Size figure (it should roughly equal the total capacity of all your disks) and counting the number of devices listed (there should be a “Stripe” section for every drive). If some of your drives seem to be missing, verify that all your drives are plugged in and turned on, and that each external drive has a unique target number. In the example above, there is a single 2.1-GB disk drive.

b. The device names must reflect the appropriate slice numbers.

   The slice numbers are represented by the final two characters of the device name. A properly set up `/cms` file system begins with slice 3 of the first internal disk, and slice 1 of each of the remaining disk drives. Consequently, the device name of the first internal disk drive must end with s3 (for example, c0t0d0s3); all other device names must end in s1 (for example, c2t1d0s1).

If there is any discrepancy between reality and the output of the `metastat` command, you will have to set up your disk drives again.

Problems with the /cms File System

Use the following steps to check the `/cms` file system for errors:

1. Log in as *root*.
2. Enter the following:

   `vi /etc/vfstab`

   The file will look similar to the following:

```
#device          device         mount         FS      fsck   mount   mount
#to mount        to fsck        point         type    pass   at boot options
#
#/dev/dsk/c1d0s2 /dev/rdsk/c1d0s2 /usr        ufs     1      yes     -
fd      -       /dev/fd fd      -       no     -
/proc   -       /proc   proc    -       no     -
/dev/dsk/c0t3d0s4       -       -       swap   -       no     -
/dev/dsk/c0t3d0s0      /dev/rdsk/c0t3d0s0     /       ufs    1      no        -
/dev/md/dsk/d19       /dev/md/rdsk/d19        /cms    ufs    2      yes       -
```

3. Add a pound sign (#) at the beginning of the `/dev/md/dsk/d19` line. This “comments out” that line.
4. Write and quit the file.
5. Reboot the system by entering `init 6`.
6. When the system is back up, log in as *root*.
7. Check the `/cms` file system by entering the following:

   `fsck -y /dev/md/rdsk/d19`

   The file will look similar to the following:

```
** /dev/md/rdsk/d19
** Last Mounted on /cms
** Phase 1 - Check Blocks and Sizes
** Phase 2 - Check Pathnames
** Phase 3 - Check Connectivity
** Phase 4 - Check Reference Counts
** Phase 5 - Check Cyl groups
1952 files, 156146 used, 698956 free (516 frags, 87305 blocks,  0.0%
fragmentation)
```

8. Enter the following:

   `vi /etc/vfstab`

   The file will look similar to the following:

```
#device          device         mount         FS      fsck   mount   mount
#to mount        to fsck        point         type    pass   at boot options
#
#/dev/dsk/c1d0s2 /dev/rdsk/c1d0s2 /usr        ufs     1      yes    -
fd      -       /dev/fd fd      -       no    -
/proc   -       /proc   proc    -       no    -
/dev/dsk/c0t3d0s4       -       -       swap  -       no     -
/dev/dsk/c0t3d0s0      /dev/rdsk/c0t3d0s0     /       ufs    1      no        -
#/dev/md/dsk/d19       /dev/md/rdsk/d19        /cms    ufs    2      yes       -
```

9. Delete the pound sign (#) at the beginning of the `/dev/md/dsk/d19` line. This “uncomments” that line.
10. Write and quit the file.
11. Mount the CMS file system by entering the following:

    `mount /cms`

If the check fails, examine the system for problems with the metadevice, state databases, or disks. If you find no other problems, you may need to recover `/cms`.

If you have trouble mounting `/cms`:

- Verify that the `/cms` directory exists by entering the following:

  `ls -ld /cms`

- If `/cms` does not exist, use the following to create it:

  `mkdir /cms`

- Use the `metastat` command to determine the metadevice being used. Then verify that the entry for `/cms` in the `/etc/vfstab` file is correct. If you find any errors, correct them.

Common Error Messages

This section presents, in alphabetical order, the messages commonly associated with installing and setting up the *Solstice DiskSuite* software to work with a CMS system. Each message is accompanied by its probable cause and the likely solution.

Message	Cause	Solution
/cms: Deadlock situation detected/avoided	Both CMS and the operating system are trying to access the swap file, leading to a deadlock.	Turn off CMS, deactivate all the swap files residing on `/cms` (`swap -d /cms/swap`), and reenter the command. Remember to reactivate the swap files when the `growfs` command completes (`swap - a /cms/swap`).
device: c0t6d0 will not be used	Warning that c0t6d0 will not be set up for *Solstice DiskSuite*.	Since c0t6d0 is the CD-ROM drive, that is not a problem.
device: *devicename* cannot be setup, or does not exist...	The disk you are trying to attach is turned off, does not exist, or was removed from the system.	Power-up the disk drive, or verify the correct name for the disk, or attach the disk to the system and reboot with a `boot -r` command from the open boot prompt.
Disk *devicename* already attached, exiting...	You are trying to attach a disk that is already attached.	Verify the name of the disk. Look at the target number on the back of the disk drive if possible, or consult the device documentation.
disk: *devicename* partition 1 is not partitioned correctly	You need to repartition disk *devicename.*	Use the `format` command. See *CentreVu® CMS Hardware Maintenance and Troubleshooting* (585-215-861) or *CentreVu® CMS Sun® Enterprise™ 3500 Computer Maintenance and Troubleshooting* (585-215-875).
DiskSuite must be installed	You must install the *Solstice DiskSuite* software package.	See the "Installing Software and Setting Up CMS" chapter.
In order to attach disk, /cms must already be mounted, exiting...	The `/cms` file system was not mounted.	Execute a `mount /cms` command and rerun the command that failed.

Message	Cause	Solution
metadb: *systemname*: *devicename*: has a metadevice database replica	There are already state database replicas existing on the indicated system and device.	No further action is required.

metainit: *systemname*: /etc/opt/SUNWmd/md.tab line 12: d19: unit already set up	An initial setup of the file system has already been performed.	If you are trying to attach a new disk, execute an `olds -setup` command for that device. To attach device c0t2d0, for example, you would enter `/olds/olds -setup c0t2d0`. If you need to do an initial setup, use these commands:
		
		`/olds/olds -cleanup`
		<reboot when command completes>
		`/olds/olds -check_disks`
		`/olds/olds -mk_files`
		`/olds/olds -metadbs`
		`/olds/olds -setup`
		
		Then restore all your swap files and their `/etc/vfstab` entries.

metainit: syntax error	This is the `olds` general failure message. The most likely cause is that the `/etc/opt/SUNWmd.tab` file disagrees with your configuration. (The file, for example, says you have seven disks in a given metadevice, but your configuration only has six.)	Verify that `/etc/opt/SUNWmd.tab` is accurate. As a last resort, use an old `md.tab` file or do an initial `olds` setup.
newfs of cms metadevice failed	There is an internal problem with one of your disks.	Enter a `/usr/opt/SUNWmd/sbin/metaclear d19` command, and then rerun the `olds -setup` script. If the same error recurs after doing this, repartition your disks or call Lucent Technologies National Customer Care Center at 1-800-242-2121.

Message	Cause	Solution
prtvtoc: /dev/rdsk/c0t6d0: Device busy	This message usually implies that the device probed by the script is not to be used as a disk because it is a read-only disk (that is, a CD-ROM drive).	This is not a problem.
Warning: Current Disk has mounted partitions	The format command is warning you that it is probing a mounted disk. A probe, however, is a nondestructive task that poses no danger to your data.	Ignore this message.
You must be root in order to run this command	Superuser privileges are necessary to run this script because most of the commands are related to system administration.	Log in as *root*.
You need to have at least one disk set up, before attaching one, exiting...	You tried to use olds to attach a disk, but the metadevice has not yet been set up.	To set it up, run the `olds -setup` command without arguments.
/etc/system has been updated since the last reboot; cms cannot run without an up-to-date /etc/system file	This message displays when you try to turn CMS on, but the `/etc/system` file is not up to date.	The system must be rebooted using `/usr/sbin/shutdown -y -i6 -g0`.

Listing Pkgchk Errors

The `pkgchk -n cms` command lists some common error messages that do not really indicate a problem. The error messages in the following table can be ignored.

Location	Error Message	Occurs
/cms/install/logdir/admin.log	group name <root> expected <cms> actual.	After the installation and before setup.
/usr/lib/cms/pbxtrcflags	pathname does not exist.	After the installation and before setup.
/cms/env/cms_mon/State_tbl	group name <bin> expected <other>actual.	After the setup and before running cms.
/cms/install/logdir/admin.log	group name <root> expected <cms>actual.	After the setup and before running cms.
/usr/lib/cms/pbxtrcflags	pathname does not exist.	After the setup and before running cms.
/cms/env/cms_mon/State_tbl	group name <bin> expected <cms> actual.	After running cms.
/cms/install/logdir/admin.log	group name <root> expected <cms> actual.	After running cms.
/usr/lib/cms/pbxtrcflags	group name <bin> expected <cms> actual.	After running cms.

Solving X.25 License Installation Problems

Error messages are generated by the license system if you have problems during the installation.

Message	Cause	Solution
DEMO mode supports only one SERVER host!	An attempt was made to configure a demonstration version of the software for more than one server.	Call *Sun* license support to obtain a permanent version of the X.25 license.
hostname: Wrong hostid, exiting	The hostid is wrong for the host name. This can happen if the boot ROM or motherboard is replaced.	Call *Sun* license support and obtain a new X.25 license key for this new hostid name.
Starting the X.25 software - please wait X.25 : Creating link XX.... X.25 : link XX has been started Unable to get license, X.25 exiting The network failed to come up correctly.	- The X.25 license password was entered incorrectly - The password was generated for the wrong hostid or hostname - The license manager process (lmgrd) did not start when you started CMS.	- Enter the password correctly - Call Sun to reissue the password for the correct hostid or hostname - Check the license manager with the `ps - ef | grep lmgrd` command. If the lmgrd process is not running, restart the license manager with `/etc/rc2.d/S85lmgrd start`.

Finding a Misplaced X.25 Password

If you are reinstalling the X.25 software and license, and have misplaced your X.25 password, enter the following command to display the password:

```
cat /etc/opt/licenses/licenses_combined
```

If this file no longer exists, check the customer acceptance worksheet in the "Turning the System Over to the Customer" chapter. If you still cannot find the password, you must call *Sun* license support and obtain your X.25 password again.

Checking Installed *Solaris* Patches

To verify that the correct *Solaris* patches are installed, do the following:

1. Enter the following:

   ```
   showrev -p
   ```

   The system responds as follows:

```
Patch: 105084-02  Obsoletes:   Packages: SUNWx25a.2 9.1,PATCH=02,
SUNWx25b.2 9.1,PATCH=02
Patch: 105256-01  Obsoletes:   Packages: SUNWcsu
Patch: 103582-14  Obsoletes:   Packages: SUNWcsu, SUNWcsr
Patch: 103594-10  Obsoletes:   Packages: SUNWcsu
   .
   .
   .
```

2. Check the list to verify that all the *Solaris* patches you need are installed. More information about *Solaris* patches is in the "Maintaining the CMS Software" and "Installing Software and Setting Up CMS" chapters.

Recognizing New Hardware Devices

During a *Solaris* installation, externally powered devices, such as disk drives and tape drives, may not be recognized if they are not connected to power or not powered up. This is also true if you add a new port board to the computer as part of an upgrade or addition.

If you discover that a hardware device is not being recognized, you must either reboot from the CD-ROM and reinstall *Solaris,* or do the following:

1. Enter `init 0` to reboot the system.
2. Enter `boot -r` to force the system to recognize the new components.
3. When the system reboots, log in as *root*.

Glossary

Access Permissions Permissions assigned to a Call Management System (CMS) user so that the user can access different subsystems in CMS or administer specific elements (splits/skills, trunks, vectors, and so on) of Automatic Call Distribution (ACD). Access permissions are specified as **read** or **write** permission. Read permission allows the CMS user to access and view data (for example, run reports or view the Dictionary subsystem). Write permission allows the CMS user to add, modify, or delete data and execute processes.

ACD See Automatic Call Distribution (ACD)

Acknowledgment A window that requires the user to confirm an action or to acknowledge a system message (for example, system going down, warning, or fatal error for the user window). This window cannot be moved, sized, or scrolled and disappears only when the user confirms the message.

Action List A menu in the upper right corner of most user windows. The menu lists the actions available for that particular user window (for example, add, modify, delete, and so on). The user selects an action after entering necessary data in the window.

Add Package A *Solaris** operating system command (`pkgadd`) that allows you to add an additional software package.

ADU See Asynchronous Data Unit (ADU)

Agent A person who answers calls to an extension in an ACD split. This person is known to CMS by a login identification keyed into a voice terminal.

Agent Login ID A 1- to 4-digit number (Generic 2) or a 1- to 9-digit number (Generic 3) entered by the agent at the ACD extension to activate the position. Agent logins are required for all CMS-measured ACD agents.

Agent Skill The different types of calls a particular agent can handle. An agent can be assigned up to four skills. These skills are assigned as either primary or secondary skills. See “Primary Skill” or “Secondary Skill” definitions in this Glossary.

Agent State A feature of agent call handling that allows agents to change their availability to the system (for example, ACW, AVAIL, ACD).

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Automatic Call Distribution (ACD)	A switch feature. ACD is software that channels high-volume incoming call traffic to agent groups (splits or skills). Also an agent state where the extension is engaged in an ACD call (with the agent either talking to the caller or the call waiting on hold).
Backup	The process of protecting data by writing the contents of the disk to a tape that can be removed from the computer and stored safely. A spare copy of data or software that you keep in case the original is damaged or lost. CMS provides three different types of backups: CMSADM File System Backup, CMS Full Maintenance Backup, and CMS Incremental Maintenance Backup.
Boot	To load the system software into memory and start it running.
Bus	A signal route to which several items of a computer system may be connected in parallel so that signals can be passed between them. In general, a multiconductor electrical path used to transfer information over a common connection from any of several sources to any of several destinations.
Cables	Wires or bundles of wires configured with adapters or connectors at each end and used to connect two or more hardware devices.
CLI **Call Level Interface**	A database programming interface from the Structured Query Language (SQL) Access Group, an SQL membership organization. Under CLI, SQL statements are passed directly to the server without being recompiled.
Call Management System Query Language (CMS-QL)	A relational database management (operating) system used to organize most of CMS's data. Automatically comes with CMS and runs in the background.
Call Vectoring	A highly flexible method for processing ACD calls using Vector Directory Numbers (VDNs) and vectors as processing points between trunk groups and splits or skills. Call vectoring permits treatment of calls that is independent of splits or skills.
Cartridge Tape	A 0.25-inch (6.35-mm) magnetic tape used in the tape drive of the Desktop Backup Pack and External Storage Module to read and write data.
***CentreVu*® CMS**	*CentreVu* Call Management System (CMS). A software product used by business customers that have a Lucent Technologies telecommunications switch and receive a large volume of telephone calls

	that are processed through the Automatic Call Distribution (ACD) feature of the switch.
CMS	Call Management System. See *CentreVu®* CMS.
CMSADM	Call Management System Administration. The part of the CMS software that allows a user to administer features of CMS. See also “CMSSVC.”
CMSADM file system backup	A backup that saves all the file systems on the machine which includes *Solaris* 2.5.1 system and programs, CMS programs and data, and non-CMS data you place on the computer in addition to the CMS data. See the “Backup” definition for more details.
CMSSVC	Call Management System Services. The part of the CMS software product that allows a user to manage CMS system services. See also “CMSADM.”
Command	A command is an instruction used to tell the computer to perform a function or to carry out an activity.
Common Desktop Environment	A desktop user interface for *Solaris*. This replaces OpenWindows.
Configuration	Configuration is the way that the computer is set up to allow for particular uses or situations.
Copy	Copy means to duplicate information.
Custom Reports	Real-time or historical reports that have been customized from standard reports or created from original design.
Daemon	Pronounced “demon.” A *UNIX** program that executes in the background ready to perform an operation when required. Usually unattended processes initiated at start-up, such as print spoolers, e-mail handlers or schedulers.
Data Collection Off	CMS is not collecting ACD data. If you turn off data collection, CMS will not collect data on current call activity.
Database	A group of files that store ACD data according to a specific time frame: current and previous intrahour real-time data and intrahour, daily, weekly, and monthly historical data.

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Database Item	A name for a specific type of data stored in one of the CMS databases. A database item may store ACD identifiers (split numbers or names, login IDs, VDNs, and so on) or statistical data on ACD performance (number of ACD calls, wait time for calls in queue, current states of individual agents, and so on).
Database Tables	Tables that CMS uses to collect, store, and retrieve ACD data. Standard CMS items (database items) are names of columns in the CMS database tables.
Device	The term used to refer to the peripheral itself; for example, a hard disk or a tape drive. A peripheral is sometimes referred to as a subdevice or an Logical Unit (LU).
Disk	A round platter, or set of platters, coated with magnetic medium and organized into concentric tracks for storing data.
DSIMM	Dynamic random access memory Single In-line Memory Module. A small printed circuit card that contains Dynamic Random Access Memory (DRAM)
EAD	See Expert Agent Distribution (EAD)
EAS	See Expert Agent Selection (EAS)
ECC	See Error Correction Codes (ECC)
EIA	Electronic Industries Association. An organization that sets standards for consumer products and electronic components.
Error Correction Code (ECC)	A code that protects the customer’s system and data from single bit soft errors that can occur frequently depending on the environment.
Error Message	An error message is a response from a program indicating that a problem has arisen or something unexpected has happened, requiring your attention.
Ethernet	A type of network hardware that allows communication between systems connected directly together by transceiver taps, transceiver cables, and a coaxial cable. Also implemented using twisted-pair telecommunications wire and cable.

Ethernet Address	A unique number assigned to each system when it is manufactured. The Ethernet address of your system is displayed on the banner screen that appears when you power on your system.
Exception	A type of activity on the ACD which falls outside of the limits the customer has defined. An exceptional condition is defined in the CMS Exceptions subsystem, and usually indicates abnormal or unacceptable performance on the ACD (by agents, splits or skills, VDNs, vectors, trunks, or trunk groups).
Expert Agent Distribution (EAD)	A call queued for a skill will go to the most idle agent (primary skill agent). Agents who are idle and have secondary agent skills will receive the call queued for a skill if there are no primary agents available.
Expert Agent Selection (EAS)	An optional feature that bases call distribution on agent skill (such as language capability). EAS matches the skills required to handle a call to an agent who has at least one of the skills required.
Forecast Reports	These reports display expected call traffic and agent or trunk group requirements for the customer's call center for a particular day or period in the future.
Gigabyte (GB)	One gigabyte equals 2^{30} bytes (1073741824 bytes).
Hand-Shaking Logic	A format used to initiate a data connection between two data module devices.
Hard Disk	A device that stores operating systems, programs, and data files.
High Speed Serial Interface (HSI)	The HSI controller card is a 4-port serial communications card. Each of the four ports is used for a single physical X.25 link. It is an add-on package that is needed by CMS for multiple ACDs.
Historical Database	Contains intrahour records for up to 62 days in the past, daily records for up to 5 years in the past, and weekly or monthly records for up to 10 years for each CMS-measured agent, split or skill, trunk, trunk group, vector, and VDN.
Historical Reports	Reports that display past ACD data for various agent, split or skill, trunk, trunk group, vector, or VDN activities.
Host Computer	A computer that is attached to a network and provides services other than simply acting as a store-and-forward processor or communication

	switch. The *Sun*[*] *SPARCserver*[†] or *Sun Enterprise*[‡] *3000* computer is your host computer and hosts the CMS application software.
Host Name	A name that you (or your system administrator) assign to your system unit to uniquely identify it to the *Solaris 2.5.1* operating system (and also to the network).
Hung System	A system that does not respond to input from the keyboard or mouse.
ITU	See International Telecommunications Union (ITU)
INFORMIX[**]	A relational database management system used to organize CMS data. An add-on software package needed by CMS.
Install	The procedures used to set up the hardware and software of a computer, terminal, printer, and modem so that they can be used. Installing often includes customizing the system for a particular situation or user.
Interface	A common boundary between two systems or pieces of equipment.
International Telecommunica-tions Union (ITU)	Formerly the Consultative Committee for International Telephony and Telegraphy (CCITT). An international organization that sets communications standards.
Internet Protocol (IP)	An integral part of the internet communication protocol system (see Transmission Control Protocol/Internet Protocol [TCP/IP]). The IP provides the routing mechanism of the TCP/IP. See also Network Address.
LAPB	See Link Access Procedure Balanced (LAPB)
Link Access Procedure Balanced (LAPB)	The ITU standard error correction protocol used on most current X.25 packet switching networks.
Link	A transmitter-receiver channel or system that connects two locations.
Log In	The process of gaining access to a system by entering a user name and, optionally, a password.
Log Out	The process of exiting from a system.

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†*SPARCserver* is a trademark of SPARC International, Inc.
‡*Enterprise* is a trademark of Sun Microsystems, Inc.
***INFORMIX* is a registered trademark of Informix Software, Inc.

Logical Unit	The term used to refer to a peripheral device such as a disk drive.
Measured	A term that means an ACD element (agent, split or skill, trunk, trunk group, vector, VDN) has been identified to CMS for collection of data.
Megabyte (MB)	One megabyte equals 2^{20} bytes (1048576 bytes).
Menu	A list of items from which the user can select one. A menu cannot be moved or sized and does not count in the user window count.
Multi-user Mode	A mode of CMS in which any administered CMS user can log into CMS. Data continues to be collected if data collection is “on.”
Network Address	A unique number assigned to each system on a network, consisting of the network number and the system number. Also known as Internet Address or Internet Protocol (IP) address.
Network Hub	Hardware that connects a computer to a Network Terminal Server (NTS).
Network Terminal Server (NTS)	A hardware terminal that connects to the Network Hub via cabling. The NTS provides 50-pin switch champ connectors used to attach 64 serial devices using the patch panel cables and patch panels.
Network Terminal Server Patch Panel	Hardware that has ports for connecting serial peripheral devices (for example, printers, terminals and modems). The NTS patch panel connects to the NTS via PBX-Champ cabling.
Non-Volatile Random Access Memory (NVRAM)	A random access memory (RAM) system that holds its contents when external power is lost.
NTS	See Network Terminal Server (NTS)
NVRAM	See Non-Volatile Random Access Memory (NVRAM)
Open Window	A window that remains open because the user has not yet closed it with the “Exit” Screen Label Key (SLK). An open window becomes the current window when it initially appears on the screen or when the user makes it the current window using the “Current” SLK.
Operating System (OS)	The software that controls and allocates the resources, such as memory, disk storage, and the screen display for the computer.

Partitions	Sections of the hard disk that are used to store an operating system and data files or programs. By dividing the disk into partitions, you can use the space allocated in a more efficient and organized manner.
Password	A character string that is associated with a user name. Provides security for a user account. Desktop computers require you to type a password when you log into the system, so that no unauthorized person can use your system.
Port (I/O Port)	A designation of the location of a circuit that provides an interface between the system and lines and/or trunks.
Primary Skill	An agent will handle calls to many skills before calls to secondary skills. See “Agent Skill” in this Glossary.
Primary Window	The first window opened in response to a menu selection. A primary window may also generate another user window (secondary window). A primary window can be moved, sized, or scrolled, and counts in the window count.
Printer	A physical device that takes electronic signals, interprets them, and prints them on paper.
Processor Interface (PI)	A hardware device on the Generic 3i switches that prepares and sends architecture messages to other switches or application adjuncts.
QIC	Quarter-Inch Cartridge
Recommended Standard (RS)	Any one of several Electronic Industries Association (EIA) standards commonly used in U.S. electronic applications.
Refresh Rate	The number of seconds CMS should wait for each update of the real-time report data. A user’s fastest allowable refresh rate is defined in the User Permissions — User Data window as a minimum refresh rate. The default refresh rate when a user brings up the report input window is the administered minimum refresh rate plus 15 seconds.
RISC	Reduced Instruction Set Computer. A computer architecture that reduces chip complexity by using a simpler instruction set. RISC keeps instruction size constant, bans the indirect addressing mode, and retains only those instructions that can be overlapped and made to execute in one machine cycle or less.
RS	See Recommended Standard (RS)

RS-422 A balanced electrical interface (for example, RS-422 has a positive and a negative voltage). This interface is used by the HSI card.

RS-449 A 37-pin physical interface used by the HSI card.

SBus The Input/Output bus for the *Sun SPARCserver* and *Enterprise* computers. Provides slots for additional cards (for example, HSI Controller Card).

SBus Expansion Subsystem A peripheral device attached to a computer system. The SBus expansion subsystem provides three additional SBus slots and space for two optional SCSI hard disk drives. The SBus expansion subsystem consists of the following: the SBus expansion chassis, the expansion adapter card (in the computer system), and the SBus expansion subsystem cable.

Screen Labeled Key (SLK) The first eight function keys at the top of the keyboard that correspond to the screen labels at the bottom of the terminal screen. The screen labels indicate the function each key performs.

SCSI See Small Computer System Interface

SCSI Bus An industry standard peripheral bus that is used to connect intelligent peripherals to a computer. It uses a daisy-chained cabling arrangement that originates at the Host Adapter to interconnect up to seven intelligent peripheral controllers on the bus. The *Sun SPARCserver* computer uses a fast SCSI-2 implementation.

SCSI ID Each tap on the SCSI bus is required to have a unique identification or address, which is the SCSI ID. The ID is set by a switch located on each controller. In a Lucent Technologies' implementation, the Host Adapter card (with a SCSI ID of 7) is preset. The remainder can be set with external devices "push buttons." Users never have to open a chassis or touch a circuit-board switch.

SCSI Single-Ended Bus A version of the SCSI bus designed to minimize cost and space. Cable lengths up to 6 meters are supported. It is not compatible with the differential version of the SCSI bus.

Secondary Skill An agent will handle secondary skill calls after primary skill calls. See "Agent Skill" in this Glossary.

Secondary Window A user window that is generated from a primary window. Secondary windows can be moved, sized, or scrolled and do not count in the user window count.

Serial Asynchronous Interface/PCI	A card that provides access to eight serial ports by connecting to an eight-port patch panel.
Single-User Mode	A CMS mode in which only one person can log into CMS. Data collection continues if data collection is “on.” This mode is required to change some CMS administration.
Skill	In relationship to the call center, think of skill as a specific customer need or requirement, or perhaps a business need of the call center.
SQL	See Structured Query Language (SQL)
Slot	An electronic connection designed to receive a module or a printed circuit board (such as a Single In-line Memory Module [SIMM] or a frame buffer board).
Small Computer System Interface (SCSI)	A hardware interface that allows the connection of peripheral devices (such as hard disks, tape drives and CD-ROM drives) to a computer system.
Solaris	The operating system package on the *Sun* computers. *Solaris* is a version of the *UNIX* System V Release 4.
Split	A group of extensions that receive special-purpose calls in an efficient, cost-effective manner. Normally, calls to a split arrive over one or a few trunk groups.
Storage Device	A hardware device that can receive data and retain it for subsequent retrieval. Such devices cover a wide range of capacities and speeds of access.
Structured Query Language (SQL)	A language used to interrogate and process data in a relational database. SQL commands can be used to interactively work with a database or can be embedded within a programming language to interface to a database.
Submenu	A menu that appears as a result of a menu selection. All menu selections followed by a “>” have submenus.
Subsystem	Each CMS main menu selection (for example, Reports, Dictionary, System Setup, Exceptions, and so on), along with Timetable and Shortcut, is referred to as a subsystem of the Call Management System throughout this document.

***Sun Enterprise* System**	A series of host computer systems manufactured by Sun Microsystems Inc. The *Sun Enterprise* 3000 or 3500 computer is a platform used to support *CentreVu*® CMS R3V6 and later versions as a replacement for the discontinued *Sun SPARCserver* 10/20 platforms.
***Sun SPARCserver* Computer**	A host computer that is attached to a network and provides services other than simply acting as a store-and-forward processor or communication switch. For CMS R3V6, the *Sun SPARCserver* 5 is available for new installations. See *Sun Enterprise* systems above for replacement information.
Super-user	A user with full access privileges on a system, unlike a regular user whose access to files and accounts is limited.
Switch	A private switch system providing voice-only or voice and data communications services (including access to public and private networks) for a group of terminals within a customer's premises.
Syntax	The format of a command line.
System	A general term for a computer and its software and data.
Tap	A tap is any intelligent (microprocessor-based) controller connected to the SCSI bus.
Tape Cartridge	A magnetic piece of hardware that is used as a storage unit for data. The SCSI QIC-150, SCSI QIC 2.5-GB, SCSI 4-8 SLR, 8mm 5-GB, 8mm 14-GB, and 8mm 20/40-GB tape cartridges are used to back up and copy data for the platform.
TCP/IP	See Transmission Control Protocol/Internet Protocol (TCP/IP)
TSC	Technical Service Center. The Lucent organization that provides technical support for Lucent products.
Transmission Control Protocol/Internet Protocol (TCP/IP)	A communications protocol that provides interworking between dissimilar systems. It is the de facto standard for *UNIX* systems.
Trunk	A telephone line that carries calls between two switches, between a Central Office (CO) and a switch, or between a CO and a phone.
Trunk Group	A group of trunks that are assigned the same dialing digits — either a phone number or a Direct Inward Dialing (DID) prefix.

***UNIX* System**	The operating system on the computer on which CMS runs. A user can access the *UNIX* system from the "Commands" SLK. *SUN* uses *Solaris* as its *UNIX* operating system.
User ID	The login ID for a CMS user.
User Name	A combination of letters, and possibly numbers, that identifies a user to the system.
User Window	A window the user can move, size, or scroll. It may contain input fields, reports, or help information.
VDN	See Vector Directory Number (VDN)
Vector	A list of steps that process calls in a user-defined manner. The steps in a vector can send calls to splits, play announcements and/or music, disconnect calls, give calls a busy signal, or route calls to other destinations. Calls enter vector processing by way of VDNs, which may have received calls from assigned trunk groups, from other vectors, or from extensions connected to the switch.
Vector Directory Number (VDN)	An extension number that is used in ACD software to permit calls to connect to a vector for processing. A VDN is not assigned an equipment location; it is assigned to a vector. A VDN can connect calls to a vector when the calls arrive over an assigned automatic-in trunk group or when calls arrive over a dial-repeating (DID) trunk group, and the final digits match the VDN. The VDN by itself may be dialed to access the vector from any extension connected to the switch.
Write Permission	A mode of CMS that allows the CMS user to add, modify, or delete data and execute processes. Write permission is granted from the User Permissions subsystem.
X.25	An ITU communications protocol standard for packet switching networks that typically operates at 56 Kbps or less. An add-on software package that allows CMS to communicate with the switch using X.25 protocol.

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