



CentreVu[®]
Call Management System
Release 3 Version 8
Software Installation, Maintenance
and Troubleshooting

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Notice

Every effort was made to ensure that the information in this book was complete and accurate at the time of printing. However, information is subject to change.

Preventing Toll Fraud

"Toll fraud" is the unauthorized use of your telecommunications system by an unauthorized party (for example, a person who is not a corporate employee, agent, subcontractor, or working on your company's behalf). Be aware that there may be a risk of toll fraud associated with your system and that, if toll fraud occurs, it can result in substantial additional charges for your telecommunications services.

Avaya Fraud Intervention

If you *suspect that you are being victimized* by toll fraud and you need technical support or assistance, call Technical Service Center Toll Fraud Intervention Hotline at +1 800 643 2353.

Providing Telecommunications Security

Telecommunications security (of voice, data, and/or video communications) is the prevention of any type of intrusion to (that is, either unauthorized or malicious access to or use of your company's telecommunications equipment) by some party.

Your company's "telecommunications equipment" includes both this Avaya product and any other voice/data/video equipment that could be accessed via this Avaya product (that is, "networked equipment").

An "outside party" is anyone who is not a corporate employee, agent, subcontractor, or working on your company's behalf. Whereas, a "malicious party" is anyone (including someone who may be otherwise authorized) who accesses your telecommunications equipment with either malicious or mischievous intent.

Such intrusions may be either to/through synchronous (time-multiplexed and/or circuit-based) or asynchronous (character-, message-, or packet-based) equipment or interfaces for reasons of:

- Utilization (of capabilities special to the accessed equipment)
- Theft (such as, of intellectual property, financial assets, or toll-facility access)
- Eavesdropping (privacy invasions to humans)
- Mischief (troubling, but apparently innocuous, tampering)
- Harm (such as harmful tampering, data loss or alteration, regardless of motive or intent)

Be aware that there may be a risk of unauthorized intrusions associated with your system and/or its networked equipment. Also realize that, if such an intrusion should occur, it could result in a variety of losses to your company (including but not limited to, human/data privacy, intellectual property, material assets, financial resources, labor costs, and/or legal costs).

Your Responsibility for Your Company's Telecommunications Security

The final responsibility for securing both this system and its networked equipment rests with you - an Avaya customer's system administrator, your telecommunications peers, and your managers. Base the fulfillment of your responsibility on acquired knowledge and resources from a variety of sources including but not limited to:

- Installation documents
- System administration documents
- Security documents
- Hardware-/software-based security tools
- Shared information between you and your peers
- Telecommunications security experts

To prevent intrusions to your telecommunications equipment, you and your peers should carefully program and configure your:

- Avaya-provided telecommunications systems and their interfaces
- Avaya-provided software applications, as well as their underlying hardware/software platforms and interfaces
- Any other equipment networked to your Avaya products.

Federal Communications Commission Statement

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

European Union Declaration of Conformity

Avaya Business Communications Systems declares that equipment specified in this document conforms to the referenced European Union (EU) Directives and Harmonized Standards listed below:

EMC Directive 89/336/EEC

Low Voltage Directive 73/23/EEC



The "CE" mark affixed to the equipment means that it conforms to the above Directives.

Trademarks

See the Preface of this document.

Avaya National Customer Care Center

Avaya provides a telephone number for you to use to report problems or to ask questions about your contact center. The support telephone number is 1-800-242-2121.

Avaya Web Page

<http://www.avaya.com>

Acknowledgment

This document was written by the CRM Development group.

CentreVu[®] Call Management System R3V8

Software Installation, Maintenance and Troubleshooting

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Preface

Overview

This document is written for technicians and Avaya Inc. call center customers who install and maintain Release 3, Version 8 of the CentreVu Call Management System (CMS) using the Solaris® 7 operating system.

Trademarks

The following trademarks are mentioned in this document:

- *CentreVu* is a registered trademark of Avaya Inc.
- *Enterprise, Solaris, SPARCserver, Network Terminal Server, Sun, SunSwift, Solstice, DiskSuite, and Ultra* are trademarks or registered trademarks of Sun Microsystems, Inc.
- *INFORMIX* is a registered trademark of Informix Software, Inc.
- *DEFINITY* is a registered trademark of Avaya Inc.
- *OpenLink* is a trademark of OpenLink Software
- *Intel* is a registered trademark of Intel Corp.
- *UNIX* is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company Limited.

All other product names mentioned herein are the trademarks of their respective owners.

Reasons for reissue

This document was changed for the following reason:

- Updated the Solaris versions that are supported with CMS R3V8.

Organization

This document includes the following chapters:

- **Chapter 1 — Introduction**
Provides an overview of the supported CMS software, supported hardware platforms and required software.
- **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— Troubleshooting**
Discusses how to fix various software installation problems.

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 Ultra 5 computer, the Sun Enterprise 3000 computer and the Sun Enterprise 3500 computer.
- The term “CMS” in this document always implies “CentreVu CMS.”
- Commands you enter from the console are shown in **bold 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.
- 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.

Related documents

This section lists sources for related information about call center products and features. To order Avaya documentation, call the Avaya Publications Center at 1-800-457-1235 or +1-317-361-5353.

Hardware documents

Title	Document number
<i>CentreVu Call Management System Sun Enterprise 3500 Computer Hardware Installation, Maintenance, and Troubleshooting</i>	585-215-873
<i>CentreVu Call Management System Sun Enterprise 3500 Computer Connectivity Diagram</i>	585-215-877
<i>CentreVu Call Management System Sun Ultra 5 Computer Hardware Installation, Maintenance, and Troubleshooting</i>	585-215-871
<i>CentreVu Call Management System Sun Ultra 5 Computer Connectivity Diagram</i>	585-215-872
<i>CentreVu Call Management System Sun Enterprise 3000 and SPARCserver Computers Hardware Maintenance and Troubleshooting</i>	585-214-016
<i>CentreVu Call Management System Release 3 Version 6 Sun Enterprise 3000 Computer Hardware Installation</i>	585-215-867
<i>CentreVu Call Management System Release 3 Version 6 Sun Enterprise 3000 Computer Connectivity Diagram</i>	585-215-865
<i>CentreVu Call Management System Release 3 Version 6 Sun SPARCserver Computers Hardware Installation</i>	585-215-857
<i>CentreVu Call Management System Release 3 Version 6 Sun SPARCserver Computers Connectivity Diagram</i>	585-215-858
<i>CentreVu Call Management System Release 3 Version 5 Sun SPARCserver Installation and Maintenance</i>	585-215-827
<i>CentreVu Call Management System Release 3 Version 5 Sun SPARCserver Connectivity Diagram</i>	585-215-828
<i>CentreVu Call Management System Terminals, Printers, and Modems</i>	585-215-874

CMS software documents

Title	Document number
Installing Software on a CMS Computer	
<i>CentreVu Call Management System Release 3 Version 9 Software Installation, Maintenance, and Troubleshooting</i>	585-215-956
<i>CentreVu Call Management System Release 3 Version 8 Software Installation, Maintenance, and Troubleshooting</i>	585-210-941
<i>CentreVu Call Management System Software Installation and Setup (R3V6 and earlier)</i>	585-215-866
Setting Up a Disk-Mirrored System	
<i>CentreVu Call Management System Release 3 Version 8 Disk-Mirrored Systems</i>	585-210-940
<i>CentreVu Call Management System Disk-Mirrored Systems (R3V6)</i>	585-215-841

Switch documents

Title	Document number
<i>CentreVu Call Management System Switch Connections and Administration</i>	585-215-876

Upgrade documents

There are several upgrade paths supported with CMS. For each of these upgrades, there is a document designed to support that upgrade. Note that none of these documents are available from the publications center, but are available from the [Avaya CMS documentation](#) web site.

- Base load upgrades

A base load upgrade is used when upgrading CMS to a newer load of the same version (for example, R3V8 ak.g to R3V8 al.k). A specific set of instructions are written for the upgrade and are shipped to the customer site with the CMS software CD as part of a Quality Protection Plan Change Notice (QPPCN).

Title
<i>CentreVu Call Management System Release 3 Version 9 Base Load Upgrade Procedures</i>
<i>CentreVu Call Management System Release 3 Version 8 Base Load Upgrade Procedures</i>

- Platform upgrades and data migration

A platform upgrade is used when upgrading to a new hardware platform (for example, upgrading from a SPARCserver 5 to an Enterprise 3500). The new hardware platform ships from the Avaya factory with the latest CMS load. Therefore, as part of the upgrade, you will automatically upgrade to the latest CMS load (for example, R3V8 to R3V9, or a newer load of the same CMS version). A specific set of instructions are written for the upgrade and are shipped to the customer site with the new hardware.

Title
<i>CentreVu Call Management System Release 3 Version 9 Platform Upgrade and Data Migration Instructions</i>
<i>CentreVu Call Management System Release 3 Version 8 Platform Upgrade and Data Migration Instructions</i>

- CentreVu Upgrade Express (CVUE)

CVUE is used in the following conditions:

- CMS is being upgraded from an older version (for example, R3V5u or R3V6) to the latest version (for example, R3V8 or R3V9)
- The hardware platform is not changing.

A specific set of upgrade instructions are written for the upgrade and are shipped to the customer site with the CVUE kit.

Title
<i>CentreVu Call Management System Release 3 Version 9 Sun Ultra 5 Computer CVUE Instructions</i>
<i>CentreVu Call Management System Release 3 Version 9 Sun Enterprise 3000 Computer CVUE Instructions</i>
<i>CentreVu Call Management System Release 3 Version 9 Sun Enterprise 3000 Computer Mirrored System CVUE Instructions</i>
<i>CentreVu Call Management System Release 3 Version 9 Sun Enterprise 3500 Computer CVUE Instructions</i>
<i>CentreVu Call Management System Release 3 Version 9 Sun Enterprise 3500 Computer Mirrored System CVUE Instructions</i>
<i>CentreVu Call Management System Release 3 Version 8 Sun SPARCserver 5 Computer CVUE Instructions</i>
<i>CentreVu Call Management System Release 3 Version 8 Sun SPARCserver 20 Computer CVUE Instructions</i>
<i>CentreVu Call Management System Release 3 Version 8 Sun Ultra 5 Computer CVUE Instructions</i>
<i>CentreVu Call Management System Release 3 Version 8 Sun Enterprise 3000 Computer CVUE Instructions</i>
<i>CentreVu Call Management System Release 3 Version 8 Sun Enterprise 3000 Computer Mirrored System CVUE Instructions</i>
<i>CentreVu Call Management System Release 3 Version 8 Sun Enterprise 3500 Computer CVUE Instructions</i>
<i>CentreVu Call Management System Release 3 Version 8 Sun Enterprise 3500 Computer Mirrored System CVUE Instructions</i>

Administration documents

Title	Document number
<i>CentreVu Call Management System Release 3 Version 9 Administration</i>	585-214-015
<i>CentreVu Call Management System Release 3 Version 8 Administration</i>	585-210-910
<i>CentreVu Call Management System Release 3 Version 6 Administration (Volumes 1 and 2)</i>	585-215-850
<i>CentreVu Call Management System Release 3 Version 5 Administration (Volumes 1 and 2)</i>	585-215-820

Other documents

Title	Document number
<i>CentreVu CMS Open Database Connectivity</i>	585-210-951
<i>CentreVu CMS Release 3 Version 9 External Call History Interface</i>	585-215-952
<i>CentreVu CMS Release 3 Version 5 Real-Time and Historical Reports</i>	585-215-821
<i>CentreVu CMS Release 3 Version 5 Custom Reports</i>	585-215-822
<i>CentreVu CMS Release 3 Version 5 Forecast</i>	585-215-825

Documentation web sites

Use the following sites to view support documentation:

- Sun hardware documentation
<http://docs.sun.com>
- Okidata printer documentation
<http://www.okidata.com>

Introduction

Overview

CentreVu® Call Management System (CMS) is a software application offered in association with the Automatic Call Distribution (ACD) feature of Avaya Inc. 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 is supported on the following platforms:

- *Sun® SPARCserver™ 5* computer
- *Sun SPARCserver 10* computer
- *Sun SPARCserver 20* computer
- *Sun Ultra™ 5* computer
- *Sun Enterprise™ 3000* computer
- *Sun Enterprise 3500* computer

Required and optional software

CMS requires the following software packages (optional packages are noted):

- Sun Solaris® 7 operating system
 - CMS R3V8af uses the Solaris 7 3/99 version
 - CMS R3V8aj and later uses the Solaris 7 11/99 version
- Sun Validation Test Suite (VTS) 3.1
- High-Speed Serial Interface/Sbus (HSI/S) (required only for Sun SPARCserver or Enterprise systems that have an HSI/S card)
- High-Speed Serial Interface/PCI (HSI/P) (required only for Sun Ultra 5 systems that have an HSI/P card)
- Serial Asynchronous Interface/PCI (SAI/P) drivers (required only for Sun Ultra 5 systems that have an SAI/P card)
- Aurora Ports Card drivers (required only for SPARCserver systems that have an SBus multiport card)

- Bay Networks Annex R10.0B (required only for systems using Network Terminal Server™ [NTS])
- Solstice™ for Server Connect X.25 Version 9.1 drivers (required only for systems using an X.25 link to a switch)
- INFORMIX®
 - Structured Query Language (SQL) 7.20 (optional)
 - Standard Engine (SE) 7.22
 - Runtime Enhanced SQL (ESQL) 9.14
 - International Language Supplement (ILS) 3.0
- Solstice DiskSuite™ 4.2 (contained on the Solaris Easy Access Server 2.0 CD)
- Sun Solaris patches
- CMS Supplemental Services
- CMS software
- CMS patches
- CMS Open Database Connectivity (ODBC) (optional)
- Visual Vectors Server software (optional)

Roles and responsibilities

This document is written for:

- Avaya Inc. on-site technicians
- Avaya Inc. Technical Service Center (TSC) personnel
- Avaya Inc. 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” on page 2-4	X	X	X	
“Installing the Sun Online VTS 3.1” on page 2-39	X	X	X	
“Installing link and port packages” on page 2-41	X	X	X	
“Installing INFORMIX” on page 2-69	X	X	X	
“Installing DiskSuite” on page 2-93	X	X	X	
“Installing CMS packages” on page 2-107	X	X	X	X (limited)
“Installing the Open Database Connectivity software” on page 2-116		X	X	
“Installing Visual Vectors Server software” on page 2-123	X	X	X	
“Creating an alternate boot device” on page 2-105			X	
“Setting up CMS” on page 2-125		X		
“Installing feature packages” on page 2-159	X	X		
“Setting up the remote console” on page 2-169	X			
“Setting up the Alarm Origination Manager” on page 2-174			X	
“Setting up the NTS” on page 2-178	X		X	
“Performing a CMSADM backup” on page 2-185	X		X	

Roles and responsibilities

Task	On-Site Tech	TSC	Factory	Customer
Chapter 3 — Turning the system over to the customer				
“Verifying the system date and time” on page 3-2	X			
“Testing the remote access port” on page 3-3		X		
“Testing the ACD link” on page 3-7	X			
“Assigning customer passwords” on page 3-8				X
“Testing the CMS software” on page 3-9	X			
“Finalizing the on-site installation” on page 3-13				X

CentreVu CMS helplines

If a problem arises that requires assistance, customers or Avaya technicians can:

- go to the Online Services support web site
 - call the appropriate support number
-

Support web site

Register for Online Services at:

<http://www.avaya.com/support>

By registering, you will be able to:

- Create new trouble tickets through the Avaya web server without having to call the 1-800-242-2121 United States helpline.
 - Receive software downloads.
 - View links to frequently asked questions about call center products and administration.
-

Customer support for the United States

1-800-242-2121

Customers can report problems and generate trouble tickets by calling this number.

The customer is prompted to identify the type of problem (that is, Automatic Call Distribution, hardware, or CentreVu CMS), and is connected to the appropriate service organization.

Technician support for the United States

1-800-248-1234

Avaya technicians can receive help by using this number.

**Customer and
technician
support outside
the United States**

For customer and technician support outside the United States, contact your Avaya 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. If the software has already been installed at the factory, the only procedures required at the customer site include:

- [“Setting up CMS” on page 2-125](#)
- [“Installing feature packages” on page 2-159](#)
- [“Performing a CMSADM backup” on page 2-185](#)

If the CMS software was not installed at the factory, use the procedures in this chapter to bring the CMS computer up to factory standards after a system reconfiguration or repair.

Summary of procedures

The following table lists each of the factory software installation procedures for R3V8, including the computer models for which it applies (E3000, E3500, Ultra™ 5, SPARCserver®) and if it is required or optional. All procedures must be performed in the sequence presented below.

Procedure	Computer Platform	Required/Optional
Installing the Sun Solaris 7 operating system	All	Required
Installing the Sun Online Validation Test Suite (VTS) 3.1	All	Required
Installing the SunLink® High-Speed Serial Interface/Sbus (HSI/S) Version 3.0 drivers	E3000 E3500 SPARCserver	Optional
Installing the High-Speed Serial Interface/PCI Bus (HSI/P) Adapter 2.0 drivers	Ultra 5	Optional
Installing the Serial Asynchronous Interface/PCI Bus (SAI/P) Adapter 1.0 drivers	Ultra 5	Optional
Installing the Aurora ports card drivers	SPARCserver	Optional
Installing the Bay Networks Annex R10.0B drivers	All	Optional
Installing the Solstice™ for Server Connect X.25 package	All	Optional

Procedure	Computer Platform	Required/Optional
Installing the INFORMIX® software: - Structured Query Language (SQL) Version 7.20 - Standard Engine (SE) Version 7.22 - Runtime Enhanced SQL (ESQL) Version 9.14 - International Language Supplement (ILS)	All All All All	Optional Required Required Required
Installing the Solstice DiskSuite 4.2 software (found on the “Solaris Easy Access Server” CD.	All	Required
Installing the Sun Solaris patches	All	Required
Setting up Solstice DiskSuite	All	Required
Installing the CMS Supplemental Services software	All	Required
Installing the CMS software	All	Required
Installing the CMS patches	All	As needed
Installing the Open Database Connectivity (ODBC) software	All	Optional
Setting up the CMS software	All	Required
Installing feature packages	All	Required
Setting up the remote console	All	Required
Setting up the Alarm Origination Manager	All	Required
Setting up the NTS	All	Optional
Backing up the system	All	Required

Remote terminal access tips

When executing commands that 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 system reboots are required, verify that your terminal type is set correctly after the reboot.

Prerequisites

- Before beginning these procedures, verify that all hardware components of the system, including port cards, external disk drives, and tape drives, are correctly installed. Otherwise, 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.

NOTE:

If the CMS computer you are installing requires disk mirroring, you must use the *CentreVu[®] CMS Disk-Mirrored Systems (585-210-940)* document in addition to the information from this section.

Procedures required to install the Solaris 7 operating system on the CMS computer include:

- [“Booting from the Solaris 7 Software CD” on page 2-5](#)
- [“Identifying the system” on page 2-7](#)
- [“Setting the date and time” on page 2-12](#)
- [“Selecting the Solaris 7 system files” on page 2-14](#)
- [“Partitioning the hard disks” on page 2-18](#)
- [“Installing the selected options” on page 2-31](#)
- [“Assigning a root password” on page 2-32](#)
- [“Enabling Korn Shell and the backspace key” on page 2-34](#)
- [“Displaying and setting the EEPROM parameters” on page 2-34](#)
- [“Turning on the system activity recorder” on page 2-37](#)
- [“Changing directory permissions” on page 2-97](#)
- [“Installing the Sun Online VTS 3.1” on page 2-39](#)

Prerequisites

Before you begin the Installation procedures described in this chapter, perform the following tasks:

- Obtain the *Solaris 7 Software CD*
 - Identify the host name of the system, which is designated by the Avaya Inc. Technical Service Center [TSC]
 - Identify the system's Internet Protocol (IP) address (this may be the factory default or an address in a customer's network)
 - Identify the number and size of disk drives on 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 7 Software CD

This section describes how to boot the system from the *Solaris 7 Software CD* using the local console.

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. Depending on your CMS load, choose the appropriate version of Solaris:
 - CMS R3V8af uses the Solaris 7 3/99 version
 - CMS R3V8aj and later uses the Solaris 7 11/99 version
2. Apply power to all of the external devices, such as disk drives and tape drives.
3. Turn on the system. Depending on the model, it can take several minutes for the system to boot up.
4. As the console shows that the system is booting up, press **Stop + A**.
The system displays the following message:

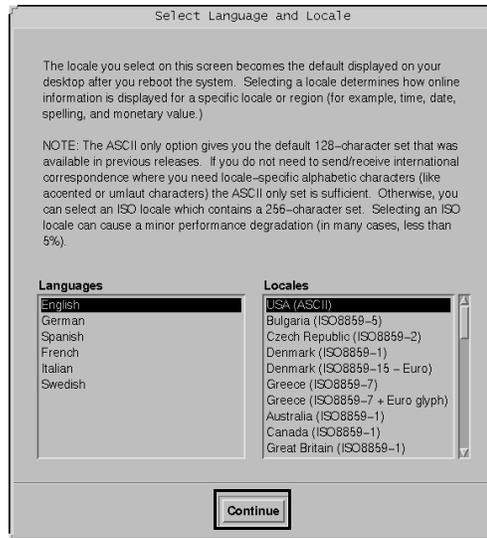
ok

5. Load the *Solaris 7 Software CD* into the CD-ROM drive.
6. Boot the system from the CD by entering the following:

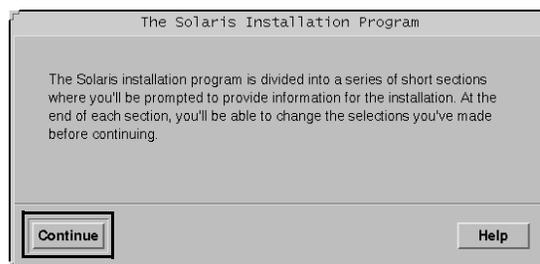
```
boot cdrom
```

The CD boot process varies between platforms, and requires approximately 2 to 10 minutes to complete.

The Select Language and Locale screen appears:



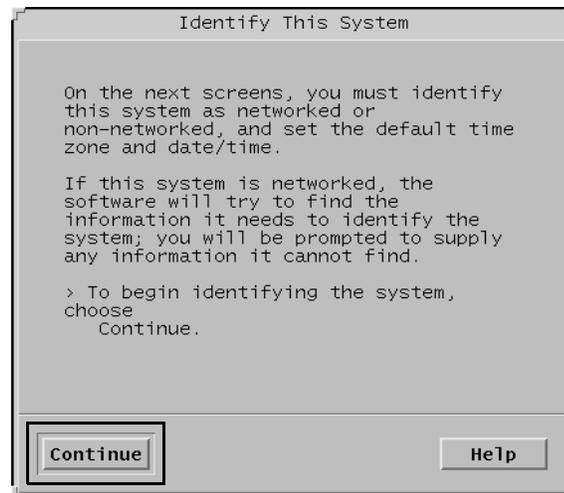
7. Choose the Language and Locale selections that are appropriate for your location and then click **Continue**.
8. The Solaris Installation Program screen appears:



9. Select **Continue**.

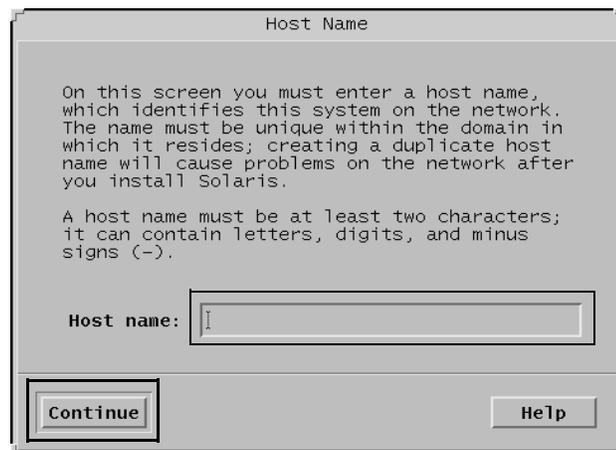
Identifying the system

The Identify This System screen appears:



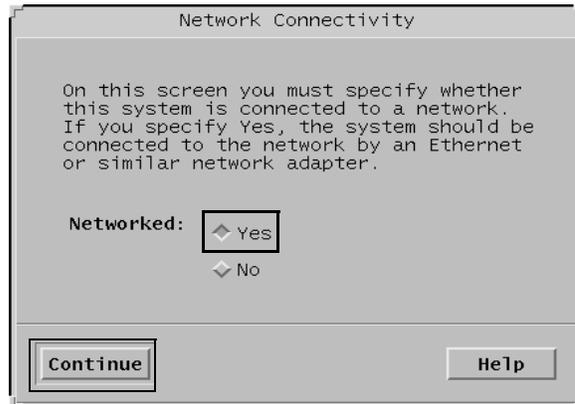
1. Select **Continue**.

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 is designated by TSC Provisioning personnel. Host names are case-sensitive and cannot start with a number. When finished, select Continue.

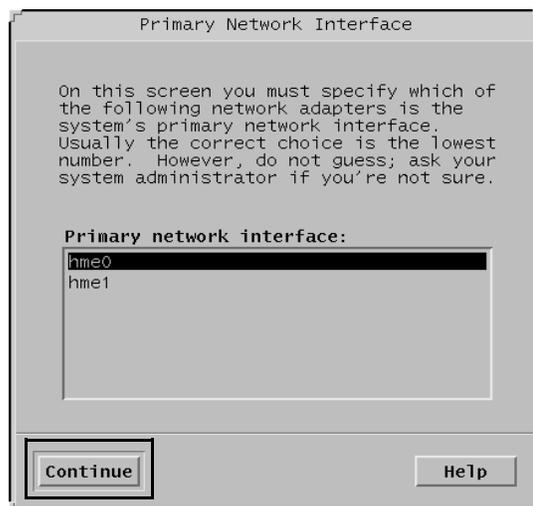
The Network Connectivity screen appears:



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. If the Primary Network Interface screen appears, 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:



The IP Address screen displays instructions for entering an IP address. It includes a text box for the IP address and buttons for Continue and Help.

```
IP Address

On this screen you must enter the
Internet Protocol (IP) address for this
system. It must be unique and follow
your site's address conventions, or a
system/network failure could result.

IP addresses contain four sets of
numbers separated by periods (for
example 129.200.9.1).

IP address: 

Continue Help
```

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:



The Confirm Information screen displays the current configuration and prompts the user to confirm or change it. It includes buttons for Continue, Change, and Help.

```
Confirm Information

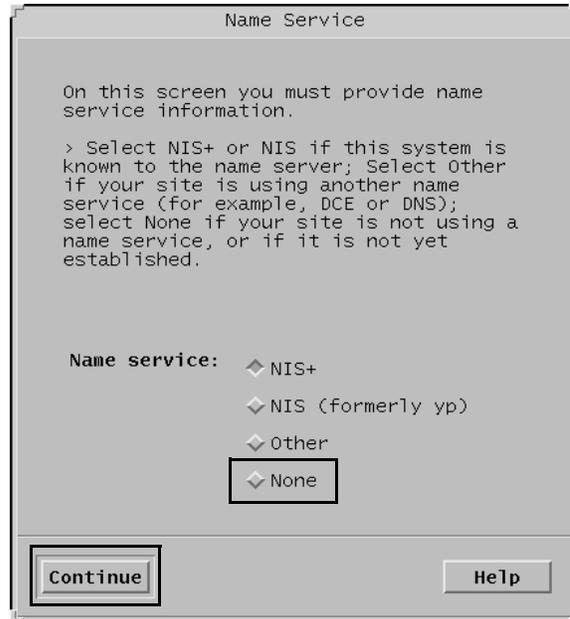
> Confirm the following information. If
it is correct,
  choose Continue; to change any
information
  choose Change.

Host name: cms3
Networked: Yes
Primary network interface: hme0
IP address: 135.9.156.96

Continue Change Help
```

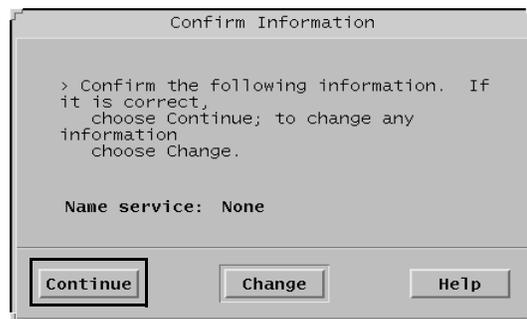
6. Select **Continue** if the displayed information is correct. If you select **Change**, the program returns to the Host Name screen.

The Name Service screen appears:



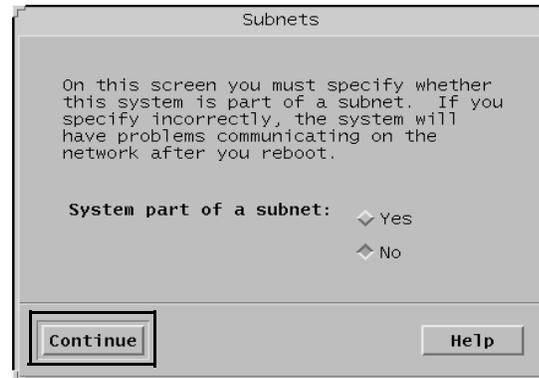
7. Select **None**, and then select **Continue**.

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.

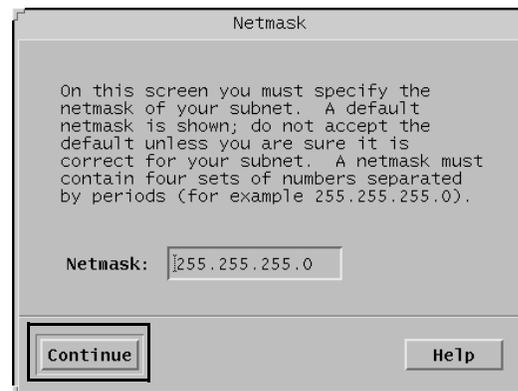
The Subnets screen appears:



9. If this CMS computer is using LAN connectivity to the switch or is on a subnet, 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.

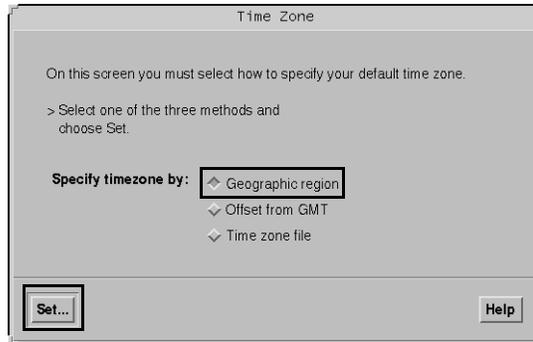
10. After selecting **Yes** (if the system is part of a subnet), the Netmask screen appears:



11. Enter the desired subnet mask. The default value is 255.255.255.0 Select **Continue**.

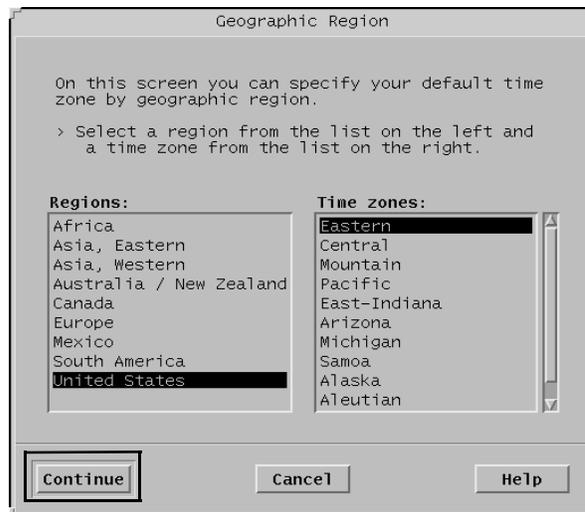
Setting the date and time

The Time Zone screen appears:



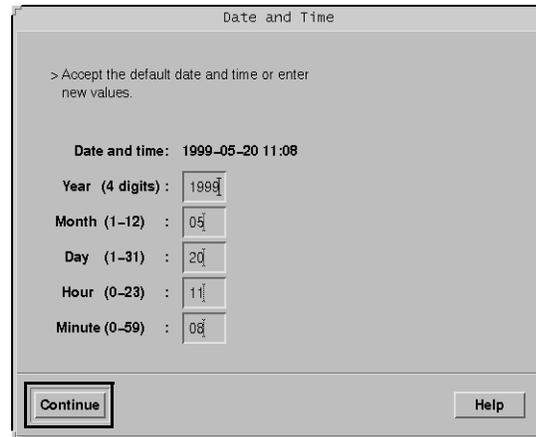
1. Select **Geographic region**, and then select **Set**.

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:



The 'Date and Time' window displays the following information:

> Accept the default date and time or enter new values.

Date and time: 1999-05-20 11:08

Year (4 digits): 1999

Month (1-12): 05

Day (1-31): 20

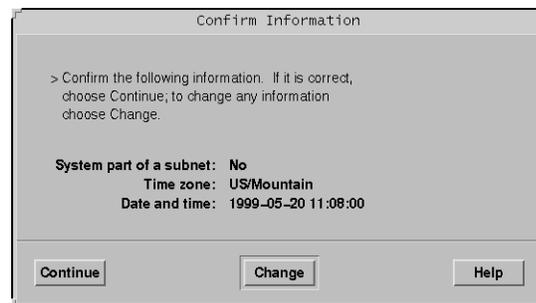
Hour (0-23): 11

Minute (0-59): 08

Buttons: Continue, Help

3. Select **Continue** to accept the displayed date and time, or if necessary, enter the correct date and time. When all the information is correct, select **Continue**.

The Confirm Information screen appears:



The 'Confirm Information' window displays the following information:

> Confirm the following information. If it is correct, choose Continue; to change any information choose Change.

System part of a subnet: No

Time zone: US/Mountain

Date and time: 1999-05-20 11:08:00

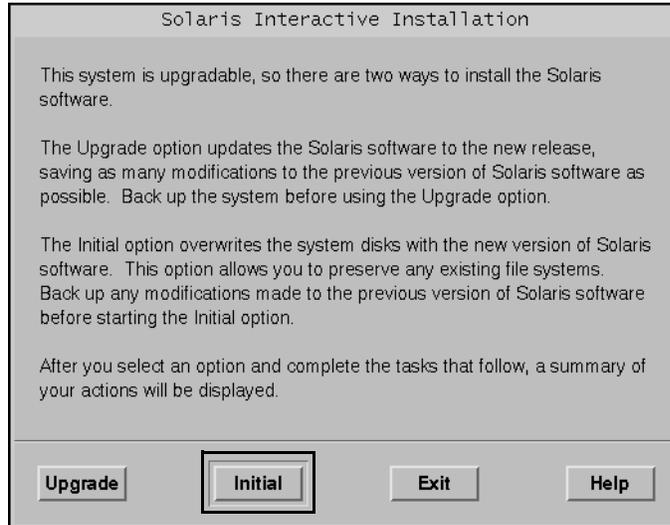
Buttons: Continue, Change, Help

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. After a few minutes, the program continues with the selection of Solaris 7 system files.

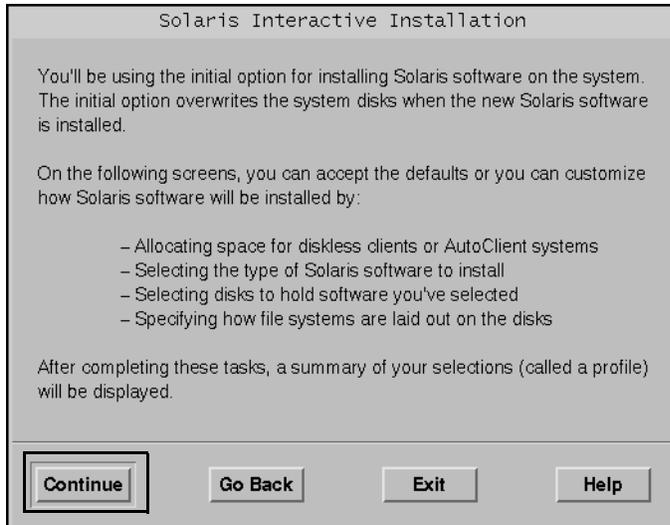
Selecting the Solaris 7 system files

If the system currently has an earlier version of Solaris installed, the first Solaris Interactive Installation screen appears after a few minutes (if this screen is not displayed, go to Step 2):



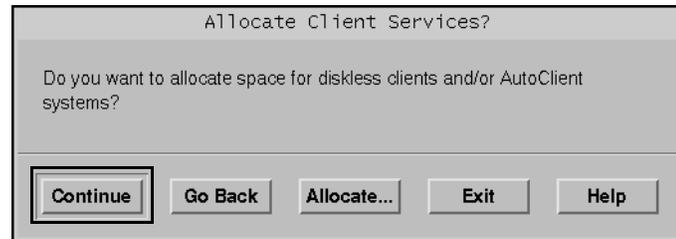
1. Select **Initial**.

The second Solaris Interactive Installation screen appears:



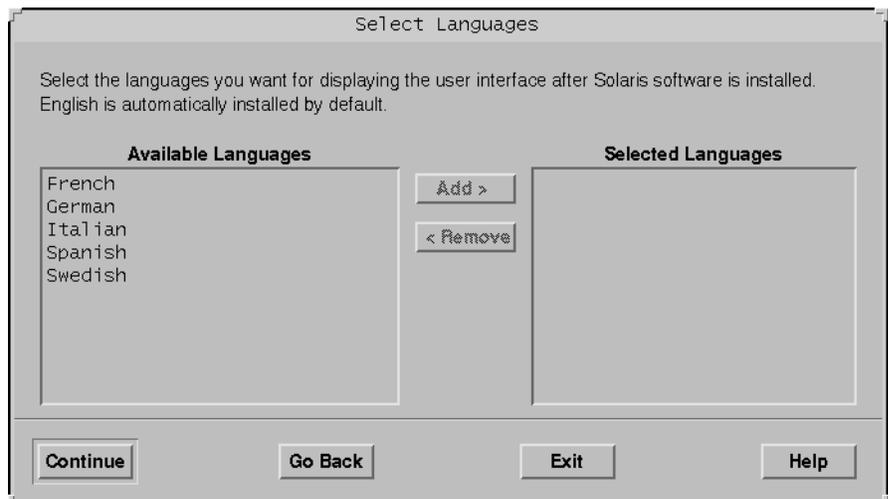
2. Select **Continue**.

The Allocate Client Services screen appears:



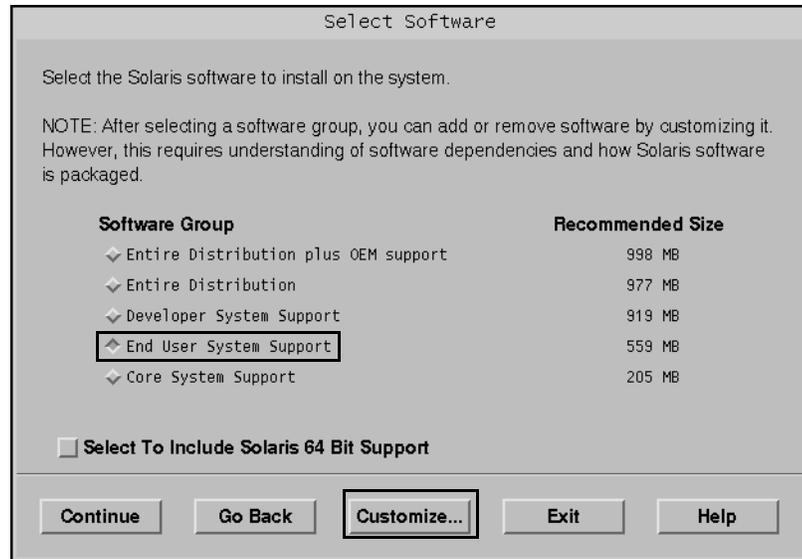
3. Select **Continue**.

The Select Languages screen appears. Select the languages you want to see displayed in the user interface. English is automatically installed by default.



- When you have completed choosing your language selections, select **Continue**.

The Select Software screen appears:

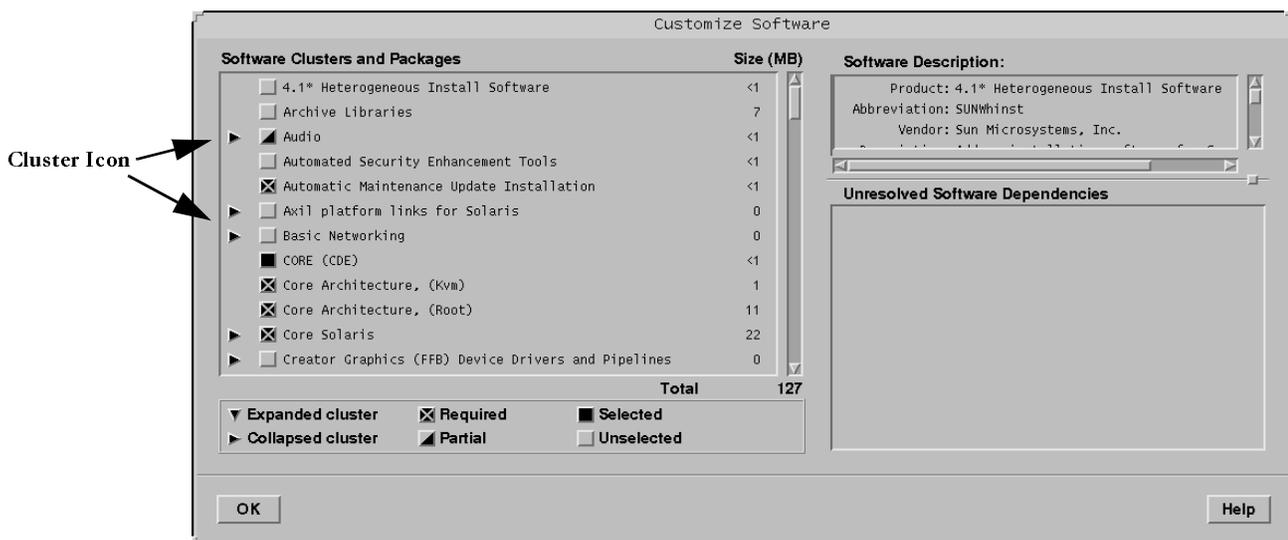


- Select **End User System Support**, and then select **Customize** (NOT Continue)

⇒ NOTE:

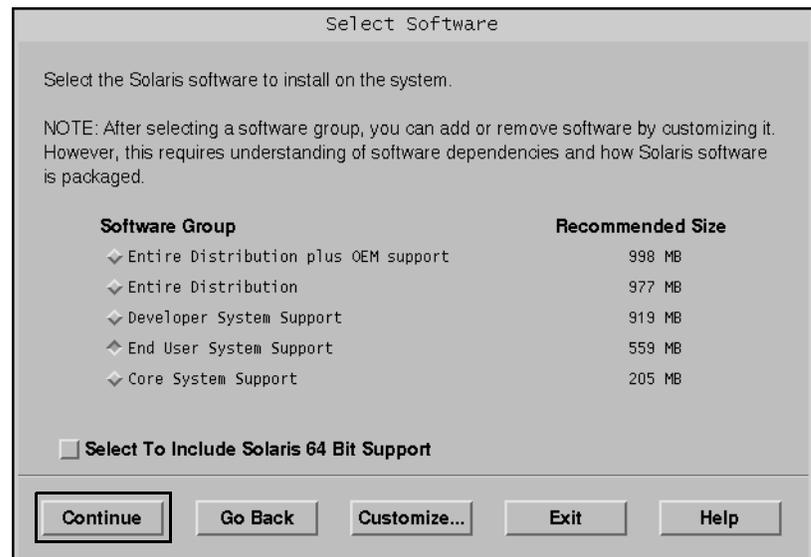
If you select Continue instead of Customize, the Disks screen (shown on page 2-18) appears, which is incorrect. If this happens, select Go Back from the Disks screen.

The Customize Software screen appears:



6. Select the packages listed below. Start at the top of the list and make the package selections in the order shown below. When necessary, click on the triangular icons to expand and collapse package clusters. Do not exclude any packages that are already selected.
 - Basic Networking
 - On-Line Manual Pages
 - open the cluster for Open Windows Version 3 (**not** Open Windows Version 64) and select:
 - X Windows system online user man pages
 - Point-to-Point Protocol (**not** Point-to-Point Protocol 64)
 - open the cluster for Programming tools and libraries and select:
 - CCS tools bundled with SunOS
 - Solaris bundled tools
 - System Accounting
 - Terminal Information
7. Check to make sure that the Solaris 64 Bit Support box is *NOT* selected.
8. When you have completed making the package selections, select **OK**.

The Software screen reappears.

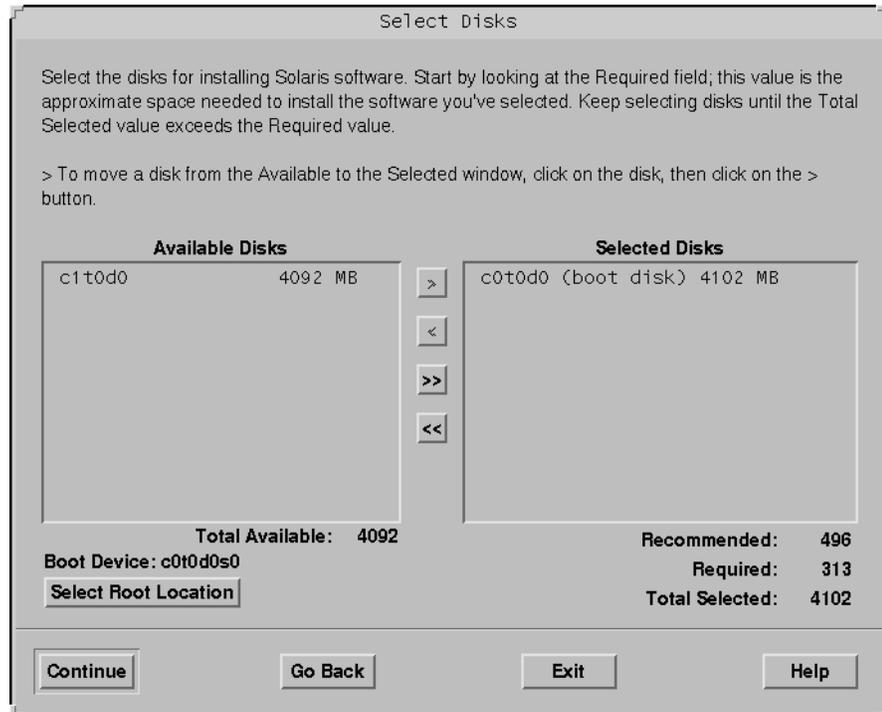


9. Select **Continue**.

The Solaris 7 software packages are now selected and will be installed after the disks are partitioned.

Partitioning the hard disks

The Select Disks screen appears. Add all of the available disks into the **Selected Disks** column.



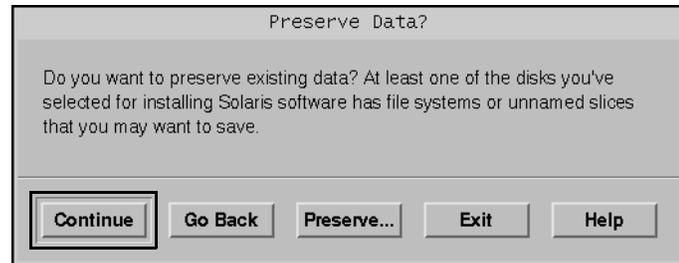
⇒ NOTE:

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.

1. After all of the disks have been moved to the **Selected Disks** column, select **Continue**.

The Preserve Data screen appears:

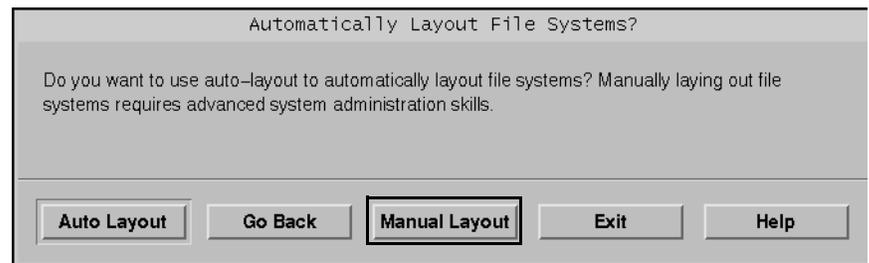


⇒ NOTE:

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

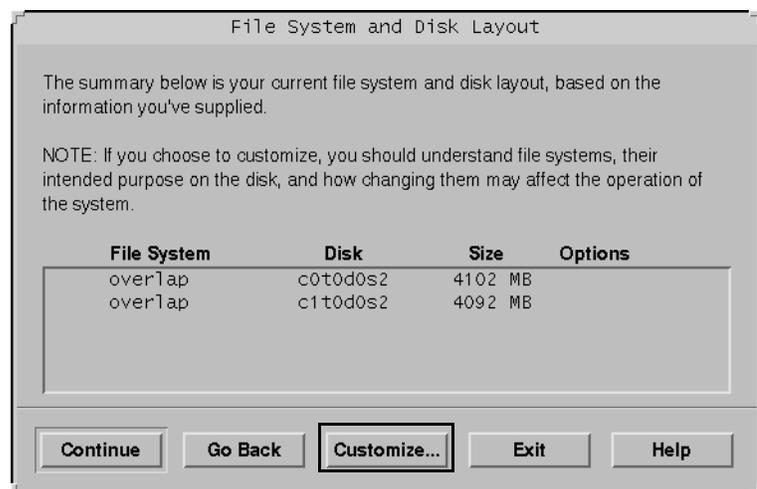
2. Select **Continue**.

The Automatically Layout File Systems screen appears:



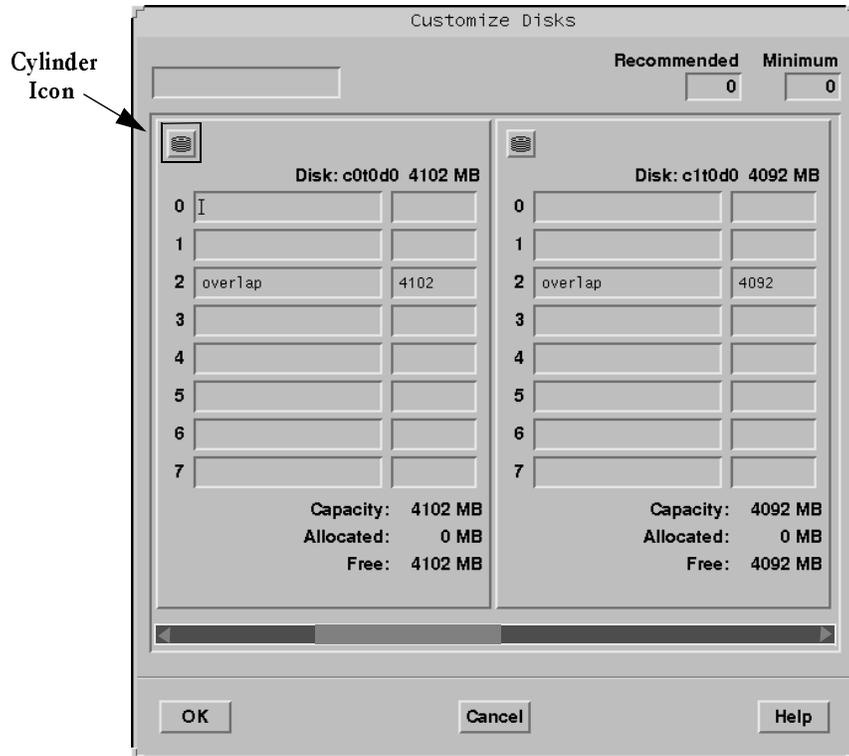
3. Select **Manual Layout**.

The File System and Disk Layout screen appears:



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

The Customize Disks screen appears:



⇒ NOTE:

If all the disks on your system are not visible in the Customize Disks screen, use the sidebar at the bottom of the window to bring the partition columns for other system disks into view.

5. Disk partitioning should be done in cylinders rather than megabytes. To do this, select the cylinders icon for the first disk in the upper left-hand corner of the disk 1 column.

The Customize Disks by Cylinders screen for the first (boot) disk appears (this example represents an 8.4-GB boot disk on a Sun Ultra 5 system):

Slice	Size	Start	End
0			
1			
2	overlap	16706	0 16705
3			
4			
5			
6			
7			

Allocated: 0 CYLS
Free: 16706 CYLS
Capacity: 16706 CYLS

6. Use the information from the [“Boot disk partition table” on page 2-23](#) to partition the boot disk by filling in the slice name and cylinder values for each partition. As you move the cursor to each new partition, the calculated cylinder values are displayed in the **Start** and **End** fields in the two columns at the right of the screen.

⇒ NOTE:

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

Boot disk partition values

The boot disk cylinder values provided in the following table conform to the R3V8 disk partitioning specifications for all disk drives supported by R3V8.

⇒ NOTES FOR MIRRORED SYSTEMS:

When setting up disk partitions for mirrored Enterprise 3000 or 3500 systems, select the following disks (if feasible) to partition as the boot and alternate boot devices:

Enterprise 3000:

- boot - c0t0
- alternate boot - c0t1

Enterprise 3500:

- boot - c0t0
- alternate boot - c1t4

Be careful when you enter slice names for partition 0 on boot and alternate boot disks:

- For primary boot disks, the slice name for partition 0 is always “/” .
- For alternate boot disks on mirrored systems, the slice name for partition 0 must always remain blank.

For more information about disk-mirrored CMS systems, see *CentreVu® CMS Disk-Mirrored Systems* (585-210-940).

Boot disk partition table:

	CMS Software Compatibility								
Partition #		0	1	2	3	4	5	6	7
Partition Name		/ or (blank) if alternate boot on mirrored systems	(blank)	Overlap*	(blank)	(swap)	(blank)	(blank)	(blank)
Partition size in cylinders									
4.2-GB SCSI (SPARCserver and E-3000)		1023	7	3880	1879	971			
4.01-GB EIDE Model # ST34321A (Ultra 5)		2345	7	8892	4320	2220			
4.01-GB EIDE Model # ST34312A (Ultra 5)		2202	7	8352	4057	2086			
8.4-GB EIDE (Ultra 5)		2134	7	16706	12533	2032			
9.1-GB EIDE (Ultra 5)		2032	7	17660	13540	2081			
9.1-GB SCSI	r3v8aa.i or later.	616	7	4924	3716	585			
9.1-GB FC-AL (All Platforms)	r3v8af.d (with CMS Patch2) or later.	616	7	4924	3716	585			
18-GB SCSI (E-3000)	r3v8al.g or later.	471	7	7506	6592	436			
18-GB FCAL (E-3500)	r3v8ak.g (with CMS Patch 2) or later.	471	7	7506	6592	436			
20-GB EIDE (Ultra 5)		2032	7	39533	35413	2081			

* *Overlap* partition sizes are automatically displayed in the Customize Disks screen during the Solaris installation. These values indicate the total number of cylinders for the disk drive models used in CMS R3V8. If the disk drive you are partitioning does not match one of these values, you have a non-standard disk. Escalate the issue to Avaya Inc. technical support.

The following example shows how the Customize Disks by Cylinders screen appears when the boot disk is a 8.4-GB IDE drive installed on a Sun Ultra 5 system:

Customize Disks by Cylinders

Recommended Minimum

swap 0 0

Disk: c0t0d0 16706CYLS

		Size	Start	End
0	/	2134		2133
1		7	2134	2140
2	overlap	16706	0	16705
3		12533	2141	14673
4	swap	2032	14674	16705
5				
6				
7				

Allocated: 16706 CYLS
Free: 0 CYLS
Capacity: 16706CYLS

OK Load... Cancel Help

7. Select **OK** after setting up the partitions for the boot disk.
 - The Customize Disks screen re-appears. If there are more disks, select the cylinders icon for the next disk to be partitioned; the Customize Disks by Cylinders screen appears for the selected disk.
 - If there is not a second disk, go to Step 10.
8. Use the information from the [“Non-boot partition table” on page 2-25](#) table to input the cylinder values for each disk partition. As you move the cursor to each new partition, notice that the **Start** and **End** fields automatically display the computed cylinder values.

Non-boot disk partition values The non-boot disk cylinder values provided in the following table conform to the R3V8 disk partitioning specifications for all disk drives supported by R3V8.

⇒ **NOTE:**

- All slice names remain blank, except for “overlap”.
- The size of the overlap file system always defaults to the size of the entire disk. Do not change this value.

Non-boot partition table:

	CMS Software Compatibility								
Partition #		0	1	2	3	4	5	6	7
Partition Name		<i>(blank)</i>	<i>(blank)</i>	Overlap*	<i>(blank)</i>	<i>(blank)</i>	<i>(blank)</i>	<i>(blank)</i>	<i>((blank)</i>
Partition size in cylinders									
4.2-GB SCSI (SPARCserver and E-3000)		2	3878	3880					
4.01-GB EIDE Model # ST34321A (Ultra 5)		2	8890	8892					
4.01-GB EIDE Model # ST34312A (Ultra 5)		2	8350	8352					
9.1-GB EIDE (Ultra 5)		2	17658	17660					
9.1-GB SCSI	r3v8aa.i or later.	2	4922	4924					
9.1-GB FCAL (All Platforms)	r3v8af.d (with CMS Patch2) or later.	2	4922	4924					
18-GB SCSI (E-3000)	r3v8al.g or later.	2	7504	7506					
18-GB FCAL (E-3500)	r3v8ak.g (with CMS Patch 2) or later.	2	7504	7506					

20-GB EIDE (Ultra 5)		2	39531	39533					
36-GB FCAL (E-3500)	r3v8am or later Solaris 7 11/99	2	24618	24620					

* *Overlap* partition sizes are automatically displayed in the Customize Disks screen during the Solaris installation. These values indicate the total number of cylinders for the disk drive models used in CMS R3V8. If the disk drive you are partitioning does not match one of these values, you have a non-standard disk. Escalate the issue to Avaya Inc. technical support.

Properly set up, the Customize Disks by Cylinders screen for a non-boot 9.1-GB EIDE disk installed in a Sun Ultra 5 would appear:

Customize Disks by Cylinders

Recommended Minimum

0 0

Disk: c1t0d0 17660CYLS

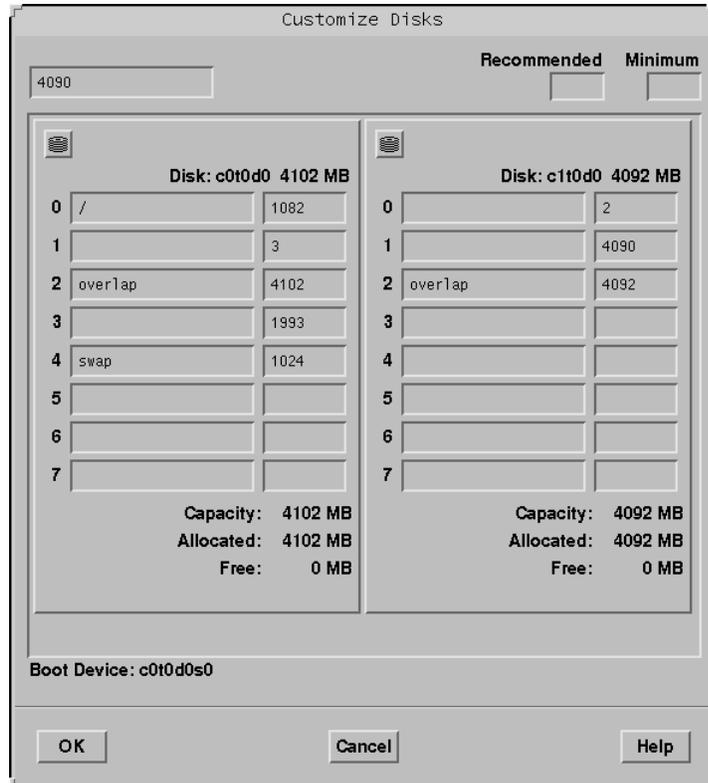
	Size	Start	End
0	2		1
1	17658	2	17559
2	overlap	0	17559
3			
4			
5			
6			
7			

Allocated: 17660 CYLS
Free: 0 CYLS
Capacity: 17660 CYLS

OK Load... Cancel Help

9. Select **OK**.

The Customize Disks screen appears again:

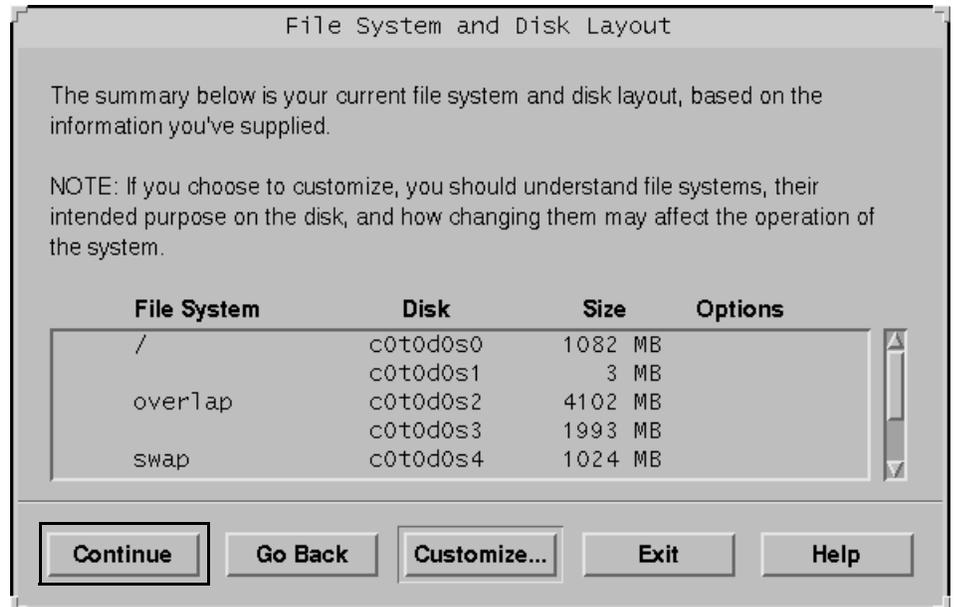


CAUTION:

If there are more disks installed on your system, repeat Steps 8 through 9 for each additional disk. Use the scroll bar on the screen to display the additional disks. Go to Step 10 only when you have partitioned every disk on your system.

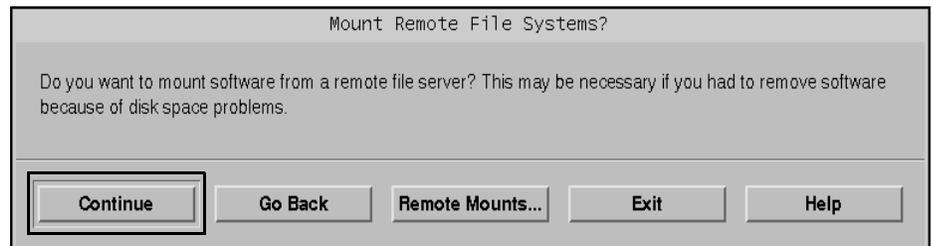
10. Select the **OK** button on the Customize Disks screen.

The File System and Disk Layout screen appears:



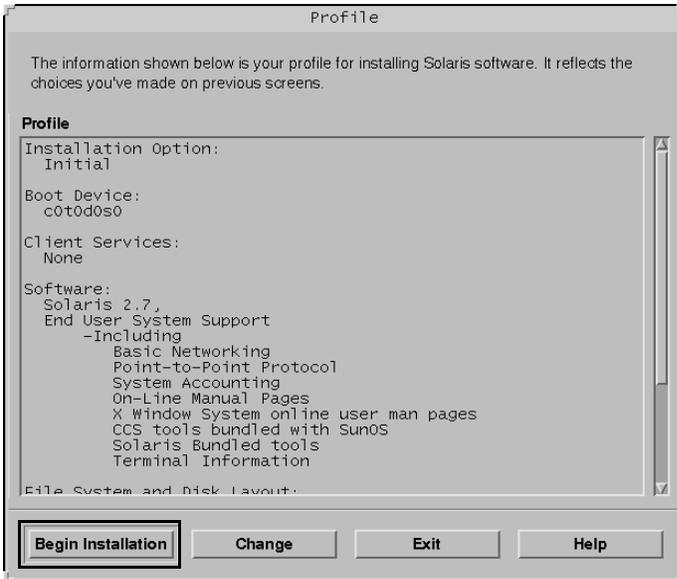
11. Select **Continue**.

The Mount Remote File Systems screen appears:



12. Select **Continue**.

The Profile screen appears:



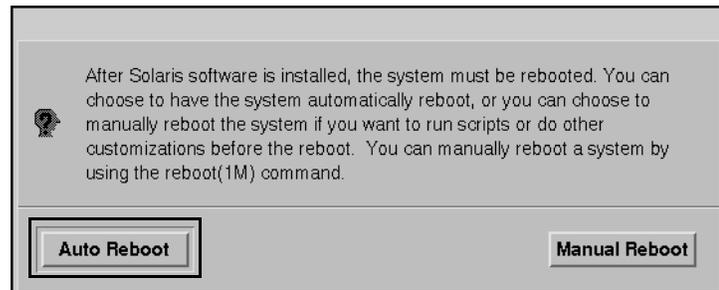
⇒ **NOTE:**

If a previous Solaris 7 install has been performed on the system, you may receive a message indicating that the boot disk has been altered. This message can be disregarded; click OK to continue.

Installing the selected options

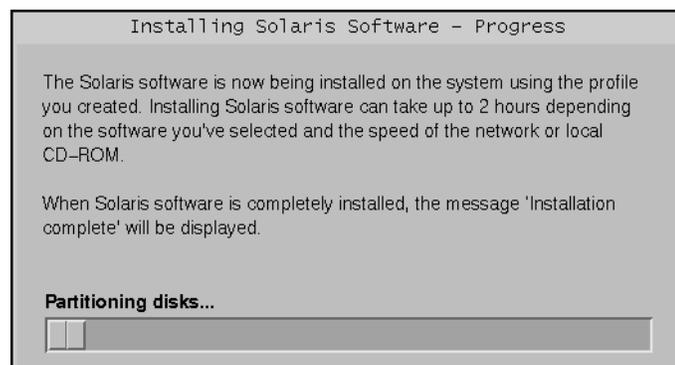
1. Select Begin Installation.

The program responds:



2. Select **Auto Reboot**.

The disk partitioning process begins with the display of the Installing Solaris - Progress screen:



This process may take 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 7 system files are copied to the disk, the status bar indicates 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 installation.

When the installation 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:

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 'alb2c3d4e5f6' as your root password, you can use 'alb2c3d4' 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:

Re-enter your root password.

Press Return to continue.

2. Re-enter the root password or press **Enter** for a blank password.

On some systems, the following series of messages, which concern power-saving options, will be displayed; if this message does not appear, continue with Step 5 of this procedure.

After 30 minutes of idle time on the system, your system state will automatically be saved to disk, and the system will power off.

Later, when you want to use the system again, and you turn the power back on, your system will be restored to its previous state, including all the programs you were running.

Do you want this automatic power-saving shutdown? (If this system is used as a server, answer n) [y,n,?]

3. Enter: **n**

The system responds:

```
Do you want the system to ask about this again, when you
next reboot? (This gives you the chance to try it before
deciding whether to keep it.) [y,n,?]
```

4. Enter: **n**

The login console is displayed. Enter **root** as user name, followed by your password (if you submitted one to the system).

5. The Solaris Welcome screen appears and prompts you to choose your default desktop. Select Common Desktop Environment and click OK. The Common Desktop Environment (CDE) is displayed.

Opening a terminal window

A Terminal Window must be opened to allow keyboard input of commands at the system prompt. To open a terminal window, perform the following steps:

1. Use the mouse to move the cursor to an empty area of the desktop display and click the right button on the mouse.

The `Workspace` Menu is displayed.

2. Select the **Tools** option.

The `Tools` Menu is displayed

3. Select the **Terminal** option.

A terminal window opens with the active cursor at the command prompt.

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 re-enter these commands. After you install the DiskSuite software and reboot the system, these options will work automatically every time you log in.

Displaying and setting the EEPROM parameters

To set the firmware EEPROM values for a CMS computer:

1. Enter:

```
eeeprom | sort | more
```

The system displays the current EEPROM settings.

⇒ NOTE:

Not all options are displayed for all CMS computers. In addition, some options will show “data not available” messages. Ignore those options.

2. Compare these settings with the [EEPROM parameters required by CMS](#) to determine if any of the values must be changed from the factory setting. The table contains only that subset of EEPROM settings that are required by CMS.

EEPROM parameters required by CMS:

Option name	Required setting
ansi-terminal?	true
auto-boot?	true
boot-command	boot
boot-device*	disk or, if the system is mirrored: disk bootdevice2
diag-device	disk or, if the system is mirrored: disk bootdevice2
diag-level	min
diag-switch	false
input-device	keyboard
output-device	screen
scsi-initiator-id	7
tpe-link-test?	true
ttya-ignore-cd	false
ttya-mode	9600,8,n,1,-
ttya-rts-dtr-off	true
ttyb-ignore-cd	false
ttyb-mode	9600,8,n,1,-
ttyb-rts-dtr-off	true
watchdog-reboot?	false

* For more information on how to enable the alternate boot device on a E3501 or E3503 system, see "Resetting a device alias" in Chapter 4 of CenterVu Call Management System Sun Enterprise 3500 Computer Hardware Installation Maintenance and Troubleshooting (585-215-873) and CentreVu® CMS Disk-Mirrored Systems (585-210-940).

3. 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,-
```

 **WARNING:**

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` (be sure to use a space between “-” and “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:

```
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 leading “#” characters that were used to comment out 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. Press **Esc**, and then enter `:wq!` to save and exit the file.

5. Enter the following commands:

```
crontab -r  
crontab cron.sys
```

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

```
crontab -l
```

The program responds:

```
#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 the `#` character.

8. To remove the Solaris 7 installation CD, enter:

```
eject cdrom
```

Installing the Sun Online VTS 3.1

Overview

Installing the Sun Online VTS 3.1 software provides test facilities for the system.

Platform considerations

- All platforms.

Prerequisites

- The Solaris 7 operating system must be installed.
- Verify that you are logged in as **root** at the console.
- Obtain the “*Software Supplement for the Solaris 7 Operating Environment*” CD.

Procedure

1. Load the “*Software Supplement for the Solaris 7 Operating Environment*” 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_7_399_suppcd read only /setuid on  
(current time and date)
```

3. Enter the command:

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

The program responds:

```
Processing package instance <SUNWvts> from
</cdrom/solaris_7_399_suppcd/Product>

SunVTS
.
.
## 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,?]
```

4. Enter: **y**

The program responds:

```
Installing SunVTS as <SUNWvts>

## Installing part 1 of 1.
Executing i.inetdconf class script...

Completed editing /etc/inetd.conf

Sending signal to inetd to read the modified conf file...

. . . . .

Installation of <SUNWvtsmn> was successful.

Processing package instance <SUNWvtsmn> from
</cdrom/solaris7_399_suppcd/Product>

. . . . .

Installation of <SUNWvtsmn> was successful.
```

5. Enter **eject cd** to eject the CD-ROM from the computer.

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 X.25 interface ports to the CMS computer. If your system does not have an HSI/S card, skip this section.

Platform considerations

- Enterprise 3000, Enterprise 3500, and SPARCserver.

Prerequisites

- The Solaris 7 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 “*CMS Hardware Drivers*” CD.

Procedure

1. Load the 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/cmshardware dri on /vol/dev/dsk/c0t6d0/cmshardware dri
read only/setuid/maplcase/noglobal/rr/traildot/dev=16c0002 on
(current date and time)
```

3. Enter:

```
/usr/sbin/pkgadd -d /cdrom/cdrom0/V8/hsi.sbus.3.0
```

The program responds:

```
The following packages are available:
```

```
1 SUNWhsis      SunHSI/S Driver for SBUS
                  (sparc) 3.0,REV=1998.11.09

2 SUNWhsism     SunHSI/S Man Pages for SBUS
                  (sparc) 3.0,REV=1998.11.09

3 SUNWhsisu     SunHSI/S Utilities for SBUS
                  (sparc) 3.0,REV=1998.11.09
```

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

⇒ NOTE:

Some systems may have received the “*SunLink HSI/S 3.0 Adapter*” cd. If this is the case enter:

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

to begin installation.

4. Press **Enter**

```
Processing package instance <SUNWhsis> from
/cdrom/sunhsis_3_0/Product>
```

```
SunHSI/S Driver for SBus
```

```
. . . . .
```

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

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

5. Enter: **y**

The program proceeds to install the `SUNWhsis`, `SUNWhsism` and `SUNWhsisu` packages. When the installation is finished, the program returns to the installation menu and prompts:

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

6. Enter: **q**7. Enter: **eject cdrom**

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.

Platform Considerations

- Ultra 5 only.

Prerequisites

- The Solaris 7 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 “*CMS Hardware Drivers*” CD.

Procedure

1. Load the 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/cmshardware dri on /vol/dev/dsk/c0t6d0/cmshardware dri
read only/setuid/maplcase/noglobal/rr/traildot/dev=16c0002 on
(current date and time)
```

3. Enter the following command (which is input on a single line at the command prompt):

```
/usr/sbin/pkgadd -d /cdrom/cdrom0/V8/hsi.pci.2.0
```

The program responds:

```
The following packages are available:
```

```
1  SUNWhsip      SunHSI/P Driver for PCI
                        (sparc) 2.0,REV=1998.10.22

2  SUNWhsipm     SunHSI/P Man Pages for PCI
                        (sparc) 2.0,REV=1998.10.22

3  SUNWhsipu     SunHSI/P Utilities for PCI
                        (sparc) 2.0,REV=1998.10.22
```

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

NOTE:

Some systems may have received the “*SunHSI/P Adapter 2.0*” cd. If this is the case enter the following command on a single line at the command prompt:

```
/usr/sbin/pkgadd -d /cdrom/cdrom0/Product SUNWhisp
SUNWhsipm SUNWhsipu
```

to begin installation.

4. Press Enter.

The program responds:

```
Processing package instance SUNWhsip> from
/cdrom/sunhsip_2_0/Product>

SunHSI/P Driver for PCI
(sparc) 2.0,REV=1998.10.22

. . . . .

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,?]
```

5. Enter: y

The program installs the SUNWhsip, SUNWhsipm and SUNWhsipu packages. When the installation is finished, the program returns to the command prompt.

6. Enter: eject cdrom

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, go the next procedure.

Platform considerations

- Ultra 5 only

Prerequisites

- The Solaris 7 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 “*CMS Hardware Drivers*” CD.

Procedure

1. Load the 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/cmshardware dri on /vol/dev/dsk/c0t6d0/cmshardware dri read
only/setuid/maplcase/noglobal/rr/traildot/dev=16c0002 on (current
date and time)
```

3. Enter:

```
/usr/sbin/pkgadd -d /cdrom/cdrom0/V8/sai.pci.2.0
```

The program responds with a list of available packages:

```
The following packages are available:
```

```
1  SUNWsaip      Serial Asynchronous Interface Driver (PCI)
      (sparc) 2.0,REV=1998.10.19
2  SUNWsaipu     Serial Asynchronous Interface Utilities (PCI)
      (sparc) 2.0,REV=1998.10.19
```

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

⇒ NOTE:

Some systems may have received the “*SunHSI/P Adapter 2.0*” cd. If this is the case enter:

```
/usr/sbin/pkgadd -d /cdrom/cdrom0/Product/saip_2
to begin installation.
```

4. Press Enter.

The program responds:

```
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 installs the SAI/P driver packages and returns to the installation menu.

6. Enter: q**7. Enter: eject cdrom**

Installing the Aurora Port drivers

Overview

The following procedures are used to install the Aurora ports card drivers. Depending on whether the system is equipped with an 8-port or 16-port expander, the following packages are installed:

- for 8-port expanders:
 - AURAcacs version 6.18qa4
 - AURAcacs version 3.18qa4
 - AURAcacs version 3.18qa4
- for 16-port expanders:
 - Asio16 version 5.16
- SPARCserver only

Platform considerations

Prerequisites

- The Solaris 7 operating system must be installed.
- Verify that you are logged in as **root** at the console.
- Obtain the “*CMS Hardware Drivers*” CD.

Procedure

1. Load the 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/cmshardware dri on /vol/dev/dsk/c0t6d0/cmshardware dri read  
only/setuid/maplcase/noglobal/rr/traildot/dev=16c0002 on (current  
date and time)
```

3. Choose one of the following options, depending on whether you have an 8-port card or 16-port expander:

- a. If you have an 8-port expander, enter the following command, which is input on a single line:

```
pkgadd -d /cdrom/cdrom0/V8/aurora AURAacs AURAacsa  
AURAacss
```

- b. If you have a 16-port expander, enter:

```
pkgadd -d /cdrom/cdrom0/V8/aurora AURAsiol6
```

The program responds:

```
Processing package instance <AURAxXX> from  
</cdrom/Solaris_7>
```

```
.....
```

```
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 <AURAxXX>  
[y,n,?]
```

⇒ NOTE:

Some systems may have received the “*Aurora Drivers*” cd. If this is the case enter:

```
/usr/sbin/pkgadd -d /cdrom/cdrom0/Solaris_7  
AURAacs AURAacsa AURAacss
```

for a 8-port expander and

```
/usr/sbin/pkgadd -d /cdrom/cdrom0/Solaris_7  
AURAsio16
```

for a 16-port expander to begin installation.

4. Enter: y

If you are installing the 16 port driver, the program indicates that the installation was successful and returns to the command prompt; go to the next procedure.

If you are installing the 8-port driver, continue with the next step in this procedure.

5. If you are installing the 8-port drivers, the program responds:

```
Installation of <AURAacs> successful.  
  
There are 2 more packages to be installed.  
  
Do you want to continue with installation [y,n,?]
```

6. Enter y

Each time you are prompted for confirmation to continue, enter **y** .

When the installation is complete, the program returns you to the command prompt.

7. Enter `eject cdrom`

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 differ slightly.

Platform considerations

- All platforms.

Prerequisites

- The Solaris 7 operating system must be installed.
- Verify that you are logged in as **root** at the console.
- Obtain the “*Annex Communication Server R10.0(B) Annex Host Tools*” CD.

Procedure

1. Load the “*Annex Communication Server R10.0(B) Annex Host Tools*” CD.
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 (current date and time)
```

3. Enter:

```
/cdrom/cdrom0/install
```

4. The program responds:

```
Do you want to continue (y/n/q=quit) [y]:
```

5. Press Enter.

The program responds:

```
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:

```
Enter the name of the Comm. Server Software installation
directory.

Directory name [/usr/annex/cs_R10.0B]:
```

7. Press Enter.

The program responds:

```
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:

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

9. Press Enter.

The program responds:

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

10. Press **Enter**.

The program responds:

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

11. Press **Enter**.

The program responds:

```
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:

```
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:

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

14. Press **Enter**.

The program responds:

- ```
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. Select the **Install all images** option.

The program responds:

```
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:

```
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:

```
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:

```
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:

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

21. Press **Enter**.

The program responds:

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

22. Press **Enter**.

The program responds:

```
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:

```
Starting-up the new version of the erpcd daemon.  
Comm.Server Software Installation Script  
  
Do you wish to install the Annex Manager (y/n/q=quit) [y]:
```

24. Enter: **n**

The program responds with the system prompt.

Additional references

If you experience problems with setting up an NTS, see [“Problems with NTS administration” on page 5-47](#) in Chapter 5 or the *CentreVu® Call Management System Terminals, Printers, and Modems (585-215-874)* document.

Setting up the NTS start-up files

The following commands create symbolic links to **S99annex-initd** and other important files and then check to verify that the files were linked successfully.

1. Enter:

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

2. Enter the following command on a single line at the command prompt:

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

3. Enter:

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

4. Review the first column of the output to verify that file permissions are set correctly. The correct file permissions will exhibit the following format:

```
- r w x r - - r - -
```

5. Enter:

```
ls -l /etc/rc2.d/S99annex-initd
```

The system displays permissions for the linked file similar to the following example:

```
lrwxrwxrwx 1 root other 563072 current date  
usr/bin/na -> usr/annex/na
```

6. Enter:

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

7. Enter the following commands, and review the output to verify that the symbolic links are set correctly.

```
ls -l /usr/bin/na
```

```
ls -l /usr/bin/rtnet
```

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

If the symbolic links are set correctly, the `ls` command output will indicate the link at the end of each line.

⇒ EXAMPLE:

The `ls -l /usr/bin/na` command generates the following output:

```
lrwxrwxrwx 1 root other 563072 current date usr/bin/na -> usr/annex/na
```

8. Enter: `eject cdrom`

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.

Platform considerations

- All platforms.

Prerequisites

- The Solaris 7 operating system must be installed.
- Verify that you are logged in as *root* at the console.
- Obtain the “*Solstice for Server Connect, Version 9.1*” CD.
- Obtain the password for your X.25 license.

Retrieving system information

This procedure is required only if you do not have access to the X.25 Golden Key password. CMS Provisioning (USA or Canadian customers) or the Center of Excellence (International customers) may use the X.25 Golden Key password if the X.25 license is not already setup.

If you have the password, which is available only to authorized CMS provisioning personnel, or you already know the `hostname`, `hostid`, and X.25 license password installed on the system, go to the next procedure, “ [Installing the Solstice for Server Connect X.25 package](#)”.

Note:

If you do not have the password for the X.25 license installed on the system and do not have access to the Golden Key password, you must contact *Sun* directly to obtain a new license. 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 by FAX or electronic mail.

1. Enter the command: `showrev`

The program displays output similar to the following example:

```

Hostname: XXXXXXXX
Hostid: XXXXXXXX
Release: 5.7
Kernel architecture: sun4u
Application architecture: sparc
Hardware provider: Sun_Microsystems
Domain:
Kernel version: SunOS 5.7
Generic <number & date>

```

2. Identify the `Hostname` and `Hostid`. Use the following table to record this information, along with your X.25 password.
3. Identify the `Hostname` and `Hostid`. Use the following table to record this information, along with your X.25 password.
If you do not have the password for a previously installed X.25 license 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..

Hostname	
Hostid	
X.25 Password	

Installing the Solstice for Server Connect X.25 drivers

1. Load the "Solstice for Server Connect, Version - 9.1" 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/server_connect_397 on
/vol/dev/dsk/c0t2d0/server_connect_
397 read only on (current date and time)

```

3. Change directories by entering:

```
cd /cdrom/cdrom0/products
```

4. Enter:

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

The program responds:

```
The following packages are available:
 1  SUNWl1c2a  LLC2 kernel modules and include files for Solaris/SPARC
      (sparc) 9.1
 2  SUNWl1c2b  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:

```
Processing package instance <SUNWl1c2a> 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 <SUNWl1c2a> [y,n,?]
```

6. Enter: **y**

The program responds:

```
Installing llc2a
.
.
.
The following files are already installed on the system and are being
used by another package:
*/opt/SUNWconn/man <attribute 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:

```
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:

```
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:

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

## Installing part 1 of 1.
.....
Installation of <SUNWx25b> was successful.

The following packages are available:
 1  SUNWl1c2a  LLC2 kernel modules and include files for Solaris/SPARC
           (sparc) 9.1
 2  SUNWl1c2b  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 displays the command prompt.

11. Enter:

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

The program responds:

```
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:

```
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:

```
Installing FlexLM License System as <SUNWlicsw>

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

14. Move to the root directory by entering: **cd /**

15. Enter: **eject cd**

The X.25 license must now be setup.

Setting up the X.25 license

There are two different ways the X.25 license may be set up.

- [X.25 Golden Key license setup](#) (below), which is performed only if:
 - the system does not currently have the X.25 license set up
- [“X.25 manual license setup” on page 2-65](#), which requires the following information:
 - the server `Hostid`, `Hostname` and X.25 license number, as described in [“Retrieving system information” on page 2-58](#).

X.25 Golden Key license setup

This procedure uses the Golden Key password to set up the X.25 software license.

NOTE:

If this is an upgrade from a version lower than 9.1 and the X.25 license is already setup, perform the [“X.25 manual license setup”](#) on page 2-65.

1. Lookup the X.25 password that was previously recorded in [Retrieving system information](#), Step 3 page 2-59. This password is case sensitive and needs to be duplicated exactly.

2. To go to the file, enter:

```
cd /opt/SUNWconn/x25
```

3. To create and edit the x25_9.1.lic,0 license file, enter:

```
vi x25_9.1.lic,0
```

4. Enter the X.25 golden key password (which is input on a single line at the command prompt). Similar to the following example:

```
INCREMENT solstice_x.25 lic.SUNW 9.100 01-jan-0 0  
XXXXXXXXXXXXXXXXXXXXX "Lucent" ANY
```

(Where “XXXXXXXXXXXXXXXXXXXXX “ represents the license identification number.)

5. To save and exit the file, press **Esc** and enter:

```
:wq!
```

6. To confirm the changes you made, enter:

```
cat x25_9.1.lic,0
```

The displayed text should match the password on the “*Solstice for Server Connect*” CD.

The X.25 license setup is complete.

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.*

X.25 manual license setup

This procedure must be used if the X.25 Golden Key password is not available.

1. Enter the command:

```
/etc/opt/licenses/lit_tty
```

The program responds:

```
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 Licenses
** 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:

```
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 section “[Retrieving system information](#).” Press **Enter**.
6. Enter the HOST ID (Hostid) as recorded earlier in 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 2-67, `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:

```

Solstice X.25 for Solaris 2 SPARC
9.1

Server: _____ me**
SE: _____ D
1: pl _____ 70

Licence information successfully entered for
Solstice X.25 for Solaris 2 SPARC 9.1
Type Any Key to Continue. . .

Phone: _____
Expiration Date: _____
Rights to Use: 1 _____
Password: 08BDAD0311158CDAE0E6E _____ Data Checksum: ce
Password Checksum: 77

```

11. Press any key to continue
12. Pressing **Enter**, move the cursor to the [] Exit - Save Licenses field. Enter an **x** in that field.

The program responds:

```

Select Product

[ ] SunLink X.25 8.0.2 for Solaris 2 SPARC 8.0.2
[ ] Solstice Frame Relay 2.0 for SPARC

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
[x] 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$

```

When the license installation completes, the program responds:

```
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.

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
```

 **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.*

Additional references

If you experience problems with setting up the X.25 software package, see [“Solving X.25 installation problems”](#) on page 5-21 in Chapter 5.

Installing INFORMIX

Overview

Installing the INFORMIX software for R3V8 consists of the following tasks:

- Set the INFORMIX 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) package (required).
-

Platform considerations

- All platforms.
-

Prerequisites

- The Solaris 7 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*” CD, License S/N, and Serial Number Key (required).
- Obtain the “*Runtime ESQL 9.14*” CD, License S/N, and Serial Number Key (required).
- Obtain the “*INFORMIX ILS*” CD (required).

Setting up the INFORMIX environment

1. Set the terminal type by entering:

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

2. To add a new group and user to the system, enter:

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

3. Set the environment variables by entering:

```
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

This software package is required only if you are using custom reports. If you do not need this package, skip this section and go to [“Installing the INFORMIX SE 7.22 package” on page 2-73](#).

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/c0t6d0/unnamed_cdrom read
only/setuid/maplcase/noglobal/rr/traildot/dev=16c0001 on (current date
and time)
```

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:

```
/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:

```
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. Start the INFORMIX SQL package installation by entering:

```
./installsql
```

The program responds:

```
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:

```
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:

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

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

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:

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

12. Enter: **eject cd**

Installing the INFORMIX SE 7.22 package

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*” CD into the CD-ROM drive.

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 (current date and time)
```

3. Change to the INFORMIX directory by entering:

```
cd $INFORMIXDIR
```

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

```
/opt/informix
```

5. 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:

```
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
#
```

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

```
./installse
```

The program responds:

```
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.
```

7. Press **Enter** to continue with the installation procedure. The program responds:

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

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

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

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

```
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.
```

10. Press **Enter** to continue with the installation. The program responds:

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

11. Enter: **eject cdrom**

Installing the INFORMIX Runtime ESQL 9.14 package

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 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 (current date and time)
```

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:

```
/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:

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

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

```
./installconn
```

The program responds:

```
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:

```
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:

```
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:

```
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:

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

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

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:

```
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 INFORMIX ILS

Overview

Use one of the following procedures to install the INFORMIX ILS software.

 **CAUTION:**

*Various steps in the INFORMIX ILS installation require multiple options to be selected. **All** of the indicated options are required. If the indicated options are not selected, the installation will fail.*

Depending on the INFORMIX ILS version used by the customer, choose between one of the following procedures:

- [Installing the INFORMIX ILS 2.11 package](#) (below)
- [“Installing the INFORMIX ILS 3.0 package” on page 2-85](#)

Installing the INFORMIX ILS 2.11 package

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 (current date and time)
```

3. Change to the INFORMIX directory by entering:
`cd $INFORMIXDIR`
4. To verify that you are in the INFORMIX directory, enter `pwd`. The system should respond:

```
/opt/informix
```

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

```
sh /cdrom/cdrom0/install
```

The program responds:

```
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:

```
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:

```
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:

```
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:

```
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:

```
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:

```
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:

```
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:

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:

CODESET CONVERSION TABLES - CODESETS

Install Western European codeset conversion tables for what codesets?

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

- (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

```
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:

```
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:

```

                                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)ovy ch/Slovak

Enter one choice, and hit ENTER:

```

18. Enter **4** to exit the installation program. The program responds:

```

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.

1. Load the “*INFORMIX ILS Version 3.0*” 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/volume_1 on /vol/dev/dsk/c0t2d0/volume_1 read only
on (current date and time)

```

3. Change to the INFORMIX directory by entering:

```

cd $INFORMIXDIR

```

Installing the INFORMIX ILS 3.0 package

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

```
/opt/informix
```

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

```
/cdrom/cdrom0/install
```

The program responds:

```
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:

```
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
(K)orean (J)apanese (T)rad Chinese S(I)mp Chinese
```

```
Enter one choice, and hit ENTER:
```

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

```

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
(K)orean (J)apanese (T)rad Chinese S(I)mp Chinese

Select the components to install:

```

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

```

LOCALES - LANGUAGES

Install locales and associated character maps for what languages?

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

(34) Help
(35) All Of The Above
(36) Custom Screen
(37) 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
(K)orean (J)apanese (T)rad Chinese S(I)mp Chinese

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

```

9. Enter 6 16 to select English and Japanese. The program responds:

```
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  
(K)orean (J)apanese (T)rad Chinese S(I)mp Chinese
```

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

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

```
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  
(K)orean (J)apanese (T)rad Chinese S(I)mp Chinese
```

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

11. Enter 5 to select UTF8.

The program responds:

```
LOCALE - CODESETS
```

```
Install Japanese language locales for what codesets?
```

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

- (5) Help
- (6) All Of The Above
- (7) Custom 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
(K)orean (J)apanese (T)rad Chinese S(I)mp Chinese
```

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

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

```
CODESET CONVERSION REGIONS
```

```
Choose the regions for which you require codeset conversion tables.
```

- (1) Arabic
- (2) Baltic
- (3) Cyrillic
- (4) Eastern European
- (5) Greek
- (6) Hebrew
- (7) Japanese
- (8) Korean
- (9) Simplified Chinese
- (10) Trad. Chinese
- (11) Turkish
- (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
(K)orean (J)apanese (T)rad Chinese S(I)mp Chinese
```

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

13. Enter 7 12 to select Japanese and Western European. The program responds:

```
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
(K)orean (J)apanese (T)rad Chinese S(I)mp Chinese

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:

```
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) ISO 8859-15
(6) DOS Code Page 865 (14) IBM CCSID 00285    (22) UNICODE
(7) EBCDIC             (15) IBM CCSID 00297    (23) UTF8
(8) HP-Roman8         (16) IBM CCSID 00500    (24) Windows CP 1252

(25) Help              (26) All Of The Above
(27) Custom Screen     (28) 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
(K)orean (J)apanese (T)rad Chinese S(I)mp Chinese

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

15. Enter **20 23** to select ISO 8859-1 and UTF8. The program responds

```
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:

```
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:

```

                                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
(K)orean  (J)apanese      (T)rad Chinese   S(I)mp Chinese

Enter one choice, and hit ENTER:
```

18. Enter **4** to exit the installation program. The program responds:

```

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.

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.

Platform considerations

- All platforms.

Prerequisites

- The Solaris 7 operating system must be installed.
- Verify that you are logged in as **root** at the console.
- Obtain the “*Solaris Easy Access Server 2.0*” CD.
- You must have partitioned the hard disks for the Solstice DiskSuite system as specified in [“Partitioning the hard disks” on page 2-18](#).

Procedure

1. Load the “*Solaris Easy Access Server 2.0*” 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/solaris_easy_access_server_2_0 on /vol/dsk/c0t2d0/disksuite_4_1  
read only on (current date and time)
```

4. Enter:

```
/usr/sbin/pkgadd -d /cdrom/cdrom0/products/DiskSuite_4.2/sparc SUNWmd
```

The program responds:

```
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:

```
Installing Sosltice DiskSuite as <SUNWmd>
```

```
....
```

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

6. Enter: **eject cd**

Installing the Sun Solaris patches

Overview

The Sun Solaris patches are delivered with the CMS software.

Platform considerations

- All platforms.

Prerequisites

- The Solaris 7 operating system must be installed.
- All Solaris packages must be installed (HSI/S, HSI/P, SAI/P, X.25) as required by your particular system configuration.
- 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

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  
(current date and time)
```

3. Begin the installation by entering the following:

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

The program responds:

```
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:

```
Installing CMS Supplied Solaris Patches as <spatches>
. . .
Installation of <spatches> was successful.
```

5. To continue installing the patches, enter:

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

The program responds:

```
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 lists the patches to be installed and returns to the command prompt after the installation process is complete.

 **NOTE:**

If the installation procedure fails for any of the patches, the following message is displayed:

```
Installation failed for one or more Solaris patches.
- Customers in the US or Canada should call the CMS
  Technical Services Organization at 1-800-242-2121
- Customers outside the US should contact your Lucent
  Technologies representative or distributor.
```

If the message shown above is displayed, continue with this procedure and the remaining CMS software installation procedures. When the upgrade is complete, notify the appropriate CMS support contact as instructed.

6. Reboot the system by entering:

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

 NOTE:

Verify that the shutdown command executes correctly. The shutdown command occasionally fails to reboot the machine. The system issues the appropriate shutdown messages, but then returns to the command prompt instead of rebooting and displaying the Solaris login console.

To obtain a proper shutdown sequence in the event that the shutdown command fails in the manner described above, enter:

```
/usr/sbin/reboot
```

7. Log in as **root**. The Sun Solaris patches are installed and the system kernel has been rebuilt.

Do *not* remove the “*CentreVu Call Management System*” CD from the CD-ROM drive.

Changing directory permissions

1. To change directory permissions for the **etc** directory, enter:

```
installf SUNWcsr /etc d 0755 root sys
```

Setting up Solstice DiskSuite

Overview

This procedures configure Solstice DiskSuite for the system.

 NOTE:

Separate procedures are provided herein for unmirrored and mirrored systems. For more information about disk-mirrored CMS systems, see *CentreVu[®] CMS Disk-Mirrored Systems* (585-210-940).

Platform considerations

- All platforms

Prerequisites

- The Solaris 7 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

Configuring DiskSuite on an unmirrored system

This procedure configures DiskSuite on an unmirrored system.

1. Enter:

```
stty erase Ctrl+H
```

(where **Ctrl+H** means “press/hold Control as you press H”)

The stty command sets up your backspace key as an actual backspace. If you do not enter this command, you will have to use the Delete key as a backspace.

2. Enter the following commands:

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

3. 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:

```
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”](#) on page 5-2, [“Common error messages with DiskSuite”](#) on page 5-18 and [“Checking for disk recognition errors”](#) on page 5-9 in Chapter 5.

4. Enter the following:

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

The system responds:

```
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.
```

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

```
cat /olds/md.tab.new
```

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

```
#state database replicas
mddb00 c0t0d0s1
mddb01 c1t0d0s0

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

- If everything appears to be correct, continue with Step 7.

If there is a discrepancy in the number of disks, check for disk recognition errors using the procedure, [“Installing CMS packages” on page 2-107](#).

- 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
```

- Enter:

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

The program responds:

```
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.
```

9. Enter:

```
/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:

```
/dev/md/rdisk/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/rdisk/d19 okay
Success, system set up successfully
```

If these commands fail, make a note of the error message and see the [“Common error messages with DiskSuite”](#) on page 5-18 in Chapter 5.

10. To create and mount **/cms**, enter:

```
mkdir /cms
mount /cms
```

11. Enter: **eject cdrom**

Configuring DiskSuite on a mirrored system

This procedure configures DiskSuite on a mirrored Enterprise 3000 or 3500 system.

1. Enter:

```
stty erase Ctrl+H
```

(where **Ctrl+H** means “press/hold Control as you press H”)

The stty command sets up your backspace key as an actual backspace. If you do not enter this command, you will have to use the Delete key as a backspace.

2. Enter the following commands:

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

3. To alter the path, enter:

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

4. Enter:

```
olds -mirrored -check_disks
```

5. Enter:

```
olds -mirrored -mk_files
```

6. Enter:

```
olds -mirrored -metadbs
```

7. Enter:

```
olds -mirrored -setroot
```

8. To reboot, enter:

```
/usr/sbin/shutdown -y -g0 -i0
```

9. When the `ok` prompt is displayed, enter:

```
boot -r
```

10. When the reboot is finished, log in as **root**.

11. To setup the `/cms` metadevices, enter the following commands:

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

```
olds -mirrored -setup
```

The system should respond:

```
Success, /cms mirrored successfully
```

12. Enter the following commands:

```
mkdir /cms
```

```
mount /cms
```

13. To verify the DiskSuite configuration, enter:

```
df -k
```

The output format should be similar to the following example:

Filesystem	kbytes	used	avail	capacity	Mounted
/dv/md/dsk/d13	xxxxx	xxxxx	xxxxx	xx%	/
proc	xxxxx	xxxxx	xxxxx	xx%	/proc
fd	xxxxx	xxxxx	xxxxx	xx%	/dev/fd
/dev/md/dsk/d21	xxxxx	xxxxx	xxxxx	xx%	/cms

To confirm that DiskSuite has administered all of the disks, verify that the "/dev/md/dsk/d21" line is present in the output.

14. After configuring DiskSuite for a mirrored system you must create an alternate boot device. See ["Creating an alternate boot device" on page 2-105](#).

 **NOTE:**

If the CMS computer you are installing requires disk mirroring, you must use the *CentreVu[®] CMS Disk-Mirrored Systems* (585-210-940) document in addition to the information from this book.

Additional references

If you experience problems with the DiskSuite installation, see ["Troubleshooting a Solstice DiskSuite software installation" on page 5-2](#), ["Common error messages with DiskSuite" on page 5-18](#) and ["Checking for disk recognition errors" on page 5-9](#) in Chapter 5.

Creating an alternate boot device

This procedure creates an alternate boot device. This procedure is required only for *mirrored systems*.

1. Log in as **root** and enter:

```
ls -l/dev/rdisk/newbootdev
```

where *newbootdev* is the device to be used as the alternate boot disk, as described in Step 8 of ["Partitioning the hard disks" on page 2-18](#).

The system responds (for example):

```
lrwxrwxrwx 1 root  root  54 Nov 9 /dev/rdisk/c0t1d0s0 ->
../././devices/sbus@3,0/SUNW,fas@3,8800000/sd@1,0:a,raw
```

2. Identify and record the device definition from the output generated in Step 1. The device definition is the character sequence that starts after `/devices` and ends before `:a,raw`. In the example provided above, the device definition is:

```
sbus@3,0/SUNW,fas@3,8800000/sd@1,0
```

3. Enter:

```
/usr/sbin/shutdown -y -g0 -i0
```

The system displays the `ok` prompt.

4. To create a device alias for the alternate boot device, enter:

```
nvalias bootdevice2 device definition
```

where *device definition* is the character sequence recorded in Step 2.

5. At the `ok` prompt, enter:

```
devalias
```

The output should include a line that is similar to the following example:

```
Bootdevice2/sbus@3,0/SUNW,fas@3,8800000/sd@1,0
```

6. To test the alternate boot device, enter:

```
boot bootdevice2
```

When the computer restarts, login as **root** at the console login.

7. Reboot once again to return system control to the regular boot disk:

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

8. To set up a "cron job" for chkDisk, enter:

```
crontab -e
```

The **crontab** file is displayed in editor mode.

9. Add the following line to the end of the **crontab** file:

```
15 0 * * * /olds/chkDisks>/dev/null 2>&1
```

10. Save and quit the file by pressing **Esc** and entering:

```
:wq!
```

11. Enter:

```
chmod +x /olds/chkDisks
```

The alternate boot disk is now set up.

Additional references

For more information about disk-mirrored CMS systems, see *CentreVu[®] CMS Disk-Mirrored Systems* (585-210-940).

Installing CMS packages

Installing the CMS packages includes:

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

Installing the CMS Supplemental Services software

Overview

This procedure installs the CMS R3V8 Supplemental Services software.

Platform considerations

- All platforms.

Prerequisites

- The Solaris 7 operating system must be installed.
- Verify that you are logged in as **root** at the console.
- Obtain the “*CentreVu CMS Supplemental Services R3V8*” CD.
- Record the version number printed on the “*CentreVu CMS Supplemental Services R3V8*” CD, which is required for input during the procedure.

Procedure

1. Enter `who -r` to determine the computer 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. To download the Installation Manager package from the CD, enter:

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

The program responds:

```
Processing package instance <LUim> from </cdrom/cvx>

Lucent Installation Manager
(sparc) 0.43

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## Processing package information.
## Processing system information.

Installation of <LUim> was successful.
```

5. Enter

```
/opt/LUim/bin/install 2>&1|tee -a /opt/LUim.log
```

The program responds:

```
Installing OrbixMT
link shared library libDSImt.so
.....

Installation of <LUorbutil> was successful.
```

6. Use the CD version number you recorded earlier ([“Prerequisites” on page 2-107](#)) to replace the `rxvXXX.X` character in the following setup command:

```
/opt/cc/install/ahl.rXvXXX.X/bin/setup
```

7. Use the CD version number again to replace the `rxvXXX.X` character in the following setup command:

```
/opt/cc/install/aot.rXvXXX.X/bin/setup
```

8. Enter: `eject cdrom`

Installing the CMS software

Overview

This procedure installs the CMS software.

Platform considerations

- All platforms

Prerequisites

- The Solaris 7 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.

Procedure

1. Load the “*CentreVu Call Management System*” CD.
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  
(current date and time)
```

5. Add the CMS package by entering the following:

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

The program responds:

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

Lucent Technologies CentreVu(R) Call Management System
(sparc) r3v8xx.x

.
.
* /var/crash <attribute change only>
* /var/crash/cms2 <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:

```
## 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/perfbins/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/cmsternDSR <setuid root setgid lp>

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

7. Enter: **y**

The program responds:

```
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:

```
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:

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

10. Re-enter the password for cms. The program responds:

```
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:

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

12. Reenter the password for `cmssvc`. The program responds:

```
## 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 downloads the CMS software from the CD-ROM to the hard disk and initializes the customer CMS data. A list of files is displayed as the software is downloaded. When the installation is finished, the program responds:

```
Installation of <cms> was successful.  
  
The machine must now be rebooted in order to ensure  
sane operation. Execute shutdown -y -i6 -g0 and wait for the  
"console login" prompt.
```

13. Enter: `eject cd`
14. To begin the shutdown, enter:
- ```
/usr/sbin/shutdown -y -i6 -g0
```
15. When the system is back up, log in as **root**.

### Additional references

If you have problems installing CMS, see ["CMS installation fails" on page 5-52](#).

---

## 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 is because 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 Avaya Inc. distributor or representative, before deciding to skip it.

### Platform considerations

- All platforms.

### Prerequisites

- The Solaris 7 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. Load the “*CentreVu Call Management System*” CD.
2. Enter `cmssvc` to access the CMS Services menu:

```
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 `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.
4. Enter `cmssvc` to access the CMS Services menu.
5. 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.
6. If no patches are found on the CD, the program responds:

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

Continue with Step 8.

7. 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.
```

8. Enter: `eject cdrom`

# Installing the Open Database Connectivity software

## Overview

Use the following procedures to install the OpenLink™ ODBC software.

Depending on the ODBC version used by the customer, choose between the following procedures:

- “[Installing ODBC version 1.5](#)” (below)
- “[Installing ODBC version 3.2](#)” on page 2-119

For more information about the ODBC feature, see *CentreVu® CMS Open Database Connectivity* (585-210-911).

## Platform considerations

- ODBC may be installed on all platforms

## Prerequisites

- The Solaris 7 operating system must be installed
- All the preceding factory software installation requirements in this chapter must be completed
- Obtain the “*CentreVu CMS OPENLINK ODBC Driver*” CD.
- Verify that you are logged in as **root** at the console

## Installing ODBC version 1.5

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_drivers on /vol/dev/dsk/c0t2d0/odbc_drivers read
only on Sat Jun 6 11:47:05 1998
```

3. If this is a reinstallation perform the following steps, otherwise, go to Step 4

- a. To shut down the request broker, enter:

```
/cms/dc/odbc/odbc_init -r 0
```

The system returns to the command prompt.

- b. To remove the old **/openlink** directory, enter:

```
rm -fr openlink
```

The system returns to the command prompt

4. 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)
```

5. 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:
```

6. 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:
```

7. 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.
```

8. To configure and initiate the ODBC software, enter:
  - a. If this is a new install, enter:

```
/cms/dc/odbc/odbc_init
```

The program responds:

```
ODBC driver initialization complete
```

- b. If this is an upgrade or reinstallation, enter:

```
/cms/dc/odbc/odbc_init -r 1
```

The program responds:

```
oplrqb has been activated
```

9. 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
```

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

## Installing ODBC version 3.2

1. Load the “*CentreVu CMS OPENLINK ODBC Driver*” CD.
2. After about 15 seconds, verify the name of the CD-ROM. Enter:

```
mount
```

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/openlink on /vol/dev/dsk/c0t2d0/openlink
read only on (current date and time)
```

3. Change directories to the **/usr** directory. Enter:  

```
cd /usr
```

The system returns to the command prompt.
4. If this is an upgrade or a reinstallation perform the following steps, otherwise, go to Step 5
  - a. To shut down the request broker, enter:  

```
/cms/dc/odbc/odbc_init -r 0
```

The system returns to the command prompt.
  - b. To remove the old **/openlink** directory, enter:  

```
rm -fr openlink
```

The system returns to the command prompt.
5. To create the OpenLink directory and change to the new directory, enter:  

```
mkdir /usr/openlink
```

The system returns to the prompt.
6. Change directories to **/usr/openlink**. Enter:  

```
cd openlink
```

The system returns to the prompt.
7. To copy the server components from the CD-ROM, enter:  

```
cp /cdrom/cdrom0/server/cmsv6v8/* /usr/openlink
```

8. To install the server components on the system, enter:

```
./install.sh
```

The program responds:

```
Extracting (smadi5zz.taz) ...
Extracting (smadi72z.taz) ...
Extracting (smaozzzz.taz) ...
Extracting (smbzzzzz.taz) ...
.....
.....
.....
TCP/IP Port to use? [8000]:
```

 **NOTE:**

On some systems, the following message may be displayed:

```
Saving existing CMS odbc settings - This file will
be replaced with a new cmsrqb_init file for use
with Openlink 3.2
```

9. To accept the default setting, press the **Enter** key.

The program responds:

```
Log File? [www_sv.log]
```

10. To accept the default setting, press the **Enter** key.

The program responds:

```
Log all requests (y/n)? [n]
```

11. To accept the default setting, press the **Enter** key.

The program responds:

```
Administrator account? [admin]
```

12. To accept the default setting, press the **Enter** key.

The program responds:

```
Administrator's password? [admin]
```

13. To accept the default setting, press the **Enter** key.

The system responds:

```
The OpenLink Admin Assistant is now ready for use.
.....
.....
.....
Enter the name of the user that will own the programs [ENTER=Use
Current User Settings]
```

14. Enter: **root**

The program responds:

```
Enter the name of the group that will own the programs
[ENTER=Use Current Group Settings]
```

15. Enter: **root**

The program responds:

```
Changing ownership ...
Press return to proceed to the next phase of the
install process
```

16. Press the **Enter** key.

The system displays the OpenLink Session Rules Book  
Configuration Utility menu

```
OpenLink Session Rules Book Configuration Utility
=====
```

```

1. Request Broker 11. PostgreSQL
2. Informix 5 12. Progress 6
3. Informix 6 13. Progress 7
4. Informix 7 14. Progress 8
5. Ingres 6 15. Solid
6. Virtuoso 16. Sybase 4
7. OpenIngres 17. Sybase 10
8. Oracle 6 18. Sybase 11
9. Oracle 7 19. Unify 2000
10. Oracle 8 20. Velocis

U. Undo last change V. View the current Rules Book
C. Clear log file L. View log file
B. Backup Rules Book R. Restore Rules Book
I. Verify Rules Book N. Reinitialize running Broker
S. Startup Request Broker D. Shutdown Request Broker
```

Choose an item or type q to quit :

17. Enter: **q**

The program responds:

```
End of installation.
```

18. Enter one of the following commands to configure and initiate the ODBC software:

a. If this is a new install, enter:

```
/cms/dc/odbc/odbc_init
```

The program responds:

```
ODBC driver initialization complete
```

b. If this is an upgrade or reinstallation, enter:

```
/cms/dc/odbc/odbc_init -r 1
```

The program responds:

```
oplrqb has been activated
```

19. To verify that the ODBC Request Broker is active on the server, enter:

```
ps -ef | grep oplrqb
```

One of the output lines should show the `oplrqb` process running from the `/usr/openlink/bin` directory, as shown in the following example:

```
root 1462 1459 0 14:41:38 ?
0:00 /usr/openlink/bin/oplrqb -f +configfile
/cms/dc/odbc/cmsrqb_init +loglevel 5 +l
root 1475 1467 1 14:44:48 pts/4 0:00 grep oplr
```

20. Enter: **eject cdrom**

**⇒ NOTE:**

At this point, the software is registered, installed, and running. If you do not see an `oplrqb` process running after completing Step 19, repeat the installation.

# Installing Visual Vectors Server software

## Overview

This procedure installs the CentreVu Visual Vectors Server Software.

## Platform considerations

- All platforms.

## Prerequisites

- The Solaris 7 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 Visual Vector Server Software” CD.

## Procedure

1. Load the “CentreVu Visual Vector Server Software” CD.

2. Enter:

```
pkgadd -d /cdrom/cdrom0 LUfaas
```

The system displays information about the CD contents. If this is the first time that Visual Vectors has been installed then the following message is displayed:

```
The selected base directory </cms/aas> must exist before
installation is attempted.
Do you want this directory created now [y,n,?,q],
Using </cms/aas> as the package base directory?
```

3. Enter: **y**

As the various packages are installed onto the system you may receive the following message:

```
* - conflict with a file that does not belong to any package. I
you want to install these conflicting files [y,n,?,q]
```

4. Enter: **y**

The system may also display the following message:

```
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 Lufaas [y,n,q]
```

5. Enter: **y**
6. The program installs the software and responds:

```
Installation of <Lufaas> was successful.
```

7. Enter: **setupaas**
  8. Select option 1 from the displayed setup menu.
  9. Enter the number of allowable concurrent logins. The maximum login number must not exceed the number of licenses which have been purchased.
- 

## Starting Visual Vectors Server software

1. Enter: **setupaas**  
The setup menu is displayed.
2. Select option 2 from the displayed setup menu.  
The turn on/stop menu is displayed.
3. Select option 1 to start the program.
4. Visual Vectors Server software is now set up and running on the server.

# Setting up CMS

---

## Overview

This section describes:

- [“Setting authorizations” on page 2-126](#)
- [“Setting up data storage parameters” on page 2-132](#)
- [“Setting up a LAN for switch connections” on page 2-135](#) (required only for *DEFINITY* R7 switches, or later)
- [“Setting up the CMS application” on page 2-139](#).

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.

---

## Platform considerations

- All platforms.
- 

## Conventions

Throughout the setup, you will be prompted to enter values specific to the system being installed. These values differ between switch releases. For each question, an appropriate range of values is displayed. 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 CMS computer to the network hub unit. For additional information see *CentreVu® CMS R3V6 Sun® SPARCserver™ Computers Connectivity Diagram* (585-215-858), *CentreVu® CMS 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
  - Vector Directory Numbers (VDNs)
  - *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:

```
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
 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:

```
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:

```
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:

```
Purchased version is R3V8. 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:

---

```
Authorize installation of vectoring package? (y/n): (default: n)
```

6. Enter **y** if the customer purchased vectoring; otherwise, press **Enter**. The program responds:

---

```
Authorize use of graphics feature? (y/n): (default: n)
```

7. Enter **y** if the customer purchased Graphics; otherwise, press **Enter**. The program responds:

---

```
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 (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:

---

```
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:

```
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:

```
Enter the number of simultaneous Lucent Technologies CentreVu(R)
Supervisor logins the customer has purchased
(2-250): (default: X)
```

12. Enter the number of simultaneous logins purchased. The program responds:

```
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:

```
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 R3V8, “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:

```
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.

## 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 installed with a set of standard default values.

Review the default data storage values for each authorized ACD. The default values are found on the line immediately below each storage parameter, and many of them can be edited to meet the needs of individual customers. 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. Enter:

```
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. The defaults storage parameters are listed below in the order in which they appear in the **storage.def** file.
  - # 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

4. After entering the appropriate values, enter:

`:wq`

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.

### **Additional references**

For more information about changing ACD data storage parameters, see the CMS System Setup chapter in *CentreVu<sup>®</sup> CMS R3V8 Administration* (585-210-910).

## 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. For more information about LAN configurations, see *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.

### Contents

To set up a network connection to a LAN-enabled switch and other CMS computer peripherals, you must perform the following procedures:

- [“Editing the /etc/hosts file” on page 2-136](#)
- [“Setting up a second network interface” on page 2-136](#)
- [“Editing the /etc/default router file” on page 2-138](#)

## Editing the `/etc/hosts` file

1. Edit the `/etc/hosts` file by entering the following:

```
vi /etc/hosts
```

This example shows the recommended default IP addressing scheme for a closed network. There is one ACD and two NTS units (cmsterm1 and cmsterm2).

```
192.168.2.1 cms cms. XXXX.XXX
192.168.2.2 switch
192.168.2.101 cmsterm1
192.168.2.102 cmsterm2
```

Where `xxxx.xxx` is either the customers domain or use `tempdomain.net` as a default entry.

2. Press the **Esc** key to leave the edit mode.
3. Enter `:w!` to overwrite the existing file.
4. 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.

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.

```
192.168.2.1 cms cms. XXXX.XXX
192.168.2.2 switch
192.168.2.3 cms_1 cms. XXXX.XXX
192.168.2.101 cmsterm1
192.168.2.102 cmsterm2
```

Where `xxxx.xxx` is either the customers domain or use `tempdomain.net` as a default entry.

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/default` router 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:

---

```
192.168.2.254
```

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 2-135.
- 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<sup>®</sup> 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. 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/1c status`
- `mt -f /dev/rmt/0c 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
```

2. Access the CMS Services menu by entering the following:

```
cmssvc
```

The program responds:

```
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.

**⇒ NOTE:**

If system setup has already been done, the program responds:

```
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** to continue with the setup, or enter **n** to exit setup. If you enter **y**, the program responds:

```
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. 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:

```
Enter a name for this UNIX system (up to 256 characters):
(default: XXXXXX)
```

6. 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:

```
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):
```

7. Enter the number to specify the type of cartridge tape you are using as the backup device. The program responds:

```
Enter the default backup device path:
(default: /dev/rmt/0c)
```

Enter the default backup device path.

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
```

8. After you enter the correct device path, the program responds:

```
Enter number of ACDs being administered (1-8):
```

9. Enter the number of ACDs to be administered. This number may be less than the number of ACDs authorized. The program responds:

```
Information for ACD 1
```

```
Enter switch name (up to 20 characters):
```

10. Enter the name for the switch associated with ACD 1. The program responds:

```
Select the model of switch for this ACD
```

- ```
1) Definity-G3V2
2) Definity-G3V3
3) Definity-G3V4
4) Definity-G3V5
5) Definity-R6/R7
6) Definity-R8
```

```
Enter choice (1-6):
```

11. 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 enter this switch model choice
G3V2	Definity-G3V2
G3V3	Definity-G3V3
G3V4	Definity-G3V4
ECS Release 5 ECS Release 6.1 ECS Release 6.2 ECS Release 6.3 as bugfix load*	Definity-G3V5
ECS Release 6.3 with R3V6 features† ECS Release 7	Definity ECS R6/R7
ECS Release 8	Definity-R8

*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 14:

```
Is Vectoring enabled on the switch? (y/n):
```

12. 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 14.

```
Is Expert Agent Selection enabled on the switch? (y/n):
```

13. Enter **y** if EAS is enabled on this switch; otherwise, enter **n**. The program responds:

```
Does the Central Office have disconnect supervision?  
(y/n): (default: y)
```

14. Enter **y** if the CMS is located in the U.S., then go to Step 16. If you answer **n**, the program responds:

```
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)
```

15. 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:

```
Enter the local port assigned to switch. (1-64):
```

⇒ NOTE:

The standard CMS provisioning procedure is to set the local and remote port assignments equal to the switch processor channel assignment. For example, for switch processor channel 2, the remote and local port assignments would both be set to a value of 2.

16. Enter the local port or channel number on the switch. The program responds:

```
Enter the remote port assigned to switch (1-64):
```

17. Enter the remote port or channel number on the switch.
You must now select how the CMS platform is connected to the DEFINITY switch for message transport. The program responds:

```
Select the transport to the switch
  1) X.25
  2) TCP/IP
Enter choice (1-2):
```

18. If you enter **1** to select X.25, the program continues with Step [22](#).
If you enter **2** to select TCP/IP, which is available with DEFINITY ECS Release 7 or later, the program continues with Step [19](#).

19. The program responds:

```
Enter DEFINITY ECS host name or IP Address:
```

20. 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:

```
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 2-135 for more information about setting up the hosts file. The program continues:

```
Enter DEFINITY ECS TCP port number (5001-5999):
(default: 5001)
```

21. Press **Enter** to use the default TCP port number 5001. This number must match the port number administered on the DEFINITY switch. The procedure continues with Step 24.
22. If you selected x.25 transport to the switch at Step 18, continue here. The program responds (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):
```

23. 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:

```
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:

```
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:

```
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 redisplay the menu.

24. Once you have selected an appropriate link transport device, the program responds:

```
Number of splits/skills (0-XXX):
```

25. Enter the number of splits/skills in this ACD. The program responds:

```
Total split/skill members, summed over all splits/skills
(0-XXXX):
```

26. 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 by the average number of splits/skills per agent. The program responds:

```
Number of shifts (1-4):
```

27. Enter the number of shifts. The program responds:

```
Enter the start time for shift 1 (hh:mmXM):
```

28. Enter the start time for shift 1; for example, 08:00am. The program responds:

```
Enter the stop time for shift 1 (hh:mmXM)
:
```

29. Enter the stop time for shift 1; for example, 05:00pm. The program responds:

```
Number of agents logged into all splits/skills during
shift 1 (0-XXX):
```

30. Enter the number of agents logged in during the shift.

 **NOTE:**

Steps 28 through 30 repeat for the number of shifts entered in Step 27.

When all shifts have been set up, the program responds:

```
Number of trunk groups (0-XXX):
```

31. Enter the number of trunk groups associated with this ACD. The program responds:

```
Number of trunks (0-XXXX):
```

32. Enter the number of trunks associated with this ACD. The program responds:

```
Number of unmeasured facilities (0-XXXX):
```

33. Enter the number of unmeasured trunk facilities associated with this ACD. If the switch supports call work codes, the program responds:

```
Number of call work codes (X-XXXX):
```

34. Enter the number of call work codes. The program responds:

```
Updating database
.....
```

After a few minutes, if vectoring is enabled on the switch (that is, if a `y` was entered in Step 12), the program responds:

```
Enter number of vectors (0-XXXX):
```

35. Enter the number of vectors. The program responds:

```
Enter number of VDNs (0-XXXX):
```

36. Enter the number of VDNs.

The program repeats Steps 10 through 35 for each ACD entered in Step 9. After you define the last ACD, the program continues:

```
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.
```

If the setup was ok, then you will see the following message:

```
Setup completed successfully
```

37. 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 2-159](#).

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.

Setting up CMS using a UNIX flat file

Setting up the CMS feature package using a UNIX flat file consists of editing a copy of the **cms.inst.sk1** file and starting the install program.

⇒ NOTE:

This procedure is not necessary if you already performed 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.sk1 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.

⇒ NOTE:

When selecting a switch model in the file, refer to the table on page 2-143.

```
# 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):
5
# 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):
# Select the model of switch for this ACD
# 1) Definity-G3V2
# 2) Definity-G3V3
# 3) Definity-G3V4
# 4) Definity-G3V5
# 5) Definity-R6/R7
# 6) Definity-R8
# Enter choice (1-6):
6
# 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 R7 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 host name or IP Address:
192.168.2.2
# Enter DEFINITY TCP port number (5001-5999):
5001
# Maximum number of splits/skills based on switch type:
# Release(s)                                     Value
# Definity-G3V2/Definity-G3V3/Definity-G3V4      255
# Definity-G3V5/Definity-R6/R7                    600
# Definity-R8                                      999
# Number of splits/skills (0-Maximum):
# Maximum number of split/skill members based on switch type:
# Release(s)                                     Value
# Definity-G3V2/Definity-G3V3/Definity-G3V4      5200
# Definity-G3V5/Definity-R6/R7/Definity-R8      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-G3V2/Definity-G3V3/Definity-G3V4   666
# Definity-G3V5/Definity-R6/R7/Definity-R8   666
# Number of trunk groups (0-Maximum):
20
# Maximum number of trunks based on switch type:
# Release(s)                               Value
# Definity-G3V2/Definity-G3V3/Definity-G3V4   4000
# Definity-G3V5/Definity-R6/R7/Definity-R8   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-G3V2/Definity-G3V3/Definity-G3V4      1
# Definity-G3V5/Definity-R6/R7/Definity-R8      1
# Maximum number of call work codes based on switch type:
# Release(s)                               Value
# Definity-G3V2/Definity-G3V3/Definity-G3V4      1999
# Definity-G3V5/Definity-R6/R7/Definity-R8      1999
# Number of call work codes (Minimum-Maximum):
100
# Maximum number of vectors based on switch type:
# Release(s)                               Value
# Definity-G3V2/Definity-G3V3/Definity-G3V4      512
# Definity-G3V5/Definity-R6/R7                  512
# Definity-R8                                   999
# Enter number of vectors (0-Maximum):
20
# Maximum number of VDNs based on switch type:
# Release(s)                               Value
# Definity-G3V2/Definity-G3V3/Definity-G3V4      2000
# Definity-G3V5                                  2000
# Definity-R6/R7                                 8000
# Definity-R8                                   20000
# 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:

```
cmssvc
```

The program responds:

```
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:

```
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:

```
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:

```
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:

```
*** 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 2-159](#).

If you are not installing any other feature packages, do the following to turn on CMS:

1. Access the CMS Services menu by entering `cms svc`.

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:

```
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 (for example):

```
Version purchased: R3V8
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 2-126](#).

4. Access the CMS Administration menu by entering:

`cmsadm`

The program responds:

```
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) pkg_install Install a feature package
 5) pkg_remove Remove a feature package
 6) run_pkg    Turn a feature package on or off
 7) run_cms   Turn CentreVu CMS on or off
 8) port_admin Administer Modems, Terminals, and Printers
Enter choice (1-8) or q to quit:
```

 **NOTE:**

CMS Administration menu may display different menu options depending on the version of CMS.

5. Select the `pkg_install` option. The program responds:

```
The CMS Features that can be installed are
  1) forecasting
  2) external call history
Enter choice (1-2) or q to quit:
```

 **NOTE:**

The `pkg_install` option menu displays only those feature packages that are authorized but not yet installed.

6. Enter the number that corresponds to the Forecasting package. The program responds:

```
Creating database tables
.....
```

When creation of the Forecasting database tables is completed, the program responds:

```
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 in order to 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 2-163](#).

When you are finished installing 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 these procedures 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 about administering the UUCP link port on an NTS, see *CentreVu[®] CMS R3V8 External Call History Interface (585-210-912)*.

Procedure

1. Access the CMS Services menu by entering:

```
cmssvc
```

The program responds:

```
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 (for example):

```

                                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 2-126](#).

4. Access the CMS Administration menu by entering:

```
cmsadm
```

The program responds:

```
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) pkg_install Install a feature package
  5) pkg_remove  Remove a feature package
  6) run_pkg     Turn a feature package on or off
  7) run_cms    Turn CentreVu CMS on or off
  8) port_admin Administer Modems, Terminals, and Printers
Enter choice (1-8) or q to quit:
```

⇒ NOTE:

CMS Administration menu may display different menu options depending on the version of CMS.

5. Select the `pkg_install` option. The program responds:

```
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 but not yet installed.

6. Enter the number that corresponds to the External Call History package (in this example, 2). The program responds:

```
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:

```
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:

```
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:

```
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:

```
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:

```
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:

```
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. Repeat this step for each administered ACD.

⇒ NOTE:

This step reserves disk space; therefore, sufficient disk space must be available.

The system displays the following message:

```
Start ECH in the on or off state: (default off)
```

14. Select whether ECHI will start in the on or off state (default is off). If the receiving system has not yet been set up, the recommended state is off. ECHI can be turned on at a later date with the `run_pkg` option in the CMSADM menu.

The system displays the following message:

```
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.
```

15. Verify that the installation completed successfully by entering:

```
tail /cms/install/logdir/admin.log
```

If the External Call History package is installed successfully, the program responds:

```
External Call History package installed (date/time )
```

You may edit this file in order to add comments about the packages that were installed or authorized.

If you need to install Forecasting, go to [“Installing the Forecasting package” on page 2-159](#).

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 procedure describes how to set up and redirect the remote console port using the Solaris software package. The remote console allows the TSC to dial in and perform maintenance.

Platform considerations

This procedure is for *all platforms*.

Contents

[Setting up the remote console](#) includes the following procedures:

- [The remote console access port](#) (below)
 - [“Administering the remote console port” on page 2-170](#)
 - [“Using the remote console port” on page 2-171](#)
-

The remote console access port

The port that is used for remote console access differs depending on the hardware platform:

Hardware Platform	Port A	Port B
Enterprise 3000 Enterprise 3500 SPARCserver	Remote Console	Switch Link
Ultra 5	Switch Link	Remote Console

Administering the remote console port

To administer the remote console port on the back of the CMS computer:

1. Remove the current port administration by entering:

```
/cms/install/bin/abcmadm -r ttyX
```

Where **X** is **a** or **b**.

The system displays the following message:

```
ttyX is currently set to be incoming
Are you sure you want to change it? [y,n,?]
```

2. Enter: **y**

The system displays the following message:

```
ttyX administration removed
```

3. Enter the following to administer the remote console port:

```
/cms/install/bin/abcmadm -i -b 9600 ttyX
```

Where **X** is **a** or **b**.

The system displays the following message:

```
ttyX set to incoming port 9600 baud
#
```

The remote console port has been administered.

Using the remote console port

To use the remote console port functions on a CMS computer:

1. Dial in from the remote console to the remote console modem on the CMS computer and log in as **root**.

2. Remove the port monitor by entering:

```
/cms/install/bin/abcaadm -r ttyX
```

Where **X** is **a** or **b**.

The system displays the following message:

```
ttyX is currently set to be incoming
Are you sure you want to change it? [y,n,?]
```

3. Enter: **y**

The system displays the following message:

```
ttyX administration removed
```

4. Redirect the console to the remote console port by entering the following:

```
/cms/install/bin/abcaadm -c -b 9600 ttyX
```

Where **X** is **a** or **b**.

The system displays the following message:

```
This change requires a reboot to take affect
Are you ready to reboot? [y,n,?]
```

5. Enter: **y**

The system displays the following message at the remote console:

```
done
desktop auto-start disabled
Proceeding to reboot.
```

The system will automatically reboot, and the remote console port will come up as the console.

The following occurs:

- The system begins to shut down.
- Shut down, reset and reboot messages appear on the local console.
- When the system starts to come back up, the local console goes blank.
- The system boot diagnostics are displayed on the remote console.
- After the system reboots, a `console login:` prompt is displayed on the remote console.

6. Log in to the remote console as **root**.

 **CAUTION:**

*Do not enter **Ctrl + 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:

```
/cms/install/bin/abcadm -c local
```

The system displays the following message:

```
Console set to local

This change requires a reboot to take affect

Are you ready to reboot? [y,n,?]
```

8. At the remote console, enter: `y`

The following occurs:

- The system begins to shut down.
- Shutdown, reset, and reboot messages appear on the remote console.
- When the system starts to come back up, the system boot diagnostics are displayed on the local console.
- After the system reboots, the `console login:` prompt is displayed on the remote console.
- The login screen is displayed on the local console.

9. Log in to the local console as **root**.

10. Log in to the remote console as **root**.

Control of the console port is redirected from the remote console back to the local console.

Setting up the Alarm Origination Manager

Overview

Use this procedure to set up the Alarm Origination Manager (AOM) on the CMS server. The AOM feature is available only for US/Canada CMS systems for which a current Maintenance Warranty Agreement is in effect.

Platform considerations

- The AOM software is enabled on all CMS platforms running version R3V8aj.e or later.
-

Prerequisites

- The CMS Supplemental Services packages must be installed and set up.
 - For systems that have already been administered, the system “ProductID” must be obtained from the Maestro database under the “alarms” tab. If a Product ID is unavailable, contact the database group at 800-248-1111, ext. 07425 and provide them with the customer IL number.
-

Setting up the AOM config files

1. Use the appropriate password (available only to CMS technical support personnel) to log in as `root2` or `cmssvc`.

2. To verify that the required packages are installed, enter:

```
pkginfo -x | grep LU
```

Verify that the following packages are installed:

- LUahl
- LUaot
- LUim
- LUorbutil

3. To obtain the cms version, enter:

```
pkginfo -x cms
```

Record the cms version information, which is used in Step 6.

- To identify the communications port used by the system modem, enter: `tty`

The system output should be either `/dev/term/a` or `/dev/term/b`. Record the port information, which is used in Step 7.

- Enter the following commands:

```
cd /opt/cc/aot/data/admin
```

```
vi prodSetup.cfg
```

- Edit the fields in the `prodSetup.cfg` file to be similar to the following example:

```
Product|NumberInstances|ServiceVehicle|Enabled|
TEST   |1                   |r1v0           |1       |
CMS    |1                   |r3v8xx.x      |1       |
```

where `r3v8xx.x` is the cms version number you recorded in Step 3.

- Enter:

```
vi sysSetup.cfg
```

The fields contained in the `sysSetup.cfg` file are displayed.

Only three fields require revision:

- `ProductID` - this is the first field in the `sysSetup.cfg` file. It is a unique system identifier obtained from the database administration group (see [“Prerequisites” on page 2-174](#))
- `TelephoneNum` - this is the fifth field in the `sysSetup.cfg` file. It is the telephone number of the Initialization and Administration (INADS) alarm receiver: 800-535-3573. The number must be preceded by the modem “dial tone” command, followed by all digits required for an outgoing call. For example, if a “9” is required to gain outside access, the entry in the `TelephoneNum` field would be:

ATDT918005353573
- `ModemPort` - this is the eighth field in the `sysSetup.cfg` file. It is the modem port that you identified in Step 4, expressed in numeric form (`ttya = 1` and `ttyb = 2`).

8. To set the `Test` variable, enter:

```
export PRODUCT_TYPE=TEST
```

9. Stop and restart AOM:

- Enter: `aom stop`
 - Enter: `aom start`
-

Creating an AOM test alarm

To verify that AOM is properly set up, use this procedure to create a test alarm. Log in as **root2** or **cmssvc**

1. Enter:

```
cd /opt/cc/aot/bin
```

2. Enter the following commands:

a. `../aom_env`

b. `env | grep AOM`

If the environment is set correctly, the following line of output should be returned:

```
AOM_SH=/usr/bin/aom
```

3. To send the test alarm, enter:

```
./log_error -e 30001
```

4. Log off the system, wait about 5 minutes to give the system time to send the alarm and then log back in.

5. Enter:

```
cd /opt/cc/aot/data/log
```

6. Enter:

```
cat alarm_log
```

If the test succeeded, output similar to the following example will be displayed at the end of the log file:

```
07/04/00 14:17:30|30001|TEST|1|TEST_ALARM|MINOR|2|Call Attempt(1)|06/28/00
+73935305-5:
07/04/00 14:17:30|30001|TEST|1|TEST_ALARM|MINOR|2|Call Attempt(2)|06/28/00
+74149665-5:
07/04/00 14:17:30|30001|TEST|1|TEST_ALARM|MINOR|2|Positive Acknowledge|
07/04/00 14:17:30|
```

In addition, technical support personnel should find an open case for this test alarm in the CMSALM folder in the MAESTRO case system.

 **NOTE:**

If the AOM test alarm fails, check the following:

1. Enter:

```
cd /opt/cc/aot/data/log
```

2. Enter:

```
cat aom_lib
```

3. Look for a date and time that would be associated with the test alarm and an “unable to resolve message”. It is possible the aomSrv failed to register with Orbix when setup was run. See [“Re-running AOM setup” on page 5-53](#) in the [Troubleshooting](#) chapter.

Setting up the NTS

Overview

Each Network Terminal Server (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 the system, the IP addresses must be unique (see the table in Prerequisites section, below).

Platform considerations

- All platforms.
-

Prerequisites

Obtain the network IP address and NTS IP address for each NTS you are administering. The NTS number depends on the total number of ports required for the system and the type of NTS.

Device	IP Address*	Network Name
Host Computer	192.168.2.1	<i>hostname</i>
First NTS	192.168.2.101	cmsterm1
Second NTS	192.168.2.102	cmsterm2
Third NTS	192.168.2.103	cmsterm3
<i>Nth</i> NTS	192.168.2.1xx	cmstermX

* 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:

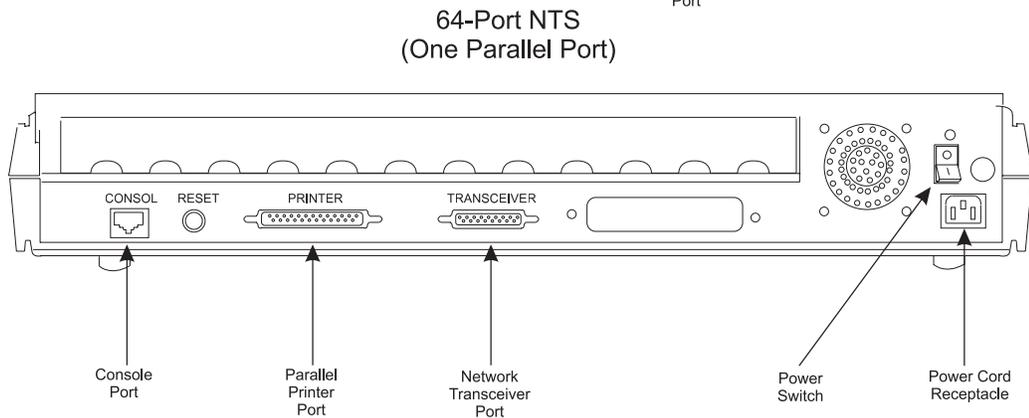
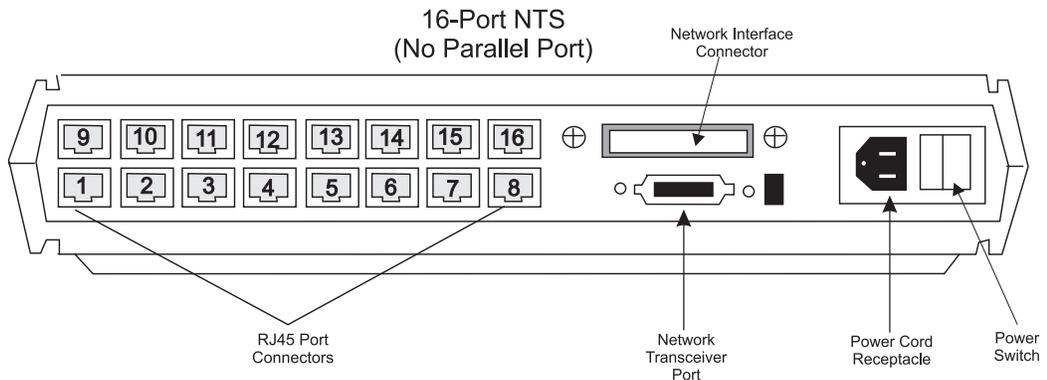
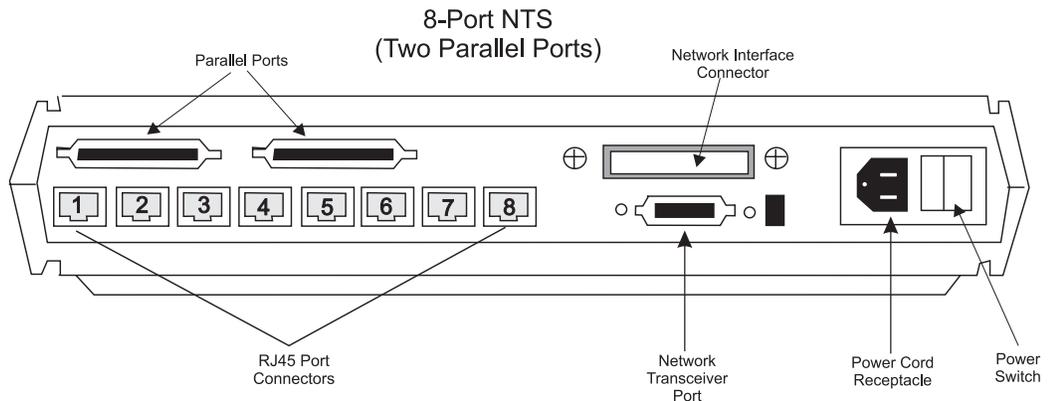
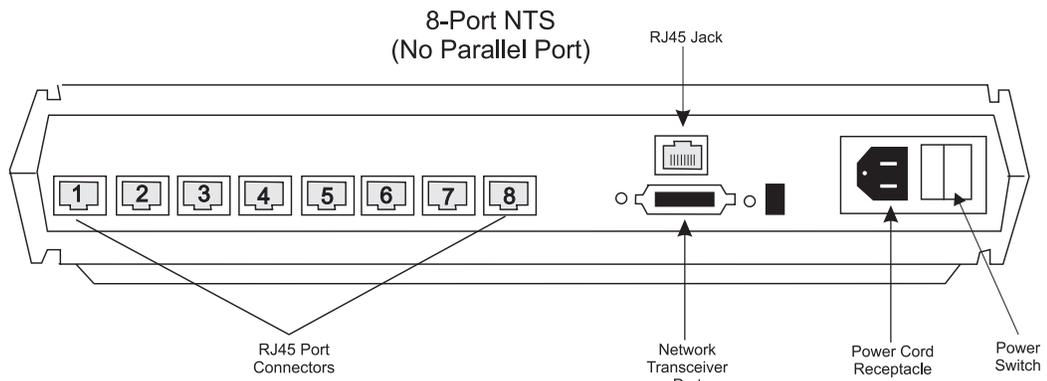
```
vi /etc/hosts
```

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).



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.

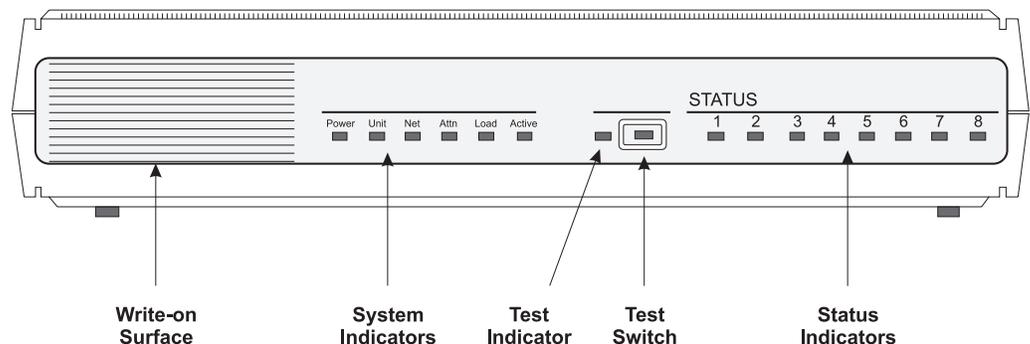
You will need the following for the 64-port unit:

- 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:

```
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:

```
Erase all non-volatile EEPROM memory? (y/n) [n]::
```

14. Enter `y`. The program responds:

```
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:

```
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 2-178. The program responds:

```
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:

```
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:

```
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:

```
Enter Preferred dump address [0.0.0.0]::)
```

21. Enter the IP address of the CMS computer. The program responds:

```
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:

```
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:

```
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:

```
annex::
```

26. Disconnect the dumb terminal from the NTS.

The NTS has been administered.

Performing a CMSADM backup

Overview

This procedure describes how to perform a CMSADM backup. The CMSADM file system backup saves all of the file systems on the computer onto a tape, including:

- Solaris system files and programs
- CMS programs

The CMSADM backup does **not** save CMS databases.

Prerequisites

Before you begin the CMSADM backup, perform the following tasks:

- 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`
 - Verify that you are using the correct tape, for the tape drive on your system.
-

Platform considerations

This procedure can be used with the following platforms:

- All platforms.
-

When to perform a CMSADM backup

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 must be saved and never reused in case the system needs to 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 R3V8 Administration (585-210-910)* for more information.

- Before and after the CMS software is upgraded (usually done by a field technician)
- Once a month (performed by the customer).

 **CAUTION:**

*The customer must **NOT** use the original set of factory or provisioning backup tapes.*

Tape drives and cartridges

The following table lists the different models of tape drives, the model identification of the accompanying tape cartridge, and the CMS computers that use the tape drives.

Tape Drive	Tape Cartridge	CMS Computers
20/40-GB 8mm	Mammoth 170-meter AME	Enterprise 3500
DDS4	Any 150 mm 20-GB DAT cartridge	Ultra 5 Enterprise 3500
SLR5 4/8-GB QIC	SLR 4/8	Ultra 5
14-GB 8mm	160-meter AME	Enterprise 3000 SPARCserver Ultra 5
5-GB 8mm	112-meter AME	Enterprise 3000
2.5-GB QIC	Magnus 2.5	SPARCserver
150-MB QIC	DC6320	SPARCserver

Procedure

WARNING:

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.

1. Log in as **root**.

2. Enter:

```
lp /etc/vfstab
```

You need the output from the printer to perform a system restore. Keep the printout of the **/etc/vfstab** file with the system backup tapes for future reference.

3. Enter:

```
cmsadm
```

The system displays the CMS Administration menu:

```
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) pkg_install Install a feature package
5) pkg_remove  Remove a feature package
6) run_pkg     Turn a feature package on or off
7) run_cms    Turn CentreVu CMS on or off
8) port_admin  Administer Modems, Terminals, and Printers
Enter choice (1-8) or q to quit:
```

4. Enter: 3

Depending on the configuration of your system, the system displays one of the following options.

- a. If only one tape drive is available on the system, the system displays the following message:

```
Please insert the first cartridge tape into <device name>.
Press ENTER when ready or Del to quit:^?
```

Continue with Step 6.

- b. If more than one tape drive is available for use by the system, the system displays a message similar to the following example:

```
Select the tape drive:
  1) <Exabyte EXB-8500 8mm Helical Scan>
  2) <Archive QIC-150>
Enter choice (1-2):
```

5. Enter a tape drive selection from the displayed list.

The system displays the following message:

```
Please insert the first cartridge tape into <device name>.
Press ENTER when ready or Del to quit:^?
```

6. Press **Enter**.

The backup process begins. If more than one tape is required, the system displays the following message:

```
End of medium on "output".
Please remove the current tape, number it, insert tape
number x, and press Enter
```

7. If the system displays the message in Step 6, insert the next tape and allow it to rewind. When it is properly positioned, press **Enter**.

8. When the backup is completed, the system displays information according to the number of tapes that are required for the backup:
 - If the number of tapes required is one, the system displays the following message:

```
xxxxxxx blocks
Tape Verification
xxxxxxx blocks
WARNING:  A CMS Full Maintenance Backup in addition to
this cmsadm backup must be done to have a complete backup
of the system. . . . .

Please label the backup tape(s) with the date and the
current CMS version (R3V8xx.x)
```

Continue with Step 11.

- If the number of tapes required is more than one, the system displays the following message:

```
xxxxxxx blocks
Tape Verification
Insert the first tape
Press Return to proceed:
```

9. Insert the first tape to be used in the backup and press **Enter**. Wait for the LED on the tape drive to stop blinking before you remove the tape.
10. When prompted, repeat Step 9 for any additional tapes generated by the backup process. When the final tape is verified, the program displays the following message:

```
xxxxxxx blocks
Tape Verification
xxxxxxx blocks
WARNING:  A CMS Full Maintenance Backup in addition to
this cmsadm backup must be done to have a complete backup
of the system. . . . .

Please label the backup tape(s) with the date and the
current CMS version (R3V8xx.x)
```

11. Label all tapes with the:
 - Tape number
 - Date of backup
 - Current version of CMS
12. Set the tape write-protect switch to read-only.
13. Save the tapes and the **/etc/vfstab** printout until a backup restore is performed.

Additional references

If you experience problems with the CMSADM backup, see [“CMSADM backup problems”](#) on page 5-52 in Chapter 5.

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 before the system is turned over to the customer. Perform these procedures after:

- Completing the initial computer installation and CMS setup
 - Completing a CMS software package upgrade.
-

Prerequisites

Before you begin the procedures described in this chapter, the technicians must:

- Find the two sets of backup tapes (the original set from the factory, and the set created by provisioning) delivered with the new system and set these tapes to write-protect mode.
 - Connect the CMS computer to the switch.
 - Translate the switch with the CMS feature enabled.
 - Connect the switch to an active link.
-

Contents

Turning the system over to the customer includes the following procedures:

- [“Verifying the system date and time” on page 3-2](#)
- [“Testing the remote access port” on page 3-3](#)
- [“Testing the ACD link” on page 3-7](#)
- [“Assigning customer passwords” on page 3-8](#)
- [“Testing the CMS software” on page 3-9](#)
- [“Finalizing the on-site installation” on page 3-13](#)
- [“Customer system acceptance worksheet” on page 3-14](#)

Verifying the system date and time

Verify that the Solaris operating system time and the current local time are the same.

Follow the procedures in [“Changing the system date and time” on page 4-66](#) in Chapter 4 and then continue with [“Testing the remote access port” on page 3-3](#).

Testing the remote access port

Purpose

You must test the remote access port to verify that the TSC or COE can connect to the CMS computer. The remote access port allows the TSC or COE to perform remote maintenance.

The port that is 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

Contents

The process of testing the remote access port consists of the following procedures:

- [“Redirecting the console to the remote console” on page 3-3](#)
- [“Redirecting the console back to the local console” on page 3-5](#)

Redirecting the console to the remote console

1. Dial in from the remote console to the remote console modem (port A on a Enterprise 3000, SPARCserver or Enterprise 3500; port B on an Ultra 5), and log in as **root**.

2. At the remote console, enter:

```
/cms/install/bin/abcadm -r ttyX
```

Where **X** is **a** or **b**.

The system displays the following message:

```
ttyX is currently set to be incoming
```

```
Are you sure you want to change it? [y,n,?]
```

3. At the remote console, enter: **y**

The system displays the following message:

```
ttyX administration removed
```

4. Check the speed of the modem by entering:

```
/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:

```
/cms/install/bin/abcadm -c -b 9600 ttyX
```

Where **X** is **a** or **b**.

The system displays the following message:

```
This change requires a reboot to take affect
```

```
Are you ready to reboot? [y,n,?]
```

6. At the remote console, enter: **y**

The system displays the following message at the remote console:

```
done
desktop auto-start disabled
Proceeding to reboot.
```

The system will automatically reboot, and the remote console port will come up as the console.

The following occurs:

- The system begins to shut down.
- Shut down, reset and reboot messages appear on the local console.
- When the system starts to come back up, the local console goes blank.

- The system boot diagnostics are displayed on the remote console.
 - After the system reboots, a `console login:` prompt is displayed on the remote console.
7. Log in to the remote console as **root**.

The local console is blank.

⚠ CAUTION:

*Do not enter **Control+D** or `exit` 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.*

Redirecting the console back to the local console

1. Enter:

```
/cms/install/bin/abcadm -c local
```

The system displays the following message:

```
Console set to local

This change requires a reboot to take affect

Are you ready to reboot? [y,n,?]
```

2. Enter: **y**

The following occurs:

- The system begins to shut down.
- Shutdown, reset, and reboot messages appear on the remote console.
- When the system starts to come back up, the system boot diagnostics are displayed on the local console.
- After the system reboots, the `console login:` prompt is displayed on the remote console.
- The login screen is displayed on the local console.

3. Log in to the local console as **root**.

4. Log in to the remote console as **root**.

Control of the console port is redirected from the remote console back to the local console.

Additional references

If you experience problems with the remote access port, see [“Diagnosing dial-in access problems” on page 5-40](#) in Chapter 5.

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

Before you begin testing the ACD Link, perform the following tasks:

- 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. To access the CMS main menu, enter:

```
cms
```

3. Enter the correct terminal type.

The CMS Main Menu displays.

The CMS Main Menu has indicators that show if the link to the ACD is active. The link indicator consists of the "carets" ("^" and "v") at the right side of the banner line. There should be one caret for each ACD, and all should be pointed up (^).

For example: If you have four ACDs, the link indicator should look like this: ^^^^ . That means that all four ACDs are up and running.

4. Select `Maintenance` from the CMS Main Menu.
5. 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.
6. Return to the CMS Main Menu by pressing the `Exit` screen-labeled key (SLK) once.

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 [“Customer system acceptance worksheet” on page 3-14](#). 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.

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 Chapter 5, “[Troubleshooting](#)” 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

Before you begin testing the CMS software, perform the following tasks:

- 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 a "*" character 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 from the CMS Main Menu:
 - a. Select the `Call Center Administration` option.
 - 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.

Additional references

If you experience problems with the CMS software, see [“CMS error logs” on page 5-24](#) in Chapter 5.

Finalizing the on-site installation

Overview

This section contains the final steps to be performed, before turning the system over to the customer.

Procedure

1. Back up the system. Follow the procedures outlined in [“Performing a CMSADM backup” on page 4-22](#).

 **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.*

2. Back up the customer’s historical data by doing a full maintenance backup. You can do these backups within CMS using the “Maintenance: Back Up Data” window.

See the “Maintenance” chapter in *CentreVu[®] CMS R3V8 Administration* (585-210-910).

3. Copy the [“Customer system acceptance worksheet” on page 3-14](#), record the indicated printouts.
4. Give the customer all of the CMS documentation, software CDs, tape backups (including the original set from the factory, and the set created by provisioning) and X.25 license information.
5. Have the customer record their logins and passwords. The technician should NOT know the customer login passwords.
6. Give the resulting package to the customer’s CMS administrator.

 **CAUTION:**

For system security and recovery, the CMS administrator should store passwords, INFORMIX serial numbers, key license information, X.25 license information and the tape backups in a secure location.

Customer system acceptance worksheet

- df -t results** (attach print out of screen dump showing df -t command results, or record results here):

- 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

- 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: _____

- X.25 Password:**

Enter the X.25 password: _____

Maintaining the CMS software

Overview

This chapter provides the procedures used to maintain the CentreVu[®] Call Management System (CMS) software.

⇒ NOTE:

Personnel at the Technical Service Center (TSC) will need assistance from an on-site technician or the customer's CMS administrator in order to perform most of the procedures in this chapter.

Contents

Maintaining the CMS Software includes:

- [“Using the CMSADM menu” on page 4-3](#)
- [“Using the CMSSVC menu” on page 4-12](#)
- [“Performing CMS maintenance backups” on page 4-21](#)
- [“Performing a CMSADM backup” on page 4-22](#)
- [“Checking the contents of the CMSADM backup tape” on page 4-28](#)
- [“Performing a CMS maintenance restore” on page 4-30](#)
- [“Performing a CMSADM restore on an unmirrored system” on page 4-34](#)
- [“Restoring specific files from the CMSADM backup tape” on page 4-55](#)
- [“Restoring a system without a CMSADM backup” on page 4-56](#)
- [“Restoring only the /cms file system” on page 4-57](#)
- [“Recovering system space” on page 4-58](#)
- [“Changing the system date and time” on page 4-66](#)
- [“Solaris patches” on page 4-69](#)
- [“CMS patches” on page 4-71](#)
- [“Setting up an NTS” on page 4-76](#)
- [“Adding the Informix SQL package” on page 4-90](#)

Remote terminal tip

When executing commands that 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 -l /dev/rmt/0c "cms" | tee
```

When system reboots are required, verify that your terminal type is set correctly after the reboot.

Using the CMSADM menu

Purpose

Using the CMSADM menu describes how to use the options of the CentreVu Call Management System (CMS) Administration Menu (cmsadm).

The CMS administration menu (cmsadm) is intended for use primarily by the CMS administrator who can do the following from this menu:

- Define a new Automatic Call Distribution (ACD) split
 - Remove an ACD
 - Back up the file systems to tape
 - Estimate CMS disk requirements, memory requirements, and real-time refresh rate
 - Install or remove a feature package
 - Turn CMS on or off
 - Administer modems, terminals, and printers.
-

Contents

Using the CMSADM menu includes the following procedures:

- [“Accessing the CMSADM menu” on page 4-4](#)
- [“acd_create” on page 4-4](#)
- [“acd_remove” on page 4-6](#)
- [“backup” on page 4-7](#)
- [“pkg_install” on page 4-8](#)
- [“pkg_remove” on page 4-8](#)
- [“run_pkg” on page 4-9](#)
- [“run_cms” on page 4-9](#)
- [“port_admin” on page 4-9](#)

Accessing the CMSADM menu

1. You must log in as **root** to access the CMS Administration Menu.
2. To access the CMSADM menu, enter: **cmsadm**
The CMS administration menu is displayed.

```
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 ) pkg_install Install a feature package
 5 ) pkg_remove  Remove a feature package
 6 ) run_pkg     Turn a feature package on or off
 7 ) run_cms    Turn CentreVu CMS on or off
 8 ) port_admin Administer Modems, Terminals, and Printers
Enter choice (1-8) or q to quit:
```

⇒ NOTE:

CMS Administration menu displays different menu options depending on the version of CMS.

acd_create

The `acd_create` option allows you to define a new ACD. The information you enter here for each ACD is the same as the `setup` option of `cmssvc`.

⇒ NOTE:

The ACD must be authorized, and therefore purchased, before it can be added to the CMS.

1. Before you define a new ACD, you must turn off the CMS by doing the following:
 - a. Enter: **cmsadm**
The CMS Administration menu appears.
 - b. Enter **7** to select `run_cms`.
 - c. Enter **2** to turn off the CMS.

CMS turns off and the system prompt displays.

2. To access the CMS Administration menu, enter: `cmsadm`

The menu appears.

3. To choose `acd_create`, enter: `1`

The next-available ACD is selected for creation.

For example, if there are two ACDs already active, ACD 3 is selected.

4. At the prompts, enter the following information for the new ACD:

- Switch name
- Switch model (release)
- Is Vectoring enabled on the switch (if authorized)?
- Is Expert Agent Selection (EAS) enabled on the switch (if authorized)?
- Does the Central Office have disconnect supervision?
- Local port assigned to the switch
- Remote port assigned to the switch
- Transport method used to connect to the switch (X.25 or TCP/IP)
 - If X.25, the device used for x.25 connectivity (serial port or HSI port)
 - If TCP/IP, the hostname or IP address, and TCP port
- Number of splits/skills
- Total split/skill members, summed over all splits/skills
- Number of shifts
- Start and stop times of all shifts
- Number of agents logged into all splits/skills during all shifts
- Number of trunk groups
- Number of trunks
- Number of unmeasured (trunk) facilities
- Number of call work codes
- Number of vectors (if vectoring is enabled on the switch)
- Number of Vector Directory Numbers (VDNs) (if vectoring is enabled on the switch)

After you have entered the required information, the program responds as follows:

```
Updating database.  
  
Computing space requirements and file system space availabilit  
  
ACD <name> (X) created successfully.
```

5. Turn CMS back on by doing the following:

- a. Enter: **cmsadm**
The CMS Administration menu appears.
- b. To select `run_cms`, enter: **7**
- c. To turn on the CMS, enter: **1**
CMS turns on.

acd_remove

The `acd_remove` option allows you to remove an existing ACD.

NOTE:

If you are removing the master ACD, you must first designate some other ACD as the master. Use this procedure:

1. From the main CMS menu, select `System Setup - CMS State`.
2. Tab to the `Master ACD` field and enter a new name.
3. Access the action list and select `Modify`.
4. Return to the main menu and select `Logout`.

Use the following procedure to remove an ACD:

1. You must turn off the CMS by doing the following:
 - a. Enter: **cmsadm**
The CMS Administration menu appears.
 - b. Enter **7** to select `run_cms`.
 - c. Enter **2** to turn off the CMS.
CMS turns off. You will see the system prompt.

2. To access the CMS Administration menu, enter: `cmsadm`

The menu appears.

3. To select the `acd_remove` option, enter: `2`

4. To select the ACD you want to remove, enter your choice (1-8).

The program responds:

```
All administration and historical data for this ACD will be
DELETED.
Do you want to continue and delete all data for this ACD? (y/n):
```

5. Enter: `y`

The program responds:

```
Removal of data for this ACD started in the background.
A completion message will be logged in
/cms/install/logdir/admin.log.
```

6. Since the ACD is removed in the background, you can turn CMS back on before the removal is complete by doing the following:

- a. Enter: `cmsadm`

The CMS Administration menu appears.

- b. To select `run_cms`, enter: `7`

- c. To turn on the CMS, enter: `1`

CMS turns on.

backup

The `backup` option allows you to back up your file systems but does not include CMS data.

⇒ NOTE:

A full maintenance backup must be performed in addition to the CMSADM backup.

For more information about backing up the system, see [“Performing a CMSADM backup” on page 4-22](#).

pkg_install

The `pkg_install` option allows you to install a feature package.

1. To access the CMS Administration menu, enter: `cmsadm`

The menu appears.

2. To select the `pkg_install` option, enter: `4`

The program responds:

```
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.

3. Enter the number that corresponds to the desired package.

pkg_remove

The `pkg_remove` option allows you to remove a feature package. This procedure removes all files and database items associated with the feature package.

CAUTION:

Be careful when removing a package: all features and data associated with that package will be lost.

1. To access the CMS Administration menu, enter: `cmsadm`

The menu appears.

2. To select the `pkg_remove` option, enter: `5`

A list of CMS features that can be removed is displayed.

3. Enter the number corresponding to the feature package that you want to remove.

A message is displayed telling you when the feature is removed.

run_pkg

Use the `run_pkg` option to turn a feature package on or off:

1. Enter: `cmsadm`

The system displays the CMS Administration menu.

2. Enter `6` to select `run_pkg`.

The system displays a list of CMS features.

3. Enter the number that corresponds to the feature package that you want to turn on or off.

The system displays a message telling you the status of the feature.

run_cms

The `run_cms` option allows you to turn CMS on or off.

1. To access the CMS Administration menu, enter: `cmsadm`

The menu appears.

2. To select the `run_cms` option, enter: `7`

3. Enter `1` to turn on CMS or `2` to turn off CMS.
-

port_admin

Use the `port_admin` option to administer modems, terminals, and printers. This option automatically configures external ports to accept specific types of peripheral equipment. The option configures the following types of ports:

- Built-in parallel port
- NTS ports
- Aurora Ports expander box ports
- SAI/P expander box ports

The option does not configure the built-in A and B serial ports.

To administer modems, terminals, or printers:

1. Enter: `cmsadm`

The system displays the CMS Administration menu.

2. Enter `8` to select `port_admin`.

The `port_admin` option is menu driven: it starts with a main menu, prompts for information, performs the function the responses indicate, and then returns to its main menu to administer another port. You may configure a range of ports all at the same time, but all must be configured for precisely the same types and models of equipment.

The precise questions you will be asked differ depending upon the type of equipment you are configuring the ports for. Before you begin a `port_admin` session, take care to gather and write down all the information you will need, in order to make the session proceed smoothly. The table below lists the information you need.

Function	Required Information
Add a modem	<ul style="list-style-type: none"> • Port type (NTS, Aurora, or SAI/P) • Usage (inbound/outbound) • Port number to be configured • Baud rate • Manufacturer and model
Remove a modem	<ul style="list-style-type: none"> • Port type (NTS, Aurora, or SAI/P) • Port number to be reset
Add a terminal	<ul style="list-style-type: none"> • Port type (NTS, Aurora, or SAI/P) • Port number to be configured • Baud rate (serial)
Remove a terminal	<ul style="list-style-type: none"> • Port type (NTS, Aurora, or SAI/P) • Port number to be reset
Add a printer	<ul style="list-style-type: none"> • Port type (NTS, Aurora, SAIP, or standard parallel port) • Port number to be configured • Connection (serial or parallel) • Baud rate • Manufacturer and model

Function	Required Information
Remove a printer	<ul style="list-style-type: none">• Port type (NTS, Aurora, SAI/P, or standard parallel port)• Connection (serial or parallel)• Port number to be reset
Reset ports	<ul style="list-style-type: none">• Port type (NTS, Aurora, or SAI/P)• Port numbers to be reset
Readminister an NTS to last known configuration	<ul style="list-style-type: none">• No specific knowledge required. Simply select the <code>NTS --> Readminister</code> option.

Using the CMSSVC menu

Purpose

Using the CMSSVC menu describes how to use the options of the CentreVu Call Management System (CMS) Services Menu (cmssvc).

The CMS Services (cmssvc) menu is intended for use primarily by Avaya Inc. services personnel which allows them to do the following:

- Display CMS authorizations
- Authorize CMS feature packages and capacities
- Turn CMS on and off
- Set up the initial CMS configuration
- Display switch information
- Change switch information
- Install a CMS patch
- Back out an installed CMS patch
- Install all CMS patches
- Back out all installed CMS patches.

Contents

Using the CMSSVC menu includes the following procedures:

- [“Accessing the CMSSVC menu” on page 4-13](#)
- [“auth_display” on page 4-14](#)
- [“auth_set” on page 4-15](#)
- [“run_cms” on page 4-15](#)
- [“setup” on page 4-15](#)
- [“swinfo” on page 4-16](#)
- [“swsetup” on page 4-16](#)
- [“patch_inst” on page 4-18](#)
- [“patch_rmv” on page 4-19](#)
- [“load_all” on page 4-19](#)
- [“back_all” on page 4-20](#)

Accessing the CMSSVC menu

1. You must log in as **root** to access this menu.
2. To access the cmssvc menu, enter: **cmssvc**

The CMS Services menu displays.

```
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:
```

## auth\_display

The `auth_display` option allows you to display CMS authorizations.

1. To access the CMS Services menu, enter: `cmssvc`

The menu displays.

2. To select the `auth_display` option, enter: `1`

The purchased version of CMS and the current authorization status for CMS features and capacities are displayed:

```

Version purchased: R3VX

Capability/Capacity Authorization

 vectoring authorized
 forecasting installed
 graphics authorized
external call history authorized
expert agent selection not 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 1000
Maximum number of ACDs 8
Simultaneous CentreVu Supervisor logins 200

```

The possibilities for authorization status are as follows:

- Authorized — The feature has been paid for, and authorization has been turned on.
- Not authorized — The feature has not been paid for, or authorization has not been turned on.
- Installed — The feature is authorized, and the software to support the feature has been installed.

## auth\_set

The `auth_set` option allows you to authorize CMS features and capacities.

1. To access the CMS Services menu, enter: `cmssvc`

The menu displays.

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.
- 

## run\_cms

The `run_cms` option allows you to turn CMS on and off.

1. To access the CMS Services menu, enter: `cmssvc`

The menu displays.

2. To select the `run_cms` option, enter: `3`
  3. Enter `1` to turn on CMS or `2` to turn off CMS.
- 

## setup

The `setup` option allows you to set up the initial CMS configuration. Do not confuse this option with the `swsetup` option, which is used to change the switch information.

 **CAUTION:**

*If you run `setup` on an in-service system, you will lose all customer data on that system.*

## swinfo

The `swinfo` option allows you to display the switch options currently assigned for each ACD.

1. To access the CMS Services menu, enter: `cmssvc`

The menu displays.

2. To select the `swinfo` option, enter: 5
3. Select the ACD you want to show information for.

The following information is displayed:

- Switch name
- Switch model (release)
- If Vectoring is enabled
- If Expert Agent Selection is enabled
- If the Central Office has disconnect supervision
- Local port
- Remote port
- Link transport method (X.25 or TCP/IP).

---

## swsetup

The `swsetup` option allows you to change the switch options for each ACD. Do not confuse this option with the `setup` option, which is for setting up CMS.

When you change switch parameters, you should also check the parameters in the CMS System Setup: Data Storage Allocation window. In particular, if you enable vectoring, you will need to allocate space for VDNs and vectors. Changing the switch release may change the number of measured entities allowed and may also have an impact on the storage allocation for each entity.

To use the `swsetup` option, do the following steps:

1. Turn CMS off by doing the following:
  - a. Enter: `cmssvc`  
The CMS Services menu appears.
  - b. To select `run_cms`, enter: 3
  - c. To turn off the CMS, enter: 2  
CMS turns off and the system prompt displays.
2. Enter: `cmssvc`
3. To select the `swsetup` option, enter: 6

4. Select the ACD you want to change.
5. Answer the prompts that appear on the screen. You need the following information:
  - Switch name
  - Switch model (release)
  - Is Vectoring enabled on the switch (if authorized)?
  - Is Expert Agent Selection (EAS) enabled on the switch (if authorized)?
  - Does the Central Office have disconnect supervision?
  - Local port assigned to the switch (1 is recommended)
  - Remote port assigned to the switch (1 is recommended)
  - Transport method used to connect to the switch (X.25 or TCP/IP)

- If X.25, the device used for x.25 connectivity
- If TCP/IP, the hostname or IP address, and TCP port

A display of the information is shown. The system will then ask if the above switch administration is correct.

6. If the switch information is correct, enter: **y**
7. Turn CMS on by doing the following:
  - a. Enter: **cmssvc**  
The CMS Services menu appears.
  - b. Enter **3** to select **run\_cms**.
  - c. Enter **1** to turn on the CMS.  
CMS turns on. You will see the system prompt.

## patch\_inst

The `patch_inst` option allows you to install one or more CMS patches from the CD-ROM. If you want to install all patches, use the `load_all` command.

1. Load the “CentreVu CMS” CD into the CD-ROM drive.
2. To access the CMS Services menu, enter: `cmssvc`  
The menu displays.
3. To select the `patch_inst` option, enter: `7`
4. Enter the patch number.

The system installs the patch. As it does so, it displays messages similar to the following:

```
@(#) 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.
```

5. After installing all of the required patches, enter:

`eject cdrom`

For more information, see [“CMS patches” on page 4-71](#).

## patch\_rmv

The `patch_rmv` option allows you to back out a single CMS patch installed on the machine.

1. To access the CMS Services menu, enter: `cmssvc`

The menu displays.

2. Enter the number for the `patch_rmv` option.

3. Enter the patch number.

The system removes the patch.

4. Repeat Steps 2 and 3 for each patch you wish to remove.

## load\_all

The `load_all` option allows you to install all CMS patches from the CD-ROM.

1. Load the “CentreVu CMS” CD into the CD-ROM drive.

2. To access the CMS Services menu, enter: `cmssvc`

The menu displays.

3. To select the `load_all` option, enter: `9`

4. Enter: `y`

The system installs the patches and displays messages similar to the following:

```
@(#) 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.
```

5. After installing all of the patches, enter:

`eject cdrom`

For more information, see [“CMS patches” on page 4-71](#).

## **back\_all**

---

The `back_all` option allows you to back out all CMS patches installed on the machine.

1. To access the CMS Services menu, enter: `cmssvc`

The menu displays.

2. Enter the number for the `back_all` option.

The system removes all of the installed patches and displays a message for each patch removed.

## Performing 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:

- 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<sup>®</sup> CMS R3V8 Administration* (585-210-910).



### CAUTION:

*Use a designated set of backup tapes when doing a backup. Do not use the original set of factory or provisioning backup tapes.*

# Performing a CMSADM backup

---

## Overview

This procedure describes how to perform a CMSADM backup. The CMSADM file system backup saves all of the file systems on the computer onto a tape, including:

- Solaris system files and programs
- CMS programs

The CMSADM backup does **not** save CMS databases.

---

## Prerequisites

Before you begin the CMSADM backup, perform the following tasks:

- 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`
  - Verify that you are using the correct tape, for the tape drive on your system.
- 

## Platform considerations

This procedure can be used with the following platforms:

- All platforms.
- 

## When to perform a CMSADM backup

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 must be saved and never reused in case the system needs to 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 R3V8 Administration (585-210-910)* for more information.

- Before and after the CMS software is upgraded (usually done by a field technician)
- Once a month (performed by the customer).

 **CAUTION:**

*The customer must **NOT** use the original set of factory or provisioning backup tapes.*

## Tape drives and cartridges

The following table lists the different models of tape drives, the model identification of the accompanying tape cartridge, and the CMS computers that use the tape drives.

| Tape Drive      | Tape Cartridge                 | CMS Computers                             |
|-----------------|--------------------------------|-------------------------------------------|
| 20/40-GB 8mm    | Mammoth 170-meter AME          | Enterprise 3500                           |
| DDS4            | Any 150 mm 20-GB DAT cartridge | Ultra 5<br>Enterprise 3500                |
| SLR5 4/8-GB QIC | SLR 4/8                        | Ultra 5                                   |
| 14-GB 8mm       | 160-meter AME                  | Enterprise 3000<br>SPARCserver<br>Ultra 5 |
| 5-GB 8mm        | 112-meter AME                  | Enterprise 3000                           |
| 2.5-GB QIC      | Magnus 2.5                     | SPARCserver                               |
| 150-MB QIC      | DC6320                         | SPARCserver                               |

## Procedure

**⚠ WARNING:**

*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.*

1. Log in as **root**.

2. Enter:

```
lp /etc/vfstab
```

You need the output from the printer to perform a system restore. Keep the printout of the **/etc/vfstab** file with the system backup tapes for future reference.

3. Enter:

```
cmsadm
```

The system displays the CMS Administration menu:

```
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) `pkg_install` Install a feature package
- 5) `pkg_remove` Remove a feature package
- 6) `run_pkg` Turn a feature package on or off
- 7) `run_cms` Turn CentreVu CMS on or off
- 8) `port_admin` Administer Modems, Terminals, and Printers

```
Enter choice (1-8) or q to quit:
```

#### 4. Enter: 3

Depending on the configuration of your system, the system displays one of the following options.

- a. If only one tape drive is available on the system, the system displays the following message:

```
Please insert the first cartridge tape into <device name>.
Press ENTER when ready or Del to quit:^?
```

Continue with Step 6.

- b. If more than one tape drive is available for use by the system, the system displays a message similar to the following example:

```
Select the tape drive:
 1) <Exabyte EXB-8500 8mm Helical Scan>
 2) <Archive QIC-150>
Enter choice (1-2):
```

#### 5. Enter a tape drive selection from the displayed list.

The system displays the following message:

```
Please insert the first cartridge tape into <device name>:
Press ENTER when ready or Del to quit:^?
```

#### 6. Press **Enter**.

The backup process begins. If more than one tape is required, the system displays the following message:

```
End of medium on "output".
Please remove the current tape, number it, insert tape
number x, and press Enter
```

7. If the system displays the message in Step 6, insert the next tape and allow it to rewind. When it is properly positioned, press **Enter**.

8. When the backup is completed, the system displays information according to the number of tapes that are required for the backup:

- If the number of tapes required is one, the system displays the following message:

```
xxxxxxx blocks
Tape Verification
xxxxxxx blocks
WARNING: A CMS Full Maintenance Backup in addition to
this cmsadm backup must be done to have a complete backup
of the system.
```

```
Please label the backup tape(s) with the date and the
current CMS version (R3V8xx.x)
```

Continue with Step 11.

- If the number of tapes required is more than one, the system displays the following message:

```
xxxxxxx blocks
Tape Verification
Insert the first tape
Press Return to proceed:
```

9. Insert the first tape to be used in the backup and press **Enter**. Wait for the LED on the tape drive to stop blinking before you remove the tape.

10. When prompted, repeat Step 9 for any additional tapes generated by the backup process. When the final tape is verified, the program displays the following message:

```
xxxxxxx blocks
Tape Verification
xxxxxxx blocks
WARNING: A CMS Full Maintenance Backup in addition to
this cmsadm backup must be done to have a complete backup
of the system.
```

```
Please label the backup tape(s) with the date and the
current CMS version (R3V8xx.x)
```

11. Label all tapes with the:
  - Tape number
  - Date of backup
  - Current version of CMS
12. Set the tape write-protect switch to read-only.
13. Save the tapes and the **/etc/vfstab** printout until a backup restore is performed.

**Additional references**

If you experience problems with the CMSADM backup, see [“CMSADM backup problems”](#) on page 5-52 in Chapter 5.

## Checking the contents of the CMSADM backup tape

---

### Purpose

This procedure checks the contents of the backup tape. The files on the backup tape are listed to determine if the a backup tape has saved the correct information, or to verify that a particular file has been saved.

**⇒ 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/dev# -M
"Insert tape %d and press Enter" | tee
```

Where **dev#** is the device name.

The system displays a list of files.

3. If you are not sure of the device path, enter:

```
mt -f /dev/rmt/dev# status
```

Where **dev#** is the device name.

The device name is usually `/dev/rmt/0c`. However, the device name used depends on the drive's SCSI ID. Possible device names are:

`/dev/rmt/0` Indicates the internal noncompressing tape drive with the lowest target address

`/dev/rmt/1` Indicates the external noncompressing tape drive (QIC-150 or 5-GB, 8-mm drive) with the second lowest target address

`/dev/rmt/0c` Indicates the internal compressed-mode tape drive (the 40-GB drive is standard on an *Enterprise 3500*) with the lowest target address

`/dev/rmt/1c` Indicates the external compressed-mode tape drive (either a 2.5-GB QIC, 4-8 GB SLR, or a 14-GB tape drive) with the second lowest target address

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.

# Performing a CMS maintenance restore

---

## Overview

This procedure describes how you can restore all CMS data from a CMS maintenance backup.

---

## Prerequisites

Before you perform a CMS maintenance restore, the following requirements must be met depending on the type of data you wish to restore:

| Data to be restored          | System requirements                                                                                                                 |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Historical and Non-CMS       | <ul style="list-style-type: none"><li>• CMS can be in a multi-user state</li><li>• Data collection can be on</li></ul>              |
| Local system administration  | <ul style="list-style-type: none"><li>• CMS must be in the single-user state</li><li>• Data collection must be turned off</li></ul> |
| ACD -specific administration | <ul style="list-style-type: none"><li>• CMS must be in the single-user state</li><li>• Data collection can be on</li></ul>          |
| CMS system administration    | <ul style="list-style-type: none"><li>• CMS must be in the single-user state</li><li>• Data collection can be on</li></ul>          |

---

## Contents

There are two possible scenarios when doing a CMS maintenance restore:

- [“Restoring data from a full maintenance backup” on page 4-31](#)
- [“Restoring data from a full and incremental maintenance backup” on page 4-31](#)

## Restoring data from a full maintenance backup

### CAUTION:

Perform this procedure when only the full CMS maintenance backups are available. If an incremental maintenance backup is also available go to [“Restoring data from a full and incremental maintenance backup” on page 4-31](#)

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. To access the CMS main menu, enter: `cms`
  4. Enter the correct terminal type.
  5. Select the `Maintenance` option.
  6. Select the `Restore Data` option.
  7. 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.
- 

## Restoring data from a full and incremental maintenance backup

### CAUTION:

Perform this procedure only if both full and incremental CMS maintenance backups are available. If only a full maintenance backup is available go to [“Restoring data from a full maintenance backup” on page 4-31](#).

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. To access the CMS main menu, enter: `cms`
4. Enter the correct terminal type.

5. Depending on the type of data to be restored, it may not be necessary to perform Steps [a](#) or [b](#). See the table in “Prerequisites” on page 4-30 to determine which steps to perform.

a. Change CMS to single user mode:

1. Select `System Setup - CMS State`.

The CMS State window displays.

2. Enter an **x** in the `Single-user mode` field and press **Enter** twice.

3. Press **F5** to return to the main menu.

b. Turn off data collection:

1. Select `System Setup - Data Collection`.

The system displays the Data Collection window.

2. Enter the name of the ACD.

3. Use **Tab** to move the `Off` field and enter: **x**

4. Press **Enter**, select `Modify`, and press **Enter** again.

5. Repeat Step b through Step d for each ACD.

6. Press **F5**.

The system displays the CMS main menu.

6. Select `Maintenance - Restore Data`.

7. In the `Restore Data` window, select the following options:

| Item                         | Values specified or selected                                                                                  |
|------------------------------|---------------------------------------------------------------------------------------------------------------|
| Device name                  | default                                                                                                       |
| Restore from last backup?    | n                                                                                                             |
| Restore historical data from | (leave blank)                                                                                                 |
| ACDs to restore              | All ACDs                                                                                                      |
| Data to restore              | Local System<br>Administration data<br>ACD-specific<br>administration data<br>Historical data<br>Non-CMS data |

8. Press **Enter**, select `Run`, and press **Enter** again.

9. When the restore is finished, remove the full backup tape from the drive and load the most recent incremental backup tape.
10. Repeat Steps 8 and 9.
11. After the incremental restore is finished, press **F5** to return to the main menu.
12. Depending on the type of data to be restored, it may not be necessary to perform Steps a or b. See the table in [“Prerequisites” on page 4-30](#) to determine which steps to perform.
  - a. Turn data collection on:
    1. Select `System Setup - Data Collection`.  
The system displays the Data Collection window.
    2. Enter the name of the ACD.
    3. Use the **Tab** key to move to the `On` field and enter: **x**
    4. Press **Enter**, select `Modify`, and press **Enter** again.
    5. Repeat Steps b through d for each ACD.
    6. Press **F5**.  
The system displays the CMS main menu.
  - b. Take CMS out of single user mode:
    1. Select `System Setup - CMS State`.  
The `CMS State` window displays.
    2. Enter an **x** in the `Multi-user mode` field and press **Enter** twice.
    3. Press **F5**.  
The system displays the CMS main menu.
13. Select `Logout` and press **Enter**.

# Performing a CMSADM restore on an unmirrored system

---

## Purpose

This procedure describes how to restore an entire system in the event of a boot disk crash or file corruption. You must re-enable the system to boot and then reinstall the missing packages.

If the system is mirrored, see the *CentreVu Call Management System Release 3 Version 8 Disk-Mirrored Systems (585-210-940)* document for details.

 **CAUTION:**

*Only TSC PERSONNEL should perform data recovery procedures.*

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## Prerequisites

Before you begin restoring the system, perform the following tasks:

- Obtain the CMSADM file system backup tapes.
- 

## Contents

[Performing a CMSADM restore on an unmirrored system](#) contains the following procedures:

- [“Restoring a SPARCserver, Ultra 5, or E3000 system” on page 4-35](#)
- [“Restoring a E3500, E3501, or E3503 system” on page 4-44](#)

## Restoring a SPARCserver, Ultra 5, or E3000 system

1. Perform the following procedures found in Chapter 2 “Installing the Solaris Operating System”:
  - a. “Booting from the Solaris 7 Software CD” on page 2-5
  - b. “Identifying the system” on page 2-7
  - c. “Setting the date and time” on page 2-12
  - d. “Selecting the Solaris 7 system files” on page 2-14
  - e. “Partitioning the hard disks” on page 2-18
  - f. “Assigning a root password” on page 2-32

### CAUTION:

*Do not reboot the system. The system will not successfully boot until d19 is set up. If the system is shutdown you will have to repeat the entire procedure.*

2. Insert the first cmsadm backup tape into the tape drive.
3. If you do not know the device path, enter:

```
mt -f /dev/rmt/dev# status
```

Where **dev#** is the device name.

If you enter an incorrect device path, the system displays a “No such file or directory” message; the correct device path displays 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
```

### NOTE:

The device name is usually `/dev/rmt/0c`. However, the device name used depends on the drive’s SCSI ID. Possible device names are:

- |                         |                                                                                                                      |
|-------------------------|----------------------------------------------------------------------------------------------------------------------|
| <code>/dev/rmt/0</code> | Indicates the internal noncompressing tape drive with the lowest target address                                      |
| <code>/dev/rmt/1</code> | Indicates the external noncompressing tape drive (QIC-150 or 5-GB, 8-mm drive) with the second lowest target address |

`/dev/rmt/0c` Indicates the internal compressed-mode tape drive (the 40-GB drive is standard on an *Enterprise 3500*) with the lowest target address

`/dev/rmt/1c` Indicates the external compressed-mode tape drive (either a 2.5-GB QIC, 4-8 GB SLR, or a 14-GB tape drive) with the second lowest target address

Enter:

```
cd /
```

4. To restore all files excluding CMS, perform one of the following actions:

- If you have only one backup tape, enter the following command:

```
cpio -icmudvf -C 10240 -I /dev/rmt/dev# "cms/*"
```

Where **dev#** is the device name.

- If you have more than one backup tape, enter the following command on a single line at the command prompt:

```
cpio -icmudvf -C 10240 -I /dev/rmt/dev# -M
"Remove current tape, insert tape number %d,
and press Enter" "cms/*"
```

Where **dev#** is the device name.

The restoration can take several hours depending on the amount of data and the tape drive. As the restore proceeds, the light-emitting diode (LED) on the tape drive will alternately flash and light steadily.

You may see some error messages about the **/home** and **/xfn** directories. These errors are displayed when the directories are already present and can be ignored.

```
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)
```

5. Enter:

```
vi /etc/inittab
```

The system displays the following message:

```
ap::sysinit:/sbin/autopush -f /etc/iu.ap
ap::sysinit:/sbin/soconfig -f /etc/sock2path
.....
.....
.....
od:234:respawn:/cms/dc/odbc/rqb_start
as:0236:respawn:/opt/cc/aas/bin/faasdb.sh </dev/null >/dev/null 2>&1
cm:0236:respawn:/cms/bin/cms_mon /cms </dev/null >/dev/null 2>&1
```

6. Look for a **cm:** entry in the last line of the file. If a **cm:** entry is present, remove it.

7. Press **Esc**, and then enter **:wq!** to save and exit the file.

8. Enter the following commands:

```
PATH=$PATH:/usr/opt/SUNWmd/sbin:/olds
export PATH
olds -cleanup
sync; sync; reboot -- -r
```

The system reboots.

**⇒** NOTE:

Ignore any FSK errors the system displays.

9. Enter the following commands:

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

10. Enter:

```
olds -check_disks
```

The system displays a message similar to the following example:

```
number of external scsi controllers with disks is = 0
number of disks is = 1
checking device: c0t0d0
Warning: Current Disk has mounted partitions.
.....
.....
.....
Success, checking disks.
```

11. Enter:

```
olds -mk_files
```

The system displays a message similar to the following example:

```
number of external scsi controllers with disks is = 0
number of disks is = 1
Success, creating md.tab.new and/or vfstab.new.
```

12. Enter:

```
olds -metadbs
```

The system displays a message similar to the following example:

```
number of external scsi controllers with disks is = 0
number of disks is = 1
checking device: c0t0d0
Warning: Current Disk has mounted partitions.
.....
.....
.....
disk:c0t0d0 is partitioned ok
Success, setting up metadb replicas.
```

13. Enter:

```
olds -setup
```

The system displays a message similar to the following example:

```
number of external scsi controllers with disks is = 0
number of disks is = 1
checking device: c0t0d0
Warning: Current Disk has mounted partitions.
.....
.....
.....
ufs fsck: sanity check: /dev/md/rdisk/d19 okay
Success, system set up successfully
```

14. Enter:

```
mount /cms
```

15. Enter:

```
cd /
```

16. Enter:

```
cpio -icmudv -C 10240 -I /dev/rmt/dev# "cms/*"
```

Where **dev#** is the device name.

The system restores CMS.

17. Enter:

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

The system reboots.

18. Choose one of the following procedures:

- Set up CMS interactively. See [“Setting up CMS interactively from a terminal” on page 2-140](#).

⇒ NOTE:

Some of the customers CMS setup information may be found in the Unix flat file. This information was created when CMS was initially setup. The Unix flat file will not contain any updates made after the initial system setup.

- Set up CMS from a Unix flat file.
  - a. Enter the following command on a single line at the command prompt:

```
cp /cms/install/logdir/cms.inst.out
 /cms/install/cms_install/cms.install
```

b. Enter:

```
chmod 644 /cms/install/cms_install/cms.install
```

c. Enter:

```
cmssvc
```

The system displays the CMS Services Menu.

```
Failure in sql 'database' (-329, -2)
>>> CMS is already off <<<

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:
```

- d. Enter **4** to select the setup option.

The system displays the following message:

```
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)
```

- e. Enter the number for the language used on the system.

The system displays the following message:

```
The input will be read from
```

- ```
1) the terminal
2) a flat file
```

```
Enter choice (1-2):
```

- f. Enter **2** to select the flat file option.

The system displays the following message:

```
*** The rest of this command is running in the background ***
```

- g. Enter:

```
tail -f /cms/install/logdir/admin.log
```

**⇒** NOTE:

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.

You may edit the CMS flat file and add comments about the packages that were installed or authorized.

The system displays the following message:

```
01350 Mon Nov 6 12:19:24 2000 SRC_ERR_NUM=-00329
PROCESS=pre_cms_env PID=000482 Sql.c:00071
SEVERITY=INFO ACD=-01 startdb

01308 Mon Nov 6 12:19:24 2000 SRC_ERR_NUM=-00329
PROCESS=pre_cms_env PID=000482 getlang.c:00027
SEVERITY=INFO ACD=-01 Select::execute

CMS setup started Mon Nov 6 12:19:26 MST 2000
Failure in sql 'database' (-349, -2)
Failure in sql 'drop database' (-329, -2)
Failure in sql 'drop database' (-329, -2)
Schema upgrade started Mon Nov 6 12:19:28 MST 2000
Executing schema files from /cms/install/dbinit/cms:
r3v5ai.a.1 r3v5ai.a.2 r3v6as.a.2 r3v6as.a.3 r3v8aa.c.1
r3v8aa.d.0 r3v8aa.d.1 r3v8aa.i.0 r3v8ab.d.0 r3v8ab.d.1
r3v8ab.e.0 r3v8ae.a.0 r3v8ae.a.1 r3v8ae.a.2 r3v8ae.a.3
r3v8ae.f.0 r3v8af.c.0 r3v8af.e.0 r3v8ag.f.0 r3v8ag.f.1
r3v8ai.b.0
Customer CMS data successfully initialized. Mon Nov 6
12:22:29 MST 2000
Executing schema files from /cms/install/dbinit/vec:
r3v5ai.a.5 r3v5ai.a.6 r3v6as.a.5 r3v6as.a.6 r3v6as.a.7
r3v8ae.d.1
Approximate space requirements:
 Data Type Allocation

 VDNs 1425509
 Splits 888602
 Trunks 623270
 Agents 540396
 Trunk groups 328199
 Vectors 309940
 Agent login/logout records 6390
 Agents trace records 4900
 Exceptions records 250
 Call work codes 26
 Call records 8
 Forecasting 0

File systems/space available:
 /cms 12196974
File systems/current blocks free:
 /cms 12196974
/cms:
VDN,SPLIT,TRUNK,AGENT,TKGRP,VECTOR,AGENT_LOG_REC,AGENT_TRAC
E_REC,EXCEPTIONS_REC,WORKCODE,CALL_REC,
Number of calls to fill_fs():12
Setup completed successfully Mon Nov 6 12:24:20 MST 2000
```

h. Press **Delete** to break out of the `tail -f` command.

19. Enter:

```
cp /cms/install/cms_install/fp.install /cms/db
```

The system will display one of two possible messages:

- If feature packages were installed on the system, the system displays the command prompt (#).
- If no feature packages were installed on the system, the system displays the following message:

```
cp: cannot access /cms/install/cms_install/fp.install
```

The **fp.install** file will be present on the tape backup if feature packages were installed. If the system cannot access the file, you will have to manually set up the feature packages that were previously authorized and installed on the system. For more information, see [“Installing feature packages” on page 2-159](#).

20. Choose one of the following procedures:

- If *no* feature packages were installed on the system, go to Step 21.
- If feature packages were installed on the system, perform the following procedure:

a. Enter:

```
. /opt/informix/bin/setenv
```

b. Enter:

```
export PATH=$PATH:/cms/install/bin
```

c. Enter the following command on a single line at the command prompt:

```
cp -p /cms/install/cms_install/fp.install
/cms/db/fp.install
```

d. Enter the following command to install the feature packages that were present on the system before the restore:

```
/cms/install/bin/ins_proc -f
```

The system displays a message similar to the following example:

```
Feature package installation begun Mon Apr 8 13:45:40 MDT
2002
Feature package installation begun.
Forecasting package begin installation Mon Apr 8 13:45:43 MDT
2002

Installation was successful
```

21. Enter:

```
cmssvc
```

The system displays the CMS Services menu.

22. Enter `3` to select the `run_cms` option.

23. Enter `1` to turn on CMS

24. Perform a Maintenance Restore using the most recent CMS Maintenance backup. See the “Maintenance” chapter in *CentreVu<sup>®</sup> CMS R3V8 Administration* (585-210-910).

---

## Restoring a E3500, E3501, or E3503 system

1. Perform the following procedures found in Chapter 2 “Installing the Solaris Operating System”:
  - a. [“Booting from the Solaris 7 Software CD” on page 2-5](#)
  - b. [“Identifying the system” on page 2-7](#)
  - c. [“Setting the date and time” on page 2-12](#)
  - d. [“Selecting the Solaris 7 system files” on page 2-14](#)
  - e. [“Partitioning the hard disks” on page 2-18](#)
  - f. [“Assigning a root password” on page 2-32](#)

 **CAUTION:**

*Do not reboot the system. The system will not successfully boot until d19 is set up.*

2. Insert the first cmsadm backup tape into the tape drive.

3. If you do not know the device path, enter:

```
mt -f /dev/rmt/dev# status
```

Where **dev#** is the device name.

If you enter an incorrect device path, the system displays a “No such file or directory” message; the correct device path displays information similar to the following:

```
Mammoth EXB-8900 8mm Helical Scan tape drive:
sense key(0x0)= No Additional Sense residual= 0 retr
file no= 0 block no= 0
```

**⇒ NOTE:**

The device name is usually `/dev/rmt/0c`. However, the device name used depends on the drive’s SCSI ID. Possible device names are:

`/dev/rmt/0` Indicates the internal noncompressing tape drive with the lowest target address

`/dev/rmt/1` Indicates the external noncompressing tape drive (QIC-150 or 5-GB, 8-mm drive) with the second lowest target address

`/dev/rmt/0c` Indicates the internal compressed-mode tape drive (the 40-GB drive is standard on an *Enterprise 3500*) with the lowest target address

`/dev/rmt/1c` Indicates the external compressed-mode tape drive (either a 2.5-GB QIC, 4-8 GB SLR, or a 14-GB tape drive) with the second lowest target address

Enter:

```
cd /
```

4. To restore all files excluding CMS, perform one of the following actions:

- If you have only one backup tape, enter the following command on a single line at the command prompt:

```
cpio -icmudvf -C 10240 -I /dev/rmt/dev# "cms/*"
"dev/dsk" "dev/rdisk" "dev/dsk/*"
"dev/rdisk/*" "etc/path_to_inst"
```

Where **dev#** is the device name.

- If you have more than one backup tape, enter the following command on a single line at the command prompt:

```
cpio -icmudvf -C 10240 -I /dev/rmt/dev# -M "Remove
current tape, insert tape number %d, and press
Enter" "cms/*" "dev/dsk" "dev/rdisk"
"dev/dsk/*" "dev/rdisk/*"
"etc/path_to_inst"
```

Where **dev#** is the device name.

The restoration can take several hours depending on the amount of data and the tape drive. As the restore proceeds, the light-emitting diode (LED) on the tape drive will alternately flash and light steadily.

You may see some error messages about the **/home** and **/xfn** directories. These errors are displayed when the directories are already present and can be ignored.

```
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)
```

5. Enter:

```
vi /etc/inittab
```

The system displays the following message:

```
ap::sysinit:/sbin/autopush -f /etc/iu.ap
ap::sysinit:/sbin/soconfig -f /etc/sock2path
.....
.....
.....
od:234:respawn:/cms/dc/odbc/rqb_start
as:0236:respawn:/opt/cc/aas/bin/faasdb.sh </dev/null >/dev/null 2>&1
cm:0236:respawn:/cms/bin/cms_mon /cms </dev/null >/dev/null 2>&1
```

6. Look for a `cm:` entry in the last line of the file. If a `cm:` entry is present, remove it.

7. Press **Esc**, and then enter `:wq!` to save and exit the file.

8. Enter the following commands:

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

9. Enter:

```
olds -check_disks
```

The system displays a message similar to the following example:

```
number of external scsi controllers with disks is = 0
number of disks is = 2
checking device: c0t0d0
Warning: Current Disk has mounted partitions.
.....
.....
.....
Success, checking disks.
```

10. Enter:

```
olds -mk_files
```

The system displays a message similar to the following example:

```
number of external scsi controllers with disks is = 0
number of disks is = 2
Success, creating md.tab.new and/or vfstab.new.
```

11. Enter:

```
olds -metadbs
```

The system displays a message similar to the following example:

```
number of external scsi controllers with disks is = 0
number of disks is = 2
checking device: c0t0d0
Warning: Current Disk has mounted partitions.
.....
.....
.....
disk:c0t0d0 is partitioned ok
Success, setting up metadb replicas.
```

 **NOTE:**

If the `metadbs` command *fails* perform the following steps:

a. Enter:

```
metadb -i
```

b. Record all unique physical device numbers for use in the next step.

c. Enter:

```
metadb -d -f /dev/dsk/device_numberX
```

Where **device\_numberX** is the number of the physical device.

For example, if the system has the physical device numbers `c0t0d0s1` and `c0t1d0s0`, you would enter:

```
metadb -d -f /dev/dsk/c0t0d0s1 /dev/dsk/c0t1d0s0
```

d. Enter:

```
metaclear d19
```

e. Ignore any errors the system displays, and repeat the procedure starting at Step 9.

12. Enter:

```
olds -setup
```

The system displays a message similar to the following example:

```
number of external scsi controllers with disks is = 0
number of disks is = 2
checking device: c0t0d0
Warning: Current Disk has mounted partitions.
.....
.....
.....
ufs fsck: sanity check: /dev/md/rdisk/d19 okay
Success, system set up successfully
```

13. Enter:

```
mount /cms
```

14. Enter:

```
sync; sync; reboot -- -r
```

The system reboots.

**⇒ NOTE:**

Ignore any FSCK errors the system displays.

15. Enter:

```
cd /
```

16. Enter:

```
cpio -icmudv -C 10240 -I /dev/rmt/dev# "cms/*"
```

Where **dev#** is the device name.

The system restores CMS.

17. Enter:

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

The system reboots.

18. Choose one of the following procedures:

- Set up CMS interactively. See [“Setting up CMS interactively from a terminal” on page 2-140](#).

⇒ NOTE:

Some of the customers CMS setup information may be found in the Unix flat file. This information was created when CMS was initially setup. The Unix flat file will not contain any updates made after the initial system setup.

- Set up CMS from a Unix flat file.
  - e. Enter the following command on a single line at the command prompt:

```
cp /cms/install/logdir/cms.inst.out
 /cms/install/cms_install/cms.install
```

f. Enter:

```
chmod 644 /cms/install/cms_install/cms.install
```

g. Enter:

```
cmssvc
```

The system displays the CMS Services Menu.

```
Failure in sql 'database' (-329, -2)
```

```
>>> CMS is already off <<<
```

```
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:
```

- h. Enter **4** to select the setup option.

The system displays the following message:

```
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)
```

- i. Enter the number for the language used on the system.

The system displays the following message:

```
The input will be read from
```

- ```
1) the terminal
2) a flat file
```

```
Enter choice (1-2):
```

- j. Enter **2** to select the flat file option.

The system displays the following message:

```
*** The rest of this command is running in the background ***
```

- k. Enter:

```
tail -f /cms/install/logdir/admin.log
```

**⇒ NOTE:**

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.

You may edit the CMS flat file and add comments about the packages that were installed or authorized.

The system displays the following message:

```
01350 Mon Nov 6 12:19:24 2000 SRC_ERR_NUM=-00329
PROCESS=pre_cms_env PID=000482 Sql.c:00071
SEVERITY=INFO ACD=-01 startdb

01308 Mon Nov 6 12:19:24 2000 SRC_ERR_NUM=-00329
PROCESS=pre_cms_env PID=000482 getlang.c:00027
SEVERITY=INFO ACD=-01 Select::execute

CMS setup started Mon Nov 6 12:19:26 MST 2000
Failure in sql 'database' (-349, -2)
Failure in sql 'drop database' (-329, -2)
Failure in sql 'drop database' (-329, -2)
Schema upgrade started Mon Nov 6 12:19:28 MST 2000
Executing schema files from /cms/install/dbinit/cms:
r3v5ai.a.1 r3v5ai.a.2 r3v6as.a.2 r3v6as.a.3 r3v8aa.c.1
r3v8aa.d.0 r3v8aa.d.1 r3v8aa.i.0 r3v8ab.d.0 r3v8ab.d.1
r3v8ab.e.0 r3v8ae.a.0 r3v8ae.a.1 r3v8ae.a.2 r3v8ae.a.3
r3v8ae.f.0 r3v8af.c.0 r3v8af.e.0 r3v8ag.f.0 r3v8ag.f.1
r3v8ai.b.0
Customer CMS data successfully initialized. Mon Nov 6
12:22:29 MST 2000
Executing schema files from /cms/install/dbinit/vec:
r3v5ai.a.5 r3v5ai.a.6 r3v6as.a.5 r3v6as.a.6 r3v6as.a.7
r3v8ae.d.1
Approximate space requirements:
 Data Type Allocation

 VDNs 1425509
 Splits 888602
 Trunks 623270
 Agents 540396
 Trunk groups 328199
 Vectors 309940
 Agent login/logout records 6390
 Agents trace records 4900
 Exceptions records 250
 Call work codes 26
 Call records 8
 Forecasting 0

File systems/space available:
 /cms 12196974
File systems/current blocks free:
 /cms 12196974
/cms:
VDN,SPLIT,TRUNK,AGENT,TKGRP,VECTOR,AGENT_LOG_REC,AGENT_TRAC
E_REC,EXCEPTIONS_REC,WORKCODE,CALL_REC,
Number of calls to fill_fs():12
Setup completed successfully Mon Nov 6 12:24:20 MST 2000
```

I. Press **Delete** to break out of the `tail -f` command.

19. Enter:

```
cp /cms/install/cms_install/fp.install /cms/db
```

The system will display one of two possible messages:

- If feature packages were installed on the system, the system displays the command prompt (#).
- If no feature packages were installed on the system, the system displays the following message:

```
cp: cannot access /cms/install/cms_install/fp.install
```

The **fp.install** file will be present on the tape backup if feature packages were installed. If the system cannot access the file, you will have to manually set up the feature packages that were previously authorized and installed on the system. For more information, see [“Installing feature packages” on page 2-159](#).

20. Choose one of the following procedures:

- If *no* feature packages were installed on the system, go to Step 21.
- If feature packages were installed on the system, perform the following procedure:

a. Enter:

```
. /opt/informix/bin/setenv
```

b. Enter:

```
export PATH=$PATH:/cms/install/bin
```

c. Enter the following command on a single line at the command prompt:

```
cp -p /cms/install/cms_install/fp.install
/cms/db/fp.install
```

d. Enter the following command to install the feature packages that were present on the system before the restore:

```
/cms/install/bin/ins_proc -f
```

The system displays a message similar to the following example:

```
Feature package installation begun Mon Apr 8 13:45:40 MDT
2002
Feature package installation begun.
Forecasting package begin installation Mon Apr 8 13:45:43 MDT
2002

Installation was successful
```

21. Enter:

```
cmssvc
```

The system displays the CMS Services menu.

22. Enter **3** to select the `run_cms` option.

23. Enter **1** to turn on CMS

24. Perform a Maintenance Restore using the most recent CMS Maintenance backup. See the “Maintenance” chapter in *CentreVu<sup>®</sup> CMS R3V8 Administration* (585-210-910).

# Restoring specific files from the CMSADM backup tape

---

## Overview

Sometimes only specific files on a system may become corrupt. Use this procedure only if specific files need to be restored from a CMSADM backup tape.

---

## Procedure

1. Enter:

```
ulimit unlimited
```

2. Enter the following command on a single line at the command prompt:

```
cpio -dicmuv -C 10240 -I /dev/rmt/dev# -M "Please
remove the current tape, insert tape number %d,
and press ENTER" full_path_name
```

Where *dev#* is the device name and *full\_path\_name* is the path for the files to be restored.

# Restoring a system without a CMSADM backup

---

## Overview

If a CMSADM backup is not available, the system must be reinstalled with all software back to Avaya Inc. factory standards.

---

## Procedure

1. Reinstall the entire system according to Chapter 2 [“Installing software and setting up CMS” on page 2-1](#).
2. Restore any available *CentreVu* CMS data from the most recent CMS maintenance backup. See [“Performing a CMS maintenance restore” on page 4-30](#).
3. Re-administer Terminals, Printers, Modems, and other peripherals as needed. See the *CentreVu Call Management System Terminals, Printers, and Modems (585-215-874)* document for more information.
4. Contact Professional Services for any previously installed customization.

## Restoring only the /cms file system

If you need to restore the /cms file system, such as when a non-boot disk drive is replaced, see the appropriate platform *Hardware Installation, Maintenance and Troubleshooting* book for disk administration procedures.

If the boot disk is corrupt, go to [“Performing a CMSADM restore on an unmirrored system”](#) on page 4-34.

# Recovering system space

---

## Purpose

This procedure describes how to regain system space and *CentreVu* CMS file system space.

 **CAUTION:**

Only **TSC PERSONNEL** should perform the procedures in this section.

---

## Contents

Recovering system space includes the following procedures:

- [Regaining system space](#) (below)
  - [“Re-initializing CMS” on page 4-59](#)
  - [“Recreating specific tables” on page 4-61](#)
- 

## Regaining system space

When the amount of CentreVu CMS data to save is reduced, data stored in INFORMIX- SQL tables will still use the original amount of space. The INFORMIX- SQL tables must be removed and re-created to regain the system space.

When you log into the system as a CMS user, a program is executed that checks the free blocks available to */*, */usr*, and the various CMS-related file systems located on the hard disks. If one of these file systems has less than 5000 but more than 1000 free blocks, a message similar to the following will be displayed on your console screen:

```
WARNING: File system, "<file system>", has only "<XXXX>"
blocks free.
```

When this message occurs, file system maintenance must be done as soon as possible to keep the file system from running out of free blocks.



- If the amount of `daily` data was reduced:  
Manually run the daily archiver for the previous day.  

OR

Let the daily archiver run automatically at the end of the current day.
  - If the amount of `weekly` data was reduced:  
Manually run the weekly archiver for the previous week.  

OR

Let the weekly archiver run automatically at the end of the current week.
  - If the amount of `monthly` data was reduced:  
Manually run the monthly archiver for the previous month.  

OR

Let the monthly archiver run automatically at the end of the current month.
3. Perform a full CMS Maintenance backup.
  4. Print the following CMS windows:
    - Data Storage Allocation
    - Free Space Allocation
    - Storage Intervals
    - Switch Setup.
  5. Run the `CMSSVC setup` option to reinitialize the CMS database. Use the printouts obtained in step 4 and verify that the CMS software has the same configuration as it did before setup was run.
  6. Restore the CMS from the latest CMS maintenance backups. This restore loads the CMS data up to the time of the last CMS backup. For instructions on restoring CMS maintenance backups, see [“Restoring data from a full maintenance backup” on page 4-31](#) or [“Restoring data from a full and incremental maintenance backup” on page 4-31](#).

## Recreating specific tables

If there is table corruption remove and rebuild specific database tables, according to the following procedure:

1. Reduce the amount of historical data saved by making changes in the Data Storage Allocation window.
2. Run the daily, weekly and/or monthly archiver.

The tables now contain the correct amount of data. When the archiver runs, it cleans up the data that is older than the new values you entered in Step 1. You may let the archiver(s) run automatically for the day, week, or month, or you may manually run the archiver(s).

3. Perform a full CMS maintenance backup.
4. Save the schemas of the historical database tables for which the amount of data to save was reduced. Do this in the following manner:

- a. Log in as **root**.
- b. Enter the following commands:

```
INFORMIXTERM=terminfo
```

```
INFORMIXSERVER=cms_se
```

```
CLIENT_LOCAL=en_u5.utf8
```

```
DBPATH=/cms/db/inf;export DBPATH
```

```
export INFORMIXTERM INFORMIXSERVER CLIENT_LOCAL
```

- c. Change to the directory where you want to place a file. For example, enter the following:

```
cd /cms/db/inf
```

- d. Save the database table schemas by entering the following command on a single line at the command prompt:

```
/usr/informix/bin/dbschema -t tablename -d cms
-p all table.sql
```

This command produces an SQL command file (**table.sql**) that contains the statements required to create the database table.

Replace **tablename** with the name of the INFORMIX database table that has had its size reduced.

Replace **table** with the name of the file where you want to save the SQL commands. Always use the suffix “.sql” for the output file name to simplify creating the tables. This file is placed in the directory where the `dbschema` command is executed.

 **CAUTION:**

If you omit the `-t tablename` option, **all** the schemas for **all** the tables in the database are saved to the **table** file.

5. Note the file system of CMS data. Output from the `dbschema` command does not contain the file system/directory of the database table. The file produced by the `dbschema` command must be edited, and the correct path must be added to the create table statement(s). Even if the historical data is in the **/cms** file system, the historical database tables are located in the **/cms/cmstables** directory.

Historical data includes any of the following:

- Trunk group
- Agent trace
- Exceptions
- Call work codes
- Forecasting
- Trunks
- Agents
- Splits
- Vectors
- VDNs
- Call records
- Login/logout.

The following data is an example of the dtrunk schema edited for the /cms file system. The statement in **bold** is what you add to the schema:

```
{root is owner of table dtrunk}
create table dtrunk
(row_date date,
acd smallint,
eqloc char(9),
incalls integer,
intime integer,
abncalls integer,
o_abncalls integer,
outcalls integer,
outtime integer,
failures integer,
audio integer,
mbusytme integer,
acdcalls integer,
othercalls integer,
shortcalls integer,
o_acdcalls integer,
o_othercalls integer,
incomplete smallint
) in "/cms/cmstables/dtrunk";
{root is owner of index dtk_ndx1}
create index dtk_ndx1 on dtrunk (row_date,eqloc,tkgrp);
revoke all on dtrunk from public;
grant dba to root;
grant resource to public;
grant insert on dtrunk to public;
grant delete on dtrunk to public;
grant index on dtrunk to public;
grant select on dtrunk to public;
grant update on dtrunk to public;
```

6. Turn off CMS. From the `run_cms` option on the CMS Services menu, you can turn CMS off.
  - a. To access the CMS Services menu, enter: `cmssvc`  
The menu appears.
  - b. Select the `run_cms` option.
  - c. To turn off CMS, enter: `2`
7. Remove (drop) the database tables for which the administration changes were made by doing the following:
  - a. Enter:  

```
/usr/informix/bin/dbaccess cms
```

The `dbaccess` main menu appears.
  - b. Select `Table` from the main menu.
  - c. Select `Drop` from the `Table` menu.  
You are prompted for a table name to drop.
  - d. Enter the table name you want dropped.
  - e. Select `Exit` to close the `Table` menu.
8. Create the database tables in the correct directory as follows:
  - a. Select `Query-Language` from the `dbaccess` main menu.  
You are prompted for the database name.
  - b. Enter: `cms`
  - c. Select `Choose` from the menu.  
The program displays a list of the files on the file system (such as your work directory).
  - d. Select a file.
  - e. Select `Run` to execute the commands in the file to create the database table(s).
  - f. To close the `Query Language` menu, select `Exit`.
  - g. When all the database tables have been created, select `Exit`.
9. Turn on CMS.
  - a. Access the CMS Services menu, enter: `cmssvc`  
The menu appears.
  - b. Select the `run_cms` option.
  - c. To turn on CMS, enter: `1`

10. Perform a CMS restore for all ACDs to restore the historical data into the CMS database tables. If the CMS full maintenance backup uses more than one tape, an automatic CMS restore is most efficient. The automatic restore prompts for the necessary tapes to restore the historical data. You have the following options:
  - Use the `specific tables` option to restore data for specific database tables. This will save time if only one type of data is being changed.
  - Restore historical data using the `Start date` and `Start time` input fields in the Restore Data window to restore data from a specific period of time.
11. To remove the SQL command file created in Step 4, enter:

```
rm /cms/db/inf/table.sql
```

Where **table**.sql is the name of the file you created.

# Changing the system date and time

---

## Purpose

This procedure shows you how to change the system date and time.

### NOTE:

Changing the switch time may cause a small distortion in the CMS data when the change is made. A small amount of data may also be lost when the change occurs.

For example, if the Solaris system time is advanced, the switch connection is reestablished causing a small amount of data to be lost. In addition, the new time must be within 24 hours of the switch time or the link will drop. The switch time is displayed at the top of most CMS screens.

---

## Contents

Changing the system date or time consists of the following procedures:

- [Checking the Solaris system date and time](#) (below)
  - [“Setting the system date and time” on page 4-67](#)
  - [“Setting the system country and time zones” on page 4-68](#)
- 

## Checking the Solaris system date and time

1. To verify that the system time is correct, enter:  
`date`
2. If the system time is correct there is no need to proceed further with this procedure. If the system time is not correct, continue with [“Setting the system date and time”](#).

## Setting the system date and time

Do the following steps to change the Solaris system time:

1. Turn off CMS
2. Log in as **root**.
3. Enter the root password.
4. To set the time and date, enter:

```
date mmddHHMM [yyyy]
```

For example:

- **mm (month)**: Enter the month (numeric). Range: 1-12 (1=January, 2=February, and so on).
  - **dd (day)**: Enter the day of the month. Range: 1-31
  - **HH (hour)**: Enter the hour of day, military time. Range: 00-23.
  - **MM (minute)**: Enter the minute of the hour. Range: 00-59.
  - **[yyyy] (year)**: Entering the year is optional. Enter the year, with all four digits (for example, 2000).
5. Continue with [Setting the system country and time zones](#).
  6. Turn on CMS.

## Setting the system country and time zones

To set the country and time zones, perform this procedure.

1. Log in as **root** and enter the root password.
2. Enter:

```
vi /etc/default/init
```

3. Edit the **/etc/default/init** file and set the **TZ** variable to equal the appropriate value in the **/usr/share/lib/zoneinfo** directory. See the following example:

```
@(#)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.

4. To save and quit the file, enter:

```
wq!
```

5. To reboot the machine, enter:

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

---

# Solaris patches

---

## Overview

When you upgrade your CMS, or administer a new CMS installation, you may need to:

- Verify what Solaris patches are currently installed
- Install a Solaris patch
- Remove one or more Solaris patches.

---

## Contents

[Solaris patches](#) contains the following procedures:

- [Checking installed Solaris patches](#) (below)
- [“Removing a Solaris patch” on page 4-70](#)

For information about installing Solaris patches, refer to Chapter 2, [“Installing the Sun Solaris patches” on page 2-95](#).

---

## Checking installed Solaris patches

1. Enter:

```
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: SUNWcsr, SUNWcsr
Patch: 103594-10 Obsoletes: Packages: SUNWcsu
.
.
.
```

2. Check the list to verify that all the Solaris patches you need are installed.

## Removing a Solaris patch

### CAUTION:

Remove a Solaris patch only when instructed by the TSC or by a release letter.

1. To move to the patch directory, enter:

```
cd /var/sadm/patch
```

2. To back out a patch, enter:

```
patch-id/backout patch-id
```

The **patch-id** is identified by the TSC or in the release letter.

The system responds similar to the following:

```
@(#) backoutpatch 3.5 93/08/11
Doing pkgrm of SUNWcsr.8 package:

Removal of <SUNWcsr.8> was successful.
Restoring previous version of files
.
.
.
XXXX blocks
Making the package database consistent with restored files:
backoutpatch finished.
#
```

3. To reboot the system, enter:

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

# CMS patches

---

## Overview

[CMS patches](#) provides procedures for patching CMS on a Sun platform.

---

## Contents

The patching process consists of the following procedures:

- [CMS patch requirements](#) (below)
  - [“Listing installed CMS patches” on page 4-72](#)
  - [“Listing CMS patches on the CD” on page 4-72](#)
  - [“Installing CMS patches” on page 4-73](#)
  - [“Removing CMS patches” on page 4-75](#)
- 

## CMS patch requirements

### When to install CMS patches

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

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

### Installing patches after a base load upgrade

The prerequisites for patch installation differ with each 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. Therefore, when patches are loaded after upgrading the system, install the patches before you turn CMS on.

## Installing patches as a bug fix

If you are loading patches as a bug fix without upgrading your base load, you may install the patches without turning CMS off. Each patch will provide information about any additional actions which may be required.

The *readme* file for CMS lists CMS run level requirements for each patch.

### ⇒ NOTE:

The features must be authorized on your system before patches can be installed. Call the National Customer Care Center at 1-800-242-2121 to have authorizations installed.

Installation of all available patches is recommended. If you believe you should not be installing a particular patch, telephone the National Customer Care Center (1-800-242-2121), or consult with your Avaya Inc. distributor or representative before deciding to omit it.

---

## Listing installed CMS patches

The following procedure lists CMS patches currently installed on your system.

1. Log in as **root**.
2. Enter the following command:

```
/cms/toolsbin/listcmspatches
```

The system displays a list of cms patches installed on the server.

---

## Listing CMS patches on the CD

The following procedure lists CMS patches that are on the CD-ROM and available to be installed

1. Log in as **root**.
2. Load the CMS CD.
3. Enter: **cmssvc**

The CMS Services menu is displayed.

4. Select the `patch_inst` option.

The system lists the names of the patches on the CD.

5. Enter: **q**

## Installing CMS patches

This procedure installs the CMS patches. The method varies according to whether you want to install all patches or a single patch.

1. Log in as **root** and load the “CentreVu Call Management System” CD into the CD-ROM drive.

2. Enter: **cmssvc**

The program responds:

```
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. Choose one of the following steps depending on how many patches you want to install.

- a. To load all of the patches, enter the number of the `load_all` option.
- b. To load one patch at a time, enter the number of the `patch_inst` option.

The system lists the patches on the CD and asks if you really want to install the patches.

4. If no patches are found on the CD continue with StepStep 6.

The program responds:

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

5. If patches are found on the CD-ROM perform one of the following steps depending on how many patches you want to install:
  - a. If you are loading all of the patches, enter: **y**
  - b. If you are loading only one patch, enter the patch number.

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.
```

6. Enter: **eject cdrom**

## Removing CMS patches

This procedure describes how you would remove CMS patches. The removal method varies for removal of all patches or a single patch.

1. Log in as **root** and load the CMS CD.

2. Enter: **cms`svc`**

The CMS services menu is displayed.

3. Choose one of the following procedures depending on how many patches you want to remove.

a. If you want to remove all of the CMS patches:

1. Enter the number of the `back_all` option.

The system lists the patches installed on the system and asks for verification of the removal.

b. If you want to remove a single patch:

1. Enter the number of the `patch_rmv` option.

The system lists the patches installed on the system and prompts you to select a patch.

2. Type the name of the patch you want to remove, exactly as it is displayed in the list, and press **Enter**.

The system asks you to verify the removal.

4. Enter: **y**

Messages similar to the example shown below are displayed for each patch that is removed:

```
@(#) backout patch 1.0 96/08/02

Removing patch package for cmspx-s:
.

Making package database consistent with restored files:
Patch x has been backed out.
```

# Setting up an NTS

---

## Overview

The NTS units are set up at the factory to interface with the CMS computer based on Internet Protocol (IP) addresses supplied at the factory. (For factory installation procedures, see [“Setting up the NTS” on page 2-178](#) in Chapter 2.) If the IP addresses for the CMS computer and NTS units do not require changes, then this section can be skipped. If, however, the IP addresses for the CMS computer and the NTS units require changes to integrate into a customer’s network, use these procedures to change the IP addresses.

For additional information on connecting a NTS to a CMS system see the *CentreVu® CMS Terminals, Printers and Modems* (585-215-874) book.

There are two ways that the IP addresses can be changed on the CMS computer and the NTS units:

- Remotely — This is how IP addresses are changed in most cases. This is done by dialing into the CMS computer, and then connecting to the NTS units.
- Locally — This procedure should be used only in the following cases:
  - If the NTS from the factory is defective, it cannot be set up remotely.
  - If an NTS was added after the initial factory order, it must be set up locally.
  - If the remote provisioning personnel cannot get into the system to set up the NTS units remotely.

---

## Contents

[Setting up an NTS](#) contains the following procedures:

- [“Changing IP addresses on an NTS remotely” on page 4-77](#)
- [“Changing IP addresses on an NTS locally” on page 4-82](#)

## Changing IP addresses on an NTS remotely

This section describes how to remotely change the IP addresses on the CMS computer and the NTS(s) used with CMS. This should be done only if you are connecting your system to a different network.

### ⇒ NOTE:

The administration process needs to be completed on each NTS being installed. If you administer more than one NTS for this system, the IP addresses must be unique.

### ⇒ NOTE:

If this is a replacement, you must read in the terminfo file.

## Prerequisites

Determine the following information before changing the IP addresses:

- What is the IP address assigned to the CMS?
- What is the IP address assigned to each NTS?

| Device       | Network Name | IP Address |
|--------------|--------------|------------|
| CMS Computer |              |            |
| First NTS    |              |            |
| Second NTS   |              |            |
| Third NTS    |              |            |
| Fourth NTS   |              |            |
| Fifth NTS    |              |            |
| Sixth NTS    |              |            |
| Seventh NTS  |              |            |

- What is the name and IP address of the router (if any) on the CMS segment?
- What subnet mask is used on this network?

## Procedure

**⚠ CAUTION:**

*If you change your IP address it can affect your switch link (X.25 or LAN). Make sure that your changes will not affect the switch link.*

To change the IP address of the CMS computer or the NTS, do the following:

1. Make sure that you are logged in as **root**.
2. To determine which NTS(s) may need to change, look at the **/etc/hosts** file and ping each NTS. Repeat steps 3-13 for each NTS that is being changed.
3. Enter: **na**

at the system prompt to access the NTS administration software. The system responds as follows (this is an example; the response may differ depending on what type of NTS you have):

```
Annex network administrator R(current release number and date)
command:
```

4. Enter: **annex cmstermX**

where **X** equals the number of the NTS. The system responds as follows (this is an example; the response may differ depending on what type of NTS you have):

```
cmstermX: Annex-3UXR7, 64 ports
```

```
command:
```

5. Enter: **write cmstermX /etc/local.admin/cmstermX\_info.old**

to save the current options to a backup file. The system responds:

```
.
.
.
writing.....
```

The system returns to the `command:` prompt.

6. Enter: `set annex inet_addr NTS_IP_addr`

where *NTS\_IP\_addr* represents the NTS IP address. The system responds as follows:

```
Change will take effect at next annex boot.
command:
```

7. Enter: `set annex subnet_mask 255.255.255.0`

or other subnet mask as required. The system returns to the `command:` prompt.

8. Enter: `set annex pref_load_addr SUN_IP_addr`

where *SUN\_IP\_addr* represents the IP address of the CMS computer. The system returns to the `command:` prompt.

9. Enter: `set annex pref_dump_addr SUN_IP_addr`

where *SUN\_IP\_addr* represents the IP address of the CMS computer. The system returns to the `command:` prompt.

10. Enter: `set port=1-64 dedicated_address SUN_IP_addr`

where *SUN\_IP\_addr* represents the IP address of the CMS computer. The system responds as follows:

```
Change will take effect at next annex boot or reset.
command:
```

**⇒ NOTE:**

The `set port=1-64 dedicated_address SUN_IP_addr` line that you entered in this step may differ depending on what type of NTS you have. For example, if you have an 8-port NTS, you would enter the following at the `command:` prompt:

```
set port=1-8 dedicated_address SUN_IP_addr
```

11. Enter: `write cmstermX /etc/local.admin/cmstermX_info`  
to save the new options. The system responds as follows.

```
.
. .
writing.....
command:
```

12. Enter: `boot`
13. The system responds as follows. Enter return (default) for all four questions.

```
time (return for 'now'):
annex list (return for default):
filename (return for default):
warning (return for default):

booting annex cmsterm(x)
The annex is performing self diagnostics, and will not respond
to administration operations for a short period.

command:
```

Repeat steps 3-13 for each NTS that is being changed.

14. Enter: `q`  
to exit the NTS setup commands.

 **NOTE:**

You will not be able to communicate with the NTS again until the IP address that was changed for each NTS is changed on the CMS computer.

15. Enter: `vi /etc/hosts`  
to edit the `/etc/hosts` file.

 **WARNING:**

*If you change the IP address of the computer you must reboot the system within 12 hours. If you do not reboot the system within 12 hours, x.25 will stop.*

16. Add the new address(es) for the NTS(s) and the CMS computer in the **/etc/hosts** file that corresponds to the new addresses.
17. Add the router IP and name in the **/etc/hosts** file.
18. Remove or comment out old entries in the **/etc/hosts** file.
19. Write and quit the file.
20. Enter: `vi /etc/defaultrouter`  
to create the **/etc/defaultrouter** file.
21. Add the router node name given in the **etc/hosts** file.
22. Write and quit the file.
23. Enter: `vi /etc/netmasks`  
to edit the **/etc/netmasks** file.
24. Modify the subnet mask if it is different from the default for the IP address that you are using (an example is provided in the file).
25. Write and quit the file.
26. Enter: `/usr/sbin/shutdown -y -i6 -g0`  
to reboot the system.

## Changing IP addresses on an NTS locally

This section describes how to locally change the IP addresses on the CMS computer and the NTS units that are used with CMS. This should be performed only if you are connecting your system to a different network.

**⇒ NOTE:**

The administration process must be completed on each NTS that is being installed. If you administer more than one NTS for this system, the IP addresses must be unique.

**⇒ NOTE:**

If you are replacing an existing NTS, you must read in the **terminfo** file.

## Prerequisites

Determine the following information before changing the IP addresses:

- The IP address that is assigned to the CMS. Record the address in the following table.
- The IP address assigned to each NTS. Record the address in the following table.

| Device       | Network Name | IP Address |
|--------------|--------------|------------|
| CMS Computer |              |            |
| First NTS    |              |            |
| Second NTS   |              |            |
| Third NTS    |              |            |
| Fourth NTS   |              |            |
| Fifth NTS    |              |            |
| Sixth NTS    |              |            |
| Seventh NTS  |              |            |

- The name and IP address of the router (if any) on the CMS segment.
- The subnet mask is used on this network.

## Procedure

To change the IP address of the CMS computer or the NTS:

1. Enter: `vi /etc/hosts`

The system opens the file in the VI editor.

2. Locate the lines (in the `/etc/hosts` file) that contain the IP addresses for the CMS computer and the NTS units.

3. Change the existing IP addresses in the file to the new addresses that you recorded in the preceding table.

4. Press **Esc**, and enter: `:wq!`

The VI editor saves and closes the file.

5. Check with the network administrator for additional routing functions in the `/etc/netmasks` and `/etc/networks` files.

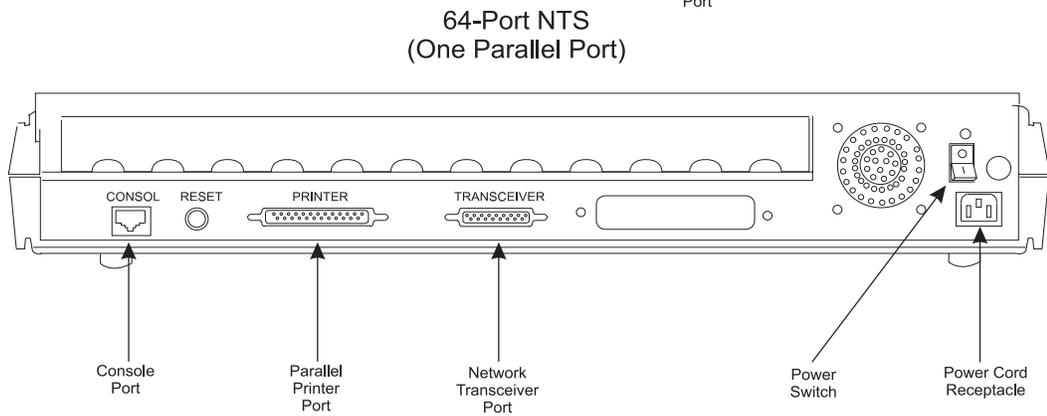
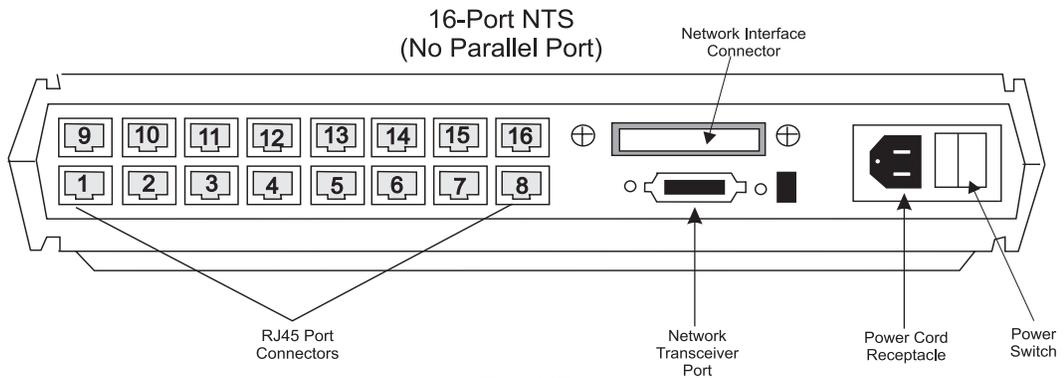
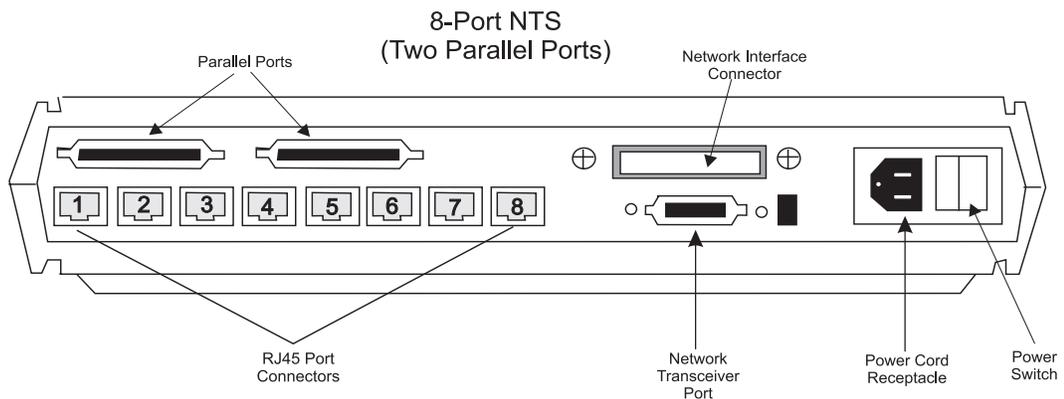
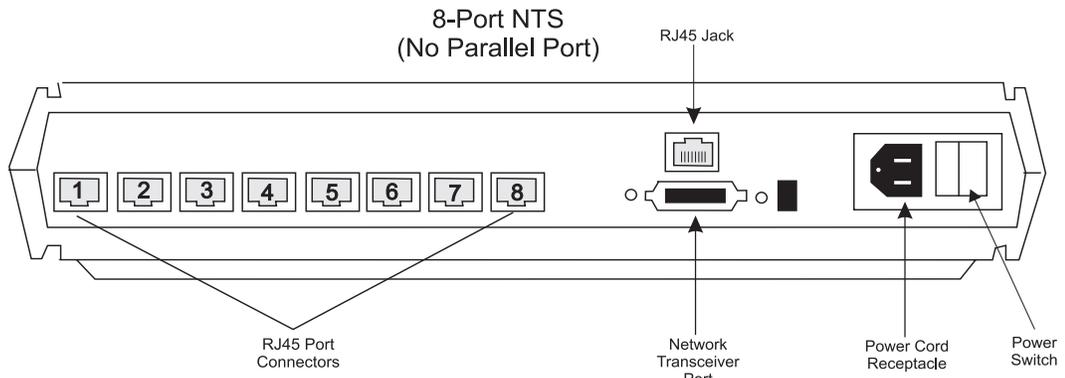
6. Using the console cable that came with the NTS unit, connect a dumb terminal to the **CONSOLE** port on the rear of the NTS. On the 8-port and 16-port NTS units, the **CONSOLE** port is port **#1** of the RJ45 ports.

To make this connection, you need the following for the 8-port and 16-port NTS units:

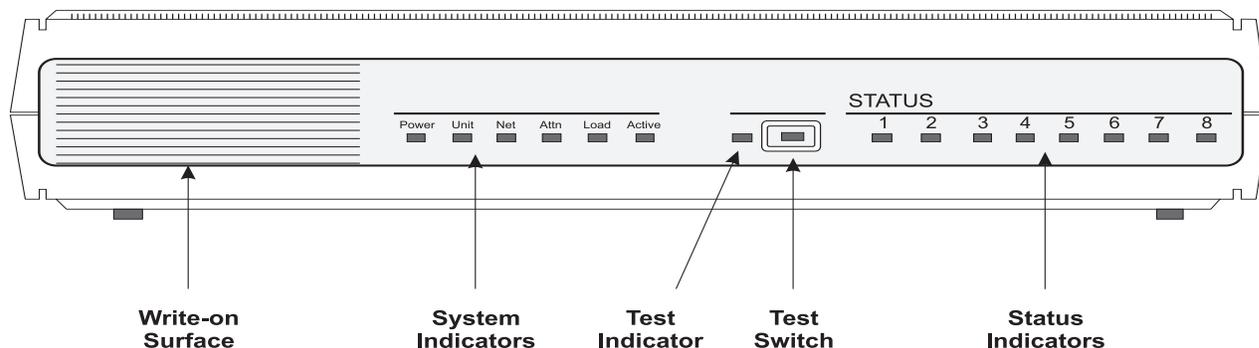
- a console cable
- an adapter - comcode 407361823
- a null modem - comcode 407122043

To make this connection, you need the following for the 64-port NTS units:

- a console cable
- an adapter - part number 06-988-260-20



7. Turn the NTS off and on again. Within 15 seconds, push the **Test Switch** button on the front of the NTS (see the following figure).



The NTS goes through its hardware diagnostics, and the system displays the following:

```
Monitor::
```

8. Enter: **erase**

**⇒ NOTE:**

The following two types of information 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 both types of information are present, the program prompts you to select what you want to erase. Erase both the EEPROM and the FLASH information.

The system displays the following message:

```
Erase
 1) EEPROM (i.e., Configuration Information)
 2) FLASH (i.e., Self Boot Image)
Enter 1 or 2::
```

9. Enter **1** to erase EEPROM.

The system displays the following message:

```
Erase all non-volatile EEPROM memory? (y/n) [n]::
```

10. Enter: **y**

The system displays the following message:

```
Erasing xxxx bytes of non-volatile memory. Please wait....
.....
Erased xxxx bytes of non-volatile memory complete.
```

The program returns to the `monitor::` prompt.

11. Enter: **erase**

The system displays the following message:

```
Erase
 1) EEPROM (i.e., Configuration Information)
 2) FLASH (i.e., Self Boot Image)
Enter 1 or 2::
```

12. Enter **2** to erase FLASH.

The system displays the following message:

```
Erase all non-volatile FLASH memory? (y/n) [n]::
```

13. Enter: **y**

The system displays the following message:

```
Erasing xxxx bytes of non-volatile memory. Please wait....
.....
Erased xxxx bytes of non-volatile memory complete.
```

The program returns to the `monitor::` prompt.

14. Enter: **addr**

The system displays the following message:

```
Enter Internet address [<uninitialized>]::
```

## 15. Enter the IP address for this NTS.

The system displays the following message:

```
Internet address : XXX.XXX.XXX.XXX
Enter Subnet mask [255.255.255.0]::
```

## 16. Perform one of the following tasks:

- Enter a subnet mask
- Press **Enter** to accept the default subnet mask.

The system displays a message similar to the following:

```
Subnet mask: 255.255.255.0
Enter preferred load host Internet address [<any host>]::
```

## 17. Enter the IP address of the computer.

The system displays the following message:

```
Preferred load host address XXX.XXX.XXX.XXX
Enter Broadcast address [0.0.0.0]::
```

18. Press **Enter** to accept the default broadcast message address.

The system displays the following message:

```
Enter Preferred dump address [0.0.0.0]::)
```

19. Enter the IP address of the computer.

The system displays the following message:

```
Preferred dump address: xxx.xx.x.x
Select type of IP packet encapsulation (ieee802/ethernet)
[<ethernet>] ::
```

20. Press **Enter** to accept the default IP packet encapsulation.

The system displays one of the following messages:

- If you have an 8-port or 16-port NTS the system displays the following message:

```
Type of IP packet encapsulation: <ethernet>
Load Broadcast Y/N [Y]::
```

- If you have a 64-port NTS the program returns to the monitor:: prompt. Go to Step 22.

21. Enter: **N**

The program returns to the monitor:: prompt.

22. Enter: **boot**

This reinitializes the NTS with the new parameters.

The system displays the following message:

```
Enter boot file name [oper.42.enet]::
```

**⇒ NOTE:**

The boot file name differs depending on the type of NTS. For the 8-port 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

23. Press **Enter** to accept the default boot file name.

The system displays the following message:

```
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 system continues to display periods as the NTS is initialized and set up.

**⇒ NOTE:**

If the system displays "SELF" instead of the IP address 192.168.2.1, it means that you did not erase the EEPROM. Go back to Step 9 to erase the EEPROM information.

When the initialization is finished, the system displays the following message:

```
annex::
```

24. Disconnect the dumb terminal from the NTS.

The NTS has been administered.

### Additional references

For additional information, see the following:

- *CentreVu Call Management System Terminals, Printers, and Modems (585-215-874)*
- *Network Terminal Server Guide*

## Adding the Informix SQL package

---

### Overview

This procedure installs a new Informix SQL version 7.20 package on a system where the Informix SE (Standard Engine) 7.22 and ILS (International Language Supplement) 9.14 packages are already installed.

---

### Prerequisites

Obtain the “*INFORMIX SQL 7.20*” CD.

---

### Procedure

1. Record the serial number (S/N) and serial number key that is printed on the CD. This information will be used later in this procedure.

2. Log in as **root**.

3. Set the terminal type by entering the following commands:

```
TERM=terminal_type
```

```
export TERM
```

Where **terminal\_type** is the type of terminal window opened.

For example; if you log into the system and select command line, you would enter:

```
TERM=sun-cmd
```

```
export TERM
```

4. Load the “*INFORMIX SQL 7.20*” CD into the CD-ROM drive.

5. After about 15 seconds, enter **mount** to verify the name of the CD-ROM.

The system displays 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/c0t6d0/unnamed_cdrom read
only/setuid/maplcase/noglobal/rr/traildot/dev=16c0001 on (current date
and time)
```

6. Enter the following commands:

```
export INFORMIXDIR=/opt/informix
export PATH=$PATH:$INFORMIXDIR/bin
export DB_LOCALE=en_us.utf8
```

7. Enter:

```
cd $INFORMIXDIR
```

8. Enter:

```
pwd
```

The system should display:

```
/opt/informix
```

If the correct path is not displayed, repeat Steps 6 through 8.

9. Enter:

```
tar cvf informix.tar .
```

The system preserves the existing Informix installation and configuration, and displays the following message:

```
a ./ 0K
a ../profile 1K
a ../local.cshrc 1K
.....
.....
.....
a ../console.msgs 2K
a ../jvp.log 0K
tar: ./informix.tar same as archive file
```

10. Enter:

```
tar xvf /cdrom/unnamed_cdrom*/sql.tar
```

The system copies the INFORMIX-SQL files from the CD to the current directory, and displays the following message:

```
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
```

11. Enter:

```
eject cdrom
```

12. Enter:

```
./installsql
```

The system begins to install the INFORMIX-SQL software:

```
INFORMIX-SQL Version 7.20.UC1
Copyright (C) 1984-1996 Informix Software, Inc.
.....
.....
.....
Press RETURN to continue,
or the interrupt key (usually CTRL-C or DEL) to abort.
```

13. Press **Enter**.

The system displays the following message:

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

14. Enter the 11-character license serial number you recorded earlier in Step 1.

The system displays the following message:

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

15. Enter the 6-character serial number key you recorded earlier in Step 1.

The system displays the following message:

```
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.
```

16. Press **Enter**.

The system displays the following message:

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

## 17. Enter:

```
vi /opt/informix/etc/.snfile
```

The file contents should be similar to the following example:

```
INFORMIX-SQL Serial Number ABC#A123456
INFORMIX-SE Serial Number ABC#A123456
INFORMIX-Connect Serial Number BC#A123456
```

If the sequence for the package listings is not the same as that shown in the example provided above, edit the file to arrange the packages in the proper sequence.

18. Press **Esc**, and then **:wq!** to save and close the file.

## 19. Enter:

```
cp /opt/informix/etc/.snfile /tmp/
```

## 20. Enter:

```
tar xvf informix.tar
```

The system restores the previous Informix installation and configuration, and displays the following message:

```
x ., 0 bytes, 0 tape blocks
x ./profile, 144 bytes, 1 tape blocks
x ./local.cshrc, 124 bytes, 1 tape blocks
.....
.....
.....
x ./console.msgs, 1098 bytes, 3 tape blocks
x ./jvp.log, 0 bytes, 0 tape blocks
```

## 21. Enter:

```
rm informix.tar
```

## 22. Enter:

```
cp /tmp/.snfile /opt/informix/etc/
```



# Troubleshooting

---

## Overview

The following procedures are used to assist in troubleshooting the CentreVu® Call Management System (CMS) software.

---

## Contents

Troubleshooting includes the following procedures:

- [“Troubleshooting a Solstice DiskSuite software installation” on page 5-2](#)
- [“Checking for disk recognition errors” on page 5-9](#)
- [“Common error messages with DiskSuite” on page 5-18](#)
- [“Solving X.25 installation problems” on page 5-21](#)
- [“Recognizing new hardware devices” on page 5-23](#)
- [“CMS error logs” on page 5-24](#)
- [“Checking installed software packages” on page 5-26](#)
- [“Listing Pkgchk errors” on page 5-27](#)
- [“What to do when the system fails to auto-boot” on page 5-28](#)
- [“Machine panics” on page 5-29](#)
- [“Using the remote console” on page 5-31](#)
- [“Diagnosing dial-in access problems” on page 5-40](#)
- [“Booting Solaris into single-user mode” on page 5-46](#)
- [“Problems with NTS administration” on page 5-47](#)
- [“Problems using the CD-ROM drive” on page 5-51](#)
- [“Removing CentreVu CMS package fails” on page 5-52](#)
- [“CMS installation fails” on page 5-52](#)
- [“CMSADM backup problems” on page 5-52](#)
- [“Re-running AOM setup” on page 5-53](#)
- [“System messages” on page 5-54](#)
- [“Common error messages” on page 5-55](#)

---

⇒ NOTE:

When executing commands that 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 system reboots are required, verify that your terminal type is set correctly after the reboot.

Troubleshooting a Solstice DiskSuite software installation

---

## Purpose

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.

---

## Contents

Troubleshooting a Solstice DiskSuite software installation includes the following:

- [About DiskSuite](#) (below)
  - [“Problems with CMS administration scripts”](#) on page 5-3
  - [“Disk I/O problems”](#) on page 5-4
  - [“Checking state databases”](#) on page 5-4
  - [“Checking metadevices”](#) on page 5-5
  - [“Checking the /cms file system”](#) on page 5-6
  - [“Problems with disk administration”](#) on page 5-8
- 

## About DiskSuite

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 as it increases in size.

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**.

---

## State databases

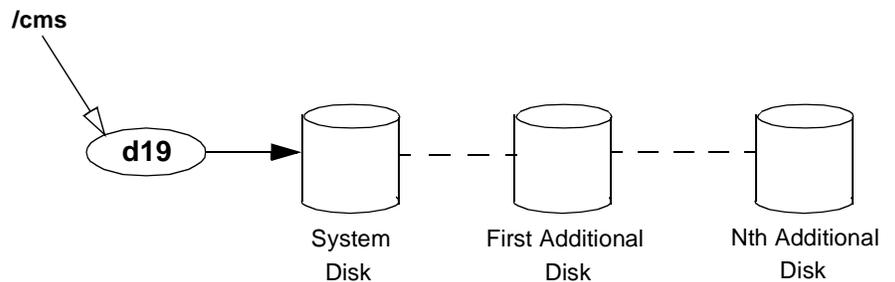
A state database contains the Solstice DiskSuite configuration information for the system, and is stored on a raw disk partition created for that purpose. At boot time, the operating system accesses the state database to configure the system. Typically, a system contains multiple copies of the state database.

## Metadevices

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.

## How CMS uses DiskSuite

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. The following illustration depicts this concept.



For a complete description of Solstice DiskSuite software and its basic technical concepts, see the *Solstice DiskSuite Administration Guide*, published by Sun Microsystems, Inc.

---

## 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. For a step-by-step description of installing Solstice DiskSuite software and using the `olds` script, see the [“Installing software and setting up CMS”](#) chapter.

If you receive an error message from the `olds` script, see [“Problems with disk administration”](#) on page 5-8.

---

## 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 replacing hard disk drives, see the appropriate *Hardware Installation, Maintenance and Troubleshooting* book for your platform.

---

## Checking state databases

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 the appropriate *Hardware Installation, Maintenance and Troubleshooting* book for your hardware platform.
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
```

---

## Checking metadevices

To verify that a metadvice is set up properly, perform the following procedure:

1. Enter:

```
metastat
```

The system responds:

```
d19: Concat/Stripe
Size: 1819440 blocks
Stripe 0:
 Device Start Block Dbase
 c0t3d0s3 0 No
```

2. To verify the metadvice setup, examine the response to the command. You are looking for two things:
  - *All your disk drives must be accounted for.* You can verify that 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 drives seem to be missing, check to make sure all the drives are plugged in and turned on, and that each external drive has a unique target number.
  - *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 uses slice 3 of the first internal disk, and slice 1 of all the remaining disk drives. Consequently, the device name of the first internal disk drive must end in s3; all other device names must end in s1.
3. If there is any discrepancy between the output of the `metastat` command and the configuration required to run CMS, you will have to repartition your disks.

---

## Checking 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 appear 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/rdisk/c1d0s2 /usr ufs 1 yes -
fd - /dev/fd fd - no -
/proc - /proc proc - no -
/dev/dsk/c0t3d0s4 - - swap - no -
/dev/dsk/c0t3d0s0 /dev/rdisk/c0t3d0s0 / ufs 1 no -
/dev/md/dsk/d19 /dev/md/rdisk/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. To reboot the system, enter: **init 6**.
6. When the system is back up, log in as **root**.
7. To check the /cms file system, enter:

```
fsck -y /dev/md/rdisk/d19
```

The file will look similar to the following:

```
** /dev/md/rdisk/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:

```
vi /etc/vfstab
```

The file will appear 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/rdisk/c1d0s2 /usr ufs 1 yes -
fd - /dev/fd fd - no -
/proc - /proc proc - no -
/dev/dsk/c0t3d0s4 - - swap - no -
/dev/dsk/c0t3d0s0 /dev/rdisk/c0t3d0s0 / ufs 1 no -
#/dev/md/dsk/d19 /dev/md/rdisk/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. To write and quit the file, enter: **wq!**

11. To mount the CMS file system, enter:

```
mount /cms
```

If you have trouble mounting /cms:

- Verify that the /cms directory exists by entering:  

```
ls -ld /cms
```
- If /cms does not exist, use the following to create it:  

```
mkdir /cms
```
- Use the **metastat** command to determine the metadvice being used. Then verify that the entry for /cms in the /etc/vfstab file is correct. If you find any errors, correct them.

---

## Problems with disk administration

In a system with Solstice DiskSuite software installed, the total amount of disk space available to */cms* should be about the same as the total amount of space provided by all the disk drives in the system. If there appears to be a problem, you can check the files */etc/vfstab* and */etc/opt/SUNWmd/md.tab* to verify that the Solstice DiskSuite software recognizes all the drives on your system.

*/etc/vfstab* should name the d19 metadvice (*/dev/md/rdisk/d19*) as the */cms* file system. Old */cms* entries (in the form */cms0* through */cms12*) should not exist or, if they do exist, should be commented out by pound signs at the beginnings of the lines.

*/etc/opt/SUNWmd/md.tab* should account for all the disk drives. Check the */cms* section of the file to make sure it names all existing disk devices. The line below, for example, shows two disks being administered by Solstice DiskSuite software:

---

```
. . .
#/cms d19 3 1 /dev/dsk/c0t1d0s1 1 /dev/dsk/c0t3d0s3
```

---

If there is any discrepancy between either file and the configuration required to run CMS, go to [“Checking for disk recognition errors” on page 5-9](#).

# Checking for disk recognition errors

---

## Purpose

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.*

---

## Contents

[Checking for disk recognition errors](#) includes the following platform specific procedures:

- [Disk recognition errors on SPARCserver](#) (below)
  - [“Disk recognition errors on Ultra 5” on page 5-11](#) (below)
  - [“Disk recognition errors on Enterprise 3500” on page 5-13](#)
  - [“Disk recognition errors on Enterprise 3000” on page 5-16](#)
- 

## Disk recognition errors on SPARCserver

1. To reboot the system, enter: `init 0`  
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 **Stop + A**. The system responds with the `ok` prompt.

7. Enter:

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

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

8. Enter:

```
reset
```

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

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

```
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
 Unit 0 Removable Tape TANDBERG TDC 4200 =07:08CREATED053195
Target 6
 Unit 0 Removable Read Only device TOSHIBA XM5401...
```

10. Verify that all of the disk drives are recognized. If the devices are still not recognized, see the appropriate *Hardware Installation, Maintenance and Troubleshooting* book for your platform.
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 the procedures described in [“Configuring DiskSuite on an unmirrored system” on page 2-98](#) or [“Configuring DiskSuite on a mirrored system” on page 2-102](#).

---

## 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 **Stop + A**. The system responds with the `ok` prompt.

7. Enter:  
`setenv auto-boot? false`  
This keeps the system from rebooting when you do a reset.
8. Enter:  
`reset-all`  
The system resets and responds with the `ok` prompt.

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

```
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:

```
probe-scsi-all
```

The program responds similar to the following:

```
/pci@1f,0/pci@1/pci@1/SUNW,ispw@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 the appropriate *Hardware Installation, Maintenance and Troubleshooting* book for your platform.
12. When you have verified that the system is recognizing all of its disk drives, enter:

```
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 the procedures described in Chapter 2, “[Configuring DiskSuite on an unmirrored system](#)” on page 2-98 or “[Configuring DiskSuite on a mirrored system](#)” on page 2-102.

---

## Disk recognition errors on Enterprise 3500

1. To reboot the system, enter: `init 0`  
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:

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

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

8. Enter:

```
reset-all
```

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

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

```
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 the appropriate *Hardware Installation, Maintenance and Troubleshooting* book for your platform.
11. To verify that the system sees all the fiber channel disk drives, enter:

```
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 the appropriate *Hardware Installation, Maintenance and Troubleshooting* book for your platform.
13. When you have verified that the system is recognizing all of its devices, enter:

```
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 the procedures described in Chapter 2, [“Configuring DiskSuite on an unmirrored system” on page 2-98](#) or [“Configuring DiskSuite on a mirrored system” on page 2-102](#).

## Disk recognition errors on Enterprise 3000

1. To reboot the system, enter: `init 0`  
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 **Stop + A**. The system responds with the `ok` prompt.

7. Enter:

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

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

8. Enter:

```
reset-all
```

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

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

```
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 the appropriate *Hardware Installation, Maintenance and Troubleshooting* book for your platform.

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 the procedures described in Chapter 2, “[Configuring DiskSuite on an unmirrored system](#)” on page 2-98 or “[Configuring DiskSuite on a mirrored system](#)” on page 2-102.

## Common error messages with DiskSuite

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 ( <code>swap -d /cms/swap</code> ), and reenter the command. Remember to reactivate the swap files when the <code>growfs</code> command completes ( <code>swap -a /cms/swap</code> ). |
| 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: <i>devicename</i> 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 <code>boot -r</code> command from the open boot prompt.                                                                       |
| Disk <i>devicename</i> 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: <i>devicename</i> partition 1 is not partitioned correctly           | You need to repartition disk <i>devicename</i> .                                                 | Use the <code>format</code> command. see the appropriate <i>Hardware Installation, Maintenance and Troubleshooting</i> book for your platform.                                                                                                     |
| DiskSuite must be installed                                                | You must install the Solstice DiskSuite software package.                                        | See <a href="#">“Installing the Solstice DiskSuite software” on page 2-93</a> .                                                                                                                                                                    |
| In order to attach disk, /cms must already be mounted, exiting...          | The /cms file system was not mounted.                                                            | Execute a <code>mount /cms</code> command and rerun the command that failed.                                                                                                                                                                       |
| metadb: <i>systemname</i> : <i>devicename</i> : has a metadatabase replica | There are already state database replicas existing on the indicated system and device.           | No further action is required.                                                                                                                                                                                                                     |

| Message                                                                                            | Cause                                                                                                                                                                                                                                                                           | Solution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| metainit:<br><i>systemname:</i><br>/etc/opt/SUNWmd/md<br>.tab line 12: d19: unit<br>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 <code>olds -setup</code> command for that device. To attach device <code>c0t2d0</code> , for example, you would enter <code>/olds/olds -setup c0t2d0</code> . If you need to do an initial setup, use these commands:<br><br><pre> /olds/olds -cleanup &lt;reboot when command completes&gt; /olds/olds -check_disks /olds/olds -mk_files /olds/olds -metadbs /olds/olds -setup           </pre> Then restore all your swap files and their <code>/etc/vfstab</code> entries. |
| metainit: syntax error                                                                             | This is the <code>olds</code> general failure message. The most likely cause is that the <code>/etc/opt/SUNWmd.tab</code> file disagrees with your configuration. (The file, for example, says you have seven disks in a given metadvice, but your configuration only has six.) | Verify that <code>/etc/opt/SUNWmd.tab</code> is accurate. As a last resort, use an old <code>md.tab</code> file or do an initial <code>olds</code> setup.                                                                                                                                                                                                                                                                                                                                                                        |
| newfs of cms<br>metadvice failed                                                                   | There is an internal problem with one of your disks.                                                                                                                                                                                                                            | Enter a <code>/usr/opt/SUNWmd/sbin/metaclear d19</code> command, and then rerun the <code>olds -setup</code> script. If the same error recurs after doing this, repartition your disks or call Avaya Inc. National Customer Care Center at 1-800-242-2121.                                                                                                                                                                                                                                                                       |
| prtvtoc:<br>/dev/rdisk/c0t6d0:<br>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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

| Message                                                                                                   | Cause                                                                                                                                              | Solution                                                                       |
|-----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| 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 <i>root</i> .                                                        |
| 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 metadvice has not yet been set up.                                                                 | To set it up, run the <code>olds -setup</code> 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 <code>/etc/system</code> file is not up to date.                                        | The system must be rebooted using <code>/usr/sbin/shutdown -y -i6 -g0</code> . |

# Solving X.25 installation problems

---

## Purpose

“Solving X.25 installation problems” contains procedures that will help you solve common installation problems with the X.25 software.

---

## Contents

“Solving X.25 installation problems” includes the following procedures:

- [Finding a misplaced X.25 password](#) (below)
  - [“Solutions for X.25 error messages” on page 5-22](#)
- 

## 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 that should have been completed when the system was initially setup. If you still cannot find the password, you must call *Sun* license support and obtain your X.25 password again.

## Solutions for X.25 error messages

The following table contains error messages that 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 <i>Sun</i> 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 <i>Sun</i> license support and obtain a new X.25 license key for this new hostid name.                                                                                                                                                                                                                                                                            |
| Starting the X.25 software - please wait<br>X.25 : Creating link XX....<br>X.25 : link XX has been started<br>Unable to get license, X.25 exiting<br>The network failed to come up correctly. | <ul style="list-style-type: none"> <li>- The X.25 license password was entered incorrectly</li> <li>- The password was generated for the wrong hostid or hostname</li> <li>- The license manager process (lmgrd) did not start when you started CMS.</li> </ul> | <ul style="list-style-type: none"> <li>- Enter the password correctly</li> <li>- Call Sun to reissue the password for the correct hostid or hostname</li> <li>- Check the license manager with the <code>ps - ef   grep lmgrd</code> command. If the lmgrd process is not running, restart the license manager with <code>/etc/rc2.d/S85lmgrd start</code>.</li> </ul> |

# Recognizing new hardware devices

---

## Purpose

Use this procedure if during a Solaris installation, externally powered devices, such as disk drives and tape drives, are not recognized. This may occur 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.

---

## Procedure

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. To reboot the system, enter: `init 0`
2. To force the system to recognize the new components, enter:  
`boot -r`
3. After the system reboots, log in as **root**.

## Additional references

For additional information see the appropriate *Hardware Installation, Maintenance and Troubleshooting* book for your hardware platform.

## CMS error logs

“CMS error logs” describes some common log characteristics and covers information about each of the logs provided.

The following problems generate entries in the error log:

- Data conversion problems
- Start-up and shut-down problems
- Installation problems
- Set-up problems
- Critical or warning messages.

## Wrapping techniques

Many of the log files use a common, general purpose file wrapping technique to keep a controlled amount of historical log information. It keeps the current log in a file always named the name of the log.

For example, if the error log was named `sample`, there may be three older logs kept called `sample.01`, `sample.02`, and `sample.03`.

When the current active log file becomes full, it rolls over and a new log file is started. At the time that the log rolls over, the oldest log is deleted, each of the other logs moves to its new name, and a new log file is started.

The size of the logs is controlled by the file size. If a specific number of hours of log information is needed, some monitoring will be needed to see how much time is covered by a log.

Each log file concludes with a message that the file size limit has been reached and that a new log will be started. This is particularly useful if using the command `tail -f` to monitor ongoing activity in the log. When the message is displayed, a new `tail` command will need to be started. After you finish reviewing log activity, press Delete to exit.

## Administering options

### CAUTION:

*Only qualified TSC personnel should administer these log files. Do not delete or change any information in these log files without first contacting the TSC.*

You can administer the following options:

- Location of the log files
- Number of historical log files
- Size of the Files.

## Running logs

The logs run under a variety of circumstances:

- They are always running, and cannot be stopped, when Solaris is running
- They must be manually started and stopped
- They are automatically stopped after a reboot or CMS restart.

Contact the TSC for more information.

## Error log administrative data

The administrative data for each error log file contains specific information about itself, including defaults, administration information, a description of the contents, and general information about how to interpret the contents of the logs. This administrative log information is found in `/cms/db/LogAdmin`.

- **Default Location** — the file name of the primary file where log information can be found if no administrative changes have been made.
- **Default Maximum File Size** — the approximate size of each of the log files (primary and historical) that will be saved if no administrative changes have been made.
- **Default Number of Older Files Retained** — the number of historical files that are kept, in addition to the primary file, if no administrative changes have been made.
- **Administration File** — if the log is controlled by the general purpose file wrapping technique, the location of the file where administrative changes can be made affecting the location of the log file, the size of the logs, and/or the number of historical log files.
- **Starting/Stopping** — describes the conditions for the log to be running, including any appropriate commands.
- **Writing Process** — indicates all processes that write into the log.
- **Intended Audience** — customer (for log information that is useful to the customer, easy to read, and documented) or services (for log information that is intended to aid troubleshooting). Almost all error logs are used exclusively by services.
- **First Implemented in Load** — indicates the first load when the log is available — an internal load numbering (such as 3.1z) is used.

# Checking installed software packages

---

## Overview

This procedure describes how to check for previously installed software packages.

---

## Rules for the `pkgname` variable

The rules for specifying package names are as follows:

- You may omit *pkgname*, in which case the command lists the name, description, and version number of every software package installed on the system.
  - If you list only one package name, the command lists the name, description, and version number of only that software package.
  - You may list several package names separated by spaces. In that case, the command lists the name, description, and version number of every software package you name.
- 

## Procedure

1. To check what software packages are installed on your system, enter from the root prompt:

```
pkginfo -x pkgname
```

Where *pkgname* is the name of the software package you are checking for.

## Listing Pkgchk errors

The `pkgchk -n cms` command lists some common error messages that do not indicate an actual problem. The error messages in the following table can be ignored.

| Location                      | Error Message                               | Occurs                                   |
|-------------------------------|---------------------------------------------|------------------------------------------|
| /cms/install/logdir/admin.log | group name <root><br>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><br>expected <other>actual. | After the setup and before running cms.  |
| /cms/install/logdir/admin.log | group name <root><br>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><br>expected <cms> actual.  | After running cms.                       |
| /cms/install/logdir/admin.log | group name <root><br>expected <cms> actual. | After running cms.                       |
| /usr/lib/cms/pbxtrcflags      | group name <bin><br>expected <cms> actual.  | After running cms.                       |

# What to do when the system fails to auto-boot

---

## Overview

If the system fails to automatically pass the boot prompt (stops at the `ok` prompt) when the reboot command is given or on a restart from a power failure, a boot environment variable may be set incorrectly.

---

## Contents

[What to do when the system fails to auto-boot](#) contains the following procedures:

- [Checking the boot environment variables](#)
  - [Changing the boot environment variables](#)
- 

## Checking the boot environment variables

1. At the `ok` prompt enter:  

```
printenv
```
  2. Scroll down the list and check the settings on the following variables:
    - The `auto-boot?` variable should be set to `true`.
    - The `boot device` should be set to `disk`.
- 

## Changing the boot environment variables

1. Enter:  

```
setenv variable_name variable_setting
```

Example:

To change the `auto-boot?` variable to `true`, enter:

```
setenv auto-boot? true
```
2. Enter:  

```
boot
```

---

# Machine panics

## Overview

If a machine panic is detected on your system, you must call the TSC (domestic) or remote (international) support personnel. The TSC may request that you deliver the following information on a tape:

- Crash dump from ***/var/crash/hostname/vmcore.n***.
- Namelist from ***/var/crash/hostname/unix.n***.
- Output of the `showrev -p` (put the information in a file). See the hardware installation document for your platform, Appendix D, describing factory installation procedures for details.
- Output of the `prtconf -pv` (put the information in a file).
- Possibly output from the ***/var/adm/messages*** file.

---

## Procedure

To put all the files on one tape, do the following procedures:

1. Log in as **root**.
2. To change to the `dump` directory, enter:  

```
cd /var/crash/hostname
```
3. Verify that *unix.n* and *vmcore.n* are present, and match the date for the crash in question.
4. To retrieve the output from the `showrev -p` buffer, enter:  

```
showrev -p> showrev.out
```
5. To create a `dmesg.out` file, enter:  

```
dmesg > dmesg.out
```
6. To retrieve the output from the `prtconf -pv` buffer, enter:  

```
prtconf -pv>prtconf.out
```
7. To copy the output from the ***/var/adm/messages*** file, enter:  

```
cp /var/adm/messages messages
```
8. Insert a tape into the default backup tape drive.

9. Enter the following command on a single line at the command prompt:

```
tar cvf /dev/rmt/0 unix.X vmcore.X dmesg.out showrev.out
prtconf.out messages
```

Where the letter **X** represents the number of the crashdump.

The system responds with a list of all of the files.

10. To remove the temporary files, enter:

```
rm unix.X vmcore.X dmesg.out showrev.out prtconf.out messages
```

Where the letter **X** represents the number of the crashdump.

11. Log out of the system.

12. Remove the tape from the disk drive and send the tape to the TSC.

---

# Using the remote console

---

## Overview

If your system will not boot, the TSC personnel could ask you to redirect the console to the remote console to identify a problem. Redirecting the console allows the TSC to dial in and do remote maintenance. You can redirect the console using **either**:

- The Solaris operating system
- OpenBoot diagnostics.

---

## Contents

This section consists of the following procedures:

- [“Redirecting the console using Solaris” on page 5-32](#)
- [“Redirecting the console from OpenBoot mode” on page 5-35](#)

---

## Remote console ports

The port used for remote console access differs depending on the hardware platform:

| Hardware Platform                                 | Port A         | Port B         |
|---------------------------------------------------|----------------|----------------|
| SPARCserver<br>Enterprise 3000<br>Enterprise 3500 | Remote Console | Switch Link    |
| Ultra 5                                           | Switch Link    | Remote Console |

## Redirecting the console using Solaris

This procedure describes how to use the Solaris operating system to redirect the console to serial port ttya or ttyb on a CMS server. This procedure is usually done from a remote console that has dialed in to the system.

### CAUTION:

*Use this procedure only when absolutely necessary. If the console redirects and the modem line drops, you may not be able to get back into the system.*

## Redirecting the local console to the remote console

1. Dial in from the remote console to the remote console modem, and then log in as **root**.

2. To remove the port monitor, enter at the remote console:

```
/cms/install/bin/abcadm -r ttyX
```

Where **X** is **a** or **b**.

The program responds:

```
ttyX is currently set to be incoming
Are you sure you want to change it? [y,n,?]
```

3. At the remote console, enter: **y**

The program responds:

```
ttyX administration removed
```

4. To check the speed of the modem, enter:

```
/cms/install/bin/abcadm -k
```

### NOTE:

All remote access ports have a default speed of 9600 bps.

5. At the remote console, enter:

```
/cms/install/bin/abcadm -c -b 9600 ttyX
```

Where **X** is **a** or **b**.

The program responds:

```
This change requires a reboot to take affect
Are you ready to reboot? [y,n,?]
```

6. At the remote console, enter: **y**

The system displays the following message at the remote console:

```
done
desktop auto-start disabled
Proceeding to reboot.
```

The system will automatically reboot, and the remote console port will come up as the console.

The following occurs:

- The system begins to shut down.
- Shut down, reset and reboot messages appear on the local console.
- When the system starts to come back up, the local console goes blank.
- The system boot diagnostics are displayed on the remote console.

After the system reboots, a `console login:` prompt is displayed on the remote console.

7. Log in to the remote console as **root**.

The local console is blank.

 **CAUTION:**

*Do not enter **Control+D** or **exit** 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.*

## Redirecting the remote console back to the local console

To redirect the console back to the local console:

1. At the remote console, enter:

```
/cms/install/bin/abccadm -c local
```

The system displays the following message:

```
Console set to local

This change requires a reboot to take affect

Are you ready to reboot? [y,n,?]
```

2. At the remote console, enter: **y**

The following occurs:

- The system begins to shut down.
- Shutdown, reset, and reboot messages appear on the remote console.
- When the system starts to come back up, the system boot diagnostics are displayed on the local console.
- After the system reboots, the `console login:` prompt is displayed on the remote console.
- The login screen is displayed on the local console.

3. Log in to the local console as **root**.

4. Log in to the remote console as **root**.

Control of the console port is redirected from the remote console back to the local console.

## Redirecting the console from OpenBoot mode

This procedure describes how to use the OpenBoot mode to redirect the local console to a serial port. Use the OpenBoot mode to redirect the remote console port when the Solaris method does not work. This typically occurs when the system will not boot.

## Redirecting the local console to the remote console

To redirect control of the console port from the local console to a dialed-in remote console:

1. If the system is not already at the `ok` prompt, enter:

```
/usr/sbin/shutdown -y -i0 -g0
```

The system shuts down to the `ok` prompt.

### CAUTION:

*If the shutdown command fails, press the **Stop + A** keys simultaneously after the display console banner is displayed, but before the operating system starts booting.*

2. At the local console, enter the following commands to set the remote console configuration parameters:

```
setenv input-device ttyX
setenv output-device ttyX
setenv ttyX-rts-dtr-off true
setenv ttyX-ignore-cd true
setenv ttyX-mode 9600,8,n,1,-
```

Where **X** is **a** or **b**.

3. To verify the parameter changes, enter:

```
printenv
```

The system displays the following message:

| Parameter Name | Value | Default Value |
|----------------|-------|---------------|
| output-device  | ttya  | screen        |
| input-device   | ttya  | keyboard      |
| .              | .     | .             |

4. If not already dialed in, dial in to the system from the remote console.
5. Log in to the system as **root**.
6. At the local console, enter: `boot`

The following occurs:

- The system begins to shut down.
  - Shutdown, reset, and reboot messages appear on the local console.
  - When the system starts to come back up, the local console goes blank.
  - The system boot diagnostics are displayed on the remote console.
  - After the system reboots, a `console login:` prompt is displayed on the remote console.
7. Log in to the remote console as root.

 **CAUTION:**

*Do not enter **Ctrl + D** from the remote console to exit the system without first redirecting control back to the local console. If you do, you may lock yourself from using the console locally or remotely.*

## **Redirecting the remote console back to the local console**

Using OpenBoot mode, there are two ways to redirect control of the console port from the remote console back to the local console:

- From the remote console (recommended)
- From the local site (not recommended)

**Method 1: from the remote console**

To redirect control of the console port from the remote console back to the local console:

1. Do one of the following:

- At the remote console, if the system is in UNIX, enter the following commands:

```
eeeprom output-device=screen
eeeprom input-device=keyboard
eeeprom ttyX-rts-dtr-off=true
eeeprom ttyX-ignore-cd=false
/usr/sbin/shutdown -y -i6 -g0
```

Where **X** is **a** or **b**.

- At the remote console, if the system is in OpenBoot mode, enter the following commands:

```
setenv output-device screen
setenv input-device keyboard
setenv ttyX-rts-dtr-off true
setenv ttyX-ignore-cd false
reset
```

Where **X** is **a** or **b**.

The following occurs:

- The system begins to shut down.
  - Shutdown, reset, and reboot messages appear on the remote console.
  - When the system starts to come back up, the system boot diagnostics are displayed on the local console.
  - The login screen is displayed on the local console.
2. At the remote console, hang up the modem connection.
3. Log in to the system as **root** at the local console.

4. To see what is on the ttyX port, enter:

```
/cms/install/bin/abcaadm -k
```

5. To start a port monitor on ttya, enter:

```
/cms/install/bin/abcaadm -i -b 9600 ttyX
```

Where **X** is **a** or **b**.

## Method 2: from the local site

The onsite technician will use this procedure from the local site. Use this method only when Method 1 will not work.

### CAUTION:

*This method of redirecting the console port should only be done as a last resort. This procedure resets the NVRAM defaults to the Sun factory settings.*

To redirect control of the console port from the remote console back to the local console:

1. Cycle power on the CMS computer.
2. As the computer begins to boot up, press the **Stop + N** keys simultaneously. Continue to press the **Stop + N** keys until a prompt appears on the local console.
3. At the `ok` prompt, enter: `boot`
4. When the system boots up, log in to the system as root at the local console.
5. To see what is on the ttya port, enter:

```
/cms/install/bin/abcaadm -k
```

6. To start a port monitor on ttyX, enter:

```
/cms/install/bin/abcadm -i -b 9600 ttyX
```

Where **X** is **a** or **b**.

The system displays the following message:

```
ttyX set to incoming port 9600 baud
```

7. See the appropriate Hardware Installation, Maintenance, and Troubleshooting book for information on how to reset the NVRAM to the correct factory defaults.

## Diagnosing dial-in access problems

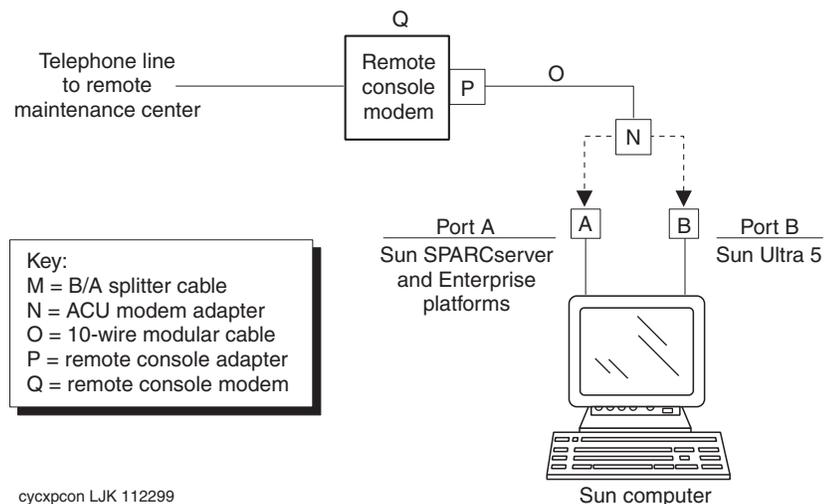
This section describes the scenarios where the console is local and you are attempting to dial-in via port A. It often takes a person on-site to look at the dial-in access problems.

### No ringing and answered responses

You do not get the RINGING and ANSWERED responses displayed on the screen.

#### Solutions:

- Check the port connectivity — see the following figure. see the appropriate *Hardware Installation, Maintenance and Troubleshooting* book for your platform.
- Check modem setup — see the following figure. see the appropriate *Hardware Installation, Maintenance and Troubleshooting* book for your platform.
- Check serial port administration. see the appropriate *Hardware Installation, Maintenance and Troubleshooting* book for your platform..



## Answered and connected responses do not display

**Problem:** The remote dial-in does not get the `Answered` and `Connected` responses displayed on the screen.

**Solution:** At the on-site location, make sure the modem is on and check the following cabling connections:

- Phone line to the modem
- Modem to port A
- Port A to the Sun Enterprise 3500 system.

### Scenario 1:

The remote dial-in does not get the `Answered` and `Connected` responses displayed on the screen.

#### Solution:

At the on-site location, make sure the modem is on, and check the following cabling connections:

- Phone line to the modem
- Modem to a serial port, including:
  - Port A to the Sun Enterprise 3000, Enterprise 3500, and SPARCServer platforms
  - Port B to the Sun Ultra 5 platform

### Scenario 2:

The remote user gets `Answered` and `Connected` responses displayed on the screen, but no login.

#### Solution:

1. Enter **one** of the following commands to make sure that a monitor is running:

```
pmadm -l; sacadm -l
```

*<or>*

```
/cms/install/bin/abcadm -k
```

2. If no port monitor is running, start a port monitor by entering:

```
/cms/install/bin/abcadm -i -b <baud> ttyX
```

#### ⇒ NOTE:

Where `ttyX` is either `ttya` or `ttyb`.

3. If a port monitor is running, make sure that the port monitor is set up at the correct baud rate relative to the local modem.
4. If the baud rate is not correct, remove the current port monitor, and start a new port monitor at the correct baud rate. Enter the following commands:

```
/cms/install/bin/abcadm -r ttyX
/cms/install/bin/abcadm -i -b <baud> ttyX
```

Where `ttyX` is either `ttya` or `ttyb`.

5. If the port monitor is running and is at the correct baud rate, try to fix the problem by disabling and enabling the port monitor. Enter the following commands:

```
pmadm -d -p ttymona -s ttyX
pmadm -e -p ttymona -s ttyX
```

Where `ttyX` is either `ttya` or `ttyb`.

### Scenario 3:

The remote user gets the `Answered` and `Connected` responses displayed on the screen, but the `login` is scrambled (for example, a short line of graphics characters).

#### Solution:

Have the remote user enter a few keys (any keys), and see if it clears up the problem. If this does not clear up the problem, then the port monitor is probably not the same baud rate as the modem.

---

## Login prompt does not display

**Problem:** The remote user gets `Answered` and `Connected` responses displayed on the screen, but no `login`.

#### Solution:

1. Enter the following command:

```
sacadm -l
```

The system responds as follows (for example):

```
PMTAG PMTYPE FLGS RCNT STATUS COMMAN
ttymona ttymon - 0 NO_SAC
/usr/lib/saf/ttymon #Port monitor for ttya port
#
```

2. If NO\_SAC displays in the STATUS column, do the following:
  - a. Enter:

```
ps -ef | grep sac
```

The system responds as follows (for example):

```
root 278 1 0 Jan 23 ? 0:00 /usr/lib/saf/sac -t 300
root 2440 2359 0 15:27:01 pts/2 0:00 grep sac
```

The first number listed in the first line of the display—278 in the example above—is the process ID (PID) of the `sac` process.

- b. To kill the `sac` process by enter:

```
kill -9 pid
```

where *pid* is the process ID of `sac`. For example, to kill the `sac` process shown in a., above, you would enter:

```
kill -9 278
```

3. To verify that a port monitor is running, enter:

```
pmadm -l
```

The system responds as follows:

```
cms2# pmadm -l
PMTAG PMTYPE SVCTAG FLGS ID
<PMSPECIFIC>
ttymona ttymon ttya u root
/dev/term/a b - /usr/bin/login - n9600 ldterm,ttcompat logi
Port monitor disabled - n #CMS ttya port device
#
```

4. Check the baud rate of the port monitor (`n9600` in the example above) to make sure it is the same rate as the local modem.
5. If the baud rate is correct go to Step 6. If the baud rate is incorrect, start a new port monitor at the correct baud rate by entering:

```
/cms/install/bin/abcmadm -i -b <baud> ttya
```

6. If the port monitor is running and is at the correct baud rate, try to fix the problem by disabling and then re-enabling the port monitor. You can do that by entering the following commands:

```
pmadm -d -p ttymona -s ttya /* disables */

pmadm -e -p ttymona -s ttya /* reenables */
```

## Login prompt is scrambled

### Scenario 1:

The dial-in gives you garbage characters instead of a login.

#### Solution:

Try pressing a few keys to see if the problem corrects itself.

### Scenario 2:

The dial-in continues to display garbage characters instead of a *login*.

#### Solution:

Check the baud rate of the remote console by doing the following:

- a. Have an on-site person run the following command:

```
/cms/install/bin/abcadm -k
```

- b. Make sure the baud rate is consistent with the modem connected on-site and the modem and console at the remote site.
- c. If there is a baud rate inconsistency on-site, reconfigure the machine with the appropriate baud rate for the modem with the following command:

```
/cms/install/bin/abcadm -c -b<baud> ttyX
```

Where **ttyX** is either `ttya` or `ttyb`.

The system reboots.

- d. If there is a baud rate inconsistency with the remote site, reconfigure the remote site and redial.

**Scenario 3:**

Scenario 2 does not resolve the symptoms.

**Solution:**

Set the console back to local by switching to the local console via the OpenBoot method. See [“Using the remote console” on page 5-31](#) for details.

**Additional references**

For additional information see *CentreVu<sup>®</sup> Call Management System Terminals, Printers, and Modems* (585-215-874).

# Booting Solaris into single-user mode

---

## Overview

This procedure describes how to place Solaris into single-user mode.

---

## Prerequisite

You must be logged into the customer's machine through the remote console interface.

---

## Procedure

1. At the remote console, enter:

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

 **NOTE:**

The system will not successfully enter single-user mode if you execute the `shutdown` command from the local console while the console is redirected. When this occurs, the local console will not respond if you try to enter data. The remote console will also be unresponsive.

To recover from the situation, put the system into single-user mode by doing the following:

1. Select a new window on the local console.
2. In the new window, enter:

```
/usr/sbin/shutdown -y -i0 -g0
```

3. On the remote console, enter:

```
boot -s
```

# Problems with NTS administration

---

## Overview

Examples of common problems with NTS administration are described along with their solution.

---

## Contents

[Problems with NTS administration](#) contains the following procedures:

- [Version numbers do not match](#) (below)
  - [“NTSs are not recognized”](#) on page 5-47
  - [“Serial port warnings”](#) on page 5-48
  - [“Unknown pass phrase”](#) on page 5-48
  - [“NTS fails to load the boot file”](#) on page 5-48
- 

## Version numbers do not match

### Problem:

When you first start `na` it reports version R13.3 or later, but when you annex an NTS it reports version R7.0.

### Solution:

This is normal behavior when you are using older *info* files with more recent administration software. Power cycle the NTS.

---

## NTSs are not recognized

### Problem:

When you try to annex an NTS you receive an error like `cmsterm<n> not responding` or some other similar message indicating that the NTS isn't being recognized.

### Solution:

You may have a problem with network connectivity or with routing. Quit the `na` command and try to ping the NTS. If that fails, the NTS may be hung and may require a reboot via the console terminal.

## Serial port warnings

### Problem:

You receive warnings for serial port parameters like `input_buffer_size` and `bidirectional_modem`, and so on.

### Solution:

The new administration software retires a number of serial port parameters, and institutes a large number of new parameters. Consequently, messages concerning serial port parameters can be ignored.

---

## Unknown pass phrase

### Problem:

The NTS administration program has asked for a pass phrase, and you do not know it.

### Solution:

If the system administrator has access-protected the NTSs, you will not be able to do anything without knowing the pass phrase.

---

## NTS fails to load the boot file

### Problem:

After administering an NTS, it fails to load the boot file. You can ping the NTS but cannot telnet to, or use the Network Administrator (NA) utility on the NTS. If there are additional NTSs setup they will be operating normally.

### Solution:

When a NTS boots for the first time it uploads its boot file from the CMS system and stores it in nvram for future use. Sometimes this file becomes corrupt. The corrupt file can be repaired with the following procedure:

1. From a command prompt on the CMS system, enter:

```
mv /usr/annex /usr/annex.old
```

2. Enter:

```
mkdir /usr/annex
```

3. Enter:

```
chmod 755 /usr/anex
```

4. Reload the NTS drivers according to [“Installing the Bay Networks Annex NTS drivers”](#) on page 2-50 in Chapter 2.

5. Power cycle the NTS. Within 15 seconds, push the **Test Switch** button on the front of the NTS.

The NTS goes through its hardware diagnostics, and the following prompt should appear:

---

```
Monitor:
```

6. To verify the configuration of the NTS, enter the following command from the `Monitor:` prompt:

```
addr
```

The system displays a series of prompts for the NTS network configuration.

7. Make any changes to the network settings or press **Enter** to accept the default settings.
8. From the `Monitor:` prompt, enter:

```
boot
```

9. From the `command:` prompt on the CMS system, enter: `na`

The system responds:

---

```
Annex network administrator R(current release number and date)
command:
```

10. From the `command:` prompt, enter: **`annex cmstermX`**

Where **X** equals the number of the NTS. The system responds as follows (this is an example; the response may differ depending on what type of NTS you have):

---

```
cmsterm(x): Annex-3UXR7, 64 ports
```

```
command:
```

11. From the `command:` prompt enter the following commands:

```
read
```

```
/etc/local.admin/ntsXinfo
```

where **X** equals the number of the NTS.

12. From the `command:` prompt, enter:

`boot`

13. From the `command:` prompt, enter:

`quit`

If the NTS still fails to boot, re-administer the NTS according to [“Setting up an NTS” on page 4-76](#) in Chapter 4.

**Additional references**

For additional information see *CentreVu<sup>®</sup> Call Management System Terminals, Printers, and Modems* (585-215-874).

# Problems using the CD-ROM drive

---

## Overview

While installing new software you may experience problems with the CD-ROM drive.

---

## Contents

[Problems using the CD-ROM drive](#) contains the following procedures:

- [CD-ROM drive fails to open](#)
  - [CD-ROM drive cannot be mounted](#)
- 

## CD-ROM drive fails to open

The CD-ROM drive fails to open when you press the eject button.

1. Enter:

```
eject cdrom
```

 NOTE:

If the CD-ROM still will not open verify that you are not currently in */cdrom* using the `pwd` command. If you are, `cd /` and repeat step 1.

---

## CD-ROM drive cannot be mounted

If the CD-ROM drive does not respond to the mount command, the driver pointers may have been altered by the preceding `cpio` command. In that case, do the following:

1. Restart the initial operating system installation.
2. When you reach the “Restore the CMSADM Backup” step, add the following to the `cpio` command:

```
"/dev*" "/dev*/**"
```

3. Continue with the upgrade as you normally would.

## Removing CentreVu CMS package fails

Problem:

If you are exited from the system when removing a CentreVu CMS package (*cms* or */cms.2*), you:

- May have logged in as `cmssvc`
- May have switched users — `su'd` to `root` or `root2`
- May have run `cmssvc`.

Solution:

1. Log in directly as `root` or `root2`
2. Remove package(s) as instructed by the system.

## CMS installation fails

If the CMS installation fails with a *cannot add another instance of CMS* message, either the CMS package removal was not done or the removal was not completely successful.

1. To continue with the installation, enter:

```
pkgrm cms
```

Then restart the CMS installation procedure.

## CMSADM backup problems

If you receive an error message during a backup or recovery, refer to [“Common error messages” on page 5-55](#).

As the backup progresses, the program displays a series of dots—one dot per file—to indicate it is writing files to tape. You may have a problem if you notice one of the following:

- Dots are not printing (wait 10 minutes or longer to make certain the software is not just copying a very large table).
- The tape is not spinning.
- Messages have not displayed asking you to change tapes or informing you that the backup has completed.

If you encounter problems, call the Avaya Inc. National Customer Care Center at 1-800-242-2121.

# Re-running AOM setup

---

## Overview

If a new Alarm Origination Manager (AOM) installation fails to create a test alarm, you may need to rerun setup. The following procedure will preserve the AOM setup files, log files, and registration files.

---

## Procedure

To rerun AOM setup, perform the following procedure:

1. Enter:

```
cd /opt/cc/install/aot*/bin
```

2. Enter:

```
./backout
```

3. Enter:

```
./setup
```

4. Follow the procedure for [“Creating an AOM test alarm”](#) on page 2-176 in Chapter 2.

## System messages

---

### Purpose

Use this procedure to display system messages. System messages can alert you to system problems, such as a device that is about to fail. By default, many of the messages are displayed on the system console and are stored in **/var/adm**.

---

### Procedure

1. To display system messages, enter: **dmesg**

The system responds by listing the most recent messages. For example:

```
dmesg
Jan 12 17:37
cpu0: SUNW,UltraSPARC-II (upaid 6 impl 0x11 ver 0x20 clock 336 MHz)
cpu1: SUNW,UltraSPARC-II (upaid 7 impl 0x11 ver 0x20 clock 336 MHz)
SunOS Release 5.5.1 Version Generic_103640-21 [UNIX(R) System V Release
Copyright (c) 1983-1996, Sun Microsystems, Inc.
.
.
.
SUNW,hme0: Using Internal Transceiver
SUNW,hme0: 10 Mbps half-duplex Link Up
pseudo-device: lapb0
lapb0 is /pseudo/lapb@0
```

The **/var/adm** directory contains several message files. The most recent messages are in **/var/adm/messages** and in **/var/adm/messages.0**; the oldest are in **messages.3**. Periodically a new file is created, and the **messages.3** file is deleted, **messages.2** is renamed **messages.3**, **messages.1** is renamed **messages.2**, and **messages.0** is renamed **messages.1**.

The message files may contain not only system messages, but also crash dumps and other data, which can cause **/var/adm** to grow quite large. To keep the directory to a reasonable size and ensure that future crash dumps can be saved, you should remove unneeded files periodically. You can automate the task by using *crontab*. See your *Sun* system documentation for information on *crontab*.

# Common error messages

---

## Overview

This section lists and explains messages you may encounter during an upgrade, including messages from CMS and Solstice DiskSuite, as well as messages printed to the migration logs.

---

## Conventions

A message may contain one or more variables as necessary. Variables in a message are italicized. For example, in the message:

```
The stop date/time for all tables is: date
```

In an actual message, a date appears in place of *date*.

Messages are arranged alphabetically, ignoring both variable names and special characters. For example, in the message:

```
/filesystem not found
```

This message would be placed alphabetically by the words *not found*. Both the slash and the variable *filesystem* would be ignored for purposes of alphabetizing the message.

---

## Error message table

---

|                    |                                                                                                                                                |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message:</b>    | <code>&lt;synonym name&gt; begins with non-alpha character. Change name after migration. Look for synonym in <i>synonym group</i></code>       |
| <b>Cause:</b>      | Synonym names must begin with a letter in CMS R3V8. The synonym <i>synonym name</i> does not begin with a letter and was migrated to CMS R3V8. |
| <b>Resolution:</b> | List the synonym in the R3V8 Dictionary subsystem, and modify <i>synonym name</i> to begin with a letter.                                      |

---

---

**Message:** Calculation *<name, equation>*: already in R3 dictionary.

**Cause:** The calculation *calculation name* already existed in the R3V8 Dictionary database when this migration was done.

**Resolution:** Determine whether the R3V8 calculation is appropriate for your reports, and modify it if necessary. You may replace the standard calculation with the new one. If this is a standard R3V8 calculation, you must make a new R3V8 custom calculation with the R2 formula. Then change the custom reports that use the old calculation name to use the new calculation name. If you migrate administration data more than once, this message appears for all the calculations that were migrated the first time.

---

**Message:** calculation truncated: *<calculation name> <calculation equation>*

**Cause:** When this R2 CMS calculation was migrated, the formula was too long for CMS R3V8.

**Resolution:** Modify the calculation using the CMS Dictionary: Calculation window so it can be used in a custom report. That may require building other calculations to nest within this one.

---

**Message:** Call profile permissions exist for split *<split#>* R2 service level = *<svc level>* R2 increment = *<interval size>*

**Cause:** The call profile parameters for split *split number* already existed in the CMS R3V8 system when this migration was done.

**Resolution:** Verify the split call profile parameters in the CMS ACD Administration subsystem, and modify them if necessary. If you migrate the administration data more than once, this message will appear for all the call profile permissions that were migrated the first time.

---

**Message:** Cannot migrate custom report: *<report name>*  
compiler errors at bottom of file: */cms/migrate/r2customnn*

**Cause:** The R2 custom report *custom report name* had compiler errors in the R2 system, so the report could not be migrated to CMS R3V8.

**Resolution:** This custom report did not function in R2 because of the compiler errors. You have to manually re-create the report in the CMS R3V8 if the design is still needed. You can edit the failed report which is located in */cms/migrate/r2customnn*.

---

**Message:** Cannot find database item in dictionary: *<name>*

**Cause:** The database item *item name* was not found in the R3V8 Dictionary.

**Resolution:** If you need the database item in a custom report, manually add it to the R3V8 Dictionary.

---

---

**Message:** Cannot migrate R2 dictionary item `<name>` to R3 dictionary item.

**Cause:** The R2 item `item name` did not have a map to an R3V8 Dictionary item. Either no mapping exists or the item is misspelled.

**Resolution:** Check Appendix B for the list of R2 items that are not mapped to R3V8. If the R2 item is not mapped, you need to replace the R2 item with a similar R3V8 item.

If the item is misspelled, you can correct the spelling and then manually add it the R3V8 system.

---

**Message:** Changed name of report to `TMPn`. Make adjustments as necessary.

**Cause:** A custom report already existing in the R3V8 system has the same name as an R2 custom report to be migrated. The R2 custom report was migrated to the R3V8 system under the name `TMPn`.

**Resolution:** If you want to change the name of the `TMPn` report, use the R3V8 Custom Reports: Screen Painter for custom reports. First, add a report with a new name. Then, copy the `TMPn` report to the new name. Finally, delete the `TMPn` report.

---

**Message:** `/cms: Deadlock situation detected/avoided`

**Cause:** Generated by one of the Solstice DiskSuite setup scripts.

**Resolution:** Remove all your swap files residing on `/cms` and reenter the command that generated the error. Remember to re-create the swap files when the `growfs` command completes.

---

**Message:** Collision in user login: `<username>`. All ownerships are transferred to user `'cms'`.

**Cause:** There is already a login ID established for this user name. The user name being migrated is causing the conflict. The CMS administrator (`cms`) becomes the owner of custom reports, timetables, shortcuts, etc., that were previously owned by the migrated user name.

**Resolution:** If the migrating user is different from the user already established, the system administrator should create a different user name for the migrating user and transfer the ownerships after the migration. If the migrating user and the existing user are the same, the administrator should consult with the user about the disposition of ownerships.

---

---

**Message:** Constant *<name>*, *<value>*: already exists as an R3 constant.

**Cause:** The constant *constant name* already existed in the R3V8 Dictionary database when this migration was done. The R2 constant, therefore, was not migrated.

**Resolution:** Verify that the R3 constant is appropriate for your reports, and modify it if necessary. If you modify the constant, be careful that this constant is not being used in any new R3V8 custom reports, because the new value will affect those reports as well. If you migrate the administration data more than once, this message will appear for all the constants that were migrated the first time.

---

---

**Message:** *<calculation name>* contains items not found in R3 database.

**Cause:** The calculation *calculation name* has items in its formula that cannot be found in the R3V8 Dictionary database. These items can be database items or other calculations.

**Resolution:** Verify the calculation's formula in the Dictionary subsystem, and either modify the formula or add back any calculations used in the formula.

---

---

**Message:** Custom Report: *<name>*  
Failed to swap repeat and totals lines.

**Cause:** R3 CMS does not allow repeated rows above a nonrepeated row. When this R2 custom report was migrated, the program attempted to swap the nonrepeated row with the repeated rows but was unsuccessful.

**Resolution:** Use the R3V8 Custom Reports: Screen Painter and swap the repeated rows with the nonrepeated row. The problem report is *report name* entered on the line just above this error message.

---

---

**Message:** Custom report field refers to *<database item>* which you must resolve to *<set of R3 database items>*

**Cause:** The following R2 database items map to more than one R3V8 database items:

| R2 Item     | R3 Equivalent          |
|-------------|------------------------|
| ASSOCIATION | SPLIT, LOGID           |
| CALLPROFCHG | SVCLEVELCHG, PERIODCHG |
| EVENT       | MALICIOUS, ASSIST      |

**Resolution:** Determine which R3V8 equivalent is appropriate for the report. Use the Screen Painter to edit the report and substitute the R3V8 equivalent for the R2 database item. The custom report was the one being migrated at the time of the message. To change CALLPROFCHG to SVCLEVELCHG, for example, select the "Field" option in Screen Painter and change CALLPROFCHG to SVCLEVELCHG. In the Dictionary subsystem, change the name (synonym) to *slvl\_chg* (to indicate the Acceptable Service Level has changed). After the name is changed, the report displays YES/NO instead of 1/0.

---

---

|                    |                                                                                                           |
|--------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Message:</b>    | Date field being deleted because it goes beyond the width of report: row=<row> col=<col> width=<width>    |
| <b>Cause:</b>      | The length of the date field in the migrated real-time report exceeds 132 columns and cannot be migrated. |
| <b>Resolution:</b> | Use the editor to add the field to the migrated report.                                                   |

---

|                    |                                                                              |
|--------------------|------------------------------------------------------------------------------|
| <b>Message:</b>    | device: c0t6d0 will not be used                                              |
| <b>Cause:</b>      | Warning that c0t6do will not be set up for Solstice DiskSuite.               |
| <b>Resolution:</b> | No action required. Since c0t6d0 is the CD-ROM drive, this is not a problem. |

---

|                    |                                                                                                                                                                                                   |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message:</b>    | device: <devicename> cannot be setup, or does not exist...                                                                                                                                        |
| <b>Cause:</b>      | The disk you are trying to attach is turned off, does not exist, or was removed from the system.                                                                                                  |
| <b>Resolution:</b> | Power-up the disk drive, or verify the correct name for the disk (stop-a, probe-scsi), or attach the disk to the system and reboot with a <code>boot -r</code> command from the open boot prompt. |

---

|                    |                                                                                                                                                   |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message:</b>    | Dictionary collision: name='<name>' item_type='<cust_def>'                                                                                        |
| <b>Cause:</b>      | There is already the same custom table with the same item name already defined in the Dictionary subsystem.                                       |
| <b>Resolution:</b> | Verify that the migrating table is the same as the existing one. If they are different, you must rename one table and reenter its database items. |

---

|                    |                                                                           |
|--------------------|---------------------------------------------------------------------------|
| <b>Message:</b>    | Dictionary collision: name='<name>' item_type='<const>' formula='<value>' |
| <b>Cause:</b>      | There is already a constant with the name but a different value.          |
| <b>Resolution:</b> | You need to enter the constant again and rename it.                       |

---

|                    |                                                                                              |
|--------------------|----------------------------------------------------------------------------------------------|
| <b>Message:</b>    | Dictionary collision: name='<name>' item_type='<calc>' formula='<calculation>'               |
| <b>Cause:</b>      | There is already a calculation with ' <i>name</i> ' as the name but with different contents. |
| <b>Resolution:</b> | You need to enter the formula again and rename it.                                           |

---

|                    |                                                                                                                                                                                 |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message:</b>    | Dictionary collision: name='<column name>' table='<table name>'                                                                                                                 |
| <b>Cause:</b>      | There is already a Dictionary item for this column in the same table.                                                                                                           |
| <b>Resolution:</b> | Verify that the migrating table is the same as the existing one. If they are different, one table has to be renamed and database items must be reentered for the renamed table. |

---

---

**Message:** Disk *devicename* already attached, exiting...

**Cause:** You are trying to attach a disk that is already attached.

**Resolution:** Verify the name of the disk by doing a *stop-a, probe-scsi-all*. If it's an external disk, check the target number on the back of the drive. Consult the device documentation.

---

**Message:** disk: <*devicename*> partition <*n*> is not partitioned correctly

**Cause:** Disk *devicename* is partitioned improperly.

**Resolution:**

1. If the device name is "c0t3xxxx," you will have to restart the upgrade procedure at the disk repartitioning step.
2. If it's any other disk device, you can repartition it from the *Solaris* `format` command. The procedure:
  - a. At the system prompt, type the word `format` and press Return. The system responds with an AVAILABLE DISK SELECTIONS menu.
  - b. Enter the number that corresponds to the disk in error. The system displays a FORMAT menu and the prompt, `format >`.
  - c. Type the word `partition` and press Return. The system displays the PARTITION menu and the prompt, `partition >`.
  - d. Type the word `print` and press Return. The system displays a table that reflects the current partitioning of the disk.
  - e. Compare the displayed table with the partition table presented in Chapter 2, "Boot disk partition values" on page 2-22. You must change the partitioning of the disk so the two tables agree. The procedure is as follows:
    1. From the `partition >` prompt, enter the number of the partition you want to change. The system prompts for the id tag, the permission flags, the starting cylinder, and the size, in that order.
    2. Enter, in response to the prompts, the appropriate numbers from the table below. (Note that the size is always expressed as <*n*>*c*, where *c* indicates "cylinders.")
    3. Use a `print` command as necessary to verify changes.
  - f. Repeat a through c until the disk partitions conform to the table below.
  - g. To exit back to the system prompt, enter `q` at the `partition>` prompt and `q` again at the `format>` prompt.

---

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|                    |                                                                                                                                                                                                                                                          |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message:</b>    | Due to name collision, <i>&lt;item type&gt; ' &lt;name&gt;' (&lt;username&gt;)</i> has been changed to <i>&lt;tempname&gt;</i>                                                                                                                           |
| <b>Cause:</b>      | The name of the migrated historical report, real-time report, timetable, or shortcut belonging to user <i>&lt;username&gt;</i> has been renamed <i>&lt;tempname&gt;</i> because of a collision with an already existing, identically named item in R3V8. |
| <b>Resolution:</b> | Rename the report to something more meaningful than <i>&lt;tempname&gt;</i> .                                                                                                                                                                            |

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|                    |                                                                                                                                                    |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message:</b>    | Error adding acd permissions for <i>&lt;user login&gt;</i>                                                                                         |
| <b>Cause:</b>      | When migrating R2 CMS user logins, the migration program could not add the ACD permissions for <i>&lt;user login&gt;</i> .                         |
| <b>Resolution:</b> | Use the R3 User Permissions: ACD Permissions window and check the permissions for <i>&lt;user login&gt;</i> . Modify the permissions if necessary. |

---

|                    |                                                                                   |
|--------------------|-----------------------------------------------------------------------------------|
| <b>Message:</b>    | Error in adding directory.                                                        |
| <b>Cause:</b>      | The migration program could not add the home directory to the <i>UNIX</i> system. |
| <b>Resolution:</b> | Use the FACE program to add the login to the <i>UNIX</i> system.                  |

---

|                    |                                                                                   |
|--------------------|-----------------------------------------------------------------------------------|
| <b>Message:</b>    | Error in adding <i>&lt;login ID&gt;</i> to UNIX.                                  |
| <b>Cause:</b>      | The migration program could not add <i>&lt;login ID&gt;</i> to the password file. |
| <b>Resolution:</b> | Use the FACE program to add the login to the <i>UNIX</i> system.                  |

---

|                    |                                                                                                                                                                                                                                                                                |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message:</b>    | Error in adding <i>&lt;synonym name&gt;</i> to table.                                                                                                                                                                                                                          |
| <b>Cause:</b>      | The migration program could not add the synonym <i>&lt;synonym name&gt;</i> to the R3V8 Dictionary database.                                                                                                                                                                   |
| <b>Resolution:</b> | List the names (synonyms) in the R3V8 Dictionary subsystem, and add this name if necessary. The name type is whatever type that was being migrated at the time of the message; that is split/skill, vector, VDN, or trunk group. See the previous log entry for the name type. |

---

|                    |                                                                                                                                          |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message:</b>    | Error in adding feature permissions for <i>&lt;user login&gt;</i>                                                                        |
| <b>Cause:</b>      | When migrating R2 CMS user logins, the migration program could not add the feature permissions for <i>&lt;user login&gt;</i> .           |
| <b>Resolution:</b> | Use the CMS R3V8 User Data: Feature Access window and check the permissions for <i>user login</i> . Modify the permissions if necessary. |

---

---

**Message:** Error in adding input variable: *<report variable>*

**Cause:** During the migration of an R2 custom report, the program could not add the variable *<report variable>* to the R3V8 version of the report.

**Resolution:** Use the R3V8 Custom Reports: Screen Painter and add the variable for that report if that variable is necessary for the report to run. Verify all row search IDs to make sure they have the correct syntax.

---

**Message:** Error in adding member *<mbrnum>* to group *<grpname>*.

**Cause:** The migration program could not add group member *<mbrnum>* to group *<grpname>*.

**Resolution:** Display the contents of the group in the R3V8 Dictionary subsystem, and add the member if necessary.

---

**Message:** Error in adding *<userlog>*

**Cause:** When migrating R2 CMS user logins, the migration program could not add *userlog*.

**Resolution:** Use the CMS R3V8 User Permissions subsystem and check that the user login exists and has the correct permissions. Add or modify the user login if necessary.

---

**Message:** Error in creating UNIX login for user '*<username>*'. The user may have already had UNIX log...

**Cause:** The user already has a *UNIX\** system login in *CentreVu* CMS R3V8.

**Resolution:** If the user *username* already has a *UNIX* system login, ignore this message. Otherwise, verify that this user can log on and report any problems to Services.

---

**Message:** ERROR: too many select (repeat) statements: *row search number*

**Cause:** The number of select conditions in an R2 custom report exceeded the maximum of ten row search IDs for an R3V8 report.

**Resolution:** The R2 report is not migrated. You have to re-create the report in CMS R3V8.

---

**Message:** ERROR: too many select statements: *<row search number>*

**Cause:** The number of select conditions in an R2 custom report exceeded the maximum of ten row search IDs for any report in CMS R3V8.

**Resolution:** The R2 report is not migrated. You must re-create the report in CMS R3V8.

---

---

**Message:** Errors during this compile. Cannot migrate custom report.  
Compiler errors at bottom of file: *<source file>*

**Cause:** The report did not compile in R2 and is not migrated to R3V8.

**Resolution:** If you need the information from this report, re-create it in R3V8.

---

**Message:** Expression field being deleted because it goes beyond the width of report: row=*<row>* col=*<col>* width=*<width>* R3 expression: *<expression>*

**Cause:** This field in the migrated real-time custom report exceeded the allowable length of 132 columns and was not migrated.

**Resolution:** You need to add the field to the real-time custom report in R3V8 using the editor.

---

**Message:** Expression (row=*<row number>*,col=*<column number>*) exceeds maximum length and has been truncated: *<expression>*

**Cause:** During migration, the expression *expression* changed and is too long for the Select field of the Field window.

**Resolution:** Delete spaces from the expression. If this does not decrease the length of the expression enough, then create a custom calculation in the Dictionary for *expression*. Edit the report and substitute the custom calculation for the expression in the Select field of the Field window.

---

**Message:** Failed to deliver service parameters to running system.  
After the migration, stop and then restart data collection.

**Cause:** The split service parameters from the R2 migration are not in effect for the R3 system.

**Resolution:** Stop and then restart CMS R3V8 data collection to cause the R3V8 system to use R2 service level parameters.

---

**Message:** Fatal errors during custom report compilation (*<file>*, *<line>*)

**Cause:** An R2 CMS custom report had compiler errors in the R2 system, so it was not migrated to CMS R3V8.

**Resolution:** Services may further investigate further, depending upon *<file>* and *<line>*.

---

**Message:** Full disk: call services to regain file system space.

**Cause:** The migration of R2 CMS data in conjunction with the R3V8 system collecting data, caused the disk space to fill up.

**Resolution:** Call services immediately to resolve this problem.

---

## Common error messages

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---

**Message:** Getting user input...

**Cause:** Informational R2 CMS migration processing message.

**Resolution:** No action required.

---

**Message:** `<login ID>` has no default printer. Assign default printer via User Data.

**Cause:** No default printer was assigned to `login ID` in the User Data window.

**Resolution:** Use the User Data window and assign a default printer to `<login ID>`.

---

**Message:** In order to attach disk, `/cms` must already be mounted, exiting...

**Cause:** The command cannot execute because the `/cms` file system is not mounted.

**Resolution:** Execute a `mount /cms` command and rerun the command.

---

**Message:** Initializing temporary database tables...

**Cause:** Informational R2 CMS migration processing message.

**Resolution:** No action required.

---

**Message:** Insufficient number of free blocks (`<#-of-blocks>`) in `<system name>` for temporary database tables.

**Cause:** The file system does not contain enough free blocks for CMS R3V8 to create the temporary tables needed for the migration.

**Resolution:** Call services to resolve this situation.

---

**Message:** \*\*\* INTERNAL ERROR: contact services (`<error#>`, `<timestamp>`) \*\*\*

**Cause:** An internal error occurred during processing of the table listed above this message.

**Resolution:** Contact services immediately. Do not remove the migration log file. Services needs the `errornum` and `time stamp` to find more information in their error log.

---

**Message:** Invalid user `<logname>`. Permissions not migrated.

**Cause:** Informational. The CMS R3V8 system found permission information for a deleted user, so did not migrate the permissions.

**Resolution:** No action required.

---

---

|                    |                                                                                                                                                                                                                                                                                                                   |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message:</b>    | Logid in conflict with R3 CMS: (<login>)                                                                                                                                                                                                                                                                          |
| <b>Cause:</b>      | When migrating the R2 CMS user logins, the program found that <login> already existed in CMS R3V8.                                                                                                                                                                                                                |
| <b>Resolution:</b> | All R2 permissions for <i>user login</i> were migrated to R3V8 except feature access permissions and split/skill access permissions. You may want to use the CMS R3V8 System Setup: User Data subsystem to verify that the R3V8 feature access and split/skill access permissions for this login are appropriate. |

---

|                    |                                                                                                                                                                                                                                     |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message:</b>    | Login ID <login ID name> already exists.                                                                                                                                                                                            |
| <b>Cause:</b>      | A login ID <i>login ID name</i> already existed in the R3V8 Dictionary database when this migration was done. The R2 login ID was not migrated.                                                                                     |
| <b>Resolution:</b> | Modify the R2 login ID, and manually add it to the R3V8 Dictionary subsystem if necessary. If you migrate the administration data more than once, this message will appear for all the login IDs that were migrated the first time. |

---

|                    |                                                                                                                                                                                                                                                                                                                                    |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message:</b>    | Member <member number> is already in group <group name>.                                                                                                                                                                                                                                                                           |
| <b>Cause:</b>      | The group member <i>member number</i> of the group <i>group name</i> already existed in the R3V8 Dictionary database when this migration was done. The group member was not migrated. If you migrate the administration data more than once, this message will appear for all the group members that were migrated the first time. |
| <b>Resolution:</b> | Modify the group in the R3V8 Dictionary subsystem if necessary.                                                                                                                                                                                                                                                                    |

---

|                    |                                                                                                                                        |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Message:</b>    | Menu addition: Name collision: <menu name> (/bin/date).                                                                                |
| <b>Cause:</b>      | There is already a menu item with the same name as the one being migrated.                                                             |
| <b>Resolution:</b> | If the menu item refers to a different application, you need to reenter the menu name with a new name. Otherwise, ignore this message. |

---

|                    |                                                                                        |
|--------------------|----------------------------------------------------------------------------------------|
| <b>Message:</b>    | metadb: <system: device:> has a metadatabase replica                                   |
| <b>Cause:</b>      | There are already state database replicas existing on the indicated system and device. |
| <b>Resolution:</b> | No action required.                                                                    |

---

**Message:** metainit: <systemname>: /etc/opt/SUNWmd/md.tab line 12: d19:  
unit already set up

**Cause:** An initial setup of the file system has already been performed.

**Resolution:** 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 the following:

```
/olds/olds -setup c0t2d0
```

If you really need to do an initial setup, use the following commands to reinitialize:

 **WARNING:**

These commands remove all system data. Make SURE you want to do this!

```
/olds/olds -cleanup
.
.
.
init 6 (reboots your system)
.
.
.
 (should receive d19: Concat/Stripe is cleared message)
.
.
.
/olds/olds -check_disks
/olds/olds -mk_files
/olds/olds -metadbs
/olds/olds -setup
```

Once the setup has completed, verify that all the disks are being controlled by the Solstice DiskSuite software. Use the following commands:

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

Finally, restore all your swap files and their entries in `/etc/vfstab`. Do that by repeating the Solstice DiskSuite configuration step.

---

**Message:** metainit: syntax error

**Cause:** This is the `olds` general failure message. The most likely cause is that the `/etc/opt/SUNWmd/md.tab` file disagrees with your configuration. (For example, the file says you have seven disks in a given metadvice, but you really only have six.)

**Resolution:** Verify that `/etc/opt/SUNWmd/md.tab` is accurate. As a last resort, use an old `md.tab` file or do an initial `olds` setup.

---

---

**Message:** Migrating <tablename> ACD<n> ...

**Cause:** Informational message. Table *tablename* is being migrated. If the ACD*n* element appears, it indicates the table being migrated is specific to that ACD. If you want more information about the table itself, look up the table name in Appendix B.

**Resolution:** No action required.

---

**Message:** Migrating Historical Custom Report <report name>

**Cause:** Informational message printed for each historical custom report migrated.

**Resolution:** No action required.

---

**Message:** Migrating realtime Custom Report <report name>

**Cause:** This message is printed for each real-time custom report that is migrated.

**Resolution:** No action required.

---

**Message:** Migration completed.

**Cause:** CMS R3V8 finished migrating either the administration or historical data.

**Resolution:** No action required.

---

**Message:** Multiple repeat statements on different rows in this report.  
Can't swap.

**Cause:** CMS R3V8 does not allow a vertically-repeated field to appear above another repeated field.

**Resolution:** Use the R3V8 Custom Reports: Screen Painter and redesign the report so that all vertically-repeated fields are on the same row. Or, create multiple reports, where each report has a single row of vertically-repeated fields.

---

**Message:** newfs of cms metadvice failed

**Cause:** There is an internal problem with one of your disks.

**Resolution:** Enter a `metaclear d19` command, and then rerun the `olds -setup` script. If the same error recurs after all that, repartition your disks or call Avaya Inc. National Customer Care Center at 1-800-242-2121

---

---

**Message:** `<calculation name> not found in the R3 database.`

**Cause:** One of the following conditions may cause this message to occur:

1. The formula for *calculation name* has items that cannot be found in the R3V8 Dictionary. Usually this occurs when an R2 calculation contains a nested calculation, and the original calculation is migrated before the nested one.
2. The calculation or database item is misspelled, in which case the calculation fails on R2.

**Resolution:**

1. Migrating an original calculation before the nested one is not a problem. No action needs to be taken. Verify that they are both in the Dictionary.
2. If the calculation or database item is misspelled, use the R3V8 Dictionary subsystem to correct the spelling. Note that if you correct the spelling, the calculation or database item may work in R3V8.

---

**Message:** `Owner (id) not migrated to R3 CMS, 'cms' will be owner of this report.`

**Cause:** The R2 *user id* was not migrated to the R3V8 system. This user owned the custom report that was being migrated at the time of the message, but was not on the R3V8 system. The migration program changes the owner of the report to the “cms” user ID.

**Resolution:** Do the following to transfer ownership of the report back to the original user ID. First, add the R2 *user ID* to the R3V8 system. Next, add a new custom report name for that user. Then, copy the report owned by “cms” to the new custom report name. Finally, delete the report owned by “cms.” NOTE: A CMS administrator logged in as “cms” should do this.

---

**Message:** `Problem removing table. Call services to drop <tablename>.`

**Cause:** An internal temporary table was not removed when the migration finished.

**Resolution:** This condition causes no CMS problems, but you should contact services to remove the table to gain additional disk space.

---

**Message:** `prtvtoc: /dev/rdisk/c0t6d0: Device busy`

**Cause:** 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, it is a CD-ROM drive).

**Resolution:** No action required.

---

**Message:** R2 ASTATE is mapped to WORKMODE. You must manually add DIRECTION to the right of this field.

**Cause:** The R2 database item ASTATE was split into two database items for R3V8; that is, WORKMODE and DIRECTION. The migration program maps ASTATE only to WORKMODE.

**Resolution:** Use the R3V8 Screen Painter to:

1. Make the WORKMODE field five columns.
  2. Create a three-column field and enter "cagent.DIRECTION" in the Select field. In the Dictionary subsystem, set the synonym to "ag\_dir."
  3. Assign the new field to the same Row Search Id as WORKMODE.
  4. Save the changes by selecting the "Save Design" option.
- 

**Message:** R2 calculation *<calculation name>* contains *<database items>* which you must resolve to *<set of R3V8 database items>*.

**Cause:** The following R2 database items map to more than one R3V8 database item:

| <b>R2 Item</b> | <b>R3 Equivalent</b>     |
|----------------|--------------------------|
| ASSOCIATION    | SPLIT, LOGID             |
| CALLPROFCHG    | SVCLEVELCHG, PERIODCHG   |
| EVENT          | MALICIOUS, ASSIST        |
| NONACD         | CONNECTCALLS, OTHERCALLS |
| RINGABANDON    | ABNCALLS, ABNRINGCALLS   |
| RINGABNTIME    | ABNTIME, ABNRINGTIME     |

**Resolution:** Determine which equivalent R3V8 database item is appropriate for the calculation. Then, in the Calculations window of the Dictionary subsystem, substitute the equivalent R3V8 database item for the R2 item.

---

**Message:** R2 Login ID (*<LOGID>*) converted to (*<logid>*) due to upper case characters.

**Cause:** The migrated login ID contained uppercase characters.

**Resolution:** None. The login ID is automatically converted to all lowercase characters.

---

- Message:** R2 standard calculation *<calculation name>* is already in R3V8 dictionary. Review all migrated custom reports using this calculation to make sure the R3 formula is appropriate.
- Cause:** Some standard R2 calculations are not included in the standard set of R3V8 calculations. Because they may be used in custom reports, these standard R2 calculations are migrated to the R3V8 system. If, before the migration, you created a custom calculation with the same name as these R2 calculations, the R2 calculation will not migrate and this message occurs.
- Resolution:** You need to compare the R2 and R3V8 formulas. If the R3V8 formula is appropriate, no action needs to be taken. If you need to use the R2 formula, you can change the R3V8 calculation to contain the R2 formula. However, changing the R3V8 calculation to contain the R3V8 formula will affect R3V8 standard reports.
- 

- Message:** – Request failed. See `/cms/install/logdir/backup.log` for more information.
- Cause:** The tape is improperly seated in the drive, or was removed from the drive during the backup or is write protected, or the medium is corrupted.
- Resolution:** Check the console terminal. If you see a message like `WARNING: ST01: HA 0 TC 3 LU 0: Err 60503005 CMD 0000000A Sense Key 00000004 Ext Sense 00000000`, the tape is corrupted. Discard it and replace it with a new tape.
- Otherwise, remove the tape from the drive and make sure it is not write protected (the black arrow in the upper left corner should be pointing away from “safe”).
- Finally, reinsert the tape into the drive, making certain it is properly seated, and restart the backup.
- 

- Message:** Row Search Id *<n>* will fail because the select list contains a mixture of aggregate and nonaggregate items, and the group by limit for R3 custom reports (8) has been exceeded (*<number>*). Some of the fields will need to be changed or assigned to a duplicate Row Search ID before this report can be executed.
- Cause:** R2 CMS allows a mixture of aggregate items (SUM, MAX, MIN, etc.) and nonaggregate items with the same search criteria. The R3V8 database, *INFORMIX-SQL*, has a limit of eight nonaggregate fields that can be in the same row search criteria with aggregate fields. If this limit is exceeded, this error message occurs.
- Resolution:** Select the Field option on the R3V8 Custom Reports: Screen Painter. If only one field in the Row Search uses an aggregate and this field is “max” (tablename.MAXOCWTIME) or a similar database item, then remove the “max” from the field (MAXOCWTIME is the maximum for the collection interval, so max [tablename.MAXOCWTIME] is redundant).
-

---

**Message:** Row Search <rownumber>: where clause contains too many characters, <length>, maximum is 468.

**Cause:** When the criteria for row search ID *rownumber* was migrated to R3V8, it was too long for the “select rows where” field.

**Resolution:** Edit the row search ID. Remove any unnecessary information in the `select rows where` field, such as table name, or change the variable to allow a range and decrease the number of “and” clauses or “or” clauses, or both.

---

**Message:** STARTTIME column too small: *number of columns row=row number, col=column number*

**Cause:** The R3V8 database item STARTTIME has the form “starttime-endtime.” If the R2 report did not provide enough space for this expansion, this error occurs.

**Resolution:** Use the R3V8 Custom Reports: Screen Painter to provide additional space.

---

**Message:** Successfully built temporary database tables.

**Cause:** Standard informational R2 CMS migration processing message.

**Resolution:** No action required.

---

**Message:** Synonym <*synonym name*> already exists.

**Cause:** The synonym *synonym name* already existed in the R3V8 Dictionary database when this migration was done. The R2 synonym was not migrated.

**Resolution:** Modify the R2 synonym name and manually add it to the R3V8 Dictionary subsystem if necessary. The synonym type is whatever type was being migrated at the time of the message; that is, split/skill, vector, VDN, or trunk group. See the previous log entry for the synonym type. If you migrate the administration data more than once, this message will appear for all the synonyms that were migrated the first time.

---

**Message:** Table not migrated. Vectoring package not installed.

**Cause:** During the historical migration, vectoring data existed on the R2 migration tape, but vectoring was not activated on the R3V8 system. This outage caused the historical vectoring data (half-hour and daily VDN/vector data) to not be migrated.

**Resolution:** Contact services to have vectoring activated on the R3V8 system and, when activated, remigrate the historical data.

---

**Message:** Terminated by user request?  
User not administered on UNIX: user login

**Cause:** The login *user login* was migrated to CMS R3V8 but does not exist as a login on the *UNIX* system.

**Resolution:** Users will be unable to log into *CentreVu* CMS R3V8 until they are added to the *UNIX* system. To add the user login, access User Permissions: User Data window. Press **Ctrl** **Z** simultaneously to clear all fields. Type *user login* in the first field, select "Find one," and then select "Add." This procedure adds *user login* to the *UNIX* system and allows the user to log into *CentreVu* CMS R3V8. Follow the same steps for every user login that was not administered on the *UNIX* system.

---

**Message:** Text truncated after column 132: row=<row> col=<col>

**Cause:** A text field for a migrated real-time report either straddled or exceeded the allowable R3V8 line length of 132 columns. If the field exceeded 132 columns, it was not migrated. If it straddled 132 columns, it was truncated.

**Resolution:** Use the editor to add or modify the report text field in R3V8.

---

**Message:** – That didn't work, cannot open "/dev/scsi/qtape1"  
Change to part X and press RETURN key. [q] Permission denied.

**Cause:** During a multiple-tape backup, a continuation tape has been inserted that is write protected.

**Resolution:** Remove the tape from the tape drive. Turn off write protection by moving the black arrow to point away from "safe." Reinsert the tape into the drive and continue the backup.

---

**Message:** The expression <expression> could not be resolved in the dictionary. You must fix the expression <expression> for the report to work.

**Cause:** There is a calculation in the custom report that contains an invalid database item(s), and the calculation cannot be resolved in R3V8. The most likely causes for this message are that a referenced database item or another calculation cannot be found in the Dictionary subsystem or did not migrate.

**Resolution:** Review previous comments in the migration log for references to the same expression. If there are other comments, this will help you define exactly what the problem is.

---

**Message:** The stop date/time for all tables is: date

**Cause:** Standard informational message that gives the stop date/time input on the R2 CMS Migration window.

**Resolution:** No action required.

---

---

**Message:** This report goes beyond the maximum number of rows (25).

**Cause:** This is a quad report, which R3V8 does not allow. Only the first quadrant is migrated.

**Resolution:** To regain the other quadrants, you must create an R3V8 custom report for each quadrant.

---

**Message:** Too many date display fields, now adding: *date prompt*.

**Cause:** Migrated custom reports can have only one hard-coded date selection. For example, if the report is for yesterday's data, the R2 custom report should designate the date as "-1." This error indicates that the custom report referenced different days among its select statements. For example, -1 and -3.

**Resolution:** Use the Screen Painter to edit the report and correct the date.

---

**Message:** Unable to move scroll region to bottom of report. You must do this manually.

**Cause:** Not enough rows were available to move the repeated portion of the R2 report to the bottom of the R3V8 report.

**Resolution:** Edit the custom report via the R3V8 Custom Reports: Screen Painter and move the repeated row to the bottom of the report.

---

**Message:** UNRECOVERABLE ERROR READING TAPE, errno= Failed to open tape: no entry in the device directory. Make sure the Maintenance: Backup/Restore Devices screen has the correct Path.

**Cause:** The R2 migration program could not open the tape drive to read the R2 CMS data.

**Resolution:** Check that the specified tape drive is set up with the correct path in the Maintenance: Backup/Restore Devices window. If you cannot resolve this problem, contact services for additional help. You may have a tape drive hardware problem or need a corrected tape device path.

---

**Message:** UNRECOVERABLE ERROR READING TAPE, errno= Tape drive not ready: there is no tape in the drive.

**Cause:** The R2 migration program could not open the tape drive to read the R2 CMS data.

**Resolution:** Verify that the tape is positioned in the drive correctly, and restart the migration. Contact services if problems persist.

---

---

**Message:** User *<user name>*: access permissions already existed for table name.

**Cause:** A specific CMS user login *user name* already had access permissions for a certain *table name* (splits/skills, VDNs, vectors, or trunk groups).

**Resolution:** Check that the access permissions for *user login* are correct. If not, manually change them using the R3V8 User Data windows.

---

**Message:** VDN Synonym *<VDN synonym name, VDN number>* already exists as R3 synonym.

**Cause:** A VDN synonym *VDN synonym name* already existed in the R3V8 Dictionary database when this migration was done.

**Resolution:** Modify the R2 VDN synonym name, and manually add it to the R3V8 Dictionary subsystem if necessary.

---

**Message:** Warning: Current Disk has mounted partitions

**Cause:** The format command is warning you that it is probing a mounted disk.

**Resolution:** No action required. A probe is a nondestructive task that poses no danger to your data.

---

**Message:** WARNING: custom report '*report name*' (*username*) contains obsolete column '*column name*'

**Cause:** One of the columns used directly in this custom report (owned by *username*) is no longer valid in R3V8.

**Resolution:** You must delete/change the obsolete column from the report in order to use it. Note that the only obsolete column likely to be used by the customer is I\_AUXTIME for 'agent' tables because it was one of the columns made available to the customer. Its R3V8 equivalent is TI\_AUXTIME.



**CAUTION:**

Migration program will not be able to detect the use of I\_AUXTIME indirectly through table-independent formulas because I\_AUXTIME is no longer valid with 'agent' tables but still valid with other historical tables.

---

**Message:** WARNING: Dictionary: calculation '*calculation name*' contains obsolete column: *COLUMN NAME*

**Cause:** The *COLUMN NAME* is no longer valid with CMS R3V8.

**Resolution:** You need to modify the formula to use a different column, or stop using the formula altogether. The following columns are no longer valid:

|               |                |
|---------------|----------------|
| ABNRINGTIME   | O_ABNRINGCALLS |
| ADJROUTETIME  | O_ABNVECCALLS  |
| BH_OBUSYCALLS | O_BACKUPCALLS  |
| BH_ODISCCALLS | O_BUSYCALLS    |
| HOLDABNTIME   | O_CONNECTCALLS |
| INTERFLOWTIME | O_DISCCALLS    |
| LOOKFLOWTIME  | O_TRANSFERRED  |
| O_ABNQUECALLS |                |

---

**Message:** Warnings during this compile. Make sure the report works correctly. Warnings at bottom of file: *<source file>*

**Cause:** During compilation of the custom report, the compiler detected problems. The report was migrated, but may not run in R3V8.

**Resolution:** Before trying to run the custom report, review and edit it to ensure accuracy.

---

**Message:** *<group name>* was an extension group in R2, and is now an agent group in R3.  
The extensions in this group have been changed to login ids.

**Cause:** CMS R3V8 does not allow groups set up by extension numbers, only by login IDs. Any R2 CMS extension groups migrated to CMS R3V8 are changed to agent groups, and the associated extensions are changed to login IDs.

**Resolution:** Review this group to determine if using the extensions as login IDs is appropriate for your system. If it isn't, delete the contents of the group and add the appropriate login IDs.

---

**Message:** You must be root in order to run this command

**Cause:** Superuser privileges are necessary to run this script because most of the commands are related to system administration.

**Resolution:** Log in as the root user and rerun the command.

---

## Common error messages

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**Message:** You need to have at least one disk set up, before attaching one, exiting...

**Cause:** You tried to use olds to attach a disk, but the metadvice has not yet been set up.

**Resolution:** Set up the metadvice by running the `/olds/olds -setup` command without arguments.

---

# Glossary

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Access Permissions</b> | 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 <b>read</b> or <b>write</b> 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. |
| <b>ACD</b>                | See Automatic Call Distribution (ACD)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Acknowledgment</b>     | 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.                                                                                                                                                                                                                                                        |
| <b>Action List</b>        | 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.                                                                                                                                                                                                                                                                                    |
| <b>Add Package</b>        | A Solaris operating system command ( <code>pkgadd</code> ) that allows you to add an additional software package.                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>ADU</b>                | See Asynchronous Data Unit (ADU)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Agent</b>              | 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.                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Agent Login ID</b>     | 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.                                                                                                                                                                                                                                                                                                                               |
| <b>Agent Skill</b>        | 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.                                                                                                                                                                                                                                                                                       |
| <b>Agent State</b>        | 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<sup>®</sup> CMS**

CentreVu Call Management System (CMS). A software product used by business customers that have a Avaya Inc. telecommunications switch and receive a large volume of telephone calls that are processed through the Automatic Call Distribution (ACD) feature of the switch.

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|                                   |                                                                                                                                                                                                                                                    |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CMS</b>                        | Call Management System. See CentreVu® CMS.                                                                                                                                                                                                         |
| <b>CMSADM</b>                     | Call Management System Administration. The part of the CMS software that allows a user to administer features of CMS. See also “CMSSVC.”                                                                                                           |
| <b>CMSADM file system backup</b>  | A backup that saves all the file systems on the machine which includes Solaris 7 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. |
| <b>CMSSVC</b>                     | Call Management System Services. The part of the CMS software product that allows a user to manage CMS system services. See also “CMSADM.”                                                                                                         |
| <b>Command</b>                    | A command is an instruction used to tell the computer to perform a function or to carry out an activity.                                                                                                                                           |
| <b>Common Desktop Environment</b> | A desktop user interface for Solaris. This replaces OpenWindows.                                                                                                                                                                                   |
| <b>Configuration</b>              | Configuration is the way that the computer is set up to allow for particular uses or situations.                                                                                                                                                   |
| <b>Copy</b>                       | Copy means to duplicate information.                                                                                                                                                                                                               |
| <b>Custom Reports</b>             | Real-time or historical reports that have been customized from standard reports or created from original design.                                                                                                                                   |
| <b>Daemon</b>                     | 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.                         |
| <b>Data Collection Off</b>        | CMS is not collecting ACD data. If you turn off data collection, CMS will not collect data on current call activity.                                                                                                                               |
| <b>Database</b>                   | 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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|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Database Item</b>               | 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). |
| <b>Database Tables</b>             | 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.                                                                                                                                                               |
| <b>Device</b>                      | 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).                                                                                                                                          |
| <b>Disk</b>                        | A round platter, or set of platters, coated with magnetic medium and organized into concentric tracks for storing data.                                                                                                                                                                                           |
| <b>DSIMM</b>                       | Dynamic random access memory Single In-line Memory Module. A small printed circuit card that contains Dynamic Random Access Memory (DRAM)                                                                                                                                                                         |
| <b>EAD</b>                         | See Expert Agent Distribution (EAD)                                                                                                                                                                                                                                                                               |
| <b>EAS</b>                         | See Expert Agent Selection (EAS)                                                                                                                                                                                                                                                                                  |
| <b>ECC</b>                         | See Error Correction Codes (ECC)                                                                                                                                                                                                                                                                                  |
| <b>EIA</b>                         | Electronic Industries Association. An organization that sets standards for consumer products and electronic components.                                                                                                                                                                                           |
| <b>Error Correction Code (ECC)</b> | A code that protects the customer's system and data from single bit soft errors that can occur frequently depending on the environment.                                                                                                                                                                           |
| <b>Error Message</b>               | An error message is a response from a program indicating that a problem has arisen or something unexpected has happened, requiring your attention.                                                                                                                                                                |
| <b>Ethernet</b>                    | 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.                                                                             |
| <b>Ethernet Address</b>            | 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.                                                                                                                                |

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|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Exception</b>                         | 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). |
| <b>Expert Agent Distribution (EAD)</b>   | 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.                                                                                      |
| <b>Expert Agent Selection (EAS)</b>      | 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.                                                                                                    |
| <b>Forecast Reports</b>                  | 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.                                                                                                                                              |
| <b>Gigabyte (GB)</b>                     | One gigabyte equals $2^{30}$ bytes (1073741824 bytes).                                                                                                                                                                                                                                                      |
| <b>Hand-Shaking Logic</b>                | A format used to initiate a data connection between two data module devices.                                                                                                                                                                                                                                |
| <b>Hard Disk</b>                         | A device that stores operating systems, programs, and data files.                                                                                                                                                                                                                                           |
| <b>High Speed Serial Interface (HSI)</b> | 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.                                                                                                            |
| <b>Historical Database</b>               | 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.                                                                   |
| <b>Historical Reports</b>                | Reports that display past ACD data for various agent, split or skill, trunk, trunk group, vector, or VDN activities.                                                                                                                                                                                        |
| <b>Host Computer</b>                     | 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.                                         |
| <b>Host Name</b>                         | A name that you (or your system administrator) assign to your system unit to uniquely identify it to the Solaris 7 operating system (and also to the network).                                                                                                                                              |

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|-----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Hung System</b>                                  | A system that does not respond to input from the keyboard or mouse.                                                                                                                                                |
| <b>ITU</b>                                          | See International Telecommunications Union (ITU)                                                                                                                                                                   |
| <b>INFORMIX</b>                                     | A relational database management system used to organize CMS data. An add-on software package needed by CMS.                                                                                                       |
| <b>Install</b>                                      | 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. |
| <b>Interface</b>                                    | A common boundary between two systems or pieces of equipment.                                                                                                                                                      |
| <b>International Telecommunications Union (ITU)</b> | Formerly the Consultative Committee for International Telephony and Telegraphy (CCITT). An international organization that sets communications standards.                                                          |
| <b>Internet Protocol (IP)</b>                       | 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.      |
| <b>LAPB</b>                                         | See Link Access Procedure Balanced (LAPB)                                                                                                                                                                          |
| <b>Link Access Procedure Balanced (LAPB)</b>        | The ITU standard error correction protocol used on most current X.25 packet switching networks.                                                                                                                    |
| <b>Link</b>                                         | A transmitter-receiver channel or system that connects two locations.                                                                                                                                              |
| <b>Log In</b>                                       | The process of gaining access to a system by entering a user name and, optionally, a password.                                                                                                                     |
| <b>Log Out</b>                                      | The process of exiting from a system.                                                                                                                                                                              |
| <b>Logical Unit</b>                                 | The term used to refer to a peripheral device such as a disk drive.                                                                                                                                                |
| <b>Measured</b>                                     | 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.                                                                       |
| <b>Megabyte (MB)</b>                                | One megabyte equals $2^{20}$ bytes (1048576 bytes).                                                                                                                                                                |
| <b>Menu</b>                                         | 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.                                                                                   |
| <b>Multi-user Mode</b>                              | A mode of CMS in which any administered CMS user can log into CMS. Data continues to be collected if data collection is "on."                                                                                      |

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|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Network Address</b>                           | 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.                                                                                   |
| <b>Network Hub</b>                               | Hardware that connects a computer to a Network Terminal Server (NTS).                                                                                                                                                                                             |
| <b>Network Terminal Server (NTS)</b>             | 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.                                                                 |
| <b>Network Terminal Server Patch Panel</b>       | 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.                                                                                    |
| <b>Non-Volatile Random Access Memory (NVRAM)</b> | A random access memory (RAM) system that holds its contents when external power is lost.                                                                                                                                                                          |
| <b>NTS</b>                                       | See Network Terminal Server (NTS)                                                                                                                                                                                                                                 |
| <b>NVRAM</b>                                     | See Non-Volatile Random Access Memory (NVRAM)                                                                                                                                                                                                                     |
| <b>Open Window</b>                               | 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. |
| <b>Operating System (OS)</b>                     | The software that controls and allocates the resources, such as memory, disk storage, and the screen display for the computer.                                                                                                                                    |
| <b>Partitions</b>                                | 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.                                                  |
| <b>Password</b>                                  | 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.                                  |
| <b>Port (I/O Port)</b>                           | A designation of the location of a circuit that provides an interface between the system and lines and/or trunks.                                                                                                                                                 |
| <b>Primary Skill</b>                             | An agent will handle calls to many skills before calls to secondary skills. See "Agent Skill" in this Glossary.                                                                                                                                                   |

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|                                  |                                                                                                                                                                                                                                                                                                                                                         |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Primary Window</b>            | 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.                                                                                                                                  |
| <b>Printer</b>                   | A physical device that takes electronic signals, interprets them, and prints them on paper.                                                                                                                                                                                                                                                             |
| <b>Processor Interface (PI)</b>  | A hardware device on the Generic 3i switches that prepares and sends architecture messages to other switches or application adjuncts.                                                                                                                                                                                                                   |
| <b>QIC</b>                       | Quarter-Inch Cartridge                                                                                                                                                                                                                                                                                                                                  |
| <b>Recommended Standard (RS)</b> | Any one of several Electronic Industries Association (EIA) standards commonly used in U.S. electronic applications.                                                                                                                                                                                                                                     |
| <b>Refresh Rate</b>              | 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.           |
| <b>RISC</b>                      | 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.                                        |
| <b>RS</b>                        | See Recommended Standard (RS)                                                                                                                                                                                                                                                                                                                           |
| <b>RS-422</b>                    | A balanced electrical interface (for example, RS-422 has a positive and a negative voltage). This interface is used by the HSI card.                                                                                                                                                                                                                    |
| <b>RS-449</b>                    | A 37-pin physical interface used by the HSI card.                                                                                                                                                                                                                                                                                                       |
| <b>SBus</b>                      | The Input/Output bus for the Sun SPARCserver and Enterprise computers. Provides slots for additional cards (for example, HSI Controller Card).                                                                                                                                                                                                          |
| <b>SBus Expansion Subsystem</b>  | 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. |

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|                                          |                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Screen Labeled Key (SLK)</b>          | 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.                                                                                                                                                                                         |
| <b>SCSI</b>                              | See Small Computer System Interface                                                                                                                                                                                                                                                                                                                                                    |
| <b>SCSI Bus</b>                          | 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.                                                          |
| <b>SCSI ID</b>                           | 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 Avaya Inc. 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. |
| <b>SCSI Single-Ended Bus</b>             | 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.                                                                                                                                                                                                         |
| <b>Secondary Skill</b>                   | An agent will handle secondary skill calls after primary skill calls. See "Agent Skill" in this Glossary.                                                                                                                                                                                                                                                                              |
| <b>Secondary Window</b>                  | 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.                                                                                                                                                                                                                                   |
| <b>Serial Asynchronous Interface/PCI</b> | A card that provides access to eight serial ports by connecting to an eight-port patch panel.                                                                                                                                                                                                                                                                                          |
| <b>Single-User Mode</b>                  | 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.                                                                                                                                                                                                                   |
| <b>Skill</b>                             | 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.                                                                                                                                                                                                                                          |
| <b>SQL</b>                               | See Structured Query Language (SQL)                                                                                                                                                                                                                                                                                                                                                    |
| <b>Slot</b>                              | 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).                                                                                                                                                                                                                              |

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|                                               |                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Small Computer System Interface (SCSI)</b> | A hardware interface that allows the connection of peripheral devices (such as hard disks, tape drives and CD-ROM drives) to a computer system.                                                                                                                                              |
| <b>Split</b>                                  | 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.                                                                                                                           |
| <b>Storage Device</b>                         | 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.                                                                                                                                          |
| <b>Structured Query Language (SQL)</b>        | 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.                                                                        |
| <b>Submenu</b>                                | A menu that appears as a result of a menu selection. All menu selections followed by a ">" have submenus.                                                                                                                                                                                    |
| <b>Subsystem</b>                              | 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.                                                               |
| <b>Sun Enterprise System</b>                  | 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 <sup>®</sup> CMS R3V6 and later versions as a replacement for the discontinued Sun SPARCserver 10/20 platforms.                      |
| <b>Sun SPARCserver Computer</b>               | 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. |
| <b>Super-user</b>                             | A user with full access privileges on a system, unlike a regular user whose access to files and accounts is limited.                                                                                                                                                                         |
| <b>Switch</b>                                 | 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.                                                                                              |
| <b>Syntax</b>                                 | The format of a command line.                                                                                                                                                                                                                                                                |
| <b>System</b>                                 | A general term for a computer and its software and data.                                                                                                                                                                                                                                     |

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|                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Tap</b>                                                      | A tap is any intelligent (microprocessor-based) controller connected to the SCSI bus.                                                                                                                                                                                                                                                                                                                   |
| <b>Tape Cartridge</b>                                           | 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.                                                                                                                                                                        |
| <b>TCP/IP</b>                                                   | See Transmission Control Protocol/Internet Protocol (TCP/IP)                                                                                                                                                                                                                                                                                                                                            |
| <b>TSC</b>                                                      | Technical Service Center. The Avaya Inc. organization that provides technical support for Avaya Inc. products.                                                                                                                                                                                                                                                                                          |
| <b>Transmission Control Protocol/Internet Protocol (TCP/IP)</b> | A communications protocol that provides interworking between dissimilar systems. It is the de facto standard for UNIX systems.                                                                                                                                                                                                                                                                          |
| <b>Trunk</b>                                                    | A telephone line that carries calls between two switches, between a Central Office (CO) and a switch, or between a CO and a phone.                                                                                                                                                                                                                                                                      |
| <b>Trunk Group</b>                                              | A group of trunks that are assigned the same dialing digits — either a phone number or a Direct Inward Dialing (DID) prefix.                                                                                                                                                                                                                                                                            |
| <b>UNIX System</b>                                              | 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.                                                                                                                                                                                                                                       |
| <b>User ID</b>                                                  | The login ID for a CMS user.                                                                                                                                                                                                                                                                                                                                                                            |
| <b>User Name</b>                                                | A combination of letters, and possibly numbers, that identifies a user to the system.                                                                                                                                                                                                                                                                                                                   |
| <b>User Window</b>                                              | A window the user can move, size, or scroll. It may contain input fields, reports, or help information.                                                                                                                                                                                                                                                                                                 |
| <b>VDN</b>                                                      | See Vector Directory Number (VDN)                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Vector</b>                                                   | 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. |

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**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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