CentreVu® Call Management System

Release 3 Version 9

Software Installation, Maintenance, and Troubleshooting

585-215-956
Comcode 700203839
Issue 4.0
December 2001
Compas ID 82846

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

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

Trademarks

See the Preface of this document for trademark information.

Ordering Information

Call: Avaya Publications Center
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International Fax +1 410 891 0207

Write: GlobalWare Solutions
200 Ward Hill Avenue
Haverhill MA 01835 USA

Order: Document No. 585-215-956, Issue 4.0
Comcode 700203839, December 2001

You can be placed on a Standing Order list for this and other documents you may need. Standing Order will enable you to automatically receive updated versions of individual documents or document sets, billed to account information that you provide. For more information on Standing Orders, or to be put on a list to receive future issues of this document, please contact the Avaya Publications Center.

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

Comments

To comment on this document, return the comment card at the end of the document.

Acknowledgment

This document was written by the CRM Development group of Avaya University

CentreVu® Call Management System Release 3 Version 9 Software Installation, Maintenance, and Troubleshooting

Table of Contents

Installing CMS and Supporting Software

Turning the System Over to the Customer

Maintaining the CMS Software

Troubleshooting

Preface

Purpose

This document is written for technicians and call center customers who install, provision, and maintain Release 3 Version 9 of the CentreVu Call Management System (CMS) using the Solaris® 8 operating system.

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 the Solaris Operating System

  Outlines the Solaris operating system installation procedures. These procedures are used by technicians at customer sites and personnel at the factory.

- Chapter 3 — Installing CMS and Supporting Software

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

- Chapter 4 — Turning the System Over to the Customer

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

- Chapter 5 — Maintaining the CMS Software

  Discusses file system backups and other maintenance procedures.

- Chapter 6 — Troubleshooting

  Discusses how to fix various software related problems.

Reasons for re-issue

The information in this document is being re-issued for the following reasons:

- In “Setting the Informix configuration parameters for CMS” , updated the Informix processor settings table on page 241 with new NUMCPUVPS information for multi-processor systems.
- Added additional information on soft partitioning to Soft partitions on page 474.
- Added the procedure Troubleshooting soft partitioning on page 476.
- Made general wording corrections to the document.

Conventions

The following conventions are used in this document:

- Unless specified otherwise, all information and procedures in this document apply to the Sun Ultra 5 computer, the Sun Enterprise 3000 computer, Sun Blade 100 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.
- Keyboard commands are shown in **bold** text.
- 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 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.

Trademarks

The following trademarks are mentioned in this document:

- *CentreVu* is a registered trademarks of Avaya.
- *Enterprise, Solaris, SPARCserver, Network Terminal Server, Sun, SunSwift, Solstice, DiskSuite, Openwindows, Blade* 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.
- *OpenLink* is a trademark of OpenLink Software.

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

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.

CMS software documents

Title	Document number
Installing software on a CMS computer	
CentreVu Call Management System Release 3 Version 9 Software Installation, Maintenance, and Troubleshooting	585-215-956
CentreVu Call Management System Release 3 Version 8 Software Installation, Maintenance, and Troubleshooting	585-210-941
CentreVu Call Management System Software Installation and Setup (R3V6 and earlier)	585-215-866
Setting up a disk-mirrored system	
CentreVu Call Management System Release 3 Version 9 Software Installation, Maintenance, and Troubleshooting	585-215-956
CentreVu Call Management System Release 3 Version 8 Disk-Mirrored Systems	585-210-940
CentreVu Call Management System Disk-Mirrored Systems (R3V6)	585-215-841

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
CentreVu Call Management System Release 3 Version 9 Base Load Upgrade Procedures
CentreVu Call Management System Release 3 Version 8 Base Load Upgrade Procedures

- 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). For R3V9, a specific set of instructions are written for the upgrade and are shipped to the customer site with the new hardware. For R3V8, see the Avaya CMS documentation web site.

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

- 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
CentreVu Call Management System Release 3 Version 9 Sun Ultra 5 Computer CVUE Instructions
CentreVu Call Management System Release 3 Version 9 Sun Enterprise 3000 Computer CVUE Instructions
CentreVu Call Management System Release 3 Version 9 Sun Enterprise 3000 Computer Mirrored System CVUE Instructions
CentreVu Call Management System Release 3 Version 9 Sun Enterprise 3500 Computer CVUE Instructions
CentreVu Call Management System Release 3 Version 9 Sun Enterprise 3500 Computer Mirrored System CVUE Instructions
CentreVu Call Management System Release 3 Version 8 Sun SPARCserver 5 Computer CVUE Instructions
CentreVu Call Management System Release 3 Version 8 Sun SPARCserver 20 Computer CVUE Instructions
CentreVu Call Management System Release 3 Version 8 Sun Ultra 5 Computer CVUE Instructions
CentreVu Call Management System Release 3 Version 8 Sun Enterprise 3000 Computer CVUE Instructions
CentreVu Call Management System Release 3 Version 8 Sun Enterprise 3000 Computer Mirrored System CVUE Instructions
CentreVu Call Management System Release 3 Version 8 Sun Enterprise 3500 Computer CVUE Instructions
CentreVu Call Management System Release 3 Version 8 Sun Enterprise 3500 Computer Mirrored System CVUE Instructions

Hardware documents

Title	Document number
CentreVu Sun Blade 100 Computer Hardware Installation, Maintenance, and Troubleshooting	585-310-783
CentreVu Sun Blade 100 Computer Connectivity Diagram	585-310-782
CentreVu Sun Enterprise 3500 Computer Hardware Installation, Maintenance, and Troubleshooting	585-215-873
CentreVu Sun Enterprise 3500 Computer Connectivity Diagram	585-215-877
CentreVu Call Management System Sun Ultra 5 Computer Hardware Installation, Maintenance, and Troubleshooting	585-215-871
CentreVu Call Management System Sun Ultra 5 Computer Connectivity Diagram	585-215-872
CentreVu Call Management System Sun Enterprise 3000 and SPARCserver Computers Hardware Maintenance and Troubleshooting	585-214-016
CentreVu Call Management System Terminals, Printers, and Modems	585-215-874
CentreVu Call Management System Release 3 Version 6 Sun Enterprise 3000 Computer Hardware Installation	585-215-867
CentreVu Call Management System Release 3 Version 6 Sun Enterprise 3000 Computer Connectivity Diagram	585-215-865
CentreVu Call Management System Release 3 Version 6 Sun SPARCserver Computers Hardware Installation	585-215-857
CentreVu Call Management System Release 3 Version 6 Sun SPARCserver Computers Connectivity Diagram	585-215-858
CentreVu Call Management System Release 3 Version 5 Sun SPARCserver Installation and Maintenance	585-215-827
CentreVu Call Management System Release 3 Version 5 Sun SPARCserver Connectivity Diagram	585-215-828

Switch documents

Title	Document number
CentreVu Call Management System Switch Connections, Administration, and Troubleshooting	585-215-876

Administration documents

Title	Document number
CentreVu Call Management System Release 3 Version 9 Administration	585-214-015
CentreVu Call Management System Release 3 Version 8 Administration	585-210-910
CentreVu Call Management System Release 3 Version 6 Administration	585-215-850
CentreVu Call Management System Release 3 Version 5 Administration	585-215-820

Other documents

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

Documentation Web sites

IMPORTANT:
Additional information about new software or hardware updates will be contained in a future issues of this book. New issues of this book will be placed on the web when available.

The new issues of this book can be found at:

http://www.avaya.com/support

1. Click **Online Services**.

   The browser displays the Online Services menu.

2. Click **Documentation**.

   The browser displays the Product Documentation page.

3. Click **Recent Documents**.

   The browser displays the Recent Product Documentation page.

4. Click **CentreVu CMS**.

   The browser displays a table with the current issues of the CentreVu Call Management System documentation.

5. Click the most recent issue of the book that is available.

Use the following Web sites to view support documentation:

- Sun hardware documentation

  http://docs.sun.com

- Okidata printer documentation

  http://www.okidata.com

- Informix documentation

  http://www.informix.com

Introduction

Overview

CentreVu® Call Management System (CMS) is a software application that is offered in association with the Automatic Call Distribution (ACD) feature of Avaya 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 for Release 3 Version 9

CMS is supported on the following platforms:

- Sun Ultra™ 5 computer
- Sun Enterprise™ 3000 computer
- Sun Enterprise™ 3500 computer
- Sun Blade™ 100 computer

Software shipped with CMS Release 3 Version 9

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

- Solaris 8 Software; disks 1 and 2
  - — also contains Solstice DiskSuite™
- Software Supplement for the Solaris 8 Operating Environment, contains:
  - — Sun Online Validation Test Suite (VTS)
- CMS Hardware Drivers CD, contains:
  - — High-Speed Serial Interface/Sbus (HSI/S) (required only for systems that have an HSI/S card)
  - — High-Speed Serial Interface/PCI (HSI/P) (required only for systems that have an HSI/P card)
  - — Serial Asynchronous Interface/PCI (SAI/P) drivers (required only for systems that have an SAI/P card)
- Annex Communication Server R10.0(B) Annex Host Tools CD (required only for systems using Network Terminal Server™ [NTS])
- Solstice™ for Server Connect, Version 9.2 CD (required only on systems using an X.25 link to a switch)
- Informix® SQL Version 7.20 CD (optional)
- Informix IDS 9.21.UC4-1 CD
- Informix ESQL 9.40/2.50.UC1-2 SDK CD
- Informix ILS Version 3.0 CD
- CentreVu CMS Supplemental Services R3V9 CD
- R3V9 CentreVu Call Management System (CMS) CD, also contains:
  - — Sun Solaris patches
  - — CMS patches
- CentreVu CMS OPENLINK Open Database Connectivity (ODBC) Driver CD (optional)
- CentreVu Visual Vectors Server Software CD (optional)

Intended audience

This document is written for:

- On-site technicians
- Technical Service Center (TSC) personnel
- Factory personnel
- CMS customer administrators.

CentreVu CMS helplines

If a problem arises that requires assistance, use the following support information and help lines.

Frequently asked questions (FAQ)

For answers to common problems, CMS customers and Avaya technicians can access the CMS technical support FAQ at:

http://support.avaya.com/ccenter/centrevucallmgt/cms/faq/

Please check this information before you call in a trouble ticket. It could save you time and money.

Customer support for the United States

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

1-800-242-2121

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

Avaya technicians can receive help by using this number:

1-800-248-1234

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 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. The installation program also has on line help to answer your questions. If the software was installed at the factory, proceed to Installing CMS and Supporting Software on page 69.

To bring the CMS computer up to factory standards after a system re-configuration or repair, use the procedures in "Installing the Solaris Operating System" and Installing CMS and Supporting Software on page 69.

Prerequisites

Before you begin the installation procedures, perform the following tasks:

- Obtain the *Solaris 8 Software 4/01* disk 1 of 2 and disk 2 of 2 CDs.
- Identify the host name of the system, which is designated by the Technical Service Center (TSC).
- Identify the Internet Protocol (IP) address of the system (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, and that power is applied to all hardware devices.
- Identify any tape devices on the system.
- Verify that all hardware components of the system, including port cards, external disk drives, and tape drives, are correctly installed.

Platform considerations

This procedure is for *all platforms*.

Contents

"Installing the Solaris Operating System" includes the following procedures:

Booting from the Solaris Software CD

To boot the system from the *Solaris 8 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.

1. Turn on the power to all of the external devices, such as disk drives and tape drives.
2. Turn on the monitor.
3. Turn on the system.

   NOTE:

   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 8 Software* disk 1 of 2 CD into the CD-ROM drive.
6. Enter:

   `boot cdrom`

   The system boots from the CD, and displays a list of languages.

```
0. English
1. French
2. German
3. Italian
4. Japanese
5. Korean
6. Simplified Chinese
7. Spanish
8. Swedish
9. Traditional Chinese
Please make a choice (0 - 9), or press h or ? for help:
```

7. Select the language that is appropriate for your location, and press **Enter**.

   The program displays a list of locales.

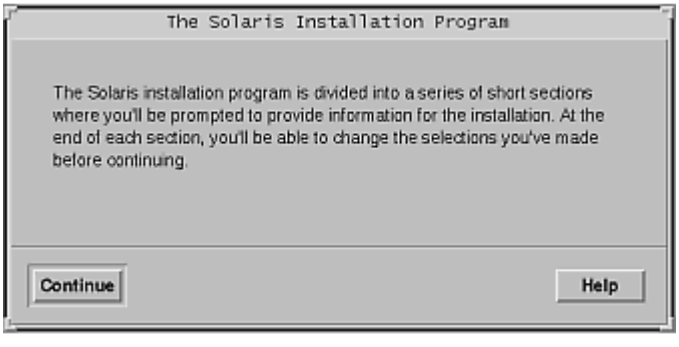
```
Select a Locale
......
......
......
Press Return to show more choices.
Please make a choice (0 - 47), or press h or ? for help:
```

8. Select:

   `0. English (c- 7-bit ASCII)`

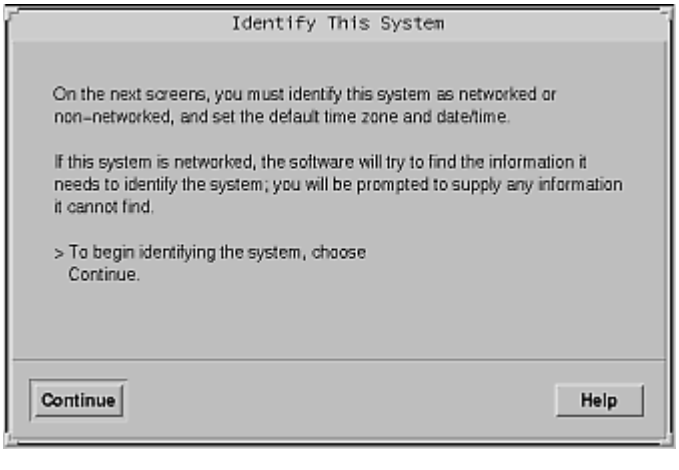
9. Press **Enter**.

   The system displays the **Solaris Installation Program** window.



10. Select **Continue**.

    The system displays the **Identify This System** window.

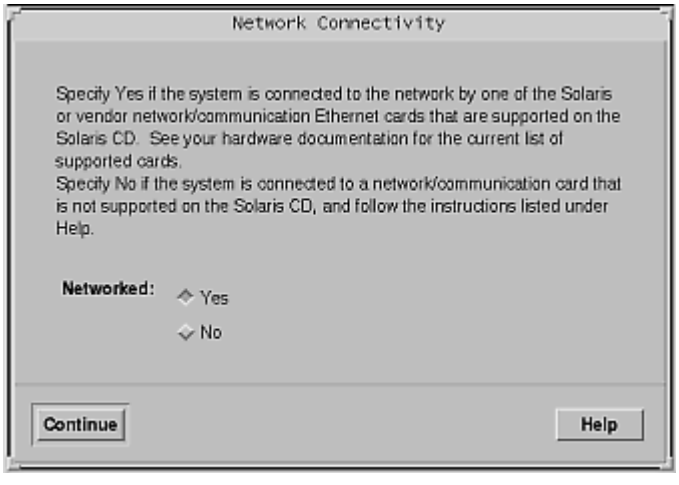


Identifying the system

To identify the system:

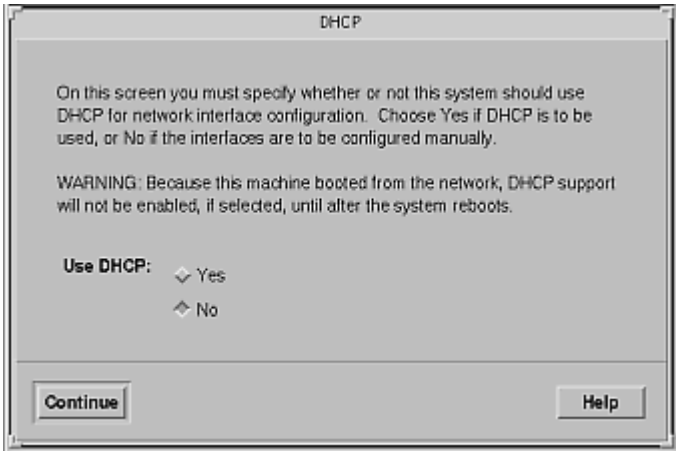
1. On the Identify This System window, select **Continue**.

   The system displays the **Network Connectivity** window.



2. Select **Yes**, and then select **Continue**.

   The system displays the **DHCP** window.

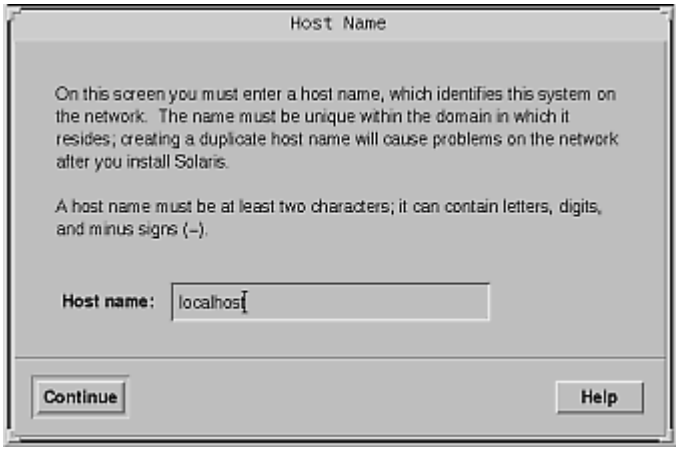


3. Select **No**, and then select **Continue**.

NOTE:

If the system is equipped with more than one network interface, the system displays the Primary Network Interface window. Select **hme0** for an Ultra 5, E3000, or E3500 system. A Sun Blade 100 system may display a **hme0** or **eri0** option. Select **eri0** for a Sun Blade 100 system.

The system displays the **Host Name** window.



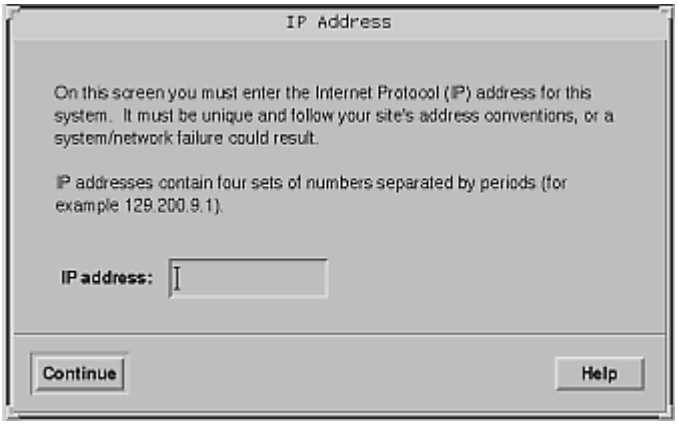
IMPORTANT:

The host name for a specific system is designated by TSC Provisioning personnel. Host names are case sensitive and cannot start with a number.

4. In the **Host name:** box, enter the host name for the system.

5. Select **Continue**.

   The system displays the **IP Address** window.

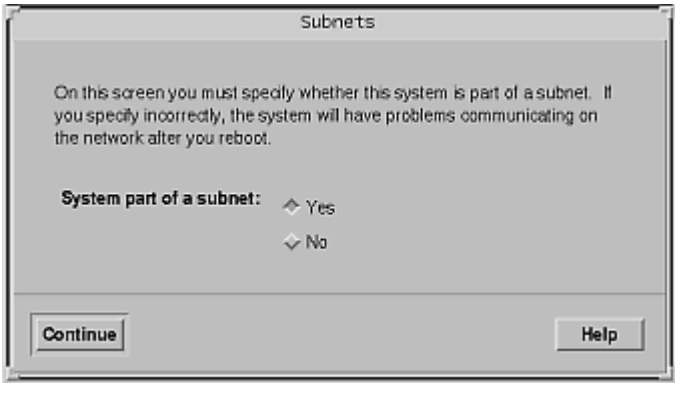


6. In the **IP address:** box, enter the IP address for the system.

   The IP address 192.168.2.1 is the factory default. Enter the factory default address unless there is an actual network address for this site.

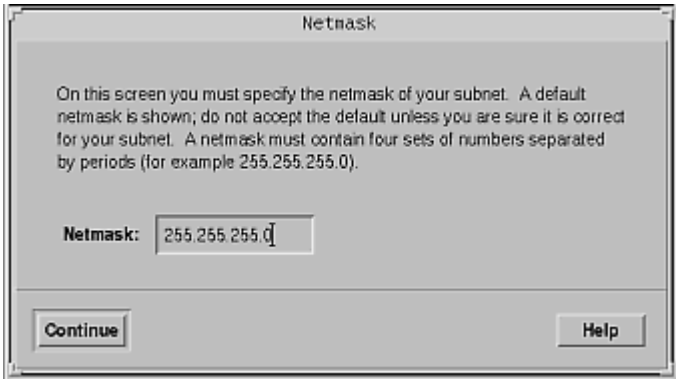
7. Select **Continue**.

   The system displays the **Subnets** window.



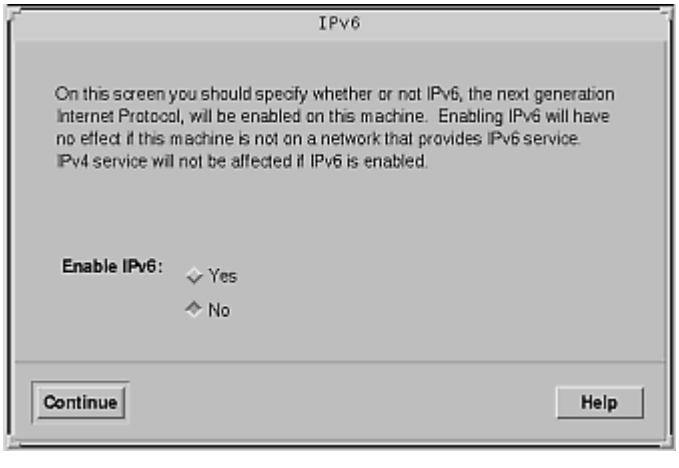
8. If the CMS computer is on a subnet, you will need to select Yes to administer a subnet mask.
   - If you select **Yes**, continue with Step 9.
   - If you select **No**, continue with Step 10.

   If you select **Yes**, the system displays the **Netmask** window.



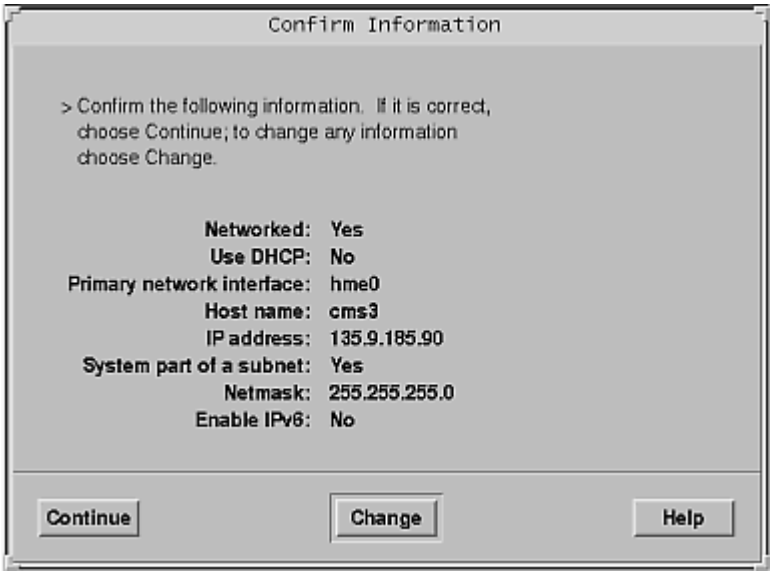
9. In the **Netmask:** box, enter the desired subnet mask. The default subnet mask is `255.255.255.0`.
10. Select **Continue**.

    The system displays the **IPv6** window.



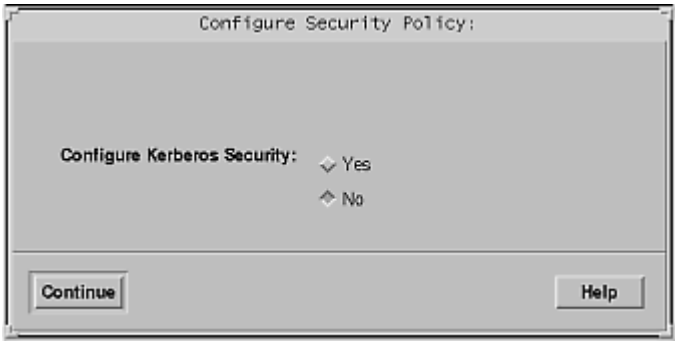
11. Select **No**, and then select **Continue**.

    The **Confirm Information** window appears.



12. If the displayed information is correct, select **Continue**.

    The system displays the **Configure Security Policy** window.

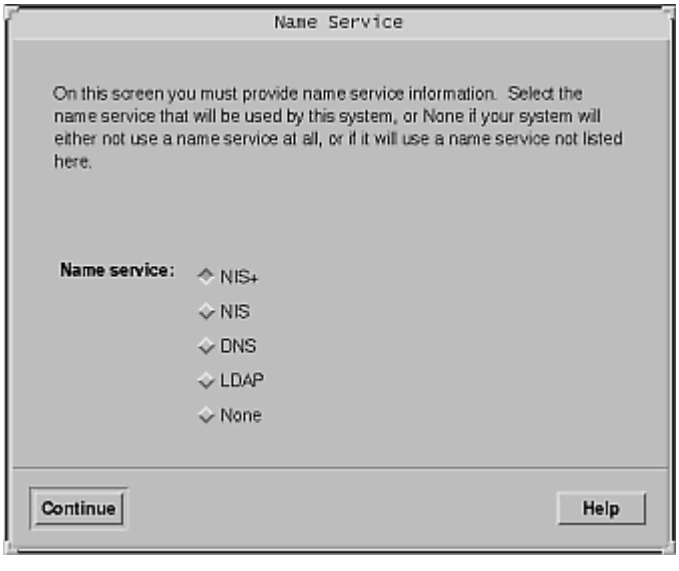


13. Select **No**, and then select **Continue**.

    The system displays the **Confirm Information** window.

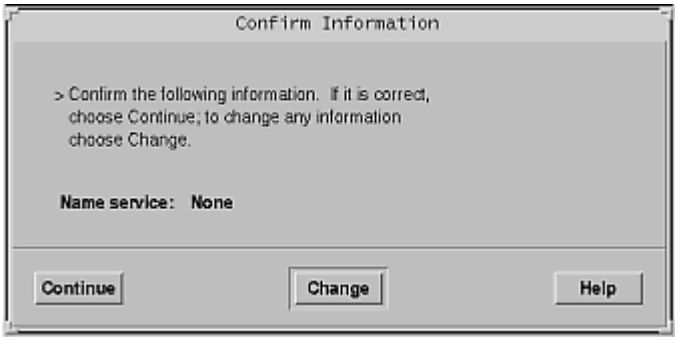
14. If the displayed information is correct, select **Continue**.

    The system displays the **Name Service** window.



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

    The system displays the **Confirm Information** window.

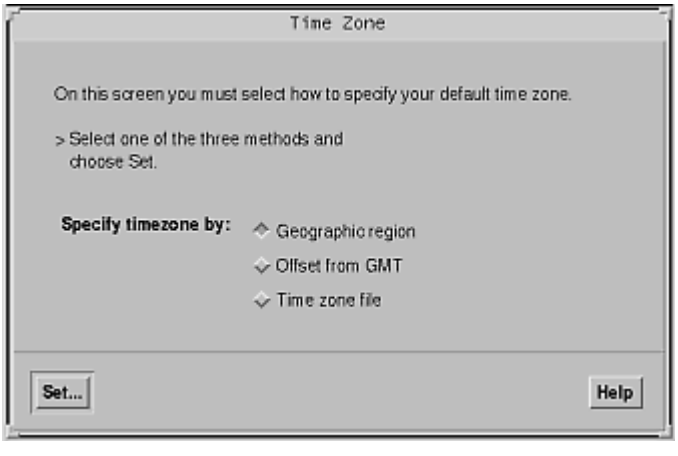


NOTE:

The system may redisplay the **Subnets** window if you selected **No** for Step 8. Verify that **No** is selected and press **Continue**.

16. If the displayed information is correct, select **Continue**.

    The system displays the **Time Zone** window.



Setting the date and time

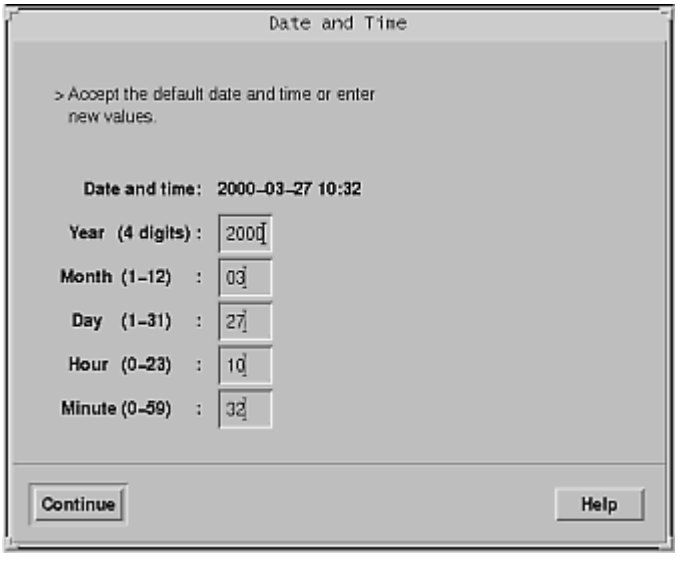
To set the Solaris date and time:

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

   The system displays the **Geographic Region** window.

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

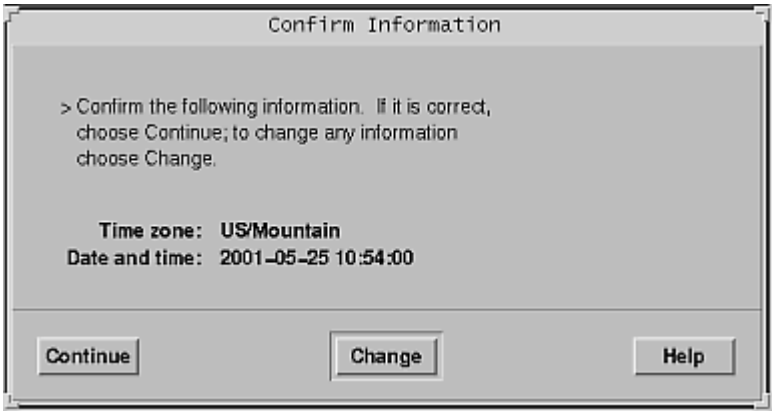
   The system displays the **Date and Time** window.



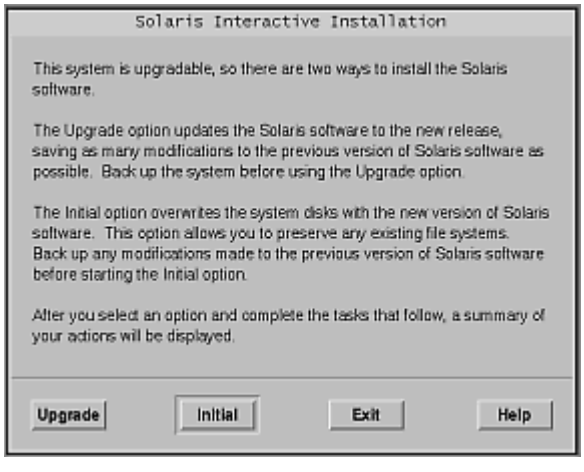
3. If necessary, enter the correct date and time. When all the information is correct, select **Continue**.

   The system displays the **Confirm Information** window.

4. If the displayed information is correct, select **Continue**.



The system date and time are now set, and the system displays the **Solaris Interactive Installation** window.



NOTE:

The **Solaris Interactive Installation** window may not display on some systems.

Selecting the Solaris system files

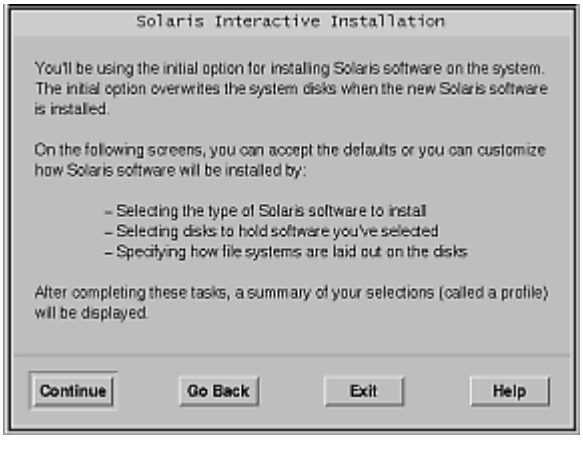
To select the Solaris system files:

NOTE:

The **Solaris Interactive Installation** window may not display on some systems. If the window does not display, continue with Step 3.

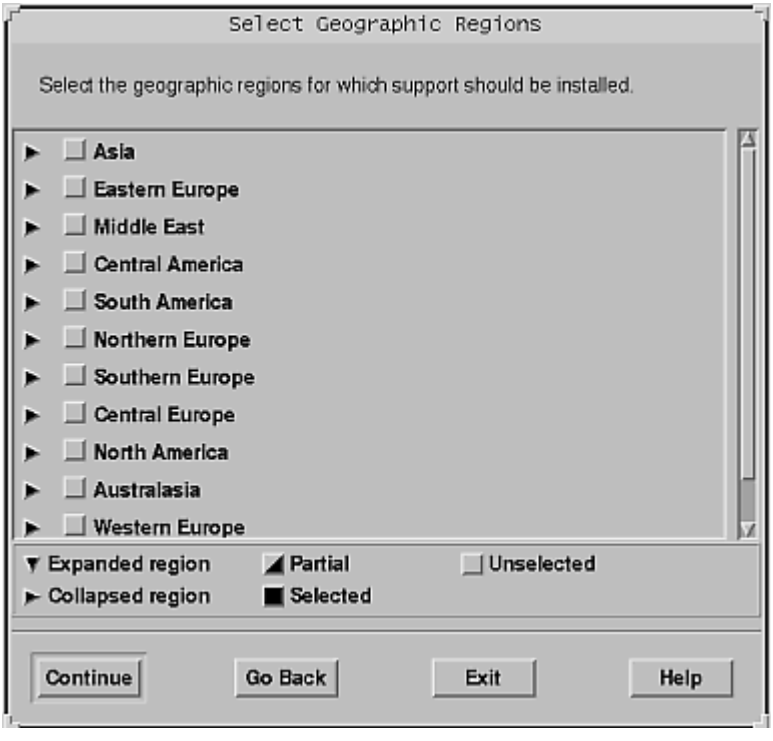
1. On the **Solaris Interactive Installation** window, select **Initial**.

   The system displays the second **Solaris Interactive Installation** window.



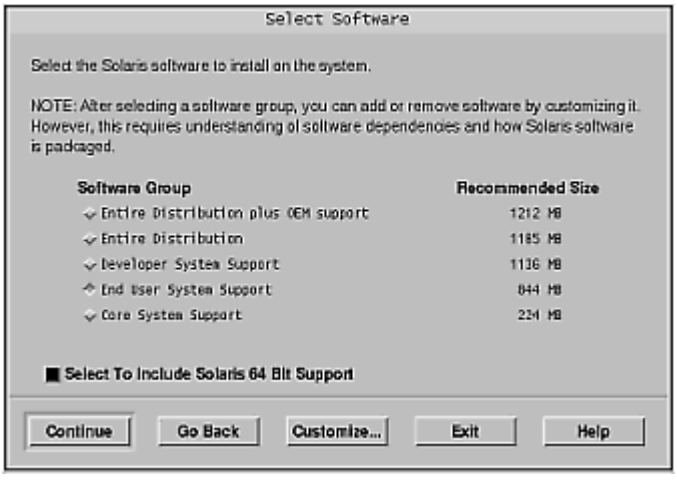
2. Select **Continue.**

   The system displays the **Select Geographic Regions** window.



3. Select **North America**, and then select **Continue**.

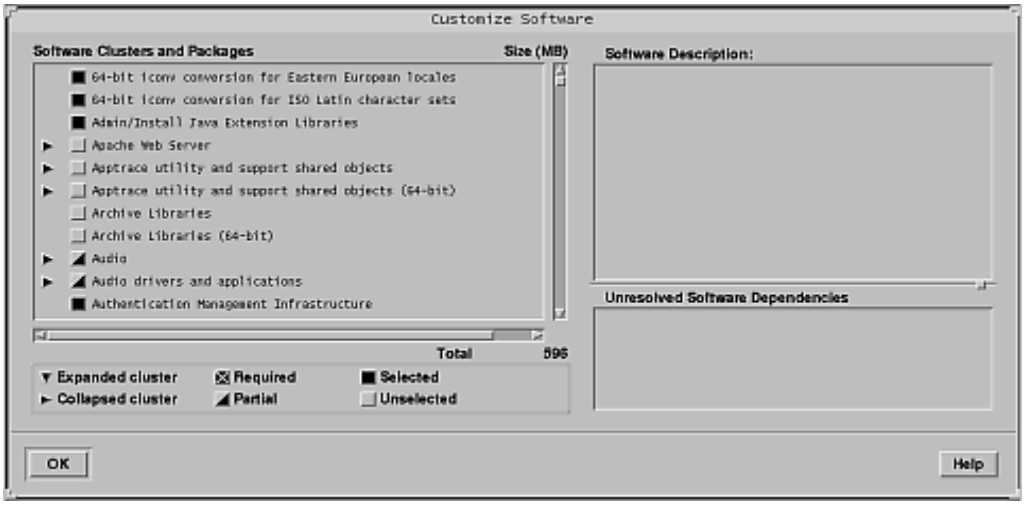
   The **Select Software** window appears.



4. Verify that the Solaris 64 Bit Support box *is* selected. Some systems may not display the Solaris 64 Bit Support box. It is selected by default.

5. Select **End User System Support**, and then select **Customize**, do *not* select ***Continue***.

   The system displays the **Customize Software** window.

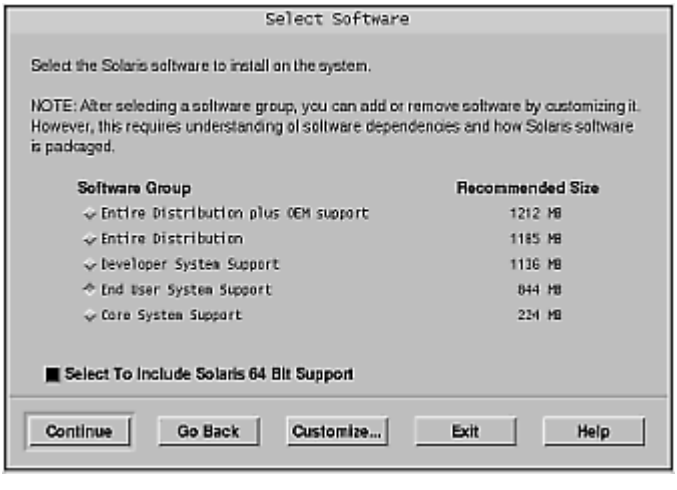


NOTE:

If you select **Continue** instead of **Customize**, the system displays the Disks window (shown in Partitioning the hard disks on page 46), which is incorrect. If this happens, select **Go Back** from the Disks window.

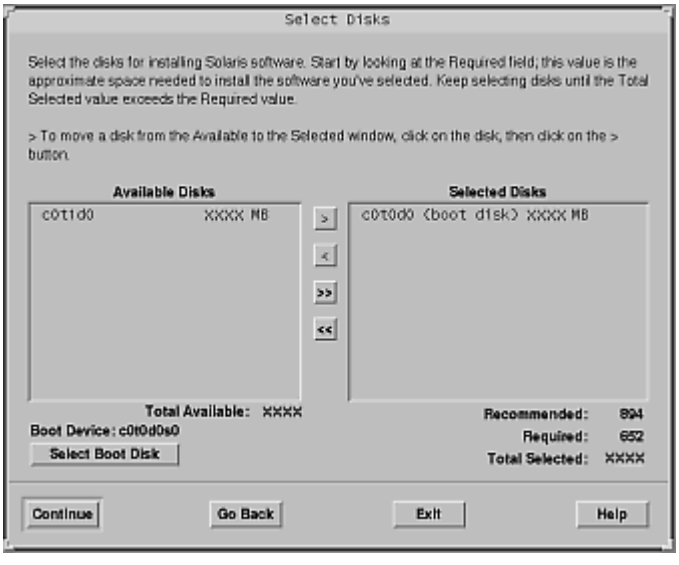
6. Additional software clusters and packages need to be added. Start at the top of the list and select the packages shown below. When necessary, select the triangular icons to expand and collapse package clusters. Do not exclude any packages that are already selected.
   - Basic Networking
   - On-Line Manual Pages
   - open the cluster for Open Windows Version 3 (*not* Open Windows Version 3 64-bit) and select:
     — X Windows system online user man pages
   - Point-to-Point Protocol
   - 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. When you have completed making the package selections, select **OK**.

   The system returns to the **Select Software** window.



8. Select **Continue**.

   The Solaris 8 software packages are now selected and will be installed after the disks are partitioned. The system displays the **Select Disks** window.



Partitioning the hard disks

To partition the hard disks:

NOTE:

The window output in this section may differ, according to the disk configuration of your system.

1. On the Select Disks window move all of the available disks into the **Selected Disks** column.

   NOTE:

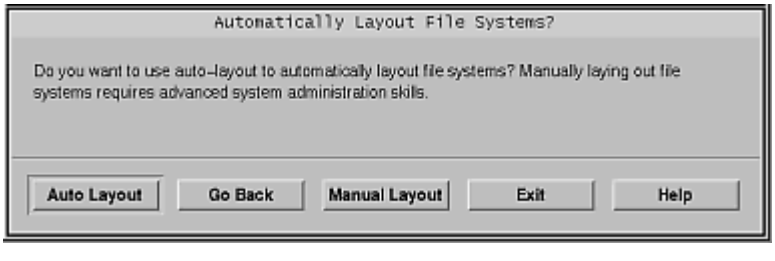
   In the **Select Disks** window, all the disks in the system should be listed as available. If not, you may have a connectivity or power problem. Check all cables and verify that the power is turned on for the disk drives.

2. After all of the disks have been moved, select **Continue**.

   The system displays the **Preserve Data** window.

3. Select **Continue**.

   The system displays the **Automatically Layout File Systems** window.

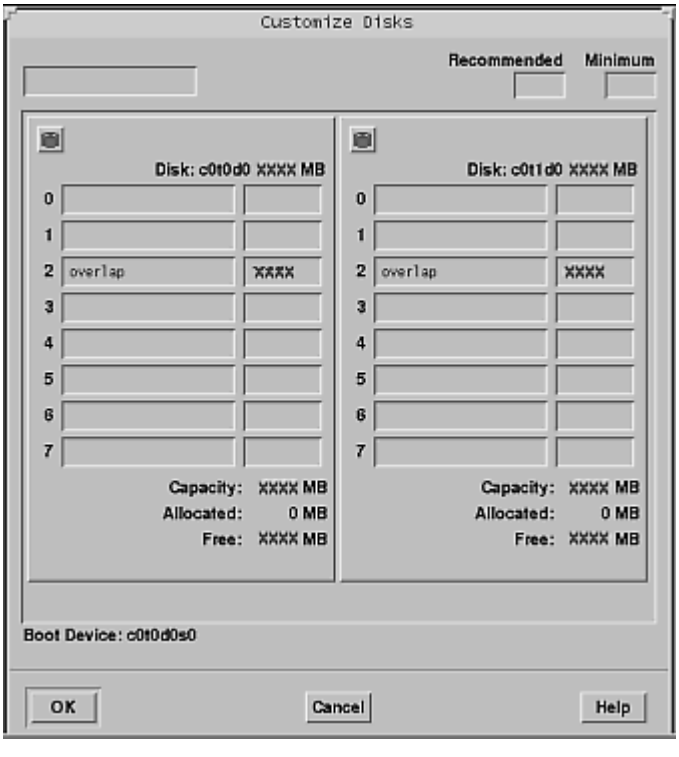


4. Select **Manual Layout**.

   The system displays the **File System and Disk Layout** window.

5. Select **Customize**, do *NOT* select Continue.

   The system displays the **Customize Disks** window.



NOTE:

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

IMPORTANT:

Disks are formatted in *megabytes*. Do not select the cylinders icon.

6. Use the information in the Boot disk partition table on page 49 to partition the boot disk by entering the slice name, and size of each partition.

NOTE:

Ignore any rounding error messages.

IMPORTANT:

No values are entered for the non-boot disk partitions. If the disk was previously partitioned, you will have to unpartition the disk. The non-boot disks and remaining space on the boot disks will be configured automatically during the CMS installation.

When setting up disk partitions for mirrored Enterprise 3000, 3500 or, Sun Blade 100 the following disks will be used for the boot and mirrored boot devices:

- Enterprise 3000:
  - boot - c0t0d0
  - mirrored boot - c0t11d0
- Enterprise 3500:
  - boot - c0t0d0
  - mirrored boot - c1t4d0
- Sun Blade 100:
  - boot - c0t0d0
  - mirrored boot - c0t2d0

If the disks are not available, contact your Avaya authorized service representative.

WARNING:
Do not change the slice 2 value or name. If the slice 2 value or name is changed, you will have to reinstall Solaris.

Boot disk partition table:

		Disk size		
Slice	**Slice name**	**18-GB** **SCSI (E-3000)** **FCAL (E-3500)**	**20-GB** **EIDE (Ultra 5 and Sun Blade 100)**	**36-GB** **FCAL (E-3500)**
0	/ **or** (blank) if alternate boot on mirrored systems	4096 MB	4096 MB	4096 MB
1	swap (blank) if alternate boot on mirrored systems	1024 MB	1024 MB	1024 MB
2	*overlap*[1]	(Do not change)	(Do not change)	(Do not change)
3	/cms	3072 MB	3072 MB	3072 MB
4	(blank)	2048 MB	2048 MB	2048 MB
5	(blank)	(blank)	(blank)	(blank)
6	(blank)	(blank)	(blank)	(blank)
7	(blank)	(blank)	(blank)	(blank)

1. The default size of the overlap file system is always the size of the entire disk. Occasionally, the name *backup* will appear instead of *overlap*. Do not change the slice 2 value or name.

WARNING:
Do not change the slice 2 value or name. If the slice 2 value or name is changed, you will have to reinstall Solaris.

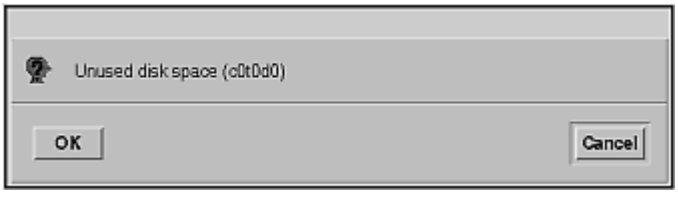
Non-boot partition table:

		Disk Size					
Slice	**Slice Name**	**4.2-GB SCSI (E-3000)**	**8.4-GB EIDE (Ultra 5)**	**9.1-GB EIDE (Ultra 5) SCSI (Ultra 5 and E-3000) FCAL (E-3500)**	**18-GB SCSI (E-3000 and Sun Blade 100) FCAL (E-3500)**	**20-GB EIDE (Ultra 5)**	**36-GB FCAL (E-3500)**
0	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)
1	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)
2	*overlap*[1]	*(Do not change)*	*(Do not change)*	*(Do not change)*	*(Do not change)*	*(Do not change)*	*(Do not change)*
3	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)
4	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)
5	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)
6	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)
7	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)	(blank)

1. The default size of the overlap file system is always the size of the entire disk. Occasionally, the name *backup* will appear instead of *overlap*. Do not change the slice 2 value or name.

7. Select **OK** on the **Customize Disks** window.

   The system displays the **Unused disk space** window.



8. Select **OK**.

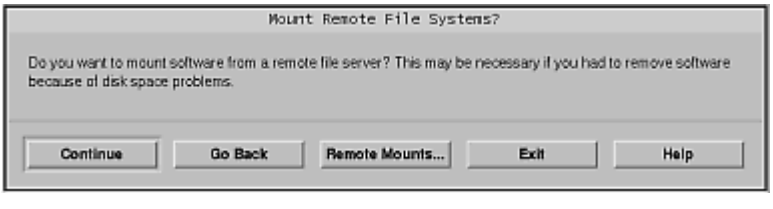
   NOTE:

   The Unused disk space window is displayed for every hard drive in the system. Depending on the number of hard drives installed, it may be necessary to repeat Step 8 several times.

   The system displays the **File System and Disk Layout** window.

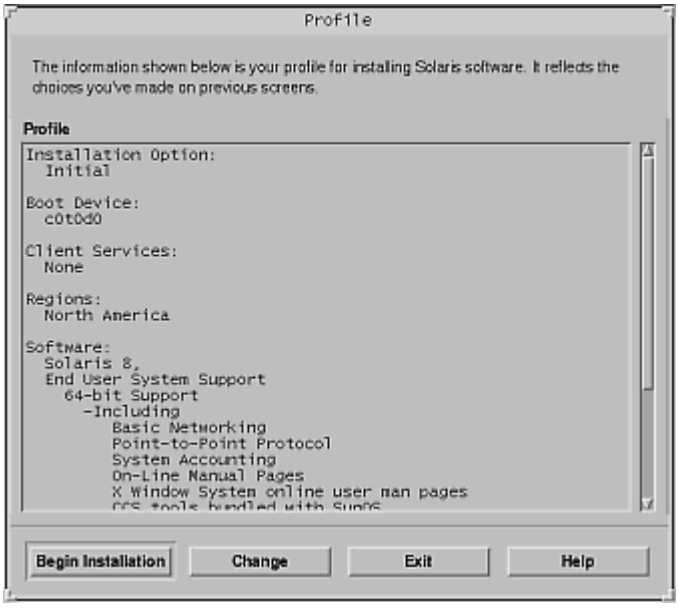
9. Select **Continue**.

   The system displays the **Mount Remote File Systems** window.



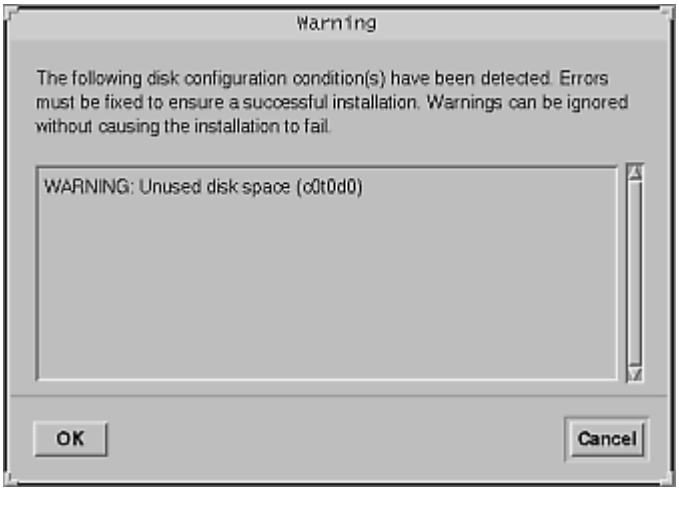
10. Select **Continue**.

    The system displays the **Profile** window.



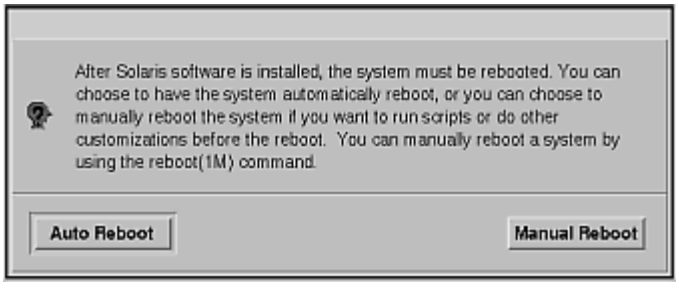
11. Select **Begin Installation**.

    The system displays a warning about unused disk space.



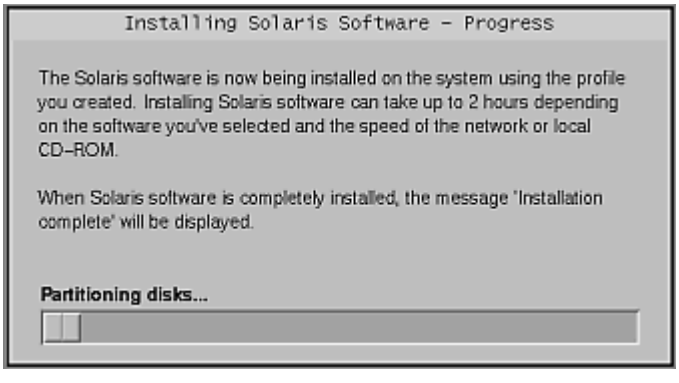
12. Select **OK**.

    The system displays the following window:



13. Select **Auto Reboot**.

    The disk partitioning process begins, and the system displays the **Installing Solaris - Progress** window.



    This process may take approximately one hour, depending on the number of disks being partitioned, the hardware platform, and the speed of your CD-ROM drive.

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

When the installation finishes, the system reboots and displays the following message:

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

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

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

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

Root password:

Press Return to continue.
```

Assigning a root password

To assign the 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 displays the following message:

```
> If you do not want a root password, press RETURN twice.
Re-enter your root password.

Press Return to continue.
```

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

   The program displays a series of messages, which concern power-saving options.

   NOTE:

   The power-saving options may not be displayed on some systems. If the options are not displayed, continue with Finalizing the Solaris installation on page 57.

```
System identification completed.
..........
..........
..........
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, you 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,?]
```

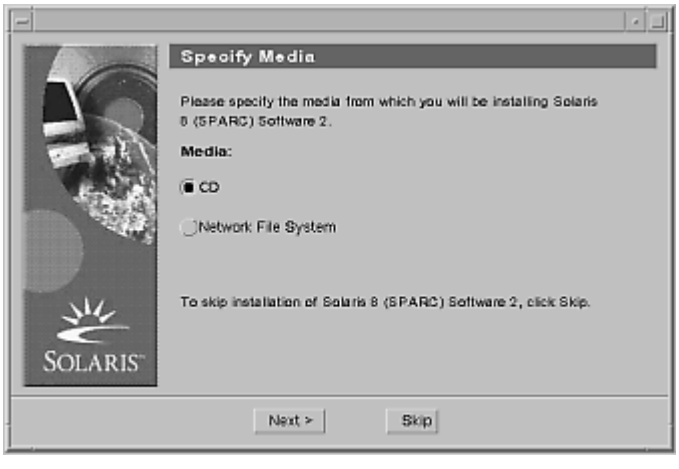
3. Enter: **n**

   The program displays the following message:

```
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 system displays the **Specify Media** window for the installation of the Solaris 8 (SPARC) Software 2.



Finalizing the Solaris installation

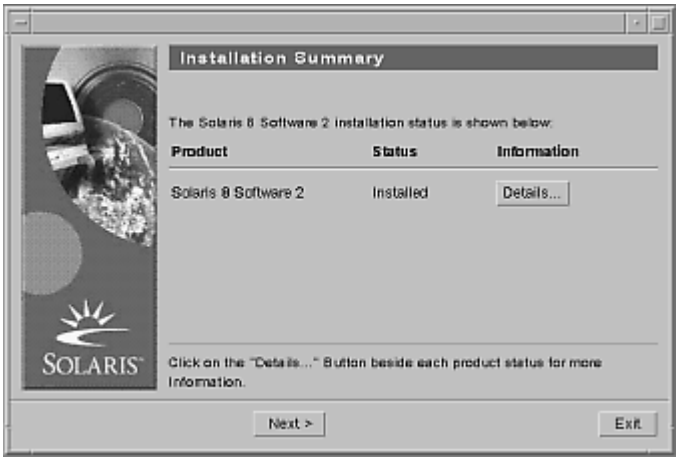
To finalize the Solaris installation:

1. Select **CD**, and then **Next>**.

   The system ejects the *Solaris 8 Software* disk 1 of 2 CD, and then displays the **Insert CD** window.

2. Load the *Solaris 8 Software* disk 2 of 2 into the CD-ROM drive, and select **OK**.

   The system installs the software, and then displays the **Installation Summary** window.

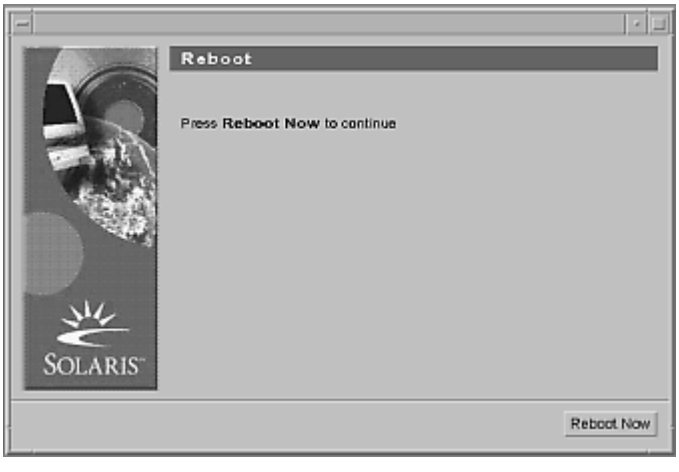


3. Select **Next >**.

   The system ejects the *Solaris 8 Software* disk 2 of 2 CD, and then displays the **Specify Media** window for the installation of the Solaris 8 Languages.

4. Select **Skip**.

   The system displays the **Reboot** window.



5. Select **Reboot Now**.

   The system reboots, and the login console appears.

6. Enter `root` for the user name, followed by your password (if you submitted one to the system).

   The system displays the **Solaris Welcome** window.

7. Select **Common Desktop Environment**, and then select **OK**.

   The system displays the Common Desktop Environment (CDE).

Opening a terminal window

Overview

This procedure describes how to open a terminal window. You must open a terminal window to input keyboard commands at the system prompt.

Procedure

To open a terminal window:

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

   The system displays the **Workspace menu**.

2. Select the **Tools** option.

   The system displays the **Tools menu**.

3. Select the **Terminal** option.

   The system displays a terminal window with the active cursor at the command prompt.

Enabling the Korn shell

- To enable the Korn shell, enter:

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

  The system will display **Backspace** as `^H`. On some systems **Backspace** will not work. If this is the case, substitute `"^H"` for **Backspace**.

  NOTE:

  If you log off and log back on to the system, the Korn shell will not work unless you re-enter the command. After you install the DiskSuite software and reboot the system, the Korn shell will work automatically every time you log in.

Displaying and setting the EEPROM parameters

Overview

The current EEPROM settings must be displayed to determine if a firmware value must be changed from a factory setting.

Procedure

To set the firmware EEPROM values for a CMS computer:

1. Enter:

   `eeprom | 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 Required EEPROM parameter table to determine if any of the values must be changed from the factory setting. The table contains only the required EEPROM settings.

Required EEPROM parameter table:

Option Name	Required Setting
ansi-terminal?	`true`
auto-boot?	`true`
boot-command	`boot`

boot-device
 	
If you have a E3501 or E3503 system, see Resetting a device alias on page 64
	`disk`
	
	If the system is mirrored:
	
	`disk bootdevice2`

Option Name	Required Setting

diag-device	`disk`
	
	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-rts-dtr-off	`true`
ttyb-ignore-cd	`false`
ttyb-rts-dtr-off	`true`
watchdog-reboot?	`false`

3. If you must change the setting for an eeprom option, enter:

   `eeprom` *`option_name=option_value`*

   Where ***`option_name`*** is the name of the option, and ***`option_value`*** is the new setting.

   Example:

   To change the output device, you would enter:

   `eeprom output-device=screen`

Creating an alternate boot device

Overview

This procedure creates a mirrored boot device for a mirrored system.

Platform considerations

This procedure is for *mirrored systems* only.

Procedure

To create the alternate boot device:

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

   `ls -l /dev/rdsk/`*`newbootdev`*

   Where ***`newbootdev`*** is the device to be used as the mirrored boot disk.

Hardware platform	Mirrored boot device
Enterprise 3000	c0t11d0s0
Enterprise 3500	c1t4d0s0
Sun Blade 100	c0t2d0s0

   The system responds, for example:

```
lrwxrwxrwx  1 root   root  54 Nov 9 /dev/rdsk/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. Enter:

   `boot`

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

7. See Activating chkDisks on page 365 for information about setting up a cron job for chkDisk.

Resetting a device alias

Overview

If a boot disk is replaced, or if the NVRAM chip is ever reset to the Sun factory defaults, the boot disk and EEPROM values must be reset to the Avaya factory defaults. This can happen when any of the following occurs:

- The boot disk (primary or alternate) is defective and is replaced with a new disk
- The NVRAM chip on the system clock board is replaced
- The **`set-defaults`** or **`setenv use-nvramrc?`** false command is run
- A PROM patch is applied
- A **Stop** + **N** was used to reset the system

Platform considerations

This procedure is only for:

- Enterprise 3500 systems
- Enterprise 3501 systems
- Enterprise 3503 systems

Procedure

To reset the NVRAM to bootable options for the boot disks:

1. Press **Stop** + **A**.

2. At the `ok` prompt, enter: **`show-disks`**

   The system displays a list of disk drives similar to the following:

```
a) /sbus@3,0/SUNW,fas@3,8800000/sd
b) /sbus@3,0/SUNW,socal@d,10000/sf@1,0/ssd
c) /sbus@3,0/SUNW,socal@d,10000/sf@0,0/ssd
d) NO SELECTION
Enter selection, q to quit:
```

3. Select the letter for the proper boot device.

   The system saves the device string and in the edit clipboard, and displays a message similar to the following:

```
/sbus@3,0/SUNW,socal@d,10000/sf@0,0/ssd has been selected
Type ^Y (Control-Y) to insert it in the command line e.g. ok
nvalias mydev ^Y
        for creating devalias mydev for
/sbus@3,0/SUNW,socal@d,10000/sf@0,0/ssd
```

   To decode the path, first look at `/sbus@3` and divide the number (3) found after the `@` symbol by two, and throw away the remainder, which gives you one. This represents the first slot on your system. An SBus+ I/O or Graphics+ I/O board will be in your first slot. Next, look at `sf@0`. The zero represents what controller that drive is attached to. You should look for `sf@0` for your primary boot device and `sf@1` for your secondary boot device if you are working on a mirrored system. After looking at the paths offered, select the letter representing that path.

4. Enter:

   `nvalias disk`

   Ctrl+**Y**

   (that is, press and hold the **Ctrl** key and the **Y** key)

   The system displays the disk alias saved in the clipboard and the cursor is at the end of the line.

```
/sbus@3,0/SUNW,socal@d,10000/sf@0,0/ssd
```

5. Add `@0,0` at the end of the line as shown in the following example:

```
nvalias disk /sbus@3,0/SUNW,socal@d,10000/sf@0,0/ssd@0,0
```

   Adding the `@0,0` gives the command the target and slice of the primary boot device.

6. If needed, repeat the above procedure for the boot drive on a mirrored system using *bootdevice2* as your mirror boot device alias, as shown in the following example:

```
nvalias bootdevice2
  /sbus@3,0/SUNW,socal@d,10000/sf@1,0/ssd@4,0
```

   Adding the `@4,0` gives the command the target and slice of the mirror boot device.

7. Enter:

   `devalias`

   The system displays the device aliases. Verify that `disk` and `bootdevice2` are set to the correct alias values.

8. Do one of the following:
   - To set the boot environment for a nonmirrored system, enter:

     `setenv boot-device disk`

   - To set the boot environment for a mirrored system, enter:

     `setenv boot-device disk bootdevice2`

9. After setting the disk device alias, check the EEPROM values.

Turning on the system activity recorder

To turn on the system activity recorder:

1. Verify that you are logged into the system as **root** and enter:

   chmod 775 /var/opt

2. Log in with the sys login id by entering:

   su - sys

   NOTE:
   Be sure to use a space between “-“ and “sys”)

   The prompt changes to a $.

3. To confirm that you are using the sys id, enter:

   id

   The system displays the following message:

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

4. 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 example:

```
#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
```

5. Remove the leading "#" characters that were used to comment out the last three lines in the file. Use the following vi editing commands:

   a. To move down to the appropriate line, press **J**.

   b. To delete the "#" character, press **X**.

   Change the lines to look like the following example:

```
............
............
............
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
```

6. Press **Esc**, and then enter:

   :wq!

   The system saves and closes the file.

7. Enter the following commands:

   crontab -r

   crontab cron.sys

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

   crontab -l

   The system displays the following message:

```
#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
```

9. To exit superuser mode (you may have to do this twice), enter:

   exit

   The prompt changes back to a "#".

Installing CMS and Supporting Software

Overview

"Installing CMS and Supporting Software" 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 was installed at the factory, the only procedures required at the customer site are:

- Setting up CMS authorizations on page 155
- Installing Feature Packages on page 204
- CMSADM backup on page 244

If the CMS software was not installed at the factory, use the procedures in Installing the Solaris Operating System on page 27, and this chapter to bring the CMS computer up to factory standards after a system re-configuration or repair.

Prerequisites

Before you begin any of the installation 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.

Remote terminal access tips

When executing commands that take a long time to complete, (such as `cpio` commands), use the `nohup` command to ensure that the command will complete without interruption if the data line disconnects. An example of 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.

Contents

"Installing CMS and Supporting Software" includes the following procedures:

Installing the Sun Online Validation Test Suite

Overview

This procedure describes how to install the Sun Online Validation Test Suite (VTS) 4.3 software. The Sun Online VTS software provides test facilities for the system.

Prerequisites

Before you install the Sun VTS software, perform the following tasks:

- The Solaris 8 operating system must be installed.
- Verify that you are logged in as root at the console.
- Obtain the *Software Supplement for the Solaris 8 Operating Environment* CD.

Platform considerations

This procedure is for *all platforms*.

Procedure

To install the Sun VTS software:

1. Load the *Software Supplement for the Solaris 8 Operating Environment* CD into the CD-ROM drive.

2. 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 displayed should look similar to the following example:

```
/cdrom/solaris8_401_suppcd on
/vol/dev/dsk/c0t2d0/solaris8_401_suppcd read
only/nosuid/maplcase/noglobal/rr/traildot/dev=16c000f on Wed Mar
29 13:08:26 2000
```

3. Enter:

   /usr/sbin/pkgadd -d /cdrom/cdrom0/SunVTS_4.3/Product

   The system displays the following message:

```
The following packages are available:

  1  SUNWvts       SunVTS
                   (sparc) 4.3,REV=08.01.02.12,OE=5.8
  2  SUNWvtsmn     SunVTS Man Pages
                   (sparc) 4.3,REV=08.01.02.12,OE=5.8
  3  SUNWvtsol     SunVTS Open Look GUI, Sundials and Sunbuttons Tests
                   (sparc) 4.3,REV=08.01.02.12,OE=5.8
  4  SUNWvtsx      64-bit SunVTS
                   (sparc) 4.3,REV=08.01.02.12,OE=5.8
Select package(s) you wish to process (or 'all' to process
all packages). (default: all) [?,??,q]:
```

4. Enter: **1 2 3 4**

   The system displays the following message:

```
Processing package instance <SUNWvts> from
</cdrom/solaris8_401_suppcd/SunVTS_4.3/Product>

SunVTS
(sparc) 4.3,REV=08.01.02.12,OE=5.8
Copyright 2001 Sun Microsystems, Inc. All rights reserved.

SunVTS supports Kerberos V5 network authentication protocol,
included in SEAM (Sun Enterprise Authentication Mechanism). This
protocol is designed to provide strong authentication for
client/server applications by using secret-key cryptography.

 In order to use this feature, a SEAM-based Security enabled
network must be present.

Do you want to enable the Kerberos V5 based security?
```

5. Enter: **n**

   The system displays the following message:

```
## Executing checkinstall script.

Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

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

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

6. Enter: **y**

   The system displays the following message:

```
Installing SunVTS as <SUNWvts>

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

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

7. Enter: **q**
8. Enter:

   eject cdrom

Installing the SunLink HSI/S software

Overview

This procedure describes how to install the SunLink HSI/S driver. The SunLink HSI/S card provides X.25 interface ports to the CMS computer.

If your system does not have an HSI/S card, skip this procedure and continue with Installing the HSI/P software on page 79.

Prerequisites

Before you install the HSI/S software, perform the following tasks:

- Verify that the Solaris 8 operating system has been installed.
- Install the HSI/S card(s) before installing the software.
- Verify that you are logged in as *root* at the console.
- Obtain the *CMS Hardware Drivers* CD.

Platform considerations

This procedure is for the following platforms:

- Enterprise 3000
- Enterprise 3500

Procedure

To install the SunLink HSI/S software:

1. Load the *CMS Hardware Drivers* CD into the CD-ROM drive.
2. 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 displayed should look similar to the following example:

```
/cdrom/cms_hardware_drivers on
/vol/dev/dsk/c0t2d0/cms_hardware_drivers read
only/nosuid/maplcase/noglobal/rr/traildot/dev=16c0003 on
(current date and time)
```

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

   `/usr/sbin/pkgadd -d /cdrom/cdrom0/V9/hsi.sbus.3.0`

   The system displays the following message:

```
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]:
```

4. Press **Enter**.

   The system displays the following message:

```
Processing package instance <SUNWhsis> from
</cdrom/solaris8_suppcd/SunHSI_SBus_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 installs the SUNWhsis, SUNWhsism and SUNWhsisu packages, and displays the following message:

```
Installing SunHSI/S Driver for SBus as <SUNWhsis>
## Installing part 1 of 1
..........
..........
..........
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

This procedure describes how to install the HSI/P drivers. The HSI/P card provides interface ports to the CMS computer.

If your system does not have an HSI/P card, skip this procedure. Continue with Installing the SAI/P adapter drivers on page 82.

Prerequisites

Before you install the HSI/P software, perform the following tasks:

- Verify that the Solaris 8 operating system has been installed.
- Install the HSI/P card(s) before installing the software.
- Verify that you are logged in as **root** at the console.
- Obtain the *CMS Hardware Drivers* CD.

Platform considerations

This procedure is only for:

- Ultra 5 systems
- Sun Blade 100 systems

Procedure

To install the HSI/P software:

1. Load the *CMS Hardware Drivers* CD into the CD-ROM drive.
2. 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 displayed should look similar to the following example:

```
/cdrom/cms_hardware_drivers on
/vol/dev/dsk/c0t2d0/cms_hardware_drivers read
only/nosuid/maplcase/noglobal/rr/traildot/dev=16c0003 (current
date and time)
```

3. Enter:

   `/usr/sbin/pkgadd -d /cdrom/cdrom0/V9/hsi.pci.3.0`

   The system displays the following message:

```
The following packages are available:

  1  SUNWhsip      SunHSI/P Driver for PCI
                   (sparc) 3.0,REV=1999.09.24

  2  SUNWhsipm     SunHSI/P Man Pages for PCI
                   (sparc) 3.0,REV=1999.09.24

  3  SUNWhsipu     SunHSI/P Utilities for PCI
                   (sparc) 3.0,REV=1999.09.24

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

4. Press **Enter**.

   The system displays the following message:

```
Processing package instance <SUNWhsip> from
</cdrom/solaris8_suppcd/SunHSI_PCI_3.0/Product>

SunHSI/P Driver for PCI
(sparc) 3.0,REV=1999.09.24
............
............
............
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 and returns to the command prompt.

```
Installing SunHSI/P Driver for PCI as <SUNWhsip>
## Installing part 1 of 1.
487 blocks
## Executing postinstall script.
............
............
............
Installation of <SUNWhsipu> was successful.
```

6. Enter:

   `eject cdrom`

Installing the SAI/P adapter drivers

Overview

This procedure describes how to install the SAI/P drivers. The SAI/P cards provide serial asynchronous interface ports to the CMS computer.

If your system does not have an SAI/P card, skip this procedure. Continue with Setting up the Bay Networks Annex NTS on page 85.

Prerequisites

Before you begin installing the SAI/P software, perform the following tasks:

- Verify that the Solaris 8 operating system has been installed.
- Install the SAI/P card(s) before installing the software.
- Verify that you are logged in as **root** at the console.
- Obtain the *CMS Hardware Drivers* CD.

Platform considerations

This procedure is only for:

- Ultra 5 systems
- Sun Blade 100 systems

Procedure

To install the SAI/P software:

1. Load the *CMS Hardware Drivers* CD into the CD-ROM drive.
2. After about 15 seconds, enter **`mount`** to verify the name of the CD-ROM.

   The program responds with a list of devices and file systems currently mounted. The last line displayed should look similar to the following example:

```
/cdrom/cms_hardware_drivers on
/vol/dev/dsk/c0t2d0/cms_hardware_drivers read
only/nosuid/maplcase/noglobal/rr/traildot/dev=16c0003 on
(current date and time)
```

3. Enter:

   `/usr/sbin/pkgadd -d  /cdrom/cdrom0/V9/sai.pci.3.0`

   The system displays the following message:

```
The following packages are available:

  1  SUNWsaip      Serial Asynchronous Interface Driver (PCI)
                   (sparc) 3.0,REV=2000.01.31

  2  SUNWsaipu     Serial Asynchronous Interface Utilities (PCI)
                   (sparc) 3.0,REV=2000.01.31

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

4. Press **Enter**.

   The system displays the following message:

```
Processing package instance <SUNWsaip> from
</cdrom/sun_saip/saip_3.0/Solaris_8/Packages>
.....
.....
.....
Do you want to install these conflicting files [y,n,?,q]
```

5. Enter: **y**

   The system displays the following message:

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

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

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

6. Enter: **y**

   The system displays the following message:

```
Installing Serial Asynchronous Interface Driver (PCI) as <SUNWsaip>
.........
.........
.........
Do you want to install these conflicting files [y,n,?,q]
```

7. Enter: **y**

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

```
Installation of <SUNWsaipu> was successful.

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

8. Enter: **q**
9. Enter:

   eject cdrom

Setting up the Bay Networks Annex NTS

Overview

This procedure describes how to install the NTS drivers and create symbolic links.

If your system is not using an NTS, skip this procedure. Continue with Installing the Solstice for Server Connect X.25 package on page 93.

NOTE:

If you are reinstalling the NTS drivers, the options presented will differ slightly.

Prerequisites

Before you install the NTS software, perform the following tasks:

- Verify that the Solaris 8 operating system has been installed.
- Verify that you are logged in as **root** at the console.
- Obtain the *Annex Communication Server R10.0(B) Annex Host Tools* CD.

Platform considerations

This procedure is for *all platforms*.

Contents

"Setting up the Bay Networks Annex NTS" includes the following procedures:

- Installing the NTS drivers on page 86
- Setting up the NTS start-up files on page 91

Installing the NTS drivers

To install the NTS drivers:

1. Load the *Annex Communication Server R10.0(B) Annex Host Tools* CD into the CD-ROM drive.
2. 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 displayed should look similar to the following example:

```
/cdrom/baynet_annex_system on /vol/dev/dsk/c0t2d0/baynet_annex_
system read only on (current date and time)
```

3. Enter:

   `/cdrom/cdrom0/unix/install`

   The system displays the following message:

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

4. Press **Enter**.

   The system displays the following message:

```
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]:
```

5. Press **Enter**.

   The system displays the following message:

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

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

6. Press **Enter**.

   The system displays the following message:

```
            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-->
```

7. Press **Enter**.

   The system displays the following message:

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

8. Press **Enter**.

   The system displays the following message:

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

9. Press **Enter**.

   The system displays the following message:

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

10. Press **Enter**.

    The system displays the following message:

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

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

11. Press **Enter**.

    The system displays the following message:

```
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]:
```

12. Press **Enter**.

    The system displays the following message:

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

13. Press **Enter**.

    The system displays the following message:

```
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:
```

14. Select the `Install all images` option by entering: **3**

    The system displays the following message:

```
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]:
```

15. Enter: **y**

    The system displays the following message:

```
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]:
```

16. Select the `none` option by entering: **7**

    The system displays the following message:

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

17. Press **Enter**.

    The system displays the following message:

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

18. Enter: **n**

    The system displays the following message:

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

19. Press **Enter**.

    The system displays the following message:

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

20. Press **Enter**.

    The system displays the following message:

```
Copy file save/modified/annex-initd
/etc/rc2.d/annex-initd

(y/n) [y]:
```

21. Press **Enter**.

    The system displays the following message:

```
No more system files to create or update

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

22. Press **Enter**.

    The system displays the following message:

```
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]:
```

23. Enter: **n**

    The system displays the command prompt.

Additional references

If you have problems with NTS installation see, Common problems with NTS administration on page 452, or the *CentreVu Call Management System Terminals, Printers, and Modems*, 585-215-874 document.

Setting up the NTS start-up files

To set up the NTS start-up files:

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/rtelnet`

   `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 describes how to install and set up the X.25 drivers. The X.25 protocol is sometimes used for creating network connections to the switch.

If the CMS computer is using TCP/IP for LAN connectivity instead of X.25, skip this section.

Prerequisites

Before you begin the installation procedures, perform the following tasks:

- Verify that the Solaris 8 operating system has been installed.
- Verify that you are logged in as **root** at the console.
- Obtain the *Solstice for Server Connect, Version - 9.2* CD.
- Obtain the password for your X.25 license.

Platform considerations

This procedure is for *all platforms*.

Contents

"Installing the Solstice for Server Connect X.25 package" includes the following procedures:

- Retrieving system information on page 94
- Installing the Solstice for Server Connect X.25 drivers on page 95
- Setting up the X.25 license on page 99

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 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 on page 93.

IMPORTANT:
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.

To retrieve the system information for X.25:

1. Enter:

   showrev

   The program displays information similar to the following example:

```
Hostname: XXXXXXXX
Hostid: XXXXXXX
Release: 5.8
Kernel architecture: sun4u
Application architecture: sparc
Hardware provider: Sun_Microsystems
Domain:
Kernel version: SunOS 5.8 Generic <number & date>
```

2. Record the Hostname and Hostid in the following table, along with your X.25 password.

Hostname	
Hostid	
X.25 Password	

Installing the Solstice for Server Connect X.25 drivers

To install the X.25 drivers:

1. Load the *Solstice for Server Connect, Version - 9.2* CD into the CD-ROM drive.
2. 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 displayed should look similar to the following example:

```
/cdrom/x25_9_2 on /vol/dev/dsk/c0t6d0/x25_9_2 read only
/setuid/maplcase/noglobal/rr/traildot/dev=16c0001 on current
date and time)
```

3. Enter:

   `/usr/sbin/pkgadd -d /cdrom/x25_9_2/sparc`

   The system displays the following message:

```
The following packages are available:
  1  SUNWlicsw     FLEX License Manager Software and Utilites
                   (sparc) 5.0
  2  SUNWlit       STE License Installation Tool
                   (sparc) 5.0
  3  SUNWllc       LLC2 driver and its initialization programs
                   (sparc) 11.7.0,REV=1999.08.10.11.14
  4  SUNWllcr      LLC2 driver configuration and startup files
                   (sparc) 11.7.0,REV=1999.08.10.11.14
  5  SUNWllcx      LLC2 64bit driver
                   (sparc) 11.7.0,REV=1999.08.10.11.14
  6  SUNWx25a      X.25 kernel modules and include files for Solaris/SPARC
                   (sparc) 9.2
  7  SUNWx25ax     64 bit X.25 kernel modules for Solaris/SPARC
                   (sparc) 9.2
  8  SUNWx25b      X.25 user programs and libraries for Solaris/SPARC
                   (sparc) 9.2
  9  SUNWx25bx     64-bit X.25 libraries for Solaris/SPARC
                   (sparc) 9.2
 10  SUNWx25lt     Solstice X.25 License Configuration Data
                   (sparc) 9.2

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

4. Enter: **1 2 6-10**

   The system displays the following message:

```
Processing package instance <SUNWlicsw> from </cdrom/x25_9_2/sparc>

FLEX License Manager Software and Utilites
(sparc) 5.0
Copyright 1999 Sun Microsystems, Inc. All rights reserved.
Copyright 1999 Sun Microsystems, Inc., Tous droits réservés.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
   1 package pathname is already properly installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and are being
used by another package:
  /etc/opt <attribute change only>
  /etc/rc2.d <attribute change only>

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

IMPORTANT:

Solaris 8 installs packages 3 - 5 during the Solaris installation. If the X.25 software needs to be uninstalled, do not remove SUNWllc, SUNWllcr, and SUNWllcx.

5. Enter: **y**

   The system displays the following message:

```
## 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 <SUNWlicsw> [y,n,?]
```

NOTE:

Additional conflicting file messages may be displayed on some systems. Enter **y** to continue.

6. Enter: **y**

   The system displays the following message:

```
Installing FLEX License Manager Software and Utilites as <SUNWlicsw>
...........
...........
...........
Do you want to continue with the installation of <SUNWx25a> [y,n,?]
```

7. Enter: **y**

   The system displays the following message:

```
Installing X.25 kernel modules and include files for
Solaris/SPARC as <SUNWx25a>
..........
..........
..........
Do you want to continue with the installation of <SUNWx25ax> [y,n,?]
```

8. Enter: **y**

   The system displays the following message:

```
Installing 64 bit X.25 kernel modules for Solaris/SPARC as <SUNWx25ax>
..........
..........
..........
Do you want to install these conflicting files [y,n,?,q]
```

9. Enter: **y**

   The system displays the following message:

```
## Checking for setuid/setgid programs.
..........
..........
..........
Do you want to continue with the installation of <SUNWx25ax> [y,n,?]
```

10. Enter: **y**

    The system displays the following message:

```
Installing 64 bit X.25 kernel modules for Solaris/SPARC as <SUNWx25ax>
..........
..........
..........
Do you want to install these conflicting files [y,n,?,q]
```

11. Enter: **y**

    The system displays the following message:

```
## Checking for setuid/setgid programs.
..........
..........
..........
Do you want to continue with the installation of <SUNWx25b> [y,n,?]
```

12. Enter: **y**

    The system displays the following message:

```
Installing X.25 user programs and libraries for Solaris/SPARC as <SUNWx25b>
..........
..........
..........
Do you want to install these conflicting files [y,n,?,q]
```

13. Enter: **y**

    The system displays the following message:

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

Installing 64-bit X.25 libraries for Solaris/SPARC as <SUNWx25bx>
..........
..........
..........
Do you want to continue with the installation of <SUNWx25lt> [y,n,?]
```

14. Enter: **y**

    The system displays the following message:

```
Installing Solstice X.25 License Configuration Data as
<SUNWx25lt>

## Installing part 1 of 1.
/opt/SUNWste/license_tools/LIC_CONFIG_FILE.x25.i386
/opt/SUNWste/license_tools/LIC_CONFIG_FILE.x25.sparc
[ verifying class <none> ]
## Executing postinstall script.

Installation of <SUNWx25lt> was successful.

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

15. Enter: **q**
16. Enter:

    cd /

17. Enter: **eject cdrom**
18. Continue with Setting up the X.25 license on page 99.

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 on page 100, which is performed only if:
  - the system does not currently have the X.25 license set up
- X.25 manual license setup on page 101, which requires the following information:
  - the server Hostid, Hostname and X.25 license number, as described in Retrieving system information on page 94.

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 9.2 and the X.25 license is already setup, perform the X.25 manual license setup on page 101.

To set up the license:

1. Lookup the X.25 Golden Key password. 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 XXXXXXXXXXXXXXXXXXXX “Avaya” ANY`

   Where “***XXXXXXXXXXXXXXXXXXXX***” 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

Perform this procedure only if you were unable to set up the X.25 license using the golden key.

To set up the license:

1. Enter:

   `/etc/opt/licenses/lit_tty`

   The system displays the following message:

```
 Select Product to License

[ ] x25.i386
[ ] x25.sparc









[ ] Exit -No License Installation
**x=select product and goto product screen **
```

2. Press **Enter** until the cursor moves to the brackets in front of

   `x.25 . sparc`

3. Enter an **x** in the brackets, and then press **Enter**.

   The system displays the following message:

```
Select product to license
Solstice X.25 9.2
9.2 forsparc


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


   SERVER NAME                                                HOSTID

1: xxxx                                                       xxxxxxxx



Phone Number List [ ] See the License Certificate for License Center info
Nodelocked to Host ID:
Expiration Date:
Rights to Use (RTU):                          Data Checksum(DC): 94
Password:                                     Password Checksum (PC): 6b
Vendor String (VS):


Done Setting Up This License [ ]         Cancel This License [ ]
Exit - Save Licenses [ ]                 Exit - Don't Save Licenses [ ]

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

4. Verify that **Servers: [x] 1** is selected, and that the **SERVER NAME** and **HOSTID** match the information that you recorded in Retrieving system information on page 94.
5. Press **Enter** until the cursor is at the **Nodelocked to Host ID:** field, and enter: **none**
6. Press **Enter** until the cursor is in the **Rights to Use:** field and, enter: **1**
7. Press **Enter** until the cursor is in the **Password:** field and, enter the X.25 password.
8. Press **Enter** until the cursor is in the **Vendor String (VS):** field, and enter the Vendor String variable.

9. Verify that the **Data Checksum** and **Password Checksum** values shown on the screen match the checksum values that are printed in your license information.

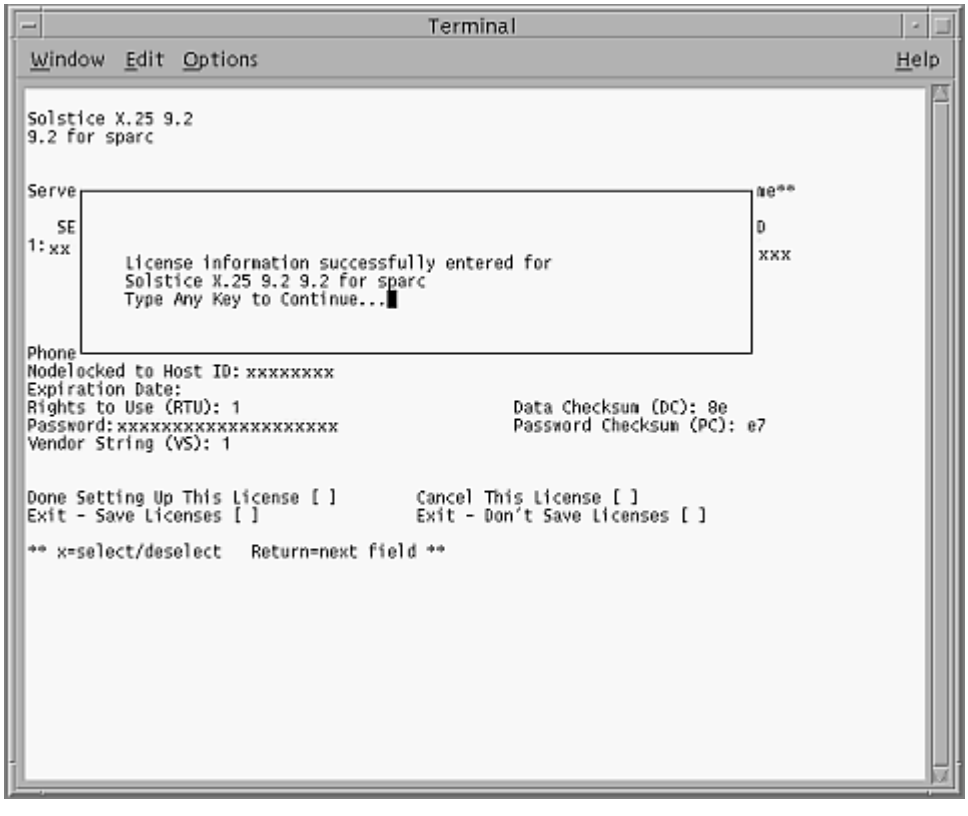
   NOTE:

   These checksum values are identified in your license as the PC and DC values. If the Rights to Use, Vendor String or, the X.25 password were entered incorrectly, these checksum values will not match.

10. Press **Enter**.

11. If the information is correct, enter an **x** in the brackets of the **Done Setting Up This License:** field, and press **Enter**.

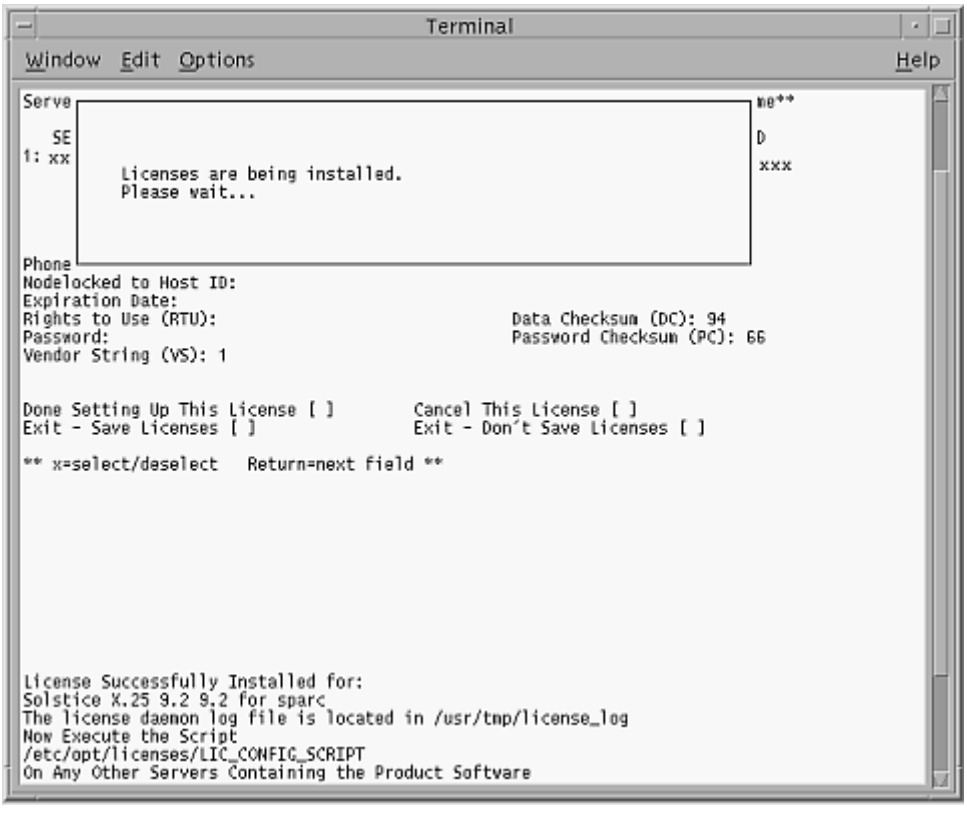
    The system displays a pop up window similar to the following:



12. Press any key to continue.

13. Enter an **x** in the brackets of the **Exit - Save Licenses** field, and press **Enter**.

    The system displays the following message:



NOTE:

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

14. To verify that the license was installed correctly, enter:

    `cd /usr/tmp`

15. Enter:

    cat license_log

    The system displays the following message:

```
12:09:27 (lmgrd) ----------------------------------------------
12:09:27 (lmgrd)   Please Note:
12:09:27 (lmgrd)
12:09:27 (lmgrd)   This log is intended for debug purposes only.
12:09:27 (lmgrd)   There are many details in licensing policies
12:09:27 (lmgrd)   that are not reported in the information logged
12:09:27 (lmgrd)   here, so if you use this log file for any kind
12:09:27 (lmgrd)   of usage reporting you will generally produce
12:09:27 (lmgrd)   incorrect results.
12:09:27 (lmgrd)
12:09:27 (lmgrd) ----------------------------------------------
........
........
........
12:09:27 (lmgrd) Starting vendor daemons...
12:09:27 (lmgrd) Started lic.SUNW (internet tcp_port 32778 pid 243
12:09:27 (lic.SUNW) FLEXlm version 6.16
12:09:27 (lic.SUNW) Server started on xxxx
12:09:27 (lic.SUNW) OUT: “Solstice_x.25” root@xxxx
```

CAUTION:

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

Additional references

If you have problems with the X.25 installation see, Solving X.25 installation problems on page 413.

Installing DiskSuite

Overview

The DiskSuite software package is used to mirror the root disk on a mirrored system and to control any soft partitions.

Prerequisites

Before you begin installing the DiskSuite software, perform the following tasks:

- Verify that the Solaris 8 operating system must be installed.
- Verify that you are logged in as *root* at the console.
- Obtain the *Solaris 8 Software 4/01 disk 2 of 2* CD.
- Verify that you have partitioned the hard disks for the system as specified in Partitioning the hard disks on page 46.
- Verify that all Solaris packages are installed (HSI/S, HSI/P, SAI/P, X.25) as required by your particular system configuration.

Platform considerations

This procedure is for *all platforms.*

Procedure

To install the DiskSuite software:

1. Load the *Solaris 8 Software disk 2 of 2* CD into the CD-ROM drive.
2. Enter:

   cd /

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 displays the installed CD as shown below:

```
/cdrom/sol_8_sparc_2 on /vol/dev/dsk/c0t6d0/sol_8_sparc_2 read
only/setuid/maplcase/noglobal/rr/traildot/dev=16c0002 on
(current date and time)
```

4. Enter the following command on a single line at the command prompt.

`/usr/sbin/pkgadd -d /cdrom/cdrom0/Solaris_8/EA/products/DiskSuite_4.2.1/sparc/Packages`

The system displays the following message:

```
The following packages are available:

  1  SUNWmdg      Solstice DiskSuite Tool
                  (sparc) 4.2.1,REV=1999.11.04.18.29

  2  SUNWmdja     Solstice DiskSuite Japanese localization
                  (sparc) 4.2.1,REV=1999.12.09.15.37

  3  SUNWmdnr     Solstice DiskSuite Log Daemon Configuration Files
                  (sparc) 4.2.1,REV=1999.11.04.18.29

  4  SUNWmdnu     Solstice DiskSuite Log Daemon
                  (sparc) 4.2.1,REV=1999.11.04.18.29

  5  SUNWmdr      Solstice DiskSuite Drivers
                  (sparc) 4.2.1,REV=1999.12.03.10.00

  6  SUNWmdu      Solstice DiskSuite Commands
                  (sparc) 4.2.1,REV=1999.11.04.18.29

  7  SUNWmdx      Solstice DiskSuite Drivers(64-bit)
                  (sparc) 4.2.1,REV=1999.11.04.18.29

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

5. Press **Enter**.

   The system displays the following message:

```
Processing package instance <SUNWmdg> from
</cdrom/sol_8_sparc_2/Solaris_8/EA/products/DiskSuite_4.2.1/sparc/Packages>

Solstice DiskSuite Tool
.........
.........
.........
## Verifying package dependencies.

WARNING:
    The <SUNWmdr> package "Solstice DiskSuite Drivers" is a
    prerequisite package and should be installed.

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

6. Enter: **y**

   The system displays the following message:

```
## Verifying disk space requirements.

## Checking for conflicts with packages already installed.
........
........
........
Do you want to install these conflicting files [y,n,?,q]
```

7. Enter: **y**

   The system displays the following message:

```
### 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 <SUNWmdg> [y,n,?]
```

8. Enter: **y**

   The system displays the following message:

```
Installing Solstice DiskSuite Tool as <SUNWmdg>

## Executing preinstall script.
## Installing part 1 of 1.
........
........
........
## Verifying package dependencies.

WARNING:
    The <SUNWmdr> package "Solstice DiskSuite Drivers" is a
    prerequisite package and should be installed.

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

9. Enter: **y**

   The system displays the following message:

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

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

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

10. Enter: **y**

    The system displays the following message:

```
Installing Solstice DiskSuite Japanese localization as <SUNWmdja>>
## Executing preinstall script.
## Installing part 1 of 1.
........
........
........
Do you want to continue with the installation of <SUNWmdnr> [y,n,?]
```

11. Enter: **y**

    The system displays the following message:

```
Installing Solstice DiskSuite Log Daemon Configuration Files as <SUNWmdnr>
## Executing preinstall script.
## 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 <SUNWmdnu> [y,n,?]
```

12. Enter: **y**

    The system displays the following message:

```
Installing Solstice DiskSuite Log Daemon as <SUNWmdnu>

## Installing part 1 of 1.
## Executing postinstall script.
........
........
........
Do you want to continue with the installation of <SUNWmdr> [y,n,?]
```

13. Enter: **y**

    The system displays the following message:

```
Installing Solstice DiskSuite Drivers as <SUNWmdr>
## Executing preinstall script.
## 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 <SUNWmdu> [y,n,?]
```

14. Enter: **y**

    The system displays the following message:

```
Installing Solstice DiskSuite Commands as <SUNWmdu>
## Executing preinstall script.
## Installing part 1 of 1.
## Executing postinstall script.
........
........
........
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 <SUNWmdx> [y,n,?]
```

15. Enter: **y**

    The system displays the following message:

```
Installing Solstice DiskSuite Drivers(64-bit) as <SUNWmdx>
## Executing preinstall script.
## Installing part 1 of 1.
## Executing postinstall script.
postinstall: configure driver
       (This may take a while.)

Installation of <SUNWmdx> was successful.
...................
...................
...................
Select package(s) you wish to process (or 'all' to process
all packages). (default: all) [?,??,q]:
```

16. Enter: **q**

    The system displays the following message:

```
*** IMPORTANT NOTICE ***

        This machine must now be rebooted in order to ensure
        sane operation.  Execute

               shutdown -y -i6 -g0

        and wait for the "Console Login:" prompt.
```

17. Enter:

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

    The system reboots.

18. Log into the system as **root**.

19. Enter:

    `eject cdrom`

Installing the Sun Solaris Patches

Overview

The Sun Solaris patches are delivered with the CMS software.

Platform Considerations

This procedure is for *all platforms*.

Prerequisites

Before you begin installing the Sun Solaris patches, perform the following tasks:

- Verify that the Solaris 8 operating system has been installed.
- Verify that all Solaris packages have been installed (HSI/S, HSI/P, SAI/P, X.25) as required by your particular system configuration.
- Verify that the Solstice DiskSuite software package has been installed.
- Verify that you are logged in as **root** at the console.
- Obtain the *CentreVu Call Management System R3V9* CD

Procedure

To install the Sun Solaris patches:

1. Load the *CentreVu Call Management System R3V9* CD into the CD-ROM drive.
2. 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/cms on /vol/dev/dsk/c0t2d0/cms read
only/nosuid/maplcase/noglobal/rr/traildot/dev=16c0001 on
(current date and time)
```

3. Enter:

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

   The system displays the following message:

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

CMS Supplied Solaris Patches
(sparc) 1.0

Avaya Inc.

## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

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

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

4. Enter: **y**

   The system displays the following message:

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

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

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

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

   The system displays a message similar to the following example:

```
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
```

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 should call the CMS
  Technical Services Organization at 1-800-242-2121
- Customers outside the US should contact your Avaya
  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. Enter:

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

   The system reboots.

   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.

8. Change directory permissions for the **etc** directory by entering:

   `installf SUNWcsr /etc d 0755 root sys`

9. Enter:

   `eject cdrom`

Additional References

For additional information on Solaris patches, see Recognizing new hardware devices on page 415.

Installing the INFORMIX software packages

Overview

This procedure describes how to install the INFORMIX software packages.

Platform considerations

This procedure is for *all platforms*.

Prerequisites

Before you begin installing the INFORMIX software packages, perform the following tasks:

- Verify that the Solaris 8 operating system has been installed.
- Verify that you are logged in as *root* at the console.
- If you are using ISQL custom reports, obtain the *INFORMIX SQL Version 7.20* CD, license serial number (S/N), and the serial number key (required only if using custom reports).
- Obtain the *Informix IDS 9.21.UC4-1* CD, License S/N, and Serial Number Key.
- Obtain the *Informix ESQL 9.40/2.50.UC2-1 SDK* CD, License S/N, and Serial Number Key.
- Obtain the *INFORMIX Int'l Language Supplement Version 3.0* CD.
- Obtain the *CentreVu Call Management System R3V9* CD.

Contents

Setting up the INFORMIX environment

To set up the Informix environment:

1. If you are setting up the INFORMIX environment from the console, enter:

   TERM=xterm

   export TERM

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

   groupadd -g 100 informix

3. Add a new user to the system by entering the following command on a single line at the command prompt:

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

   The system displays the following message:

```
6 blocks
```

4. 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 ISQL custom reports. If you do not need this package, skip this section. Continue with Installing the IDS 9.21 package on page 122.

To install the INFORMIX SQL package:

CAUTION:
The ISQL software must be installed before the other INFORMIX software packages. If the ISQL software is installed at a later date, the other INFORMIX packages will need to be reinstalled. Do *NOT* reinitialize IDS or else customer data will be lost.

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.

   The program displays a list of devices and file systems currently mounted. The last line displayed should look similar to the following example:

```
/cdrom/informix on /vol/dev/dsk/c0t2d0/informix 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. Verify that you are in the INFORMIX directory by entering:

   pwd

   The system displays the following message:

```
/opt/informix
```

6. Enter:

   tar xvf /cdrom/cdrom0/sql.tar

   The system copies the INFORMIX SQL files from the CD to the current directory, and displays:

```
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. To start the installation of the INFORMIX SQL package, enter:

   ./installsql

   The system displays the following message:

```
INFORMIX-SQL Version 7.XX.XXX
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**.

   The system displays the following message:

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

9. Enter the 11-character License S/N that is on your license.

   The system displays the following message:

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

10. Enter the 6-character serial number key that is on your license.

    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.
```

11. Press **Enter**.

    The system displays the following message:

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

12. Enter:

    `eject cdrom`

Installing the IDS 9.21 package

To install the IDS package:

1. Use the following table to record the serial number and serial number key for this INFORMIX Dynamic Server (IDS) package.

Serial number	
Serial number key	

2. Load the *Informix IDS 9.21.UC4-1* CD into the CD-ROM drive.
3. After about 15 seconds, enter **`mount`** to verify the name of the CD.

   The system displays a list of devices and file systems currently mounted. The last line displayed should look similar to the following example:

```
/cdrom/informix on /vol/dev/dsk/c0t6d0/informix read only
/setuid/maplcase/noglobal/rr/traildot/dev=16c0004 on (current
date and time)
```

4. Enter:

   `su informix`

   The prompt changes to a $.
5. To change to the INFORMIX directory, enter:

   `cd $INFORMIXDIR`
6. Enter:

   `pwd`

   The system displays the following message:

```
/opt/informix
```

7. Enter:

   `tar xvf /cdrom/cdrom0/ids2000.tar`

   The system copies the IDS files from the CD to the current directory, and displays the following message:

```
x installserver, 19696 bytes, 39 tape blocks
x aaodir/adtcfg.std, 708 bytes, 2 tape blocks
x aaodir/adtcfg, 945 bytes, 2 tape blocks
. . . . .
. . . . .
. . . . .
x etc/XKeysymDB, 3184 bytes, 7 tape blocks
x msg/en_us/0333/cockpit.iem, 8073 bytes, 16 tape blocks
x msg/en_us/0333/i18n_str.uid, 57344 bytes, 112 tape blocks
```

8. To start the installation of the IDS software package, enter:

   `./installserver`

   The system displays the following message:

```
Informix Dynamic Server 2000 Version X.XX.UCX
Copyright (C) 1986-2000 Informix Software, Inc.

Installation Script

Installation and Configuration 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 informix.
- This installation procedure must be run by user informix.

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.
```

9. Press **Enter**.

   The system displays the following message:

```
Enter your serial number (for example, INF#X999999) >
```

10. Enter the 11-character License S/N that is on your license.

    The system displays the following message:

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

11. Enter the 6-character serial number key that is on your license.

    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.
```

12. Press **Enter**.

    The system displays the following message:

```
Installing directory .
Installing directory aaodir
Installing directory bin
. . . . .
. . . . .
. . . . .
*************************************************************
To complete the installation of Informix Dynamic Server 2000,
run /opt/informix/RUN_AS_ROOT.server as root.
*************************************************************

Informix user portion of installation of Informix Dynamic Server
2000 complete.
```

13. Enter:

    `exit`

    The prompt changes to a #.

NOTE:

Some systems will not default to root the first time the **`exit`** command is run. It may be necessary to enter the **`exit`** command a second time. If you enter **`id`** at the command prompt the system should display a `uid=0(root)` message.

14. Enter:

    `cd /opt/informix`

15. Enter:

    `pwd`

    The system displays the following message:

```
/opt/informix
```

16. Enter:

    `./RUN_AS_ROOT.server`

    The system displays the following message:

```
Informix Product:       Informix Dynamic Server 2000

Installation Directory: /opt/informix

Performing root portion of installation of Informix Dynamic
Server 2000...

...Linking /usr/lib/ismdd09a.so from lib/ismdd09a.so...

...Linking /usr/lib/iosm09a.so from lib/iosm09a.so...

...Linking /usr/lib/ipldd09a.so from lib/ipldd09a.so...

Installation of Informix Dynamic Server 2000 complete.
```

17. Enter:

    `eject cdrom`

Installing the INFORMIX ESQL 9.40 package

To install the INFORMIX ESQL 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 9.40/2.50.UC2-1 SDK* CD into the CD-ROM drive.
3. After about 15 seconds, enter **`mount`** to verify the name of the CD.

   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/informix#1 on /vol/dev/dsk/c0t2d0/informix#1 read
only/nosuid/maplcase/noglobal/rr/traildot/dev=16c0008 on
(current date and time)
```

4. Set the environment variables by entering:

   `INFORMIXDIR=/opt/informix`

   `export INFORMIXDIR`

   `PATH=$PATH:$INFORMIXDIR/bin`

   `export PATH`

5. Enter:

   `su informix`

   The prompt changes to a $.

6. Change to the INFORMIX directory by entering:

   `cd $INFORMIXDIR`

7. Enter:

   pwd

   The system displays the following message:

```
/opt/informix
```

8. Enter the following command to copy the INFORMIX Client SDK files from the CD-ROM to the current directory:

   cp /cdrom/cdrom0/CLISDK/* /opt/informix

9. Enter the following to start the installation of the INFORMIX Client SDK software packages:

   ./installclientsdk

   The system displays the following message:

```
x installesql, 12075 bytes, 24 tape blocks
x bin/esql, 14859 bytes, 30 tape blocks
x bin/esqldemo, 1067 bytes, 3 tape blocks
................
................
................
x gls/lc11/os/it.lc, 21107 bytes, 42 tape blocks
x gls/lc11/os/sv, 7364 bytes, 15 tape blocks
x gls/lc11/os/sv.lc, 21072 bytes, 42 tape blocks

INFORMIX-Client SDK Version X.XX.UCX
Copyright (C) 1991-2000 Informix Software, Inc.

Is ClientSDK being installed along with Informix database server
version 9.x (required to be run as user "informix")?
(yes or no)
```

10. Enter: **y**

    The system displays the following message:

```
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 informix
- This installation procedure must be run by user informix.
- You must also set INFORMIXDIR to where you would like to install
- the product on and make INFORMIXDIR as your current working directory.

This script will change the owner, group, and mode of

many of the files of this package in this directory.

Extracting files from clientsdkcontent file...

Installing ClientSDK as user informix...

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

11. Press **Enter**.

    The system displays the following message:

```
Enter your serial number (for example, INF#X999999) >
```

12. Enter the 11-character license S/N that is on your license.

    The system displays the following message:

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

13. Enter the 6-character serial number key that is on your license.

    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.
```

14. Press **Enter**.

    The system displays the following message:

```
Installing directory .
Installing directory bin
Installing directory lib
Installing directory lib/client
. . . . .
. . . . .
. . . . .
*************************************************************
To complete the installation of INFORMIX-Client SDK,
run /opt/informix/RUN_AS_ROOT.clientsdk as root.
*************************************************************

Informix user portion of installation of INFORMIX-Client SDK
complete.
```

15. Enter:

    `exit`

    The prompt changes to a `#`.

    NOTE:

    Some systems will not default to root the first time the **`exit`** command is run. It may be necessary to enter the **`exit`** command a second time. If you enter **`id`** at the command prompt the system should display a `uid=0(root)` message.

16. Enter:

    cd /opt/informix

17. Enter:

    pwd

    The system displays the following message:

```
/opt/informix
```

18. Enter:

    ./RUN_AS_ROOT.clientsdk

    The system displays the following message:

```
Informix Product:       INFORMIX-Client SDK
Installation Directory: /opt/informix

Performing root portion of installation of INFORMIX-Client
SDK...

Installation of INFORMIX-Client SDK complete.
```

19. Enter:

    eject cdrom

Installing INFORMIX ILS

To install INFORMIX ILS:

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.

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 displayed should look similar to the following example:

```
/cdrom/volume_1 on /vol/dev/dsk/c0t2d0/volume_1 read only
on (current date and time)
```

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

   INFORMIXDIR=/opt/informix

   export INFORMIXDIR

   PATH=$PATH:$INFORMIXDIR/bin

   export PATH

4. Enter:

   cd $INFORMIXDIR

5. Enter: **pwd**

   The system displays the following message:

```
/opt/informix
```

6. Enter:

   /cdrom/cdrom0/install

   The system displays the following message:

```
 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?
```

7. Enter the number that corresponds with the language that you want to use during the installation.

   Example:

   Enter **1** to select `English`.

   NOTE:

   If you select a language other than `English`, you must also select a display character set.

   After you select a language, the system displays the following message:

```
                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 Chineese   S(I)mp Chinese

Enter one choice, and hit ENTER:
```

8. Select `Custom Install` by entering: **2**

   The system displays the following message:

```
                      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 Chineese   S(I)mp Chinese

Select the components to install:
```

9. Select the `Locale` and `Code set conversion` options by entering: **2 4**

   The system displays the following message:

```
LOCALES - LANGUAGES

  Install locales and associated character maps for what languages?

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

10. Select `English` and `Japanese` by entering: **6 16**

    The system displays the following message:

```
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 Chineese S(I)mp Chinese

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

11. Select `United States` by entering: **3**

    The system displays the following message:

```
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 Chineese S(I)mp Chinese

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

12. Select `UTF8` by entering: **5**

    The system displays the following message:

```
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 Chineese S(I)mp Chinese

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

13. Select `UTF8` by entering: **4**

    The system displays the following message:

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

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

14. Select `Japanese` and `Western European` by entering: **7 12**

    The system displays the following message:

```
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 Chineese S(I)mp Chinese

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

15. Select `Shift-JIS+JISX0212`, `Standard-Shift-JIS`, and `UTF8` by entering: **1 2 5**

    The system displays the following message:

```
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 Chineese   S(I)mp Chinese

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

16. Select `ISO 8859-1` and `UTF8` by entering: **`20 23`**

    The system displays the following message:

```
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.
```

17. Press **Enter**.

    The system displays the following message:

```
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...
```

18. Press **Enter**.

    The system displays the following message:

```
               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 Chineese   S(I)mp Chinese

Enter one choice, and hit ENTER:
```

19. Enter: **4**

    The system displays the following message:

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

20. Enter:

    eject cdrom

Initializing IDS

To initialize INFORMIX Dynamic Server (IDS) for CMS:

1. Load the *CentreVu Call Management System R3V9* CD into the CD-ROM drive.
2. After about 15 seconds, enter **`mount`** to verify the name of the CD.

   The program displays a list of devices, and file systems that are currently mounted. The last line should display the installed CD as shown below:

```
/cdrom/cms on /vol/dev/dsk/c0t2d0/cms read
only/nosuid/maplcase/noglobal/rr/traildot/dev=16c0001 on
(current date and time)
```

3. Enter:

   `cd /cdrom/cdrom0/postids`

   NOTE:

   The postids tool is used to automatically configure the IDS software to run with CMS. The tool will initialize the **/etc/system** and **/opt/informix** files.

4. Enter:

   ./postids_config

   The system displays the following message:

```
x ., 0 bytes, 0 tape blocks
x ./opt, 0 bytes, 0 tape blocks
x ./opt/informix, 0 bytes, 0 tape blocks
.............
.............
.............
Installing Informix IDS configuration information for CMS...
Setting UNIX system tunable parameters for Informix IDS.
Postids Configuration successful.

*** IMPORTANT NOTICE ***

This machine must now be rebooted in order to insure sane
operation. Execute:

shutdown -y -i6 -g0

and wait for the Console Login: prompt.
```

NOTE:

The "`This machine must now be rebooted in order to insure sane operation`", message may not display on some systems. If it does not display, continue with Step 7.

5. Enter:

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

6. Log in as **root**.

7. Change permissions to partition 4 by entering the following commands:

   chown informix /dev/rdsk/c0t0d0s4

   chgrp informix /dev/rdsk/c0t0d0s4

   chmod 660 /dev/rdsk/c0t0d0s4

8. Enter:

   . /opt/informix/bin/setenv

9. Enter:

   oninit -i

   NOTE:
   This process may take several minutes.

   The system displays the following message:

```
This action will initialize Informix Dynamic Server 2000;
any existing Informix Dynamic Server 2000 databases will NOT be
accessible -

Do you wish to continue (y/n)?
```

10. Enter: **y**
11. Check the IDS software by entering:

    onstat

    The system displays several sets of data:

```
Informix Dynamic Server 2000 Version X.XX.UCX     -- On-Line -- Up 00:00:55 -- 18432 Kbytes

Userthreads
address  flags   sessid   user     tty      wait     tout locks nreads   nwrites
a30c018  ---P--D 1        root     -        0        0    0     27       37510
a30c608  ---P--F 0        root     -       0        0    0     0        1132
....................
....................
....................
ovlock   ovuserthread ovbuff   usercpu  syscpu   numckpts flushes
0        0            0        17.64    1.99     2        5

bufwaits lokwaits lockreqs deadlks  dltouts  ckpwaits compress seqscans
6        0        33350    0        0        1        925      529

ixda-RA  idx-RA   da-RA    RA-pgsused lchwaits
4        0        47       51         0
```

12. Enter:

    eject cdrom

Installing the CMS packages

Prerequisites

Before you install any of the CMS packages, perform the following tasks:

- Verify that the Solaris 8 operating system has been installed.
- Verify that you are logged in as **root** at the console.
- Obtain the *CentreVu CMS Supplemental Services R3V9* CD.
- Obtain the *CentreVu Call Management System R3V9* CD.
- Obtain the current cmssvc password.

Platform considerations

This procedure is for *all platforms*.

Contents

"Installing the CMS packages" includes the following procedures:

Installing the CMS Supplemental Services software

To install the Supplemental Services software:

1. Record the CMS Supplemental Services version number printed on the CD, *CentreVu CMS Supplemental Services R3V9*. You will need this number during the procedure.

Version number	

2. Load the *CentreVu CMS Supplemental Services R3V9* CD into the CD-ROM drive.
3. Set the INFORMIX environment by entering:

   `. /opt/informix/bin/setenv`

4. To check the IDS software, enter:

   `onstat`

   The system displays several sets of data:

```
Informix Dynamic Server 2000 Version X.XX.UCX     -- On-Line -- Up 00:00:55 -- 18432 Kbytes

Userthreads
address  flags   sessid   user     tty      wait     tout locks nreads   nwrites

....................
....................
....................
ixda-RA  idx-RA   da-RA    RA-pgsused lchwaits
4        0        47       51         0
```

5. Enter:

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

   The system loads the Installation Manager package, and displays the following message:

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

Avaya Installation Manager
(sparc) 0.XX

Copyright (c) 1998, 1999, 2000 Avaya Inc.
All Rights Reserved

## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

Installing Avaya Installation Manager as <LUim>

## Installing part 1 of 1.
/opt/LUim/bin/install
/opt/LUim/bin/migrate_opt_link
/opt/LUim/bin/remove
/opt/LUim/instadmin
[ verifying class <none> ]

Installation of <LUim> was successful.
```

6. Enter:

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

   The system displays the following message:

```
================================================================
====== Avaya Installation Manager, Version .XX
====== Tue Nov 14 09:34:28 MST 2000
================================================================
.........
.........
.........

Where should this package be installed? [/opt/SUNWexplo]:
```

7. Perform one of the following actions:
   - If the system does not display an installation prompt for the SUNWexplo package, go to Step 22.
   - If the system does display an installation prompt for the SUNWexplo package, go to Step 8.
8. Press **Enter**.

   The system displays the following message:

```
Company name [Avaya_Inc/Avaya_CMS]:
```

9. Press **Enter**.

   The system displays the following message:

```
Contract ID []:
```

NOTE:

The contract ID and system serial number prompts can be left blank if the information is not available but should be answered where possible in order to facilitate customer support. The configuration file **/etc/default/explorer** can be updated at a later date.

10. Enter the services contract ID.

    The system displays the following message:

```
System serial number []:
```

11. Enter the serial number for the CMS system.

    The system displays the following series of messages:

```
Contact name [Avaya CMS Tier 3 Maintenance]:
Contact email address [cms-support@avaya.com]:
Phone number [800-242-2121, x15235]:
Address (line 1) [8744 Lucent Blvd]:
Address (line 2) []:
City [Highlands Ranch]:
State [CO]:
Zip [80129]:
Country [USA]:
```

12. Press **Enter** to accept the default settings or enter information that is appropriate for your location.

    The system displays a prompt to select a geographic region.

```
Geographic Region
1 - AMERICAS - North and South America
2 - EMEA     - Europe, Middle-east and Africa
3 - APAC     - Asia, Pacific
[AMERICAS]:
```

13. Select the appropriate geographic region for the customer.

    The system displays the following message:

```
Automatic Email Submission
Would you like all explorer output to be sent to:
    explorer-database-americas@sun.com
at the completion of explorer when -mail or -e is specified?
[y, n]
```

14. Enter: **y**

    The system displays the following message:

```
Alternate Email Submission

Would you like explorer output to be sent to an alternate email
addresses at the completion of explorer? If not, enter a single -
only for your reply.

To enter multiple addresses, seperate them with a comma (,). []:
```

15. Perform one of the following steps:
    - Enter any alternate e-mail addresses.
    - Press **Enter** if there are no alternate e-mail addresses.

    The system displays the following message:

```
Return address for explorer email output [xxxxxxx]
```

16. Press **Enter**.

```
You have answered:
   Company name: xxxxx
...........
...........
...........
Are these values okay? [y, n]
```

17. If the information is correct, enter: **y**

    The system displays the following message:

```
We recommend running explorer once a week and emailing the
results to the explorer database. If you agree to this the root
crontab will be modified.

Do you wish to run explorer once a week? [y, n]
```

18. Enter: **n**

    The system displays the following message:

```
If this is a new install of explorer, please run explorer and
mail the results to Sun.
.............
.............
.............
Would you like to do this now? [y, n]
```

19. Enter: **n**

    The system displays the following message:

```
Using </opt/SUNWexplo> as the package base directory.
..............
..............
..............
Do you want to install these conflicting files [y,n,?,q]
```

20. Enter: **y**

```
Using </opt/SUNWexplo> as the package base directory.
..............
..............
..............
Do you want to continue with the installation of <SUNWexplo> [y,
n]
```

21. Enter: **y**

    The system displays the following message:

```
Installing Sun(TM) Explorer Data Collector as <SUNWexplo>
.............
.............
.............
Installation of <SUNWexplo> was successful.

====== Installation Completed === current date and time
```

NOTE:

The system will display a warning message for any default values that were left blank. For example, the serial #, and contract ID. Ignore these warning messages.

22. Enter:

    /opt/cc/install/ahl.*XXXXXXX.X*/bin/setup

    Where ***XXXXXXX.X*** is the CMS Supplemental Services version number you recorded earlier in Step 1 of Installing the CMS Supplemental Services software on page 144.

    The system displays the following message:

```
No previous version is in place.
enable crontab entry...
set up output log configuration...
AHL setup completed successfully.
```

23. Enter:

    /opt/cc/install/aot.*XXXXXXX.X*/bin/setup

    Where ***XXXXXXX.X*** is the CMS Supplemental Services version number you recorded earlier in Step 1 of Installing the CMS Supplemental Services software on page 144.

    The system displays the following message:

```
No previous version is in place.
copy previous log files...
no log files exist for tag "LAN_Admin_Log"
linking new version...
registering server with Orbix daemon
.............
.............
.............
[786: New Connection (cms3,IT_daemon,*,root,pid=645,optimised) ]

AOM setup completed successfully.
```

24. Enter:

    eject cdrom

Installing the CMS software

To install the CMS software:

1. Load the *CentreVu Call Management System R3V9* CD into the CD-ROM drive.
2. After about 15 seconds, enter **`mount`** to verify the name of the CD.

   The program displays a list of devices, and file systems that are currently mounted. The last line should display the installed CD as shown below:

```
/cdrom/cms on /vol/dev/dsk/c0t2d0/cms read
only/nosuid/maplcase/noglobal/rr/traildot/dev=16c0004 on
(current date and time)
```

3. Add the CMS package by entering:

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

   The system displays the following message:

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

Avaya CentreVu(R) Call Management System
(sparc) r3v9xx.x

Copyright (c) 1991, 1992, 1993, 1994 AT&T
Copyright 1996 Avaya Inc.
All Rights Reserved

Installing the Avaya Inc. CentreVu(R) Call Management System
(r3v9ab.l).
............
............
............
 /etc/uucp/Dialers
* /opt/informix/etc/sqlhosts
  /sbin/mountall
[Hit <RETURN> to continue display]
```

4. Press **Enter**.

   The system displays the following message:

```
/usr/openwin/lib/Xdefaults
/usr/openwin/lib/openwin-init
/usr/openwin/lib/openwin-menu-programs
...........
...........
...........
/usr/sbin/mountall
* /var/crash <attribute change only>
  /var/spool/cron/crontabs/root
* - conflict with a file which does not belong to any package.

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

5. Enter: **y**

   The system displays the following message:

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

The following files are being installed with setuid and/or setgid
permissions:

  /cms/bin/mqpeek <setuid root>
  /cms/bin/spi <setuid root>
  /cms/perfbin/memsnap3 <setuid root setgid root>
  /cms/toolsbin/chk_ext <setuid root>
  /cms/toolsbin/cmsu <setuid root>
  /cms/toolsbin/initSimConf <setuid root setgid root>
  /cms/toolsbin/setSimLink <setuid root setgid root>
  /cms/toolsbin/shmdump <setgid sys>
  /usr/spool/lp/cmstermDSR <setuid root setgid lp>

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

6. Enter: **y**

   The system displays 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 <cms> [y,n,?]
```

7. Enter: **y**

   The system displays the following message:

```
Installing Avaya 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:
```

8. Enter the password for the CMS login.

   The system displays the following message:

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

9. Re-enter the password for the CMS login.

   The system displays the following message:

```
passwd (SYSTEM): passwd successfully changed for cms

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

IMPORTANT:
The CMSSVC login is used only by services. Do not give out the CMSSVC password.

10. Enter the password for the CMSSVC login.

    The system displays the following message:

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

11. Re-enter the password for CMSSVC.

    The system displays the following message:

```
passwd (SYSTEM): passwd successfully changed for cmssvc

## Installing part 1 of 1.
/usr/elog <symbolic link>
/cms/db/LogAdmin/ag_log_1
/cms/db/LogAdmin/ag_log_2
..........
..........
..........
/opt/RMCmem/bin/pmem <linked pathname>
/opt/RMCmem/bin/prtmem <linked pathname>
## Executing postinstall script.

Installation of <RMCmem> was successful.

*** IMPORTANT NOTICE ***

This machine must now be rebooted in order to insure sane operation.
Execute:

shutdown -y -i6 -g0

and wait for the Console Login: prompt.

Background installation of performance packages complete.

If CMS was installed by choosing cms from the pkgadd menu, type q and
press return to exit.

If cms was installed using pkgadd -d /cdrom/cdrom0 cms, press return.
```

12. Press **Enter**.
13. Enter:

    `/usr/sbin/shutdown -y -i6 -g0`
14. When the system reboots, log in as **root**.

Additional references

If you have problems installing the CMS software, see CMS installation fails on page 458.

Setting up CMS authorizations

Overview

This procedure describes how TSC personnel set authorizations for CMS features that are purchased by the customer. Authorizations apply to all ACDs that are administered.

You can use the `auth_set` option in the CMS Services menu to:

- Set the purchased version of CMS
- Authorize the following packages and features:
  - Disk Mirroring
  - Forecasting (if the package is not already installed)
  - Graphics
  - External Call History (if the package is not already installed)
  - Expert Agent Selection (EAS) (if no administered ACDs use EAS)
  - External Application
  - CentreVu Supervisor
  - CentreVu Report Designer
- Change the number of agents, ACDs, or supervisor logins

Prerequisites

Before you set up CMS, TSC personnel should verify that the on-site technicians have completed the following tasks:

- Connected the console to the CMS computer
- Connected the CMS computer to the TSC's Remote Maintenance Center (remote console)
- Connected additional terminals and printers to the NTS ports.
- Connected the link between the CMS computer and the switch

  NOTE:

  If the hardware link or the Automatic Call Distribution (ACD) feature and CMS is not properly administered, the CMS software cannot communicate with the switch. For switch administration procedures, see *CentreVu CMS Switch Connections and Administration,* 585-215-876.

- Connected the NTS and the CMS computer to the network hub unit.

  See the appropriate *CentreVu CMS Hardware Installation, Maintenance, and Troubleshooting* book.

Platform considerations

This procedure is for *all platforms*.

Conventions

Throughout the setup, you are prompted to enter values that are 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.

Procedure

To set authorizations for CMS features:

NOTE:

Different authorizations may be displayed depending on the current version of CMS being installed on your system.

1. Enter:

   `cmssvc`

   The system displays the CMS Services menu.

```
Avaya 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_ids      Turn Informix Database on or off
   4) run_cms      Turn CentreVu CMS on or off
   5) disk_space   Format/Assign disk space to Database Server
   6) setup        Set up the initial configuration
   7) swinfo       Display switch information
   8) swsetup      Change switch information
   9) patch_inst   Install a single CMS patch from CD
  10) patch_rmv    Backout an installed CMS patch
  11) load_all     Install all CMS patches found on CD
  12) back_all     Backout all installed CMS patches from machine
Enter choice (1-12) or q to quit:
```

2. Enter **2** to select `auth_set`.

   The system displays the following message:

```
Password:
```

3. Enter the appropriate password.

IMPORTANT:
The CMSSVC password is available only to authorized personnel. Do not give out the CMSSVC password.

NOTE:
Some of the following questions may not be displayed if the authorization cannot be changed at this time.

The system displays the following message:

```
Is this an upgrade? (y/n):
```

NOTE:
This question occurs the first time you run `auth_set` on the system.

4. Perform one of the following actions:

- If this is not an upgrade, enter: **n**

  The system displays the following message:

```
Purchased version is R3V9. Is this correct? (y/n):
```

- If this is an upgrade, enter: **y**

  The system displays the following message:

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

NOTE:
The mirroring authorization may not appear if the system is an Ultra 5. Mirroring is not supported on the Ultra 5 platform.

5. Perform one of the following actions:
   - If the customer purchased the disk mirroring package, enter: **y**
   - If the customer did not purchase the disk mirroring package, enter: **n**

   The system displays the following message:

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

6. Perform one of the following actions:
   - If the customer purchased the forecasting package, enter: **y**
   - If the customer did not purchase the forecasting package, enter: **n**

   The system displays the following message:

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

7. Perform one of the following actions:
   - If the customer purchased the graphics feature, enter: **y**
   - If the customer did not purchase the graphics feature, enter: **n**

   The system displays the following message:

```
Authorize use of external call history feature? (y/n): (default: n)
```

8. Perform one of the following actions:
   - If the customer purchased the external call history feature, enter: **y**
   - If the customer did not purchase the external call history feature, enter: **n**

   The program responds (if the vectoring package is authorized):

```
Authorize use of expert agent selection feature? (y/n): (default: n)
```

9. Perform one of the following actions:
   - If the customer purchased the expert agent selection feature, enter: **y**
   - If the customer did not purchase the expert agent selection feature, enter: **n**

   The system displays the following message:

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

10. Perform one of the following actions:
    - If the customer purchased the external application feature, enter: **y**
    - If the customer did not purchase the external application feature, enter: **n**

    The system displays the following message:

```
Enter the number of simultaneous Avaya CentreVu(R) Supervisor
logins the customer has purchased (2-400): (default: 2)
```

11. Enter the number of simultaneous logins purchased by the customer.

    The system displays the following message:

```
Has the customer purchased Avaya CentreVu(R) Report Designer?
(y/n): (default: n)
```

12. Perform one of the following actions:
    - If the customer purchased the Report Designer package, enter: **y**
    - If the customer did not purchase the Report Designer package, enter: **n**

    The system displays the following message:

```
Enter the maximum number of split/skill members that can be
administered (1-maximum):
```

NOTE:

The maximum amount for split/skill members may vary depending on your version of CMS.

For R3V9, “split or skill members” are defined as the number of CMS-measured agent-split and agent-skill combinations that are logged in at the same time. Each split that an agent logs into is an agent-split combination. Each skill that is assigned to an agent while the agent is 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	12000
0-max. agents	10000	32000

NOTE:

The minimum size configuration for CMS is 0-25 That is the reason groups 0-12 and 0-25 have the same provisioning. Also note that the customer can limit the split or skill random access memory (RAM) allocation to the size that is actually needed for the current configuration of agents and splits or skills. This is accomplished by the total split/skill members summed over all splits/skills fields, which is accessed through the `setup` option of the **`cmssvc`** command.

13. Enter the maximum possible number of split or skill members that the customer might use based on the size of the switch agent purchased.

    The system displays the following message:

```
Enter the maximum number of ACDs that can be installed (1-8):
(default: 1)
```

14. Enter the number of ACDs the customer purchased.

    The system displays the following message:

```
Enter the number of authorized agents(Right To Use):
```

15. Enter the number of authorized agents.

    NOTE:

    The authorized agents are the number of agents purchased by the customer. Agents are purchased in blocks of 25, 50, 75, 100, 200, 300, 400, 500, 600, 1000, or 5200.

    The system displays the command prompt, and all authorizations have been set.

16. Verify that authorizations were set by entering:

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

    The system displays the **admin.log** file. The **admin.log** file contains information relating to CMS administration procedures.

```
CMS Version XXXX.XX installation successful<date/time>
Authorization command started <date/time>
Capabilities/capacities authorized <date/time>
```

NOTE:

You can also verify the authorizations by using the `auth_display` option of the **`cmssvc`** command.

Installing the CMS patches

To install CMS patches:

IMPORTANT:

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. For more information about patch requirements, see CMS patch requirements on page 330.

If you believe that you should not be installing a particular patch, call the National Customer Care Center at 1-800-242-2121, or consult with your product distributor or representative, before you decide not to install it.

1. Verify that the *CentreVu Call Management System R3V9* CD is in the CD-ROM drive.
2. Enter:

   cmssvc

   The system displays the CMS Services menu.

```
Avaya 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_ids      Turn Informix Database on or off
   4) run_cms      Turn CentreVu CMS on or off
   5) disk_space   Format/Assign disk space to Database Server
   6) setup        Set up the initial configuration
   7) swinfo       Display switch information
   8) swsetup      Change switch information
   9) patch_inst   Install a single CMS patch from CD
  10) patch_rmv    Backout an installed CMS patch
  11) load_all     Install all CMS patches found on CD
  12) back_all     Backout all installed CMS patches from machine
Enter choice (1-12) or q to quit:
```

3. Choose one of the following actions:
   - To load all of the patches, enter: **11**
   - To load one patch at a time, enter: **9**

   The system checks for patches on the CD.

— If no patches are found on the CD the system displays the following message:

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

— If patches are available for installation, the system responds:

```
The following patches are available for installation:
.........
.........
.........
Are you sure you want to install all these patches? (y|n)
```

4. Choose one of the following actions:
   - If no patches are found on the CD continue with Step 5.
   - If patches are found on the CD-ROM, enter **y** to install all of the patches, or enter the patch number if you are installing only one patch.

     The system installs the patch or patches. As it does so, it displays messages similar to the following for each patch that is 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.
```

5. Enter:

   eject cdrom

Configuring the IDS dbspaces

Overview

The CMS `Disk_Space` Manager tool is used to automatically configure IDS. The tool will set up the INFORMIX partitions and configure a mirrored system.

Prerequisites

Before you install any of the CMS packages, perform the following tasks:

- Verify that the Solaris 8 operating system has been installed.
- Verify that INFORMIX IDS has been installed, and initialized.
- Verify that CMS has been installed.
- Verify that you are logged in as *root* at the console.
- Obtain the current `cmssvc` password.

Platform considerations

This procedure is for *all platforms*.

Procedure

To configure the IDS dbspaces:

1. Enter:

   cmssvc

   The system displays the CMS Services menu.

```
Avaya 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_ids      Turn Informix Database on or off
   4) run_cms      Turn CentreVu CMS on or off
   5) disk_space   Format/Assign disk space to Database Server
   6) setup        Set up the initial configuration
   7) swinfo       Display switch information
   8) swsetup      Change switch information
   9) patch_inst   Install a single CMS patch from CD
  10) patch_rmv    Backout an installed CMS patch
  11) load_all     Install all CMS patches found on CD
  12) back_all     Backout all installed CMS patches from machine
Enter choice (1-12) or q to quit:
```

2. Enter **3** to select `run_ids`.

   The system displays the following message:

```
Select one of the following

  1) Turn on IDS
  2) Turn off IDS

Enter choice (1-2):
```

3. Enter **1** to turn on IDS.

   The system displays the following message:

```
Please wait for initialization

. . . . .

***** IDS is now up *****
```

4. Enter:

   . /opt/informix/bin/setenv

5. Enter:

   cmssvc

   The system displays the CMS Services menu.

```
Avaya 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_ids      Turn Informix Database on or off
   4) run_cms      Turn CentreVu CMS on or off
   5) disk_space   Format/Assign disk space to Database Server
   6) setup        Set up the initial configuration
   7) swinfo       Display switch information
   8) swsetup      Change switch information
   9) patch_inst   Install a single CMS patch from CD
  10) patch_rmv    Backout an installed CMS patch
  11) load_all     Install all CMS patches found on CD
  12) back_all     Backout all installed CMS patches from machine
Enter choice (1-12) or q to quit:
```

6. Enter **5** to select `disk_space`.

   The system displays the following message if this is the first time the `disk_space` option is selected:

```
Initializing the boot disk (this may take several minutes!) ...

Disk_space_manager options 5) are:

  1) Add New Disks
  2) Initiate Mirroring
  3) Synch Primary and Mirror

Enter choice (1-3) or q to quit:
```

NOTE:

The system will not display the mirroring options if disk mirroring has not been authorized.

7. Enter **1** to add new disks.

   If the system has more than one disk, it displays a list of disks or disk pairs if the system is mirrored.

```
The choices for primary disks are:
............
............
............
Enter choice (X-X) or q to quit:
```

NOTE:

The system may display different menu options for non-mirrored systems.

8. Add the disk. Repeat Steps 5 through 7 for every hard drive installed on the system.

   When all disks have been added, the system displays the following message:

```
All disks are currently administered for the system.
Finished Adding New Disks
```

NOTE:

If IDS fails to turn on after the configuration of the IDS dbspaces, the system displays the following message:

```
oninit: Fatal error in shared memory initialization
```

Contact the National Customer Care Center (1-800-242-2121), or consult with your product distributor or representative.

Installing the Open Database Connectivity software

Overview

This procedure describes how to install the OpenLink ™ Open Database Connectivity (ODBC) version 3.2 software.

Prerequisites

Before you install the ODBC software, perform the following tasks:

- Verify that the Solaris 8 operating system has been installed
- Verify that all the preceding factory software installation requirements in this chapter have been completed
- Obtain the *CentreVu CMS OPENLINK ODBC Driver* CD.
- Verify that you are logged in as **root** at the console

Platform considerations

This procedure is for *all platforms.*

Procedure

To install the ODBC software:

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

3. Enter:

   `cd /usr`

   The system displays the command prompt.

4. Choose one of the following actions:

   - If this is a new installation, go to Step 5.
   - If this is an upgrade or a reinstallation perform the following steps:

     i. Enter:

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

     The system shuts down the request broker

     ii. Enter:

     `rm -fr openlink`

     The system removes the old **/openlink** directory.

5. Enter:

   `mkdir  /usr/openlink`

   The system creates the OpenLink directory.

6. Change directories to **/usr/openlink** by entering:

   `cd openlink`

   The system changes directories to **/usr/openlink**.

7. Enter:

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

   The system copies the server components from the CD.

8. Enter:

   `./install.sh`

   The system installs the server components, and displays the following message:

```
Extracting (smadi5zz.taz) ...
Extracting (smadi72z.taz) ...
Extracting (smaozzzz.taz) ...
Extracting (smbrzzzz.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. Press **Enter**.

   The system displays the following message:

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

10. Press **Enter**.

    The system displays the following message:

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

11. Press **Enter**.

    The system displays the following message:

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

12. Press **Enter**.

    The system displays the following message:

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

13. Press **Enter**.

    The system displays the following message:

```
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 system displays the following message:

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

15. Enter:

    `root`

    The system displays the following message:

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

16. Press **Enter**.

    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 system displays the following message:

```
End of installation.
```

18. Perform one of the following actions:

    - If this is a new install, enter:

      /cms/dc/odbc/odbc_init

      The system displays the following message:

```
ODBC driver initialization complete
```

    - If this is an upgrade or reinstallation, enter:

      /cms/dc/odbc/odbc_init -r 1

      The system displays the following message:

```
oplrqb has been activated
```

19. Enter:

    `ps -ef | grep oplrqb`

    The system verifies that the ODBC Request Broker is active on the server. One of the displayed items 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 oplrqb
```

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 you complete Step 19, repeat the installation.

Additional references

For more information about the ODBC feature, see *CentreVu CMS Open Database Connectivity,* 585-210-951.

Setting up CMS data storage parameters

Overview

This procedure describes how TSC personnel modify specific data storage parameters on the CMS computer. These storage parameters affect the operation of the CMS application.

Platform considerations

This procedure is for *all platforms*.

Conventions

Throughout the setup, you are prompted to enter values that are 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.

Procedure

To modify CMS data storage parameters:

1. Change to the CMS installation directory by entering:

   `cd /cms/install/cms_install`

2. Enter:

   `vi storage.def`

   NOTE:

   The **storage.def** file contains the data storage parameters. The CMS system is installed with a set of standard default values.If you delete or damage the **storage.def** file, you can find a copy of this file (**storage.skl**) in the same directory.

   The default storage parameters are listed in the Default CMS data storage parameters table on page 176 in the order in which they appear in the **storage.def** file.

Default CMS data storage parameters table:

Parameter	Default
# 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):	53
# Months of monthly splits (1-120):	13
# Days of intrahour for agents (1-62):	31
# Days of daily agents (1-1825):	387
# Weeks of weekly agents (1-520):	53
# Months of monthly agents (1-120):	13
# Days of intrahour for trunk groups (1-62):	31
# Days of daily trunk groups (1-1825):	387
# Weeks of weekly trunk groups (1-520):	53
# Months of monthly trunk groups (1-120):	13
# Days of intrahour for trunks (1-62):	31
# Days of daily trunks (1-1825):	387

Parameter	Default
# Weeks of weekly trunks (1-520):	53
# Months of monthly trunks (1-120):	13
# Days of intrahour for call work codes (1-62):	31
# Days of daily call work codes (1-1825):	387
# Weeks of weekly call work codes (1-520):	53
# Months of monthly call work codes (1-120):	13
# Days of intrahour for vectors (1-62):	31
# Days of daily vectors (1-1825):	387
# Weeks of weekly vectors (1-520):	53
# Months of monthly vectors (1-120):	13
# Days of intrahour for VDNs (1-62):	31
# Days of daily VDNs (1-1825):	387
# Weeks of weekly VDNs (1-520):	53
# Months of monthly VDNs (1-120):	13

3. Review the default data storage values for each authorized ACD. The default values are found on the line immediately below each storage parameter.
4. Enter the values determined by the account executive, system consultant, and design center based on the customer configuration.
5. Press **Esc**, and then enter:

   `:wq!`

   The system saves and closes the file.

   NOTE:

   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 CMS data storage parameters, see the “CMS System Setup” chapter in *CentreVu CMS R3V9 Administration,* 585-214-015

Setting up a LAN for switch connections

Overview

This procedure describes how to set up a network connection to a LAN-enabled switch and other CMS computer peripherals. For more information about LAN configurations, see *CentreVu CMS Switch Connections, Administration, and Troubleshooting,* 585-215-876.

Prerequisites

Before you begin setting up the network for switch connections, perform the following tasks:

- Verify that you are logged in as **root**.
- Verify that CMS is turned off.
- Verify that all file systems are mounted.

Platform considerations

This procedure is for *DEFINITY ECS Release 7* or later.

Contents

"Setting up a LAN for switch connections" includes the following procedures:

Editing the /etc/hosts file

To edit the /etc/hosts file:

1. Enter:

   `vi /etc/hosts`

2. Add a new line to this file for each ACD 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 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.

3. Press **Esc**, and then enter:

   `:wq!`

   The system saves and closes the file.

Setting up a second network interface

If the CMS computer has two network interfaces (that is, the native ethernet card and a SunSwift, FSBE, or SunFast Ethernet network card), you must set up the second network interface. The primary network interface was set up during the Solaris installation.

To set up a second network interface:

1. Enter:

   `vi /etc/hosts`

2. Add a new line in this file for each ACD 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     switch1
x.x.x.x         switch2
192.168.2.3     cms_1 cms.XXXX.XXX
192.168.2.101   cmsterm1
192.168.2.102   cmsterm2
```

3. Press **Esc**, and then enter:

   :wq!

   The system saves and closes the file.

4. Create a new host name file for the second network interface by performing one of the following actions:

   - On an Enterprise 3000 or Enterprise 3500 with a second FSBE or SunFast Ethernet card, enter:

     vi /etc/hostname.le0

   - On an Ultra 5 or Sun Blade 100 with a second SunSwift card, enter:

     vi /etc/hostname.hme1

5. Add a line to this new file with the host name you added to the **/etc/hosts** file.

   For example:

```
cms_1
```

6. Press **Esc**, and then enter:

   :wq!

   The system saves and closes the file.

Editing the /etc/defaultrouter file

If the connection between the CMS computer and the switch is going through a customer's network, you will have to set up a default network router.

To edit the **/etc/defaultrouter** file:

1. Enter:

   `vi /etc/defaultrouter`

   The system creates a default router file.

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 **Esc**, and then enter:

   `:wq!`

   The system saves and closes the file.

Setting up the CMS application

Overview

This procedure describes how to set up the CMS application.

Prerequisites

Before you set up the CMS application, perform the following tasks:

- Verify that you are logged in as **root**.
- Verify that if TCP/IP is being used to connect to an ACD, and the switch/LAN setup is done.
- Verify that all file systems are mounted.

Setup methods

There are two ways to set up the CMS feature package:

- Setting up CMS interactively from a terminal on page 183

  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.

- Setting up CMS using a UNIX flat file on page 196

  Using the flat file option, you edit a UNIX® system flat file that contains the necessary information to set up the CMS application. For example, system type, number of agents, trunks, vectors, VDNs, and so on. When you execute the program, it runs in the background and uses the UNIX system flat file data to set up the CMS application.

Setting up CMS interactively from a terminal

To set up CMS interactively from a terminal:

1. If you are not sure of the device path for the tape drive:
   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 system will display a message similar to the following:

```
HP DDS-4 DAT (Sun) tape drive:
   sense key(0x0)= No Additional Sense   residual= 0   retries= 0
   file no= 0   block no= 0
```

2. Enter:

   `cmssvc`

   The system displays the CMS Services menu.

```
Avaya 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_ids      Turn Informix Database on or off
   4) run_cms      Turn CentreVu CMS on or off
   5) disk_space   Format/Assign disk space to Database Server
   6) setup        Set up the initial configuration
   7) swinfo       Display switch information
   8) swsetup      Change switch information
   9) patch_inst   Install a single CMS patch from CD
  10) patch_rmv    Backout an installed CMS patch
  11) load_all     Install all CMS patches found on CD
  12) back_all     Backout all installed CMS patches from machine
Enter choice (1-12) or q to quit:
```

3. Enter **6** to select `setup`.

   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)
```

NOTE:

When the cmssvc **`setup`** command is running, no other cmsadm or cmssvc commands are allowed. Any attempt to run other cmsadm or cmssvc commands will be rejected, and the system will display the error message `"Please try later, setup is active"`.

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)
```

If the warning message is displayed, perform one of the following actions:

- Enter **n** to exit setup.
- Enter **y** to continue with the setup.

4. Enter the number for the language to be used on this system.

   The system initializes the customer CMS data. This can take up to 30 minutes. When finished, the system displays the following message:

```
## Initializing Customer CMS data . . .
.........................
Customer CMS data successfully initialized.
Creating database tables
.......
Enter a name for this UNIX system (up to 256 characters):
(default: cms3)
```

5. Enter the host name of the computer.

   This name was assigned during the factory installation procedures and is used by the TSC to maintain and identify this specific system.

   The system displays a message similar to the following:

```
Select the type of backup device you are using
   1) SCSI QIC-150 cartridge tape - 150MB tape
   2) 40.0 Gbyte 4mm or 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):
```

The following table lists the different models of tape drives that are supported for CMS Release 3 Version 9.

Tape Drive	Tape Cartridge	CMS Computers
DDS4	DDS compliant 150 meter 20/40-GB DAT cartridge 4 mm	Sun Ultra 5 Sun Blade 100 Sun Enterprise 3000 Sun Enterprise 3500
Mammoth	170-meter AME 20/40-GB 8 mm	Sun Enterprise 3500
SLR5 4/8-GB QIC	SLR 4/8	Sun Ultra 5
14-GB 8mm	160-meter 8mm	Sun Enterprise 3000 Sun Ultra 5

6. Enter the number to specify the type of cartridge tape you are using as the backup device.

   The system displays the following message:

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

7. Enter the default backup device path.

   The system displays the following message:

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

8. Enter the number of ACDs to be administered. This number may be less than the number of ACDs authorized.

   The system displays the following message:

```
Information for ACD 1

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

9. Enter the name for the switch that is associated with ACD 1.

   The system displays the following message:

```
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
   7) Definity-R9/R10

Enter choice (1-7):
```

10. Enter the number that represents the switch model that is associated with the ACD.

    Use the following table to determine the correct switch model. See *CentreVu CMS Switch Connections, Administration, and Troubleshooting,* 585-215-876 for additional information.

Switch model table:

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[1]	Definity-G3V5
ECS Release 6.3 with R3V6 features[2] ECS Release 7	Definity ECS R6/R7
ECS Release 8	Definity-R8
ECS Release 9 ECS Release 10	Definity-R9/R10

1. This switch does not include CentreVu Advocate or CentreVu Virtual Routing.
2. This switch includes CentreVu Advocate and CentreVu Virtual Routing.

If the switch supports vectoring and vectoring is authorized, the following message appears; otherwise, go to Step 13.

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

11. Perform one of the following actions:
    - If vectoring is enabled on this switch, enter: **y**
    - If vectoring is not enabled on this switch, enter: **n**

    The following message appears if vectoring is enabled, the switch supports EAS, and EAS is authorized. If the message does not appear, go to Step 13.

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

12. Perform one of the following actions:
    - If EAS is enabled on the switch, enter: **y**
    - If EAS is not enabled on this switch, enter: **n**

    The system displays the following message:

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

13. Perform one of the following actions:
    - If the Central Office has disconnect supervision, enter: **y**
    - If the Central Office does not have disconnect supervision, enter: **n**

    The system displays the following message:

```
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.

14. Enter the local port or channel number on the switch.

    The system displays the following message:

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

15. Enter the remote port or channel number on the switch.

    You must now select how the CMS platform transports messages to the DEFINITY switch.

    The system displays the following message:

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

16. Perform one of the following actions:

    - Enter **1** to select X.25, and then continue with Step 19.
    - Enter **2** to select TCP/IP, which is available with DEFINITY ECS Release 7 or later, and then continue with Step 17.

      The system displays the following message:

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

17. Enter the host name or IP address of the DEFINITY that is connected to this ACD.

    NOTE:

    If you enter a host name that has not been added to the computer's **/etc/hosts** file, the system displays the following message:

```
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 Editing the /etc/hosts file on page 179 for more information about setting up the hosts file.

    The system displays the following message:

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

18. Press **Enter** to use the default TCP port number 5001 the procedure continues with Step 22.

    NOTE:

    This number must match the port number administered on the DEFINITY switch.

19. If you selected X.25 transport to the switch at Step 16, continue here.

    The system displays the following message:

```
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):
```

20. Enter the number that corresponds to the device that is 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, the system displays 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, the system displays 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 system displays:

```
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)?
```

21. Perform one of the following actions:
    - Enter **n** to return to the menu.
    - Enter **y** if you want the selection to take effect.

    After you have selected an appropriate link transport device, the system displays the following message:

```
Number of splits/skills (0-999):(default 500)
```

22. Enter the number of splits/skills in this ACD.

    The system displays the following message:

```
Total split/skill members, summed over all splits/skills
(0-Maximum):(default 1000)
```

NOTE:

The maximum amount for split/skill members may vary depending on your version of CMS.

23. 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. Count the maximum number of skills the supervisors expect to assign to each agent (maximum is 20) during a shift.

    If it is not possible to sum the number of splits/skills for each agent, you can determine the capacity that is needed by multiplying the total number of agents by the average number of splits/skills per agent.

    The system displays the following message:

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

24. Enter the number of shifts.

    The system displays the following message:

```
Enter the start time for shift 1 (hh:mmXM):(default 8:00 AM)
```

25. Enter the start time for shift 1.

    For example: `08:00AM`

    The system displays the following message:

```
Enter the stop time for shift 1 (hh:mmXM) : (default 5:00 PM)
```

26. Enter the stop time for shift 1.

    For example: `05:00PM`

    The system displays the following message:

```
Number of agents logged into all splits/skills during
shift 1 (0-maximum):(default 1000)
```

NOTE:

The maximum number of agents may vary depending on your version of CMS.

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

    NOTE:

    Repeat Steps 25 through 27 for the number of shifts entered in Step 24.

    When all shifts have been set up, the system displays the following message:

```
Number of trunk groups (0-666):(default 500)
```

28. Enter the number of trunk groups that are associated with this ACD.

    The system displays the following message:

```
Number of trunks (0-20000):(default 1000)
```

29. Enter the number of trunks associated with this ACD.

    The system displays the following message:

```
Number of unmeasured facilities (0-19900):(default 300)
```

30. Enter the number of unmeasured trunk facilities that are associated with this ACD.

    If the switch supports call work codes, the system displays the following message:

```
Number of call work codes (1-1999):(default 1000)
```

31. Enter the number of call work codes.

    If vectoring is enabled on the switch, that is if a y was entered in Step 11, the system displays the following message:

```
Enter number of vectors (0-999):(default 500)
```

32. Enter the number of vectors.

    The system displays the following message:

```
Enter number of VDNs (0-20000):(default 4000)
```

33. Enter the number of VDNs.

    The program repeats Steps 9 through 32 for each ACD that you entered in Step 8.

    After you define the last ACD, the system displays the following message:

```
Updating database.

Creating database tables
.......

Computing space requirements and file system space
availability.

Setup completed successfully.
```

NOTE:

If the setup determines that you do not have enough file space, the system displays 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.
```

34. To verify that the installation completed successfully, enter:

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

    All failure messages are logged in this file. The CMS software is successfully set up when the system displays 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.

35. Perform one of the following actions:

    - If you need to install additional CMS-related feature packages such as Forecasting or External Call History, go to Installing Feature Packages on page 204.
    - If you are not installing any other feature packages, perform the following procedure:

      i. Enter:

      `cmssvc`

      The system displays the CMS Services menu.

      ii. Enter **`4`** to select `run_cms`.

      iii. 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.skl** file and starting the install program.

IMPORTANT:
This procedure is not necessary if you already performed the CMS setup interactively.

To set up CMS with a flat file:

1. Change to the CMS installation directory by entering:

   `cd /cms/install/cms_install`

2. Make a copy of the CMS installation file by entering:

   `cp cms.inst.skl cms.install`

3. Change permissions on the copied CMS installation file by entering:

   `chmod 644 cms.install`

4. Edit the copied CMS installation file by entering:

   `vi cms.install`

   The file contains a series of questions and value ranges for the ACD 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 Switch model table on page 187.

```
# 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 4mm or 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):
acd1
# 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
#    7) Definity-R9/R10
# Enter choice (1-7):
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/Definity-R9/R10                      999
# Number of splits/skills (0-Maximum):
1
# 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
# Definity-R9/R10                                 32000
# 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
# Definity-R9/R10                                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                   4000
# Definity-R8/Definity-R9/R10                   20000
# 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
# Definity-R9/R10                                 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
# Definity-R9/R10                              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/Definity-R9/R10                   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/Definity-R9/R10                 20000
# Enter number of VDNs (0-Maximum):
10
# Information for ACD 2:
```

NOTE:

The file repeats the preceding statements for ACDs 2 through 8; enter data for only the required number of ACDs.

CAUTION:

Use the computer's host name for the UNIX system name. The computer's host name was assigned during the factory installation.

5. Enter the appropriate values for your configuration. The entries must be added on the blank lines after each question.
6. Press **Esc**, and then enter:

   `:wq!`

   The system saves and closes the file.

Running setup with a flat file

To run setup with a flat file:

1. Enter **cd/** to change to the root directory.
2. Enter:

   cmssvc

   The system displays the CMS Services menu.

```
Avaya 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_ids      Turn Informix Database on or off
   4) run_cms      Turn CentreVu CMS on or off
   5) disk_space   Format/Assign disk space to Database Server
   6) setup        Set up the initial configuration
   7) swinfo       Display switch information
   8) swsetup      Change switch information
   9) patch_inst   Install a single CMS patch from CD
  10) patch_rmv    Backout an installed CMS patch
  11) load_all     Install all CMS patches found on CD
  12) back_all     Backout all installed CMS patches from machine
Enter choice (1-12) or q to quit:
```

3. Enter **6** to select the `setup` option. If setup has been done previously, the system displays the following message:

```
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 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)
```

5. Enter the number for the language that is 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):
```

6. Enter **2** to select the `flat file` option.

   The system displays the following message:

```
*** The rest of this command is running in the background ***
```

7. To verify that the installation completed successfully, enter:

   `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 can 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.

9. If you need to install additional CMS-related feature packages, go to Installing Feature Packages on page 204.

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

   a. Enter:

      `cmssvc`

      The system displays the CMS Services menu.

   b. Enter **`4`** to select `run_cms`.

   c. Enter **`1`** to turn on CMS.

   NOTE:

   If no additional configuration of the CMS software is needed, see Setting the Informix configuration parameters for CMS on page 237.

Installing Feature Packages

Overview

Customers can install CMS feature packages if the packages have been authorized during CMS setup.

Prerequisites

Before you begin the installation procedures, perform the following tasks:

- Verify that you are logged in as **root**.
- Verify that all file systems are mounted.

Contents

"Installing Feature Packages" contains the following procedures:

Installing the Forecasting package

Procedure

To install the Forecasting package:

1. Enter:

   cmssvc

   The system displays the CMS Services menu.

```
Avaya 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_ids      Turn Informix Database on or off
   4) run_cms      Turn CentreVu CMS on or off
   5) disk_space   Format/Assign disk space to Database Server
   6) setup        Set up the initial configuration
   7) swinfo       Display switch information
   8) swsetup      Change switch information
   9) patch_inst   Install a single CMS patch from CD
  10) patch_rmv    Backout an installed CMS patch
  11) load_all     Install all CMS patches found on CD
  12) back_all     Backout all installed CMS patches from machine
Enter choice (1-12) or q to quit:
```

2. Enter **1** to select `auth_display`.

   The system lists the current authorizations as shown in the following example:

```
                              Version purchased:   R3V9
                                  Capability/Capacity   Authorization
                                  -------------------   -------------
                                        disk mirroring   authorized
                                             vectoring   authorized
                                           forecasting   authorized
                                              graphics   authorized
                                 external call history   authorized
                                expert agent selection   authorized
                                  external application   authorized
                        More than 20000 VDNs measured   authorized
                         Avaya CentreVu(R) Supervisor   authorized
                     Avaya CentreVu(R) Report Designer   authorized
                Maximum number of split/skill members   10000
                                Maximum number of ACDs   2
            Simultaneous CentreVu Supervisor logins   400
```

3. Verify that the system is authorized to install the Forecasting package.

NOTE:

If Forecasting is not authorized but should be, see Setting up CMS authorizations on page 155.

4. Enter:

`cmsadm`

The system displays the CMS Administration menu.

```
Avaya 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_ids      Turn Informix Database on or off
   8) run_cms      Turn CentreVu CMS on or off
   9) port_admin   Administer Modems, Terminals, and Printers
   10)passwd_age   Set password aging options
Enter choice (1-10) or q to quit:
```

NOTE:

Different options may be displayed in the CMS Administration menu depending on the current version of CMS on your system.

5. Enter **4** to select `pkg_install`.

The system displays the following message:

```
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. The Forecasting package does not require CMS to be off during the installation. If this package is added at a later date, CMS can be left on.

6. Enter the number that corresponds to the Forecasting package.

   The system displays the following message:

```
Installation was successful

At this point you should go to the “Free Space Allocation Screen”
and verify that you have enough space for Forecasting on each
ACD. If there is not enough space allocated, then modify your
existing free space.
```

   If the installation fails, the system displays the following message:

```
Forecasting package installation failed.
```

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

   a. Enter: **`cmssvc`**

      The system displays the CMS Services menu.

   b. Enter **`4`** to select `run_cms`.

   c. Enter **`1`** to turn on CMS.

8. Go to the Free Space Allocation window that is located in the CMS System Setup subsystem, verify that there is enough space for Forecasting on each ACD, and make any necessary modifications.

   For more information about Free Space Allocation, see *CentreVu Call Management System Release 3 Version 9 Administration*, 585-214-015.

9. To verify that the installation completed successfully, enter:

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

   If the Forecasting package was successfully installed, the system displays the following message:

```
  .
  .
Forecasting package installed (date/time)
```

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

Installing the External Call History package

Prerequisites

Before you begin the installation procedures, perform the following tasks:

- Verify that the customer has a separate computer for the storage and reporting of call records.
- Verify that both the storage machine and the CMS machine are administered in UNIX-to-UNIX copy (UUCP).
- Verify that if the storage machine is not running the UNIX system, that the storage machine is using a DOS version of UUCP.
- Verify that you are logged in as **root**.
- Verify that all file systems are mounted.
- Verify that CMS is off and IDS is on.

NOTE:

Once the External Call History package is installed, you can no longer access any call record data from CMS. For more information about administering the UUCP link port on an NTS, see *CentreVu CMS R3V9 External Call History Interface,* 585-215-952.

Procedure

To install the External Call History package:

1. Enter:

   cmssvc

   The system displays the CMS Services menu.

```
Avaya 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_ids      Turn Informix Database on or off
   4) run_cms      Turn CentreVu CMS on or off
   5) disk_space   Format/Assign disk space to Database Server
   6) setup        Set up the initial configuration
   7) swinfo       Display switch information
   8) swsetup      Change switch information
   9) patch_inst   Install a single CMS patch from CD
  10) patch_rmv    Backout an installed CMS patch
  11) load_all     Install all CMS patches found on CD
  12) back_all     Backout all installed CMS patches from machine
Enter choice (1-12) or q to quit:
```

2. Enter **1** to select `auth_display`.

   The system displays the current authorizations as shown in the following example:

```
                              Version purchased:   R3V9
                                  Capability/Capacity   Authorization
                                  -------------------   -------------
                                       disk mirroring   authorized
                                            vectoring   authorized
                                          forecasting   authorized
                                             graphics   authorized
                               external call history   authorized
                              expert agent selection   authorized
                                external application   authorized
                        More than 20000 VDNs measured   authorized
                         Avaya CentreVu(R) Supervisor   authorized
                    Avaya CentreVu(R) Report Designer   authorized
                 Maximum number of split/skill members   32000
                                Maximum number of ACDs   2
              Simultaneous CentreVu Supervisor logins   400
                    Number of authorized agents (RTU)   200
```

NOTE:

Different authorizations may be displayed depending on the current version of CMS on your system.

3. Verify that the system is authorized for the External Call History package.

NOTE:

If External Call History is not authorized but should be, see Setting up CMS authorizations on page 155.

4. Enter:

   cmsadm

   The system displays the CMS Administration menu.

```
Avaya 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_ids      Turn Informix Database on or off
   8) run_cms      Turn CentreVu CMS on or off
   9) port_admin   Administer Modems, Terminals, and Printers
   10)passwd_age   Set password aging options
Enter choice (1-10) or q to quit:
```

5. Enter **4** to select `pkg_install`.

   The system displays the following message:

```
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 system displays the following message:

```
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 system displays the following message:

```
Enter full path of the program to transmit the external call
history files: (default: /cms/dc/chr/uucp_copy)
```

8. Press **Enter**.

   The system displays the following message:

```
Enter full path of the program to check the external call history
file transmission: (default: /cms/dc/chr/uucp_check)
```

9. Press **Enter**.

   The system displays the following message:

```
Enter password for nuucp login on computer (up to 8 characters)
```

10. Enter the password for nuucp on the receiving computer that was administered in uucp.

    The system displays the following message:

```
Enter CMS port for connection to computer (s_pdevxxx):
```

11. Enter the CMS port that is 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 system displays the following message:

```
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 system displays the following message:

```
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.

```
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 was installed successfully, the system displays the following message:

```
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.

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

    a. Enter: **`cmssvc`**

    The system displays the CMS Services menu.

    b. Enter **`4`** to select `run_cms`.

    c. Enter **`1`** to turn on CMS.

Additional references

For more information about the ECHI feature, see *CentreVu Call Management System Release 3 Version 9 External Call History Interface,* 585-215-952.

Setting up the Visual Vectors Server software

Overview

This procedure describes how to install the CentreVu Visual Vectors Server Software.

Prerequisites

Before you install the Visual Vectors server software, perform the following tasks:

- Verify that the Solaris 8 operating system has been installed
- Verify that all preceding factory software installation requirements in this chapter have been completed
- Verify that you are logged in as **root** at the console
- Obtain the *CentreVu Visual Vector Server Software* CD.

Platform considerations

This procedure is for *all platforms*.

Installing the Visual Vectors software

To install the Visual Vectors software:

1. Load the *CentreVu Visual Vectors Server Software* CD into the CD-ROM drive.
2. After about 15 seconds, enter **`mount`** to verify the name of the CD-ROM.

   The program displays a list of devices and file systems currently mounted. The last line should display the installed CD as shown below:

```
/cdrom/untitled on /vol/dev/dsk/c0t2d0/untitled read
only/nosuid/maplcase/noglobal/rr/traildot/dev=16c0001 on
(current date and time)
```

3. Enter:

   `pkgadd -d /cdrom/cdrom0 LUfaas`

   If this is the first time that Visual Vectors has been installed, the system displays the following message:

```
Processing package instance <LUfaas> from </cdrom/untitled>

Visual Vectors Server Software
(sparc) vvsXX.X

Copyright (c) 1998 Avaya Inc.
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The selected base directory </cms/aas> must exist before
installation is attempted.

Do you want this directory created now [y,n,?,q]
```

4. Enter: **y**

   The system displays the following message:

```
Using </cms/aas> as the package base directory.

## Processing package information.
## Processing system information.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and are
being used by another package:

* /cms/aas <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]
```

5. Enter: **y**

   The system displays the following message:

```
## 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 <LUfaas> [y,n,?]
```

6. Enter: **y**

   The system displays the following message:

```
Installing Visual Vectors Server Software as <LUfaas>

## Installing part 1 of 1.
/cms/aas/.odbc.ini
/cms/aas/AAS_README
/cms/aas/Translation/AcdRelease/de_DE
..........
..........
..........
Installation of <LUfaas> was successful.
```

7. Enter:

   `setupaas`

   The system displays the `Visual Vectors System Services Menu`.

```
Avaya Visual Vectors Server System Services Menu

Select a command from the list below.

     1) init_vvs     Setup the initial configuration
     2) run_vvs      Turn VVS on or off
     3) auth_display Display simultaneous VVS logins
     4) auth_set     Change simultaneous VVS logins
     5) backup       Backup vector steps and layout files
     6) restore      Restore vector steps and layout files

Enter choice (1-6) or q to quit:
```

8. Enter **`1`** to select `init_vvs`.

   The system displays the following message:

```
This version of VVS functions only with CMS.

CMS name used : cms3
Maximum concurrent VVS logins[1-100](q to quit):
```

9. Enter the number of allowable concurrent logins. The maximum login number must not exceed the number of licenses that were purchased.

10. Enter:

    `eject cdrom`

Setting up a mirrored system

Overview

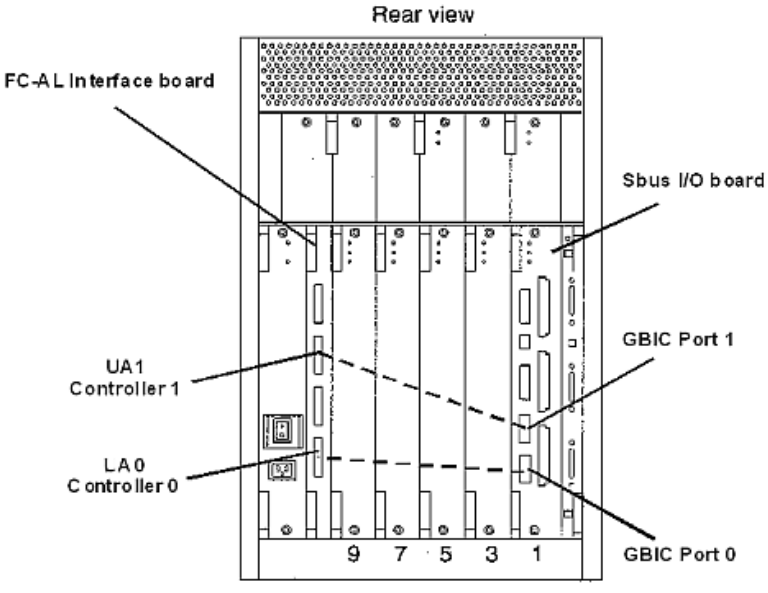
This procedure describes how to set up a mirrored system. For additional information about disk mirroring, see About Mirrored Systems on page 481.

Required hardware

A CMS system must have additional hardware installed in order to function as a mirrored system. You must have the following pieces of hardware:

- For a Sun Enterprise 3500 system, four GigaByte Interface Converter (GBIC) modules. A GBIC is a small hardware insert. One will be installed into the UA slot 0 on the FC-AL Interface board, and the other will be installed into GBIC Port 0 on the first I/O board. See the Enterprise 3500 rear view diagram on page 219.
- For a Sun Enterprise 3500 system, two fiber cables to connect the UA port GBIC to GBIC Port 1 on the I/O board.
- For a Sun Blade 100 system, a second internal 20.4 GB EIDE hard drive.
- Twice the number of disk drives needed for an unmirrored system. All the pairs of disks must be the same size.
- Boot disks must be 18 GB minimum.

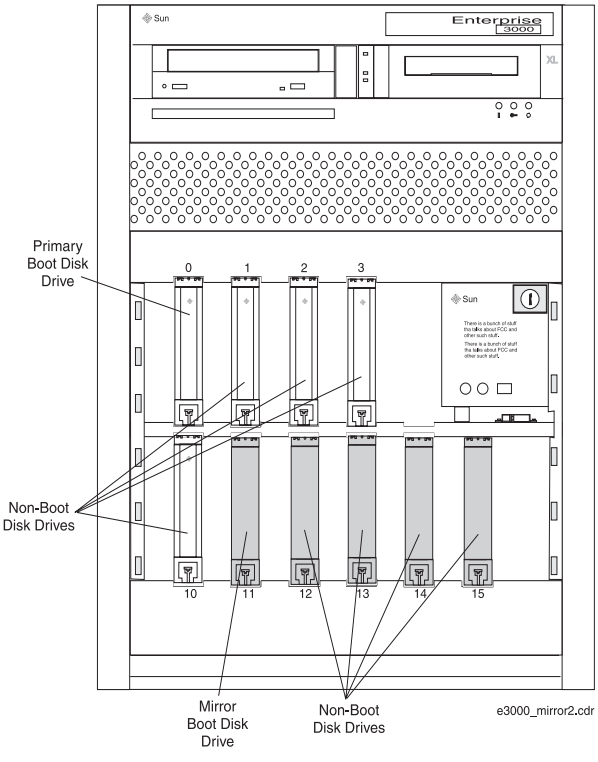
Enterprise 3500 rear view diagram:



Enterprise 3000 disk configuration

In an Enterprise 3000 computer, there are 10 slots, allowing up to five disks for each mirror. Each slot is labeled with a number 0 through 3 or 10 through 15; there are no slots numbered 4 through 9. All the drive slots are on controller 0.

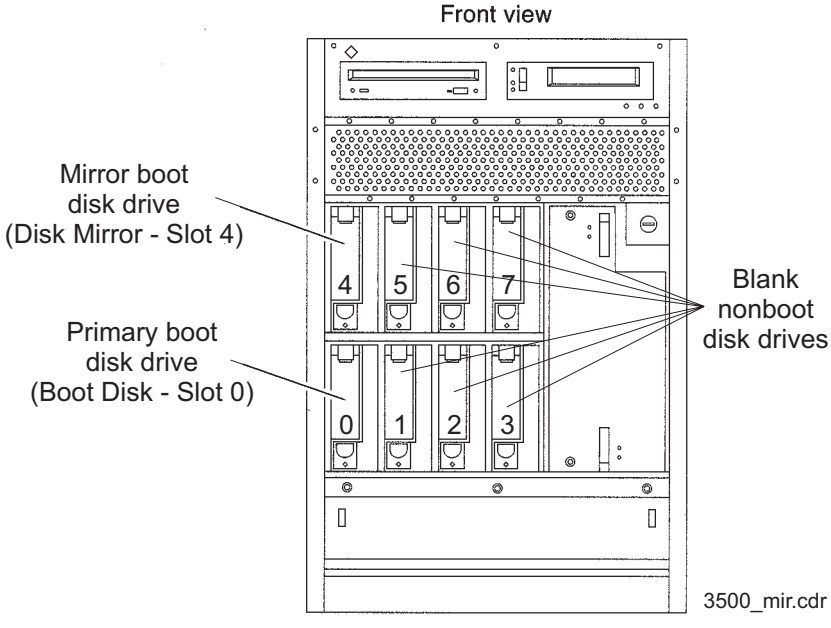
In a mirrored system, slots 0 through 10 are reserved for the primary disks, and slots 11 through 15 are reserved for the mirror disks.



Enterprise 3500 disk configuration

In an Enterprise 3500 computer, there are eight disk drive slots, four in each of two bays. The slots in the lower bay are labeled 0 through 3 and are on controller 0; the slots in the upper bay are numbered 4 through 7 and are on controller 1.

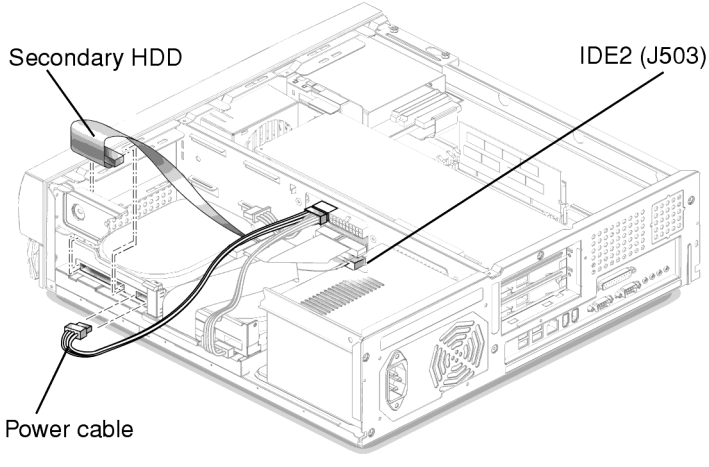
In a mirrored system, slots 0 through 3 are reserved for the primary disks, and slots 4 through 7 are reserved for the mirror disks.



Sun Blade 100 disk configuration

In a Sun Blade 100 computer, there are 2 internal hard drive bays, and a SCSI card that will allow up to four 18 GB external SCSI drives. This will allow up to 3 disks for each mirror. The second internal hard drive will not be used for a data disk. The second internal hard drive will only be used for the mirror boot device.

	Primary	Mirror
Boot	c0t0d0	c0t2d0
Data disks:	c1t0d0	c1t2d0
	c1t1d0	c1t3d0



Prerequisites

Before you initiate mirroring, perform the following tasks:

- Verify that any additional hardware required for disk mirroring has been installed. See Required hardware on page 218 for more information.
- If you have a E3500, E3501 or E3503 system, verify that the device alias has been set. See Resetting a device alias on page 64 for more information.
- Verify that the EEPROM settings are correct for a mirrored system. See Displaying and setting the EEPROM parameters on page 60 for more information.
- Verify that the alternate boot device is set up. See Creating an alternate boot device on page 62 for more information.
- Verify that CMS is off, and IDS is on.

Procedure

To initiate mirroring:

1. Turn CMS off, and leave IDS on.
2. Enter:

   cmssvc

   The system displays the CMS Services menu.

```
Avaya 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_ids      Turn Informix Database on or off
   4) run_cms      Turn CentreVu CMS on or off
   5) disk_space   Format/Assign disk space to Database Server
   6) setup        Set up the initial configuration
   7) swinfo       Display switch information
   8) swsetup      Change switch information
   9) patch_inst   Install a single CMS patch from CD
  10) patch_rmv    Backout an installed CMS patch
  11) load_all     Install all CMS patches found on CD
  12) back_all     Backout all installed CMS patches from machine
Enter choice (1-12) or q to quit:
```

3. Enter **1** to select `auth_display`.

   The system displays the current authorizations as shown in the following example:

```
                              Version purchased:   R3V9
                                  Capability/Capacity   Authorization
                                  -------------------   -------------
                                       disk mirroring   authorized
                                            vectoring   authorized
                                          forecasting   authorized
                                             graphics   authorized
                               external call history   authorized
                              expert agent selection   authorized
                                external application   authorized
                        More than 20000 VDNs measured   authorized
                         Avaya CentreVu(R) Supervisor   authorized
                    Avaya CentreVu(R) Report Designer   authorized
                 Maximum number of split/skill members   32000
                              Maximum number of ACDs   2
              Simultaneous CentreVu Supervisor logins   400
                    Number of authorized agents (RTU)   200
```

NOTE:

Different authorizations may be displayed depending on the current version of CMS on your system.

4. Verify that the system is authorized for disk mirroring.

NOTE:

If disk mirroring is not authorized but should be, see Setting up CMS authorizations on page 155.

5. Enter:

   cmssvc

   The system displays the CMS Services menu.

```
Avaya 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_ids      Turn Informix Database on or off
   4) run_cms      Turn CentreVu CMS on or off
   5) disk_space   Format/Assign disk space to Database Server
   6) setup        Set up the initial configuration
   7) swinfo       Display switch information
   8) swsetup      Change switch information
   9) patch_inst   Install a single CMS patch from CD
  10) patch_rmv    Backout an installed CMS patch
  11) load_all     Install all CMS patches found on CD
  12) back_all     Backout all installed CMS patches from machine
Enter choice (1-12) or q to quit:
```

6. Enter **5** to select `disk_space`.

   The system displays the following message:

```
Initializing the boot disk (this may take several minutes!) ...

Disk_space_manager options are:

  1) Add New Disks
  2) Initiate Mirroring
  3) Synch Primary and Mirror

Enter choice (1-3) or q to quit:
```

NOTE:

The system will not display the mirroring options if disk mirroring has not been authorized.

7. Enter **2** to select `Initiate Mirroring`.

   The system initiates mirroring and then displays a prompt to reboot the system.

```
Mirroring has been started.
You MUST reboot the system for mirroring to take effect. Execute
        '/usr/sbin/shutdown -i6 -y -g0'
to shut the system down
disk_space command completed Wed Apr 18 17:12:23 MDT 2001
```

8. Enter:

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

   The system reboots and begins to resync the disks.

```
Proceeding to mirror the IDS dbspaces ...
Archive to tape device '/dev/null' is complete.

Program over.
Synchronizing disks in the background.
```

9. Log into the system as **root**.
10. Set the INFORMIX environment by entering:

    `. /opt/informix/bin/setenv`

11. Enter:

    `onstat -d | egrep "MD|PD|R|X"`

    When the system displays only the command prompt as output, the mirroring and resync process is complete.

    CAUTION:

    Do not reboot the system until the resync is complete. If you reboot the system before the resync is complete you will have to wait for Solaris to finish resyncing before resyncing Informix. The Solaris resync can take up to five hours.

    If the system displays any error messages, see Common error messages with Mirrored Systems on page 499.

12. Turn on CMS.

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 or COE 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

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

Hardware Platform	Port A	Port B
Sun Enterprise 3000 Sun Enterprise 3500	Remote Console	Switch Link (optional)
Sun Blade 100	Remote Console[1]	N/A
Sun Ultra 5	Switch Link (optional)	Remote Console

1. Port A is used exclusively for the remote console on a Sun Blade 100 system.

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/abcadm -r tty*X*

   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/abcadm -i -b 9600 tty*X*

   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/abcadm -r tty*X*

   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:

   `/cms/install/bin/abcadm -c -b 9600 tty`*X*

   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
Proceding 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 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.

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.

Additional references

If you experience problems with the remote console, see Diagnosing dial-In access problems on page 445 for additional information.

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 CMS systems in the US and Canada with a current maintenance warranty agreement 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.
- A “Product ID” number must be obtained from the CMS database administration group. CMS technical support personnel contact the database group at 800-248-1111, ext. 07425 and provide them with the customer IL number.

Contents

AOM set up consists of the following procedures:

Setting up the AOM config files

To set 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. Enter:

   `pkginfo -x  | grep LU`
3. Verify that the following packages are installed:
   - LUahl
   - LUaot
   - LUim
   - LUorbutil
4. Enter:

   `pkginfo -x  cms`

   The system displays the version of CMS that is installed.
5. Record the CMS version information. The version information is used in Step 9.
6. To identify the communications port used by the system modem, enter: **`tty`**

   The system displays the communications port. Either /dev/term/a or /dev/term/b.
7. Record the port information. The port information is used in Step 10.
8. Enter the following commands:

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

   `vi prodSetup.cfg`

   The system displays the **prodSetup.cfg** file.
9. 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              |r3vxxx.x      |1      |
```

Where *r3vxxx.x* is the CMS version number you recorded in Step 4.

10. 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 232.
    - `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 and 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 6, expressed in numeric form (ttya = 1 and ttyb = 2).

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

    `export PRODUCT_TYPE=TEST`

12. Stop and restart AOM:

    a. Enter:

       `aom stop`

    b. Enter:

       `aom start`

Creating an AOM test alarm

To verify that AOM is properly set up, use this procedure to create a test alarm.

1. Log in as **root2** or **cmssvc**
2. Enter:

   `cd /opt/cc/aot/bin`
3. Enter the following commands:

   - **`./aom_env`**

   `env | grep AOM`

   If the environment is set correctly, the system displays the following line of output:

   `AOM_SH=/usr/bin/aom`
4. To send the test alarm, enter:

   - **`./log_error -e 30001`**
5. Log off the system, and then wait about 5 minutes to give the system time to send the alarm before logging back in.
6. Enter:

   `cd /opt/cc/aot/data/log`
7. Enter:

   `cat alarm_log`

   If the test succeeded, The system displays a message at the end of the log file similar to the following example:

```
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.

Starting the Visual Vectors server software

To start the Visual Vectors server software:

1. Stop and restart AOM:
   a. Enter: **`aom stop`**
   b. Enter: **`aom start`**
2. Enter:

   `setupaas`

   The system displays the Visual Vectors System Services Menu.

```
Avaya Visual Vectors Server System Services Menu

Select a command from the list below.

     1) init_vvs     Setup the initial configuration
     2) run_vvs      Turn VVS on or off
     3) auth_display Display simultaneous VVS logins
     4) auth_set     Change simultaneous VVS logins
     5) backup       Backup vector steps and layout files
     6) restore      Restore vector steps and layout files

Enter choice (1-6) or q to quit:
```

3. Enter **`2`** to select `run_vvs`.

   The system displays the following message:

```
1) Turn VVS On
2) Turn VVS Off

Enter choice (1-2) or q to quit:
```

4. Enter **`1`** to turn VVS on.

Setting the Informix configuration parameters for CMS

Overview

The IDS configuration parameters for CMS can be adjusted to optimize system performance. Adjusting these parameters allows a system to fully utilize additional processors and memory.

Contents

Obtaining system information

To obtain system processor and memory information:

1. Enter:

   /usr/platform/‘uname -i‘/sbin/prtdiag -v | pg

   The system displays information similar to the following:

```
System Configuration:  Sun Microsystems  sun4u 5-slot Sun Enterprise E3500

System clock frequency: 84 MHz
Memory size:  256Mb

========================= CPUs =========================
                     Run   Ecache   CPU    CPU
Brd  CPU   Module   MHz     MB    Impl.   Mask
---  ---  -------  -----  ------  ------  ----
 3     6     0      336     4.0   US-II    2.0
 3     7     1      336     4.0   US-II    2.0

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

System Board PROM revisions:
----------------------------
Board  1:   FCODE 1.8.26 2000/05/09 19:05   iPOST 3.4.26 2000/05/09 19:11
Board  3:   OBP   3.2.26 2000/05/09 19:07   POST  3.9.26 2000/05/09 19:13

(EOF):
```

2. Record the number of CPUs for use later in this procedure.
3. Press **Enter** to display additional system information.

Setting the System Configuration settings

To set the system configuration settings:

1. Turn off CMS and IDS.
2. Enter:

   cd /opt/informix/etc

3. Enter:

   vi onconfig.cms

   The system displays the IDS configuration parameters for CMS.

```
#**************************************************************************
#
#            INFORMIX SOFTWARE, INC.
#
#  Title:onconfig.cms
#  Description: Informix Dynamic Server Configuration Parameters for CMS
#
#**************************************************************************

# Root Dbspace Configuration

ROOTNAME  rootdbs   # Root dbspace name
ROOTPATH  /dev/rdsk/c0t0d0s4 # Path for device containing root dbspace
ROOTOFFSET 0        # Offset of root dbspace into device (Kbytes)
ROOTSIZE  190000    # Size of root dbspace (Kbytes)
......................
......................
......................
VPJAVAVM  libjava.so
VPCLASSPATH
```

4. Scroll through the **onconfig.cms** file and locate the `# System Configuration` settings.

   The settings will look similar to the following:

```
# System Configuration

SERVERNUM       1               # Unique id corresponding to a Dynamic Server in
stance
DBSERVERNAME    cms_ol          # Name of default database server
#DBSERVERALIASES cms_oltcp       # List of alternate dbservernames
DBSERVERALIASES                 # List of alternate dbservernames
NETTYPE         ipcshm,1,700,CPU # Configure poll thread(s) for nettype
#NETTYPE         tlitcp,2,350,NET # Configure poll thread(s) for nettype

MULTIPROCESSOR  0               # 0 for single-processor, 1 for multi-processor
NUMCPUVPS       1               # Number of user (cpu) vps
SINGLE_CPU_VP   1               # If non-zero, limit number of cpu vps to one

NOAGE           1               # Process aging
AFF_SPROC       0               # Affinity start processor
# AFF_NPROCS <= NUMCPUVPS
AFF_NPROCS      1               # Affinity number of processors
```

5. Change the value of the `NETTYPE` setting according to the Informix NETTYPE settings table on page 240.

Informix NETTYPE settings table:

	NETTYPE setting
Ultra 5, Sun Blade 100, or Enterprise system with 1 to 3 CPUs	ipcshm,1,300,CPU
Enterprise system with 4 or more CPUs	ipcshm,2,300,CPU

6. Change the values of the `MULTIPROCESSOR`, and `NUMCPUVPS` settings according to the Informix processor settings table on page 241.

Informix processor settings table:

	MULTIPROCESSOR	NUMCPUVPS
Single processor system	0	1
Multi-processor system with less than four CPUs	1	Enter the number of CPUs
Multi-processor system with four or more CPUs	1	Enter the number of CPUs -1

Setting the Shared Memory Parameters

To set the shared memory parameters:

1. Scroll through the **onconfig.cms** file and locate the `# Shared Memory Parameters` settings.

   The settings will look similar to the following:

```
# Shared Memory Parameters

LOCKS           2000            # Maximum number of locks
BUFFERS         5000           # Maximum number of shared buffers
NUMAIOVPS       2               # Number of IO vps
PHYSBUFF        32              # Physical log buffer size (Kbytes)
LOGBUFF         32              # Logical log buffer size (Kbytes)
LOGSMAX         50              # Maximum number of logical log files
# CLEANERS must equal number of dbspaces (=> variable)
CLEANERS        8               # Number of buffer cleaner processes
SHMBASE         0xa000000       # Shared memory base address
SHMVIRTSIZE     30000          # initial virtual shared memory segment size
SHMADD          8192           # Size of new shared memory segments (Kbytes)
SHMTOTAL        0              # Total shared memory (Kbytes). 0=>unlimited
CKPTINTVL       300             # Check point interval (in sec)
LRUS            8               # Number of LRU queues

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

NOAGE           1               # Process aging
AFF_SPROC       0               # Affinity start processor
```

2. Change the value of the `BUFFERS` setting according to the Informix BUFFERS settings table on page 242.

Informix BUFFERS settings table:

Platform	BUFFERS setting
Ultra 5 or Sun Blade 100 system	10000
Enterprise system	20000

3. Change the value of the `CLEANERS` setting according to the Informix CLEANERS settings table on page 242.

Informix CLEANERS settings table:

Platform	CLEANERS setting
Ultra 5 or Sun Blade 100 system	8
Enterprise system	16

4. Change the value of the `LRUS` setting according to the Informix LRUS settings table on page 242.

Informix LRUS settings table:

Platform	LRUS setting
Ultra 5 or Sun Blade 100 system	8
Enterprise system	16

5. After all changes to the file have been made, press **Esc** and enter:

   `:wq!`

NTS setup

Each Network Terminal Server (NTS) must to be set up so that it will be recognized on the network.

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 that are required for the system and the type of NTS.

Device	IP Address*	Network Name
Host Computer	192.168.2.1	hostname
First NTS	192.168.2.101	cmsterm1
Second NTS	192.168.2.102	cmsterm2
Third NTS	192.168.2.103	cmsterm3
Nth NTS	192.168.2.1*xx*	cmsterm*X*
* The IP addresses shown here are the factory defaults. Use the actual system addresses if available.		

To setup a NTS, go to Setting up an NTS on page 335 and then continue with CMSADM backup on page 244.

CMSADM backup

The CMSADM file system backup saves all of the file systems on the computer onto a tape.

A CMSADM file system backup should be done:

- after the system is set up in the factory
- after the CMS is provisioned
- 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 use a new set of backup tapes for this CMSADM File System backup. The customer must NOT use the original set of factory backup tapes or provisioning backup tapes.

To perform a CMSADM backup, see Performing a CMSADM backup on page 288.

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:

- Locate the two sets of backup tapes (the original set from the factory, and the set created by provisioning) that were 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

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 325 and then continue with Testing the remote access port on page 248.

Checking Free Space Allocation

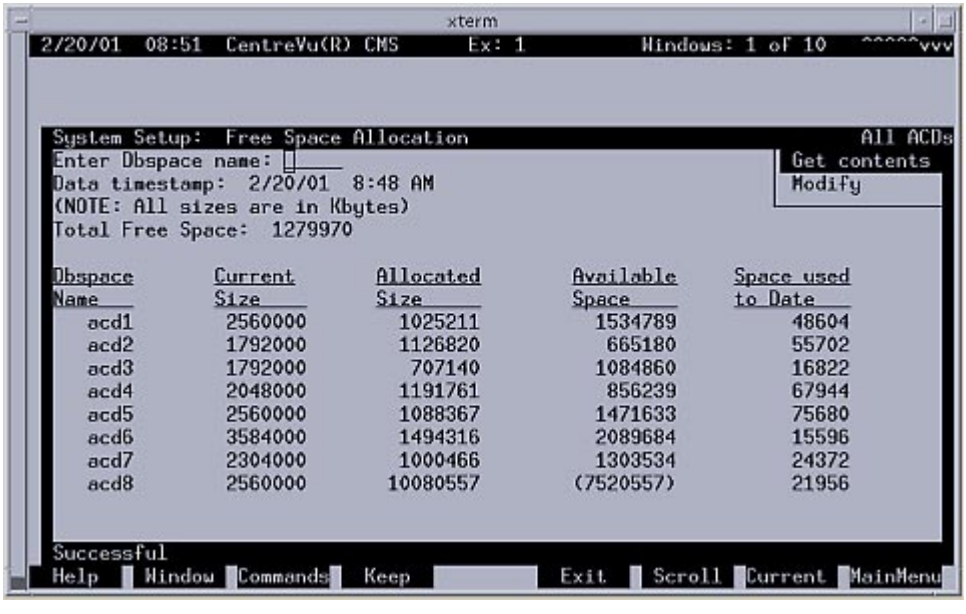
To check Free Space Allocation:

1. Go to the Free Space Allocation window that is located in the CMS System Setup subsystem.
2. Verify that the amount of available space is positive for each ACD and make any necessary adjustments.

   For more information about Free Space Allocation, see *CentreVu Call Management System Release 3 Version 9 Administration*, 585-214-015.

   Example:

   In the Free Space Allocation window shown below, acd8 has negative space available.



If the **Total Free Space:** field shows that there is not enough space available to make the adjustment it will be necessary to modify Data Storage Allocation or add an additional hard drive.

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
Sun Enterprise 3000 Sun Enterprise 3500	Remote Console	Switch Link (optional)
Sun Blade 100	Remote Console[1]	N/A
Sun Ultra 5	Switch Link (optional)	Remote Console

1. Port A is used exclusively for the remote console on a Sun Blade 100 system.

Contents

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

Redirecting the console to the remote console

To redirect the console to the remote console:

1. Dial in from the remote console to the remote console modem (port A on a Enterprise 3000, Sun Blade 100, 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 tty*X*

   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 tty*X*

   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
Proceding 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

To redirect 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 have problems with the remote access port, see Diagnosing dial-In access problems on page 445.

Testing the ACD link

Overview

After the CMS software has been installed or upgraded, the on-site technician must test 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, confirm the following:

- The Common Desktop Environment (CDE) must be active.
- CMS must be turned on.

Procedure

To test the ACD link:

1. In one of the windows at a console, log in to the system by using a CMS administrator's login ID (**su - cms**). Enter the correct password if prompted.
2. 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 ∨) at the right side of the banner line. There should be one caret for each ACD, and all should be pointed up (^).

   Example:

   If you have four ACDs, the link indicator should look like this: ∧∧∧∧. That means that all four ACDs are up and operating.
4. Select **Maintenance** from the CMS Main Menu.

   The system displays the Maintenance Menu.

5. Select **Connection Status** from the Maintenance menu.

   The **Connection Status** window displays the following information:

   - The name of the ACD
   - Wether the application is in data transfer
   - Wether the session is in data transfer
   - Wether the connection is operational
   - The date, time, and any errors

6. Press the **Exit** screen-labeled key (SLK) once.

Testing the alternate boot device

Overview

This procedure tests the alternate boot device.

Platform considerations

This procedure is for *mirrored systems* only.

Procedure

To test the alternate boot device:

1. Enter:

   `boot bootdevice2`

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

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

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

Assigning customer passwords

Overview

This section describes how the customer assigns passwords to each of its logins on the CMS computer. The customer must assign passwords to each of the following logins:

- root
- cms
- any other administration logins that have been added for the customer

NOTE:

Have the customer record the passwords for each login on the provided “System Acceptance Worksheet” at the end of this chapter. The technician should *NOT* know these passwords.

Procedure

To assign a password to a customer login:

1. Log in as **root**.
2. At the system prompt, have the customer enter:

   passwd *login*

   where ***login*** is root, cms, and so on.

   The system displays the following message:

```
New password:
```

3. Have the customer enter the new password.

   The system displays the following message:

```
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

After the CMS software has been installed or upgraded, the on-site technician must test the CMS software to verify its sanity.

Prerequisites

Before you begin testing the CMS software, check the following:

- The Common Desktop Environment (CDE) must be active
- CMS must be turned on.

Procedure

To test the CMS software:

1. Test the Real-Time Reports subsystem.
   a. Enter CMS.

      The system displays the CMS Main Menu
   b. Select **Reports**.
   c. Select `Real-time`.
   d. Select `Split/Skill`.
   e. Select `Split Status` or `Skill Status`.
   f. Verify that the Split/Skill Status Report Input window is displayed.
   g. Enter a valid split number in the `Split:` or `Skill:` field.
   h. Select the `Run` action list item, and run the report.
   i. Verify that the Split or Skill Status Report window is displayed.
   j. If the switch link is not operating, the report fields are blank and the status line reads `Switch link down`.
   k. Press the **Commands SLK**.
   l. Select `Print window` to send the report to the printer.

m. 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.

n. Verify that the report printed by checking the printer for the report.

o. Return to the CMS Main Menu screen by pressing the **Exit SLK** twice.

2. Test the Historical Reports subsystem.

   a. On the CMS Main Menu select `Reports`.

   b. Select `Historical`.

   c. Select `Split/Skill`.

   d. Select `Status`.

   e. Verify that the Split/Skill Status Report Input window is displayed.

   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 is displayed and that the information is displayed in the appropriate fields.

   NOTE:
   If no historical data exists, the fields in the report window are 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. On the CMS MAin Menu select `Dictionary`.

   b. Select `Login Identifications`.

   c. Enter an asterisk (**`*`**) in the `Login ID:` field.

   d. Select the `List all` action list item. The system lists all the login IDs.

   e. Verify that the logins are displayed.

   NOTE:
   On a new system, the fields are blank.

   f. Return to the CMS Main Menu by pressing the **Exit SLK** twice.

4. Test the Exceptions subsystem.
   a. On the CMS Main Menu select `Exceptions`.
   b. Select `Real-time Exception Log`.
   c. Verify that the window is displayed.

   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.
   a. On the CMS Main Menu select `Call Center Administration`.
   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.

   NOTE:
   On a new system, the fields may be blank.

   f. Return to the CMS Main Menu by pressing the **Exit SLK** twice.
6. Test the Custom Reports subsystem.
   a. On the CMS Main Menu select `Custom Reports`.
   b. Select `Real-time`. The system lists the names of the custom reports.
   c. Verify that the names of existing custom reports are listed. If there are no reports, you receive a message saying the submenu is empty.
   d. Return to the CMS Main Menu by pressing the **Exit SLK** once.
7. Test the User Permissions subsystem.
   a. On the CMS Main Menu select `User Permissions`.
   b. Select `User Data`.
   c. Verify that the **User Data Input** window is displayed.
   d. Return to the CMS Main Menu by pressing the **Exit SLK** once.

8. Test the System Setup subsystem.
   a. On the CMS Main Menu select `System Setup`.
   b. Select `CMS state`.
   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.
   a. On the CMS Main Menu select `Maintenance`.
   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. The system lists 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.
    a. On the CMS Main Menu select `Graphics`.
    b. Verify that a Real-time Graphics screen can be accessed.
    c. Return to the CMS Main Menu by pressing the **Exit SLK** once.
    d. At each CMS terminal, log in as **cms** and enter 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 any of the steps in this test fail, see CMS error logs on page 416, Common error messages on page 461, or Recognizing new hardware devices on page 415. If you encounter a problem that you cannot solve, escalate the problem through normal procedures.

Finalizing the on-site installation

Overview

This section contains the final steps that the on-site technician must perform before turning the system over to the customer.

Procedure

To turn the system over to the customer first perform the following steps:

1. Back up the system. Follow the procedures outlined in Performing a CMSADM backup on page 288.

   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 enough tapes for the new backup.

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 R3V9 Administration,* 585-214-015.

3. Copy the Customer system acceptance worksheet on page 261, and record the indicated printouts.

4. Give the customer all of the CMS documentation, software CD-ROMs, 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 its logins and passwords. The technician should NOT know these 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 that shows **`df -t`** command results, or record the 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

"Maintaining the CMS Software" provides the procedures that are used to maintain the CentreVu Call Management System (CMS) software. 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.

See *CentreVu CMS Sun Blade 100 Workstation Hardware Installation, Maintenance, and Troubleshooting,* 585-310-783, *CentreVu Sun Enterprise 3500 Computer Hardware Installation, Maintenance and Troubleshooting*, 585-215-873, *CentreVu Sun Ultra 5 Computer Hardware Installation, Maintenance and Troubleshooting,* 585-215-871 and *CentreVu Call Management System Sun Enterprise 3000 and SPARCserver Computers Hardware Maintenance and Troubleshooting,* 585-214-016 for additional maintenance information.

Contents

"Maintaining the CMS Software" includes the following procedures for all systems:

"Maintaining the CMS Software" includes the following procedures for only mirrored systems:

Remote terminal tip

When executing commands that take a long time to complete, (such as `cpio` commands), use the `nohup` command to ensure that the command will complete without interruption if the data line disconnects. An example of 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.

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 CMSADM menu is intended for use primarily by the CMS administrator who can perform the following tasks from this menu:

- define a new Automatic Call Distribution (ACD) split
- remove an ACD
- back up the file systems to tape
- install or remove a feature package
- turn a feature package on or off
- turn IDS on or off
- turn CMS on or off
- administer modems, terminals, and printers
- turn password aging on or off

Contents

"Using the CMSADM menu" includes the following procedures:

Accessing the CMSADM menu

To access the CMSADM menu:

1. Log in as **root**.
2. Enter:

   `cmsadm`

   The system displays the CMS Administration menu.

```
Avaya 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_ids      Turn Informix Database on or off
   8) run_cms      Turn CentreVu CMS on or off
   9) port_admin   Administer Modems, Terminals, and Printers
   10)passwd_age   Set password aging options
Enter choice (1-10) or q to quit:
```

NOTE:

Different options may be displayed in the CMS Administration menu depending on the current version of CMS on your system.

IMPORTANT:

When the cmssvc `setup` command is running, no other `cmsadm` or `cmssvc` commands are allowed. Any attempt to run other `cmsadm` or `cmssvc` commands will be rejected, and the system will display the error message "`Please try later, setup is active`".

acd_create

Use the `acd_create` option to define a new ACD. The information you enter here for each ACD is the same as the `setup` option of the CMSSVC menu.

NOTE:

The ACD must be authorized, and therefore purchased, before it can be added to the CMS.

To define a new ACD:

1. Before you define a new ACD, you must turn off CMS:
   a. Enter:

      `cmsadm`

      The system displays the CMS Administration menu.

   b. Enter **8** to select `run_cms`.

   c. Enter **2** to turn off CMS but leave IDS running.

      CMS turns off, and displays the system prompt.

2. Enter:

   `cmsadm`

   The system displays the CMS Administration menu.

3. Enter **1** to select `acd_create.`

   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, enter the device used for x.25 connectivity (serial port or HSI port).
  - — If TCP/IP, enter 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 displays the following message

```
Updating database.

Computing space requirements and file system space
availability.

ACD <name> (X) created successfully.
```

5. Turn CMS back on:
   a. Enter:

      cmsadm

      The system displays the CMS Administration menu.
   b. Enter **8** to select `run_cms`.
   c. Enter **1** to turn on CMS.

acd_remove

Use the `acd_remove` option to remove an existing ACD.

NOTE:

If you are removing the master ACD, you must first designate some other ACD as the master.

To designate a different ACD as the master:

1. On the main CMS menu, select `System Setup - CMS State`.
2. Use the **Tab** key to move to the `Master ACD` field and enter a new name.
3. Press **Enter** to move to the action list and select `Modify`.
4. Return to the main menu and select `Logout`.

To remove an ACD:

1. Verify that data collection is off for all ACDs.
2. Turn off CMS:
   a. Enter:

      `cmsadm`

      The system displays the CMS Administration menu.

   b. Enter **8** to select `run_cms`.

   c. Enter **2** to turn off CMS but leave IDS on.
3. Enter:

   `cmsadm`

   The system displays the CMS Administration menu.
4. Enter **2** to select `acd_remove`
5. Enter the number (`1-8`) that corresponds with the ACD that you want to remove.

   The system displays the following message:

```
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):
```

6. Enter: **y**

   The system displays the following message:

```
Removal of data for this ACD started in the background.
A completion message will be logged in
/cms/install/logdir/admin.log.
```

7. Since the ACD is removed in the background, you can turn CMS back on before the removal is complete. To turn CMS back on:

   a. Enter:

      cmsadm

      The system displays the CMS Administration menu.

   b. Enter **8** to select `run_cms`.

   c. Enter **1** to turn on CMS.

backup

Use the `backup` option to back up your file systems. This option does not backup CMS data.

To backup CMS data, a full maintenance backup must be performed in addition to the CMSADM backup.

pkg_install

Use the `pkg_install` option to install a feature package.

To use the `pkg_install` option:

1. Enter:

   cmsadm

   The system displays the CMS Administration menu.

2. Enter **4** to select `pkg_install`.

   The system displays the following message:

```
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 with the feature package that you want to install.

pkg_remove

Use the `pkg_remove` option 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 that are associated with that package will also be removed.

To remove a feature package:

1. Enter:

   `cmsadm`

   The system displays the CMS Administration menu.

2. Enter **5** to select `pkg_remove`.

   The system displays a list of CMS features that can be removed.

3. Enter the number that corresponds with the feature package that you want to remove.

   The system displays a message indicating the feature is removed.

run_pkg

Use the `run_pkg` option to turn a feature package on or off.

To use the `run_pkg` option:

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_ids

Use the `run_ids` option to turn IDS on or off.

To use the `run_ids` option:

1. Enter:

   `cmsadm`

   The system displays the CMS Administration menu.

2. Enter **7** to select `run_ids`.

3. Perform one of the following actions:

   - To turn on IDS, enter: **1**
   - To turn off IDS, enter: **2**

run_cms

Use the `run_cms` option to turn CMS on or off.

To use the `run_cms` option:

1. Enter:

   `cmsadm`

   The system displays the CMS Administration menu.

2. Enter **8** to select `run_cms`.

3. Perform one of the following actions:
   - To turn CMS on, enter: **1**
   - To turn CMS off but leave IDS running, enter: **2**
   - To turn both CMS and IDS off, enter: **3**

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
- 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 **9** to select `port_admin`.

The `port_admin` option is menu driven. It starts with a main menu, prompts you for information, performs the function that your responses indicate, and then returns to its main menu to administer another port. You can configure a range of ports all at the same time, but all ports in the range must be configured for precisely the same types and models of equipment.

The precise information that the system prompts you for differs depending upon the type of equipment you are configuring the ports for. Before you begin a `port_admin` session, be sure to gather and write down all the information that you will need. Having this information accessible will help the session. The following table lists the information you need.

Function	Required Information
Add a modem	• Port type (NTS or SAI/P) • Usage (inbound/outbound) • Port number to be configured • Baud rate • Manufacturer and model
Remove a modem	• Port type (NTS or SAI/P) • Port number to be reset
Add a terminal	• Port type (NTS or SAI/P) • Port number to be configured • Baud rate
Remove a terminal	• Port type (NTS or SAI/P) • Port number to be reset
Add a printer	• Port type (NTS, SAIP, or standard parallel port • Port number to be configured • Connection (serial or parallel) • Baud rate (serial) • Manufacturer and model
Remove a printer	• Port type (NTS, SAI/P, or standard parallel port) • Connection (serial or parallel) • Port number to be reset
Reset ports	• Port type (NTS or SAI/P) • Port numbers to be reset
Readminister an NTS to the last known configuration	• No specific knowledge is required Simply select the `NTS --> Re-administer` option.

passwd_age

Use the `passwd_age` option to turn password aging on or off for CMS users. This option may not be available on earlier loads of CMS. When a predetermined time interval has passed, CMS users will be prompted to enter a new password. Non-CMS users such as **root**, **root2,** or **Informix** will not age. Only the users using the **/usr/bin/cms** shell will age. The password aging default setting is off.

CAUTION:

If you have any third party software or Professional Services offers, do not turn on password aging. Contact the National Customer Care Center (1-800-242-2121), or consult with your product distributor or representative to ensure that password aging will not disrupt any additional applications.

To use the `passwd_age` option:

1. Enter:

   `cmsadm`

   The system displays the CMS Administration menu.

2. Enter **`10`** to select `passwd_age`.

3. Perform one of the following actions:

   - To turn password aging on, enter: **`1`**

     The system displays the following message:

```
Enter Maximum number of weeks before passwords expire (9
default):
```

     i. Enter the number of weeks before passwords expire and users are prompted to enter a new password. The range is from 1 to 52 weeks.

   - To turn password aging off, enter: **`2`**

     The system displays the following message:

```
Turn off password aging for all CMS users (yes default):
```

i. Perform one of the following actions:

- To turn password aging off, enter: **yes**
- To leave password aging on, enter: **no**

- To change the password aging interval, enter: **3**

  The system displays the following message:

```
Enter Maximum number of weeks before passwords expire (9
default):
```

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 CMSSVC menu is for use primarily by Avaya authorized services personnel. The CMSSVC menu allows you to perform the following tasks:

- display CMS authorizations
- authorize CMS feature packages and capacities
- turn IDS on or off
- turn CMS on and off
- add disks or set up mirroring
- 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

To access the CMS Services menu:

1. Log in as **root**.
2. Enter:

   cmssvc

   The system displays the CMS Services menu.

```
Avaya 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_ids      Turn Informix Database on or off
   4) run_cms      Turn CentreVu CMS on or off
   5) disk_space   Format/Assign disk space to Database Server
   6) setup        Set up the initial configuration
   7) swinfo       Display switch information
   8) swsetup      Change switch information
   9) patch_inst   Install a single CMS patch from CD
  10) patch_rmv    Backout an installed CMS patch
  11) load_all     Install all CMS patches found on CD
  12) back_all     Backout all installed CMS patches from machine
Enter choice (1-12) or q to quit:
```

NOTE:

When the cmssvc **setup** command is running, no other **cmsadm** or **cmssvc** commands are allowed. Any attempt to run other **cmsadm** or **cmssvc** commands will be rejected, and the system will display the error message "`Please try later, setup is active`".

auth_display

To use the `auth_display` option to display CMS authorizations:

1. To access the CMS Services menu, enter:

   `cmssvc`

   The system displays the CMS Services menu.

2. Enter **`1`** to select `auth_display`.

   The system displays the purchased version of CMS and the current authorization status for CMS features and capacities.

```
                              Version purchased:   R3V9
                                  Capability/Capacity   Authorization
                                  -------------------   -------------
                                       disk mirroring   authorized
                                            vectoring   authorized
                                          forecasting   authorized
                                             graphics   authorized
                               external call history   authorized
                              expert agent selection   authorized
                                external application   authorized
                      More than 20000 VDNs measured   authorized
                       Avaya CentreVu(R) Supervisor   authorized
                 Avaya CentreVu(R) Report Designer   authorized
            Maximum number of split/skill members   32000
                              Maximum number of ACDs   2
        Simultaneous CentreVu Supervisor logins   400
              Number of authorized agents (RTU)   200
```

NOTE:

Different authorizations may be displayed depending on the current version of CMS on your system.

The possibilities for authorization status are as follows:

- Authorized — The feature is purchased, and authorization is turned on.
- Not authorized — The feature is not purchased, or authorization is not been turned on.
- Installed — The feature is authorized, and the software to support the feature is installed.

NOTE:

The mirroring authorization may not appear if the system is an Ultra 5. Mirroring is not supported on the Ultra 5 platform.

auth_set

To use the `auth_set` option to authorize CMS features and capacities:

1. Enter:

   `cmssvc`

   The system displays the CMS Services menu.

2. Enter **`2`** to select `auth_set`.

   The system displays the following message:

```
Password:
```

3. Enter the appropriate password and see Setting up CMS authorizations on page 155 for more information.

   This password is available only to authorized personnel.

run_ids

To use the `run_ids` option to turn IDS on and off:

1. Enter:

   `cmssvc`

   The system displays the CMS Services menu.

2. Enter **`3`** to select `run_ids`.
3. Perform one of the following actions:
   - To turn on IDS, enter: **`1`**
   - To turn off IDS, enter: **`2`**

run_cms

To use the `run_cms` option to turn CMS on and off:

1. Enter:

   `cmssvc`

   The system displays the CMS Services menu.

2. Enter **`4`** to select `run_cms`.

3. Perform one of the following actions:
   - To turn on CMS, enter: **1**
   - To turn off CMS but leave IDS running, enter: **2**
   - To turn off both CMS and IDS, enter: **3**

disk_space

Use the `disk_space` option to set up the initial CMS disk partitions, add additional disks to the CMS system and to set up disk mirroring.

To use the `disk_space` option:

1. Enter: **`cmssvc`**

   The system displays the CMS Services menu.
2. Enter **5** to select `disk_space`.
3. Perform one of the following actions:
   - To add new disks, enter: **1**
   - To initiate mirroring, enter: **2**
   - To sync primary and mirror, enter: **3**

NOTE:

The system will not display the mirroring options if disk mirroring has not been authorized. The system may display different menu options for non-mirrored systems.

setup

Use the `setup` option to set up the initial CMS configuration. When the cmssvc **`setup`** command is running, no other **`cmsadm`** or **`cmssvc`** commands are allowed. Any attempt to run other **`cmsadm`** or **`cmssvc`** commands will be rejected, and the system will display the error message “`Please try later, setup is active`”.

Do not confuse this option with the `swsetup` option, which is used to change the switch information.

CAUTION:

Do not run `setup` on a system that is in service to avoid losing all the customer data.

swinfo

Use the `swinfo` option to display the switch options that are currently assigned for each ACD.

To use the `swinfo` option:

1. Enter:

   `cmssvc`

   The system displays the CMSSVC menu.

2. Enter **`7`** to select `swinfo`.

   The system displays a list of ACDs.

3. Select the ACD for which you want to display the switch options.

   The system displays the following information:

   - 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

Use the `swsetup` option 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:

a. Enter:

cmssvc

The system displays the CMS Services menu.

b. Enter **4** to select `run_cms`.

c. Enter **2** to turn off CMS but leave IDS running.

2. Enter:

cmssvc

The system displays the CMS Services menu.

3. Enter **8** to select `swsetup`.

The system displays a list of ACDs.

4. Select the ACD that you want to change.

5. At the prompts answer 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, enter the device used for x.25 connectivity (serial port or HSI port).
  - If TCP/IP, enter the hostname or IP address, and TCP port

The system displays all the information. The system will then ask if the above switch administration is correct.

6. If the switch information is correct, enter: **y**

7. Turn on CMS:

a. Enter:

cmssvc

The system displays the CMS Services menu.

b. Enter **4** to select `run_cms`.

c. Enter **1** to turn on CMS.

patch_inst

Use the `patch_inst` option to install one or more CMS patches from the CD-ROM. If you want to install all patches, use the `load_all` command.

NOTE:

Some patches require CMS to be off. Look at the **read me** file on the CMS CD to determine the state of CMS before attempting to install a patch.

To use the `patch_inst` option:

1. Insert the *CentreVu CMS Release 3 Version 9* CD into the CD-ROM drive.
2. Enter:

   `cmssvc`

   The system displays the CMS Services menu.
3. Enter **`9`** to select `patch_inst`.
4. Enter the patch number.

   The system installs the patch, 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 all of the required patches are installed, enter:

   `eject cdrom`

   For more detailed information about CMS patches, see CMS patches on page 330.

patch_rmv

Use the `patch_rmv` option to back out a single CMS patch installed on the machine.

To use the `patch_rmv` option:

1. Enter:

   `cmssvc`

   The system displays the CMS Services menu.

2. Enter **`10`** to select `patch_rmv`.

3. Enter the patch number.

   The system removes the patch.

4. Repeat Steps 2 and 3 for each patch that you want wish to remove.

   For more detailed information about CMS patches, see CMS patches on page 330.

load_all

Use the `load_all` option to install all CMS patches from the CD-ROM.

NOTE:

Some patches require CMS to be off. Look at the **read me** file on the CMS CD to determine the state of CMS before attempting to install a patch.

To use the `load_all` option:

1. Insert the CD-ROM labeled *CentreVu CMS* into the CD-ROM drive.

2. Enter:

   `cmssvc`

   The system displays the CMS Services menu.

3. Enter **`11`** to select `load_all`.

4. Enter: **y**

   The system installs the patches and displays messages similar to the following:

```
@(#) installpatch 1.0 <date>
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 detailed information about CMS patches, see CMS patches on page 330.

back_all

The `back_all` option allows you to back out all CMS patches installed on the machine.

To use the `back_all` option:

1. Enter:

   cmssvc

   The system displays the CMS Services menu.

2. Enter **12** to select `back_all`.

   The system removes all of the installed patches and displays a conformation message for each patch that was removed.

   For more detailed information about CMS patches, see CMS patches on page 330.

Performing a CMS maintenance backup

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 basis.

NOTE:

It is recommended that you rotate tapes after each maintenance backup. It is also recommended that you periodically replace old or damaged tapes to ensure the integrity of your data.

You can perform these backups within CMS. See the Maintenance chapter in *CentreVu CMS R3V9 Administration,* 585-214-015.

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 back up does **not** save CMS data tables. No new users can log into the CMS system while the CMSADM backup is running.

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 is for *all platforms*.

When to perform a CMSADM backup

Perform the CMSADM file system backup:

- After the system has been set up in the factory.

  IMPORTANT:
  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 R3V9 Administration,* 585-214-015, for more information.

- Before and after the CMS software is upgraded (usually performed by a field technician)

- Once a month (performed by the customer).

  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 enough tapes for the new backup.

Tape drives and cartridges

The following table lists the different models of tape drives that are supported for CMS Release 3 Version 9.

Tape Drive	Tape Cartridge	CMS Computers
DDS4	DDS compliant 150 meter 20/40-GB DAT cartridge 4 mm	Sun Ultra 5 Sun Blade 100 Sun Enterprise 3000 Sun Enterprise 3500
Mammoth	170-meter AME 20/40-GB 8 mm	Sun Enterprise 3500
SLR5 4/8-GB QIC	SLR 4/8	Sun Ultra 5
14-GB 8mm	160-meter 8mm	Sun Enterprise 3000 Sun Ultra 5

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.

Procedure

To perform a CMSADM backup:

1. Log in as **root**.
2. Enter:

   cmsadm

   The system displays the CMS Administration menu:

```
Avaya 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_ids      Turn Informix Database on or off
   8) run_cms      Turn CentreVu CMS on or off
   9) port_admin   Administer Modems, Terminals, and Printers
Enter choice (1-9) or q to quit:
```

3. Enter: **3**

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

   - 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 5.

   - 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-8900 8mm Helical Scan tape drive: /dev/rmt/0
  2) Exabyte EXB-8500 8mm Helical Scan tape drive: /dev/rmt/1
Enter choice (1-2):
```

4. 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:^?
```

5. 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
```

6. If the system displays the message in Step 5, insert the next tape and allow it to rewind. When it is properly positioned, press **Enter**.
7. 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 (R3Vxxx.x)
```

     Continue with Step 10.

   - 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 :
```

8. 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.
9. When prompted, repeat Step 8 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 (R3Vxxx.x)
```

10. Label all tapes with the:
    - Tape number
    - Date of backup
    - Current version of CMS
11. Set the tape write-protect switch to read-only and put the tapes in a safe location.

Additional references

If you have problems performing a CMSADM backup, see CMSADM backup problems on page 459.

Checking the contents of the CMSADM backup tape

Purpose

This procedure checks the contents of the backup tape. The system lists the files on the backup tape so you can determine if the backup has saved the correct information or 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

To check the contents of the CMSADM backup tape:

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 first noncompressing tape drive with the lowest target address
`/dev/rmt/1`	Indicates the second noncompressing tape drive with the second lowest target address
`/dev/rmt/0c`	Indicates the first compressed-mode tape drive with the lowest target address
`/dev/rmt/1c`	Indicates the second compressed-mode tape drive with the second lowest target address

The correct device path will show information similar to the following:

```
HP DDS-4 DAT (Sun) tape drive:
   sense key(0x0)= No Additional Sense   residual= 0   retries= 0
   file no= 0   block no= 0
```

4. After you have seen the files you are looking for, or have confirmed that data on the tape is accurate, press **Delete** to stop the display.

Restoring specific files from the CMSADM backup tape

Overview

Sometimes only specific files on a system may become corrupted. Use this procedure if only specific files need to be restored from a CMSADM backup tape.

Procedure

To restore specific files from a CMSADM backup:

1. Enter:

   `cd /`

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

   `cpio -icmudv -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 replaced with the device name and ***`full_path_name`*** is replaced with the path of the files to be restored.

   Example:

   `cpio -icmudv -C 10240 -I /dev/rmt/0 -M “Please remove the current tape, insert tape number %d, and press ENTER” “dev/dsk”`

Restoring an non-mirrored system with a CMSADM backup

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.

CAUTION:
Only TSC PERSONNEL should perform data recovery procedures.

Prerequisites

Before you begin restoring the system, perform the following tasks:

- Obtain the CMSADM file system backup tapes.
- Obtain the most recent Maintenance backup tapes.
- Replace any defective hardware.

Contents

"Restoring an non-mirrored system with a CMSADM backup" contains the following procedures:

Restoring an Ultra 5, Sun Blade 100, or Enterprise 3000 system

To restore an Ultra 5, Sun Blade 100, or Enterprise 3000 system:

1. Perform the following procedures found in Installing the Solaris Operating System on page 27:
   a. Booting from the Solaris Software CD on page 29
   b. Identifying the system on page 31
   c. Setting the date and time on page 38
   d. Selecting the Solaris system files on page 41
   e. Partitioning the hard disks on page 46
   f. Assigning a root password on page 55
   g. Finalizing the Solaris installation on page 57
   h. Enabling the Korn shell on page 59
2. Perform the following procedure found in “Installing CMS and Supporting Software” :
   a. Installing DiskSuite on page 106

   NOTE:
   It is not necessary to install any hardware drivers before the DiskSuite installation. The drivers will be restored from tape.
3. Insert the first cmsadm backup tape into the tape drive.
4. If you do not know 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 first noncompressing tape drive with the lowest target address
`/dev/rmt/1`	Indicates the second noncompressing tape drive with the second lowest target address

`/dev/rmt/0c` Indicates the first compressed-mode tape drive with the lowest target address

`/dev/rmt/1c` Indicates the second compressed-mode tape drive with the second lowest target address

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:

```
HP DDS-4 DAT (Sun) tape drive:
   sense key(0x0)= No Additional Sense   residual= 0   retries= 0
   file no= 0   block no= 0
```

5. Enter:

   `cd /`

6. To restore all files, perform one of the following actions:

   - If you have only one backup tape, enter the following command:

     `cpio -icmudv -C 10240 -I /dev/rmt/`*`dev#`*

     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 -icmudv -C 10240 -I /dev/rmt/`*`dev#`* **`-M "Remove current tape, insert tape number %d, and press Enter"`**

     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.

7. 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
```

8. Look for a `cm:` entry in the file. If a `cm:` entry is present, remove it.
9. Look for a `id:` entry in the file. If a `id:` entry is present, remove it.
10. Press **Esc**, and then enter:

    `:wq!`

11. Enter:

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

    The system reboots.

12. Log in to the system as **root**.
13. Change permissions to partition 4 by entering the following commands:

    `chown informix:informix /dev/rdsk/c0t0d0s4`

    `chmod 660 /dev/rdsk/c0t0d0s4`

14. Set the IDS environment by entering:

    `. /opt/informix/bin/setenv`

15. Enter:

    vi /opt/informix/etc/onconfig.cms

    The system displays the following message:

```
#**************************************************************************
#
#            INFORMIX SOFTWARE, INC.
#
#  Title:onconfig.cms
#  Description: Informix Dynamic Server Configuration Parameters for CMS
#
#**************************************************************************

# Root Dbspace Configuration

ROOTNAME  rootdbs   # Root dbspace name
ROOTPATH  /dev/rdsk/c0t0d0s4 # Path for device containing root dbspace
ROOTOFFSET 0        # Offset of root dbspace into device (Kbytes)
ROOTSIZE  190000    # Size of root dbspace (Kbytes)

# Disk Mirroring Configuration Parameters

MIRROR    1         # Mirroring flag (Yes = 1, No = 0)
MIRRORPATH          # Path for device containing mirrored root
MIRROROFFSET 0      # Offset into mirrored device (Kbytes)

# Physical Log Configuration

PHYSDBS   physdbs   # Location (dbspace) of physical log
PHYSFILE  4000      # Physical log file size (Kbytes)

# Logical Log Configuration

LOGFILES  4         # Number of logical log files
LOGSIZE   2000      # Logical log size (Kbytes)
.....................
.....................
.....................
VPJAVAVM  libjava.so
VPCLASSPATH
```

16. Change the `PHYSDBS` setting to:

    rootdbs

17. Change the `LOGFILES` setting to:

    3

18. Press **Esc**, and then enter:

    :wq!

    The system saves and exits the file.

19. Verify the file properties for the **onconfig.cms** file. The group and owner should be informix, and the permissions should be 644.

    a. If the file properties are not correct, enter the following commands:

    chown informix:informix /opt/informix/etc/onconfig.cms

    chmod 644 /opt/informix/etc/onconfig.cms

20. Enter:

    oninit -i

    The system displays the following message:

```
This action will initialize Informix Dynamic Server 2000;
any existing Informix Dynamic Server 2000 databases will NOT be
accessible -

Do you wish to continue (y/n)?
```

21. Enter: **y**

22. Perform the following steps only if soft partitioning is enabled on the system. Soft partitioning is available on CMS loads r3v9ai and higher:

    a. Enter:

    swap -a /dev/md/dsk/d2

    b. Enter:

    dumpadm -d swap

    c. To recreate any soft partitioning metadbs, enter:

    /olds/olds -soft_part_mdbs

NOTE:

If the swap partition is not being utilized, this step will fail. If this step does fail, enter the following command to verify the swap partition:

swap -l

The system should display the swap file as **/dev/md/disk/d2**.

The swap device will need to be re-created if it has not been set up, or has been set up incorrectly.

23. Enter:

    cmssvc

    The system displays the CMS Services menu.

24. Enter **5** to select `disk_space`.

    The system displays the following message:

```
Initializing the boot disk (this may take several minutes!) ...

Disk_space_manager options 5) are:

  1) Add New Disks
  2) Initiate Mirroring
  3) Synch Primary and Mirror

Enter choice (1-3) or q to quit:
```

NOTE:

The system will not display the mirroring options if disk mirroring has not been authorized.

25. Enter **1** to add new disks.

    If the system has more than one disk, it displays a list of disks or disk pairs if the system is mirrored.

```
The choices for primary disks are:
............
............
............
Enter choice (X-X) or q to quit:
```

26. Repeat Steps 23 through 25 for every hard drive installed on the system.

    When all disks have been added, the system displays the following message:

```
All disks are currently administered for the system.
Finished Adding New Disks
```

27. Choose one of the following procedures:

IMPORTANT:
It is preferred that CMS be set up from the flat file. The CMS setup information is found in the Unix flat file. This information is updated automatically when a CMSADM backup is performed. If updates have been made since the last CMSADM backup, it may be necessary to run CMS setup interactively.

- To set up CMS interactively.

  See Setting up CMS interactively from a terminal on page 183.

- To set up CMS from a Unix flat file.

  i. Enter:

  `uname -n`

  The system displays the Unix system name.

  ii. Record the Unix system name for use later in this procedure.

  _____

  iii. Enter:

  `vi /cms/install/cms_install/cms.install`

  iv. Verify that the second line has an entry for the unix system name. If it does not, add the unix system name you recorded in Step ii.

Example:

```
# Enter a name for this UNIX system (up to 256 characters):
cms3
# Select the type of backup device you are using
...........
...........
...........
# Enter number of VDNs (0-Maximum):
```

  v. Press **Esc**, and then enter:

  `:wq!`

  vi. Enter:

  `cmssvc`

  The system displays the CMS Services Menu.

vii. Enter **6** 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)
```

viii. Enter the number for the language used on the system.

The system displays a message similar to the following:

```
The input will be read from
  1) the terminal
  2) a flat file
Enter choice (1-2):
```

NOTE:

An additional option for a converter created setup file may be displayed on some systems

ix. Enter the number associated with the `flat file` option.

The system displays the following message:

```
*** The rest of this command is running in the background ***
```

x. 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.

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
................
................
................
Setup completed successfully Mon Nov  6 12:24:20 MST 2000
```

xi. Press **Delete** to break out of the `tail -f` command.

28. Enter:

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

    The system reboots.

29. Log in to the system as **root**.

30. Restore the CMS data and verify the Free Space Allocation. See Verifying Free Space Allocation during a maintenance restore on page 320 for more information.

Restoring an Enterprise 3500, Enterprise 3501, or Enterprise 3503 system

To restore an Enterprise 3500, Enterprise 3501,or Enterprise 3503 system:

1. Perform the following procedures found in Installing the Solaris Operating System on page 27:

   a. Booting from the Solaris Software CD on page 29

   b. Identifying the system on page 31

   c. Setting the date and time on page 38

   d. Selecting the Solaris system files on page 41

   e. Partitioning the hard disks on page 46

   f. Assigning a root password on page 55

g. Finalizing the Solaris installation on page 57

h. Enabling the Korn shell on page 59

2. Perform the following procedure found in “Installing CMS and Supporting Software” :

   a. Installing DiskSuite on page 106

   NOTE:

   It is not necessary to install any hardware drivers before the DiskSuite installation. The drivers will be restored from tape.

3. Insert the first cmsadm backup tape into the tape drive.

4. If you do not know 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 first noncompressing tape drive with the lowest target address
`/dev/rmt/1`	Indicates the second noncompressing tape drive with the second lowest target address
`/dev/rmt/0c`	Indicates the first compressed-mode tape drive with the lowest target address
`/dev/rmt/1c`	Indicates the second compressed-mode tape drive with the second lowest target address

   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:

```
HP DDS-4 DAT (Sun) tape drive:
   sense key(0x0)= No Additional Sense   residual= 0   retries= 0
   file no= 0   block no= 0
```

5. Enter:

   `cd /`

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

   cpio -icmudvf -C 10240 -I /dev/rmt/*dev#* "dev/dsk" "dev/rdsk" "dev/dsk/*" "dev/rdsk/*" "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.

7. 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
```

8. Look for a `cm:` entry in the file. If a `cm:` entry is present, remove it.
9. Look for a `id:` entry in the file. If a `id:` entry is present, remove it.
10. Press **Esc**, and then enter:

    :wq!

11. Enter:

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

    The system reboots.

12. Log in to the system as **root**.
13. Change permissions to partition 4 by entering the following commands:

    chown informix:informix /dev/rdsk/c0t0d0s4

    chmod 660 /dev/rdsk/c0t0d0s4

14. Set the IDS environment by entering:

    . /opt/informix/bin/setenv

15. Enter:

    vi /opt/informix/etc/onconfig.cms

    The system displays the following message:

```
#**************************************************************************
#
#            INFORMIX SOFTWARE, INC.
#
#  Title:onconfig.cms
#  Description: Informix Dynamic Server Configuration Parameters for CMS
#
#**************************************************************************

# Root Dbspace Configuration

ROOTNAME  rootdbs   # Root dbspace name
ROOTPATH  /dev/rdsk/c0t0d0s4 # Path for device containing root dbspace
ROOTOFFSET 0        # Offset of root dbspace into device (Kbytes)
ROOTSIZE  190000    # Size of root dbspace (Kbytes)

# Disk Mirroring Configuration Parameters

MIRROR    1         # Mirroring flag (Yes = 1, No = 0)
MIRRORPATH          # Path for device containing mirrored root
MIRROROFFSET 0      # Offset into mirrored device (Kbytes)

# Physical Log Configuration

PHYSDBS   physdbs   # Location (dbspace) of physical log
PHYSFILE  4000      # Physical log file size (Kbytes)

# Logical Log Configuration

LOGFILES  4         # Number of logical log files
LOGSIZE   2000      # Logical log size (Kbytes)
.....................
.....................
.....................
VPJAVAVM  libjava.so
VPCLASSPATH
```

16. Change the `PHYSDBS` setting to:

    rootdbs

17. Change the `LOGFILES` setting to:

    3

18. Press **Esc**, and then enter:

    :wq!

    The system saves and exits the file.

19. Verify the file properties for the **onconfig.cms** file. The group and owner should be informix, and the permissions should be 644.

    a. If the file properties are not correct, enter the following commands:

    chown informix:informix /opt/informix/etc/onconfig.cms

    chmod 644 /opt/informix/etc/onconfig.cms

20. Enter:

    oninit -i

    The system displays the following message:

```
This action will initialize Informix Dynamic Server 2000;
any existing Informix Dynamic Server 2000 databases will NOT be
accessible -

Do you wish to continue (y/n)?
```

21. Enter: **y**

22. Perform the following steps only if soft partitioning is enabled on the system. Soft partitioning is available on CMS loads r3v9ai and higher:

    a. Enter:

    swap -a /dev/md/dsk/d2

    b. Enter:

    dumpadm -d swap

    c. To recreate any soft partitioning metadbs, enter:

    /olds/olds -soft_part_mdbs

NOTE:

If the swap partition is not being utilized, this step will fail. If this step does fail, enter the following command to verify the swap partition:

swap -l

The system should display the swap file as **/dev/md/disk/d2**.

The swap device will need to be re-created if it has not been set up, or has been set up incorrectly.

23. Enter:

    cmssvc

    The system displays the CMS Services menu.

24. Enter **5** to select `disk_space`.

    The system displays the following message:

```
Initializing the boot disk (this may take several minutes!) ...

Disk_space_manager options 5) are:

  1) Add New Disks
  2) Initiate Mirroring
  3) Synch Primary and Mirror

Enter choice (1-3) or q to quit:
```

NOTE:

The system will not display the mirroring options if disk mirroring has not been authorized.

25. Enter **1** to add new disks.

    If the system has more than one disk, it displays a list of disks or disk pairs if the system is mirrored.

```
The choices for primary disks are:
............
............
............
Enter choice (X-X) or q to quit:
```

26. Repeat Steps 23 through 25 for every hard drive installed on the system.

    When all disks have been added, the system displays the following message:

```
All disks are currently administered for the system.
Finished Adding New Disks
```

27. Choose one of the following procedures:

IMPORTANT:
It is preferred that CMS be set up from the flat file. The CMS setup information is found in the Unix flat file. This information is updated automatically when a CMSADM backup is performed. If updates have been made since the last CMSADM backup, it may be necessary to run CMS setup interactively.

- To set up CMS interactively.

  See Setting up CMS interactively from a terminal on page 183.

- To set up CMS from a Unix flat file.

  i. Enter:

  `uname -n`

  The system displays the Unix system name.

  ii. Record the Unix system name for use later in this procedure.

  _____

  iii. Enter:

  `vi /cms/install/cms_install/cms.install`

  iv. Verify that the second line has an entry for the unix system name. If it does not, add the unix system name you recorded in Step ii.

Example:

```
# Enter a name for this UNIX system (up to 256 characters):
cms3
# Select the type of backup device you are using
............
............
............
# Enter number of VDNs (0-Maximum):
```

  v. Press **Esc**, and then enter:

  `:wq!`

  vi. Enter:

  `cmssvc`

  The system displays the CMS Services Menu.

vii. Enter **6** 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)
```

viii. Enter the number for the language used on the system.

The system displays a message similar to the following:

```
The input will be read from
  1) the terminal
  2) a flat file
Enter choice (1-2):
```

NOTE:

An additional option for a converter created setup file may be displayed on some systems

ix. Enter the number associated with the `flat file` option.

The system displays the following message:

```
*** The rest of this command is running in the background ***
```

x. 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.

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
................
................
................
Setup completed successfully Mon Nov  6 12:24:20 MST 2000
```

xi. Press **Delete** to break out of the `tail -f` command.

28. Enter:

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

    The system reboots.

29. Log in to the system as **root**.

30. Restore the CMS data and verify the Free Space Allocation. See Verifying Free Space Allocation during a maintenance restore on page 320 for more information.

Performing a CMS maintenance restore

Overview

This procedure describes how to restore all CMS data from a CMS maintenance backup.

CAUTION:
If this procedure is being performed because of a disk replacement or crash, see Performing a CMS maintenance restore on page 315 before performing this procedure.

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	• CMS can be in a multi-user state • Data collection can be on
Local system administration	• CMS must be in the single-user state • Data collection must be turned off
ACD -specific administration	• CMS must be in the single-user state • Data collection can be on
CMS system administration	• CMS must be in the single-user state • Data collection can be on

Contents

There are two ways in which you can perform a CMS maintenance restore:

Restoring data from a full maintenance backup

To restore 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, see Restoring data from a full and incremental maintenance backup on page 317

1. Load the most recent full maintenance backup tape into the tape drive.
2. In one of the windows at a console, log in to the system by using a CMS administrator's login ID (for example **su - cms**). Enter the correct password if prompted.
3. Enter:

   `cms`

   A series of prompts about system status may appear before the system displays the CMS main menu.
4. Enter the correct terminal type.
5. Select the `Maintenance` option.
6. Select the `Restore Data` option.
7. In the `Restore from last backup (y/n):` field, enter: **n**

   The system restores the system administration data, ACD-specific data, historical data, and non-CMS data.

8. Go to the Free Space Allocation window that is located in the CMS System Setup subsystem and verify that no adjustments need to be made.

   For more information about Free Space Allocation, see *CentreVu Call Management System Release 3 Version 9 Administration*, 585-214-015.

Restoring data from a full and incremental maintenance backup

To restore 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 316.

1. Insert the most recent full maintenance backup tape into the tape drive.
2. In one of the windows at a console, log in to the system by using a CMS administrator's login ID (for example **su - cms**). Enter the correct password if prompted.
3. Enter:

   `cms`

   A series of prompts about system status may appear before the system displays the CMS main menu.
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 315 to determine which steps to perform.

   a. Change CMS to single user mode:

      i. Select `System Setup - CMS State`.

         The CMS State window displays.

      ii. Enter an **`x`** in the `Single-user mode` field and press **Enter** twice.

      iii. Press **F5** to return to the main menu.

b. Turn off data collection:

i. Select `System Setup - Data Collection`.

The system displays the Data Collection window.

ii. Enter the name of the ACD.

iii. Use **Tab** to move the `Off` field and enter: **x**

iv. Press **Enter**, select `Modify`, and press **Enter** again.

v. Repeat Steps i through iv for each ACD.

vi. 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 Administration data`
	`ACD-specific administration data`
	`Historical data`
	`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 insert the most current incremental backup tape.

10. Repeat Steps 7 and 8 as needed.

11. After the incremental restore is finished, press **F5**.

The system displays the CMS 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 315 to determine which steps to perform.

    a. Turn data collection on:

        i. Select `System Setup - Data Collection`.

        The system displays the Data Collection window.

        ii. Enter the name of the ACD.

        iii. Use the **Tab** key to move to the `On` field and enter: **x**

        iv. Press **Enter**, select `Modify,` and press **Enter** again.

        v. Repeat Steps i through iv for each ACD.

        vi. Press **F5**.

        The system displays the CMS main menu.

    b. Take CMS out of single user mode:

        i. Select `System Setup - CMS State`.

        The **CMS State** window displays.

        ii. Enter an **x** in the `Multi-user mode` field and press **Enter** twice.

        iii. Press **F5**.

        The system displays the CMS main menu.

13. Select `Logout` and press **Enter**.

14. Go to the Free Space Allocation window that is located in the CMS System Setup subsystem and verify that no adjustments need to be made.

    For more information about Free Space Allocation, see *CentreVu Call Management System Release 3 Version 9 Administration*, 585-214-015.

Verifying Free Space Allocation during a maintenance restore

To verify Free Space Allocation during a maintenance restore:

1. Insert the maintenance backup tape into the tape drive.
2. Verify that IDS and CMS are on:
   a. Enter:

      cmssvc

      The system displays the CMS Services menu.

   b. Enter **3** to select `run_ids`.
   c. Enter **1** to turn on IDS.
   d. Enter:

      cmssvc

      The system displays the CMS Services menu.

   e. Enter **4** to select the `run_cms` option.
   f. Enter **1** to turn on CMS.
3. Log in to CMS.
4. Verify that CMS is in single user mode and data collection is off for all acds.

5. From the main menu, select **Maintenance > Restore Data**.

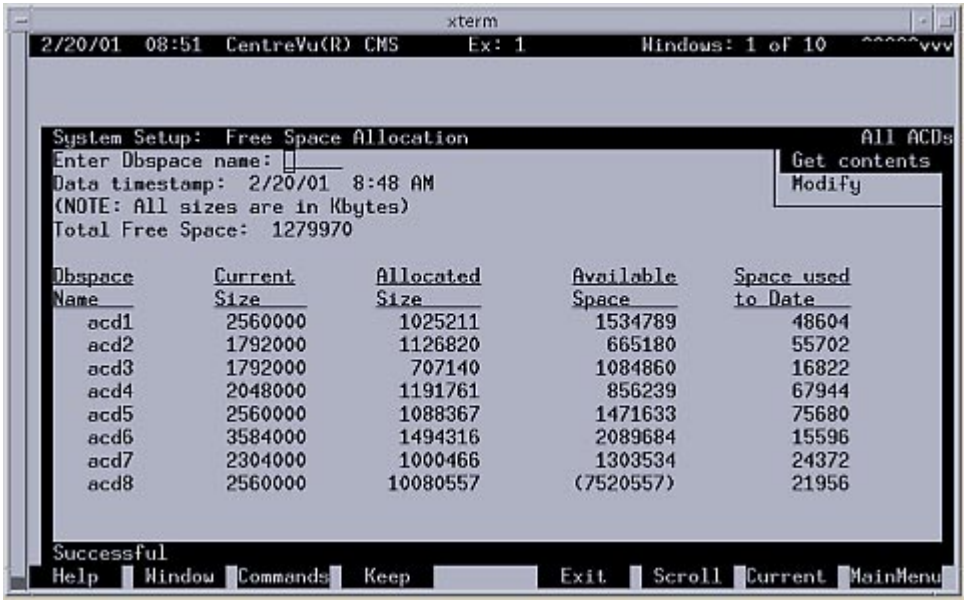
   The system displays the **Restore Data** window.

6. Deselect **Historical data** and **Non-CMS data**.
7. Press **Enter** to access the action list in the upper right corner of the window.
8. Select **Run** and press **Enter**.

   The system restores the data from tape.
9. Exit the **Restore Data** window by pressing **F5**.

10. From the main menu, select **System Setup > Free Space Allocation**.

    The system displays the **Free Space Allocation** window.



11. In the **Enter Dbspace name:** field, enter the Dbspace name of the acd.
12. Press **Enter** to access the action list in the upper right corner of the window.
13. Select **Modify**.
14. Press **Enter**.
15. Perform one of the following actions:
    - Answer **y** to any questions that may be displayed.
    - Press **Enter** if a "`Nothing to add/drop`" message is displayed.
16. Repeat Steps 11 through 15 for every acd on the system.

    NOTE:

    These steps are performed for every acd on the system in order to adjust the available space for each acd. Additional space will be added to acds with negative space and acds with additional space will have the space reallocated. For more information about Free Space Allocation, see *CentreVu CMS R3V9 Administration,* 585-214-015.

17. Exit the **Free Space Allocation** window by pressing **F5**.

18. From the main menu, select **Maintenance > Restore Data**.

    The system displays the **Restore Data** window.

19. Deselect **Local system administration data**, **CMS system administration data**, **ACD-specific administration data**, and **Non-CMS data**.

20. Verify that **Historical data** is selected.

    NOTE:

    If the customer has backed up any non-CMS data, it will be necessary to rebuild any custom tables before restoring the data.

21. Press **Enter** to access the action list in the upper right corner of the window.

22. Select **Run** and press **Enter**.

    The system restores the data from tape.

23. Exit the **Restore Data** window by pressing **F5**.

24. Put the system in multiuser mode and turn data collection on.

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 factory standards.

Procedure

To restore a system without a CMSADM backup:

1. Re-install the entire system according to Installing the Solaris Operating System on page 27.
2. Re-install the entire system according to Installing CMS and Supporting Software on page 69.
3. Restore any available CentreVu CMS data from the most recent CMS maintenance backup. See Verifying Free Space Allocation during a maintenance restore on page 320 for more information.
4. Re-administer terminals, printers, modems, and other peripheral devices as needed. See *CentreVu Call Management System Terminals, Printers, and Modems,* 585-215-874, for more information.
5. Contact Professional Services for any previously installed customization.

Changing the system date and time

Purpose

This procedure describes how to change the Unix system date and time.

NOTE:

Changing the system time may cause a small distortion in the CentreVu CMS data. For example, a change due to daylight savings.

Contents

"Changing the system date and time" contains the following procedures:

Checking the Solaris system date and time

To verify that the system time is correct:

1. 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]`

   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:

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.

   For example:

   You would modify the line with `TZ=US/Mountain`.

```
# @(#)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
```

4. To save and quit the file, press **Esc** and 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:

For information about installing Solaris patches see, Installing the Sun Solaris Patches on page 113.

Checking installed Solaris patches

To check the Solaris patches:

1. Enter:

   showrev -p

   The system displays the following message:

```
Patch: 105084-02  Obsoletes:   Packages: SUNWx25a.2 9.1,PATCH=02,
SUNWx25b.2 9.1,PATCH=02
Patch: 105256-01  Obsoletes:   Packages: SUNWcsu
Patch: 103582-14  Obsoletes:   Packages: SUNWcsu, SUNWcsr
Patch: 103594-10  Obsoletes:   Packages: SUNWcsu
   .
   .
   .
```

2. Check the list to verify that all the Solaris patches you need are installed.

Removing a Solaris patch

To remove a Solaris patch:

CAUTION:

Remove a Solaris patch only when instructed by the TSC or by a release letter.

1. Enter:

   patchrm *patch-id*

   The ***patch-id*** is identified by the TSC or in the release letter.

   The system backs out the patch, and displays the following message:

```
@(#) 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.
#
```

2. Enter:

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

   The system reboots.

CMS patches

Overview

"CMS patches" provides procedures for maintaining patches for CMS on a Sun platform.

Contents

"CMS patches" contains the following procedures:

CMS patch requirements

The following information describes the requirements to install patches on your CMS system. The three occasions when you may have to install CMS patches are:

- During a factory installation
- Immediately after upgrading CMS
- In the field on an existing system to correct a problem with the original software.

Loading patches after an upgrade

If you are loading patches immediately after upgrading your system, it is best to turn off CMS until you have the patches installed. The patches have different prerequisites for installation. Some require that CMS be turned off, others require that data collection be turned 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 off CMS.

Loading patches as a bug fix

If you are loading patches as part of a factory installation or on an existing system in the field without upgrading your base load, you can install the patches without turning CMS off. The system will display a message if you need to do anything special to accomplish the load.

The CMS patch read me file for CMS lists the CMS run-level requirements for each patch.

NOTE:

The `auth_set` tool must have been run sometime in the past before you can install patches. 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 that you should not be installing a particular patch, call the National Customer Care Center (1-800-242-2121), or consult with your product distributor or representative before deciding to omit it.

Listing installed CMS patches

To list 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 that are installed on the system.

Listing CMS patches on the CD-ROM

To list CMS patches that are on the CD-ROM and available to be installed:

1. Log in as **root**.
2. Insert the CMS CD-ROM into the CD-ROM drive and wait 15 seconds.
3. Enter:

   `cmssvc`

   The displays the CMS Services menu.
4. Select `patch_inst`.

   The system lists the names of the patches on the CD-ROM.
5. Enter: **q**

Installing CMS patches

To install the CMS patches:

1. Log in as **root** and insert the CMS CD into the CD-ROM drive.
2. Enter:

   cmssvc

   The system displays the CMS Services menu.

```
Avaya 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_ids      Turn Informix Database on or off
   4) run_cms      Turn CentreVu CMS on or off
   5) disk_space   Format/Assign disk space to Database Server
   6) setup        Set up the initial configuration
   7) swinfo       Display switch information
   8) swsetup      Change switch information
   9) patch_inst   Install a single CMS patch from CD
  10) patch_rmv    Backout an installed CMS patch
  11) load_all     Install all CMS patches found on CD
  12) back_all     Backout all installed CMS patches from machine
Enter choice (1-12) or q to quit:
```

3. Perform one of the following actions:
   - To load all of the patches, enter the number of the `load_all` option.
   - 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.

   If no patches are found on the CD continue to next step.

   The system displays the following message:

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

Perform one of the following actions if patches are found on the CD-ROM:

- If you want to load all of the patches, enter: **y**
- If you want to load 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.
```

- If no patches are found on the CD-ROM, go to Step 4.

4. Enter:

   eject cdrom

Removing CMS patches

To remove CMS patches:

1. Log in as **root**.
2. Enter:

   `cmssvc`

   The system displays the CMS Services menu.
3. Choose one of the following actions:
   - If you want to remove all of the CMS patches, enter the number of the `back_all` option.

     The system lists the patches installed on the system and asks for verification of the removal.
   - If you want to remove a single patch:

     i. Enter the number of the `patch_rmv` option.

     The system lists the patches that are installed on the system and prompts you to select a patch.

     ii. Type the name of the patch that 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**

   The system displays messages similar to the example 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 IP addresses that are supplied at the factory. If the IP addresses for the CMS computer and NTS units do not require changes, skip this section. 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 an NTS unit to a CMS computer, see *CentreVu CMS Terminals, Printers, and Modems,* 585-215-874.

There are two ways to change the IP addresses on the CMS computer and the NTS units:

- Remotely. Use this procedure in most cases. To change an IP address remotely, you must dial into the CMS computer and then connect to the NTS units.
- Locally. Use this procedure only in the following cases:
  - If the NTS unit from the factory is defective.
  - If an NTS unit was added after the initial factory order.
  - If the remote provisioning personnel cannot get into the system to set up the NTS unit remotely.

Contents

"Setting up an NTS" contains the following procedures:

Changing IP addresses on an NTS remotely

This section describes how to remotely change the IP addresses on the CMS computer and the NTS units that are used with CMS. This procedure 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:

CAUTION:

If you change the IP address, it can affect the X.25 or LAN switch link. Make sure that your changes do not affect the switch link.

1. Log in as **root**.
2. Determine which NTS may need to change by looking at the **/etc/hosts** file and pinging each NTS. Repeat Steps 2 though 16 for each NTS that needs to be changed.
3. Enter **na** at the system prompt.

   The system accesses the NTS administration software. The system displays a message similar to the following:

```
Annex network administrator R<release number and date>
command:
```

NOTE:

This is an example. The response may differ depending on what type of NTS you have.

4. Enter:

   annex cmsterm*X*

   Where ***X*** is the number of the NTS.

   The system displays the following message:

```
cmsterm(x): Annex-3UXR7, 64 ports

command:
```

NOTE:

This is an example. The response may differ depending on what type of NTS you have.

5. Enter:

   `write cmsterm`*`X`*` /etc/local.admin/cmsterm`*`X`*`_info.old`

   where ***X*** is the number of the NTS.

   The system displays the following message:

```
      .
      .
      .
writing.....
command:
```

6. Enter:

   `set annex inet_addr` ***`NTS_IP_addr`***

   Where ***NTS_IP_addr*** is the NTS IP address.

   The system displays the following message:

```
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 displays the `command:` prompt.

8. Enter:

   `set annex pref_load_addr` ***`SUN_IP_addr`***

   Where ***SUN_IP_addr*** is the IP address of the CMS computer.

   The system displays the `command:` prompt.

9. Enter:

   `set annex pref_dump_addr` ***`SUN_IP_addr`***

   Where ***SUN_IP_addr*** is the IP address of the CMS computer.

   The system displays the `command:` prompt.

10. Enter:

    `set port=1-64 dedicated_address` ***`SUN_IP_addr`***

    Where ***`SUN_IP_addr`*** is the IP address of the CMS computer.

    The system displays the following message:

```
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 cmsterm`*`X`* **`/etc/local.admin/cmsterm`*`X`*** **`_info`**

    to save the new options.

    The system displays the following message:

```
      .
      .
      .
writing.....
command:
```

12. Enter: **`boot`**

    The system displays the following message:

```
   time (return for 'now'):
```

13. Press **Enter**.

    The system displays the following message:

```
   annex list (return for default):
```

14. Press **Enter**.

    The system displays the following message:

```
filename (return for default):
```

15. Press **Enter**.

    The system displays the following message:

```
warning (return for default):
```

16. Press **Enter**.

    The system displays the following message:

```
booting annex cmsterm(x)
The annex is performing self diagnostics, and will not respond to
administration operations for a short period.

command:
```

17. Repeat Steps 2 though 16 for each NTS that needs to be changed.
18. Enter: **q**

    NOTE:

    You can not communicate with the NTS again until each IP address that was changed for an NTS is also changed on the CMS computer.

19. Enter:

    vi /etc/hosts

    The system opens the file in the VI editor.

    CAUTION:

    If you change the IP address of the computer, you must restart the system within 12 hours. If you do not restart the system within 12 hours, X.25 will stop.

20. Add the new addresses for the NTSs and the CMS computer to the **/etc/hosts** file.
21. Add the router IP and name to the **/etc/hosts** file.

22. Remove or comment out old entries in the **/etc/hosts** file.
23. Press **Esc**, and enter:

    `:wq!`

    The VI editor saves and closes the file.
24. Enter:

    `vi /etc/defaultrouter`

    The system opens the file in the VI editor.
25. Add the router node name that is given in the **/etc/hosts** file.
26. Press **Esc**, and enter:

    `:wq!`

    The VI editor saves and closes the file.
27. Enter:

    `vi /etc/netmasks`

    The system opens the file in the VI editor.
28. Modify the subnet mask if it is different from the default for the IP address that you are using. Note that an example is provided in the file.
29. Press **Esc**, and enter:

    `:wq!`

    The VI editor saves and closes the file.
30. Enter:

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

    The CMS computer shuts down and restarts.

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.

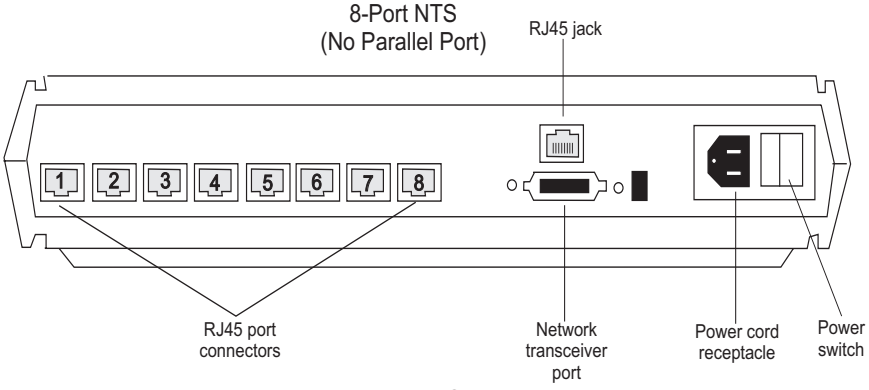
   To make this connection, you need the following for the 8-port and 16-port NTS units:

   - a console cable
   - an adapter - comcode 407361823
   - a null modem - comcode 407122043

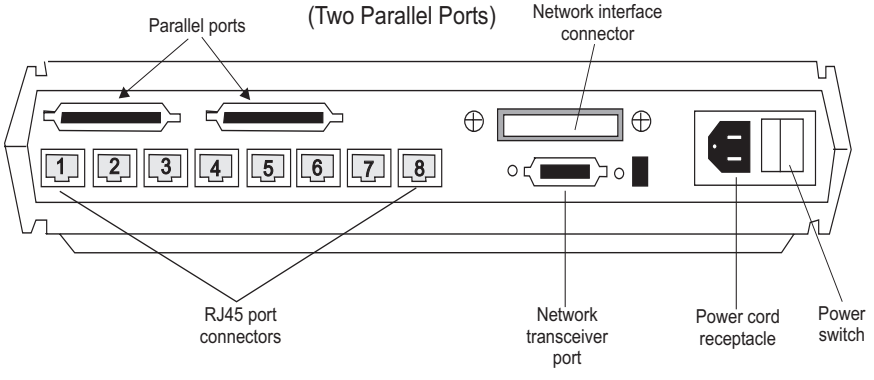
   To make this connection, you need the following for the 64-port NTS units:

   - a console cable
   - an adapter - part number 06-988-260-20

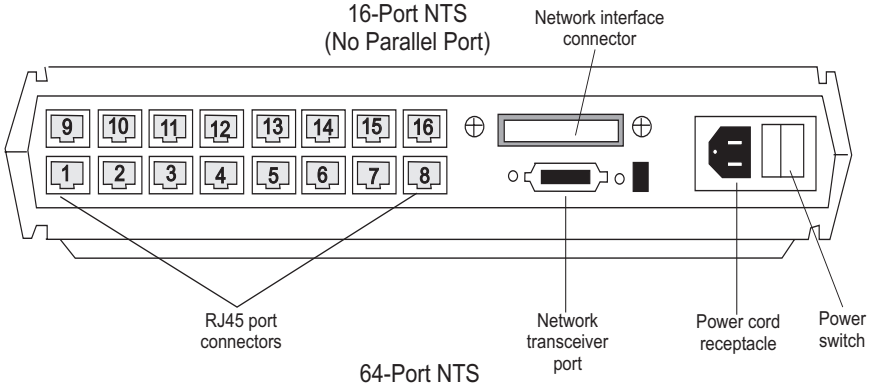
8-Port NTS
(No Parallel Port)



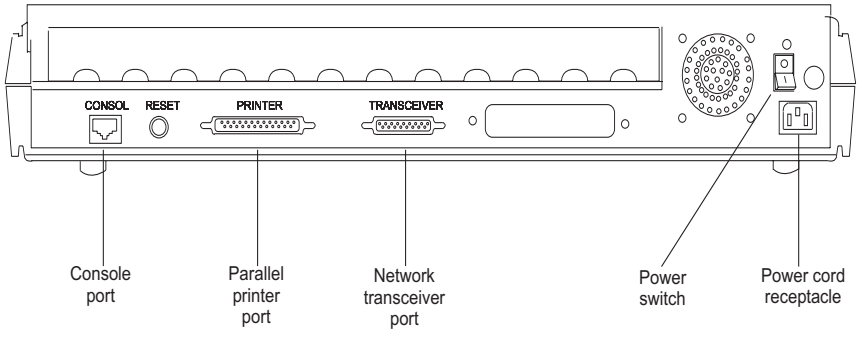
8-Port NTS
(Two Parallel Ports)



16-Port NTS
(No Parallel Port)

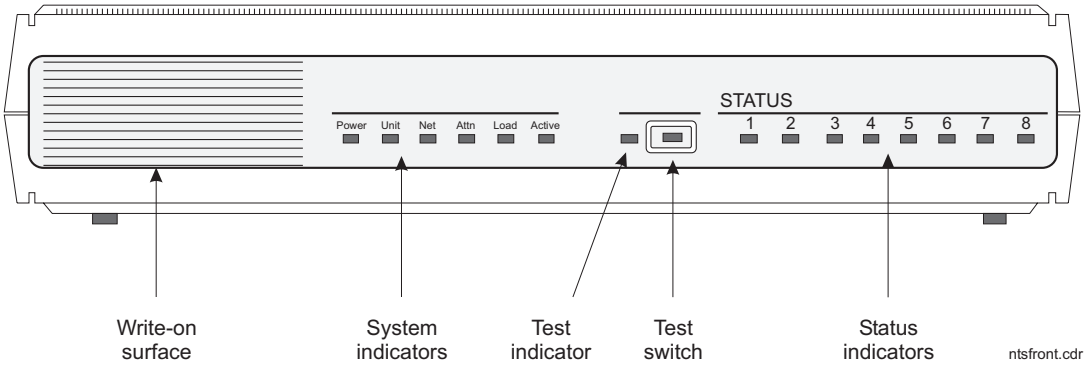


64-Port NTS
(One Parallel Port)



ds-xnts.cdr

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*

Recovering a non-mirrored system after data disk failure

Overview

Use this procedure to recover a system with a failed data disk.

IMPORTANT:
If the system loses the primary boot disk, the system will need to be rebuilt to factory standards and any data restored. See Restoring an non-mirrored system with a CMSADM backup on page 297 for more information.

Prerequisites

Before you begin restoring the system, perform the following tasks:

- Obtain the most recent successful maintenance backup tapes.

Procedure

To recover an non-mirrored system:

1. Install the replacement disk.

   NOTE:
   For more information about installation of hard drives, see the appropriate Hardware Installation, Maintenance, and Troubleshooting book for your platform.

2. Turn on any external devices and then the system.

   The system boots into multi-user mode.

3. Log on as **root**.
4. Turn off CMS and IDS.

5. Perform one of the following actions:
   - If the disk was replaced without turning off the system:
     i. Enter:

     `devfsadm -Cc disk`

     ii. Continue with Step 6.
   - If the disk was replaced while the system was turned off, continue with Step 6.
6. Use the **`format`** command to partition and format the replacement disk.

   NOTE:
   For more information about formatting hard drives, see the appropriate Hardware Installation, Maintenance, and Troubleshooting book for your platform.
7. Verify the file properties for partitions 0, 1, 3, 4, 5, 6, and 7. The group and owner should be informix, and the permissions should be 660.
   a. If the file properties are not correct, enter the following commands for partitions 0, 1, 3, 4, 5, 6, and 7:

   `chown informix:informix /dev/rdsk/cXtXd0sX`

   `chmod 660 /dev/rdsk/cXtXd0sX`

   Where **`cX`** is the device controller number.

   Where **`tX`** is the device target number. The target number is the slot number for the hard drive.

   Where **`sX`** is the device partition number.

   NOTE:
   For more information about hard drive device names, see the appropriate Hardware Installation, Maintenance, and Troubleshooting book for your platform.
8. Set the IDS environment by entering:

   `. /opt/informix/bin/setenv`

9. Enter:

   vi /opt/informix/etc/onconfig.cms

   The system displays the following message:

```
#**************************************************************************
#
#            INFORMIX SOFTWARE, INC.
#
#  Title:onconfig.cms
#  Description: Informix Dynamic Server Configuration Parameters for CMS
#
#**************************************************************************

# Root Dbspace Configuration

ROOTNAME  rootdbs   # Root dbspace name
ROOTPATH  /dev/rdsk/c0t0d0s4 # Path for device containing root dbspace
ROOTOFFSET 0        # Offset of root dbspace into device (Kbytes)
ROOTSIZE  190000    # Size of root dbspace (Kbytes)

# Disk Mirroring Configuration Parameters

MIRROR    1         # Mirroring flag (Yes = 1, No = 0)
MIRRORPATH          # Path for device containing mirrored root
MIRROROFFSET 0      # Offset into mirrored device (Kbytes)

# Physical Log Configuration

PHYSDBS   physdbs   # Location (dbspace) of physical log
PHYSFILE  4000      # Physical log file size (Kbytes)

# Logical Log Configuration

LOGFILES  4         # Number of logical log files
LOGSIZE   2000      # Logical log size (Kbytes)
.....................
.....................
.....................
VPCLASSPATH
```

10. Change the `PHYSDBS` setting to:

    rootdbs

11. Change the `LOGFILES` setting to:

    3

12. Press **Esc**, and then enter:

    :wq!

    The system saves and exits the file.

13. Verify the file properties for the **onconfig.cms** file. The group and owner should be informix, and the permissions should be 644.

    a. If the file properties are not correct, enter the following commands:

    ```
    chown informix:informix
      /opt/informix/etc/onconfig.cms
    ```

    ```
    chmod 644 /opt/informix/etc/onconfig.cms
    ```

14. Enter the following commands:

    ```
    cd /opt/informix/etc
    ```

    ```
    rm onconfig.bak
    ```

    ```
    rm onconfig.def
    ```

15. Enter:

    ```
    oninit -i
    ```

    The system displays the following message:

```
This action will initialize Informix Dynamic Server 2000;
any existing Informix Dynamic Server 2000 databases will NOT be
accessible -

Do you wish to continue (y/n)?
```

16. Enter: **y**

17. If the CMS load is r3v9ai or later, perform the following steps:

    a. Enter:

    ```
    metaclear -a
    ```

    The system removes all soft partition metadevices on the system.

    b. To verify that all soft partition metadevices have been removed, enter:

    ```
    metastat -p
    ```

    c. Record all the device names of any remaining soft partition metadevices.The devices have a format similar to /dev/rdsk/md/d*XXX*.

d. If any soft partition metadevices remain, choose one of the following procedures to remove the remaining soft partition metadevices:

- To remove soft partition metadevices on a single disk, enter:

  metaclear -p c*X*t*X*d0s7

  Where **c*X*** is the device controller number.

  Where **t*X*** is the device target number. The target number is the slot number for the hard drive.

- To remove individual soft partition metadevices, enter:

  metaclear -r d*XXX*

  Where **d*XXX*** is the soft partition metadevice.

  Example:

  metaclear -r d100 d101 d102

18. Check the IDS software by entering:

    onstat

    The system displays several sets of data:

```
Informix Dynamic Server 2000 Version X.XX.UCX     -- On-Line -- Up 00:00:55 -- 18432 Kbytes

Userthreads
address  flags   sessid   user     tty      wait     tout locks nreads   nwrites
a30c018  ---P--D 1        root     -        0        0    0     27       37510
a30c608  ---P--F 0        root     -       0        0    0     0        1132
...................
...................
...................
ixda-RA  idx-RA   da-RA    RA-pgsused lchwaits
4        0        47       51         0
```

19. Enter:

    cmssvc

    The system displays the CMS Services menu.

20. Enter **5** to select `disk_space`.

    The system displays the following message:

```
Initializing the boot disk (this may take several minutes!) ...

Disk_space_manager options 5) are:

  1) Add New Disks

Enter choice (1-1) or q to quit:
```

NOTE:

If IDS fails to turn on after the configuration of the IDS dbspaces, contact the National Customer Care Center (1-800-242-2121), or consult with your product distributor or representative.

```
oninit: Fatal error in shared memory initialization
```

21. Enter **1** to add new disks.

    If the system has more than one disk, it displays a list of disks or disk pairs if the system is mirrored.

```
The choices for primary disks are:
............
............
............
Enter choice (X-X) or q to quit:
```

22. Repeat Steps 19 through 25 for every new hard drive installed on the system.

    When all disks have been added, the system displays the following message:

```
All disks are currently administered for the system.
Finished Adding New Disks
```

23. Choose one of the following procedures:

IMPORTANT:
It is preferred that CMS be set up from the flat file. The CMS setup information is found in the Unix flat file. This information is updated automatically when a CMSADM backup is performed. If updates have been made since the last CMSADM backup, it may be necessary to run CMS setup interactively.

- To set up CMS interactively.

  See Setting up CMS interactively from a terminal on page 183.

- To set up CMS from a Unix flat file.

  i. Enter:

  `uname -n`

  The system displays the Unix system name.

  ii. Record the Unix system name for use later in this procedure.

  _____

  iii. Enter:

  `vi /cms/install/cms_install/cms.install`

  iv. Verify that the second line has an entry for the unix system name. If it does not, add the unix system name you recorded in Step ii.

Example:

```
# Enter a name for this UNIX system (up to 256 characters):
cms3
# Select the type of backup device you are using
...........
...........
...........
# Enter number of VDNs (0-Maximum):
```

  v. Press **Esc**, and then enter:

  `:wq!`

  vi. Enter:

  `cmssvc`

  The system displays the CMS Services Menu.

vii. Enter **6** 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)
```

viii. Enter the number for the language used on the system.

The system displays a message similar to the following:

```
The input will be read from
  1) the terminal
  2) a flat file
Enter choice (1-2):
```

NOTE:

An additional option for a converter created setup file may be displayed on some systems

ix. Enter the number associated with the `flat file` option.

The system displays the following message:

```
*** The rest of this command is running in the background ***
```

x. 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.

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
................
................
................
Setup completed successfully Mon Nov  6 12:24:20 MST 2000
```

xi. Press **Delete** to break out of the `tail -f` command.

24. Enter:

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

    The system reboots.

25. Log in to the system as **root**.

26. After the system is rebooted, enter:

    `onstat -d | egrep “MD|PD|R”`

    NOTE:

    This is done to verify that the resync process is complete. If the resync process is not complete, select Synch Primary and Mirror from the disk_space option in the CMSSVC menu.

27. Restore the CMS data and verify the Free Space Allocation. See Verifying Free Space Allocation during a maintenance restore on page 320 for more information.

Adding the Informix SQL package after IDS and ILS have been installed

Overview

This procedure installs a new Informix SQL package on a system where INFORMIX IDS (INFORMIX Dynamic Server) and ILS (International Language Supplement) packages are already installed.

Prerequisites

Before you begin this procedure, obtain the *"INFORMIX SQL 7.20"* CD.

Procedure

To add the new INFORMIX SQL package after the other INFORMIX packages have been installed:

1. Record the serial number 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.

   Example:

   TERM=xterm

   export TERM
4. Load the "*INFORMIX SQL*" CD into the CD-ROM drive.

5. After about 15 seconds, enter **mount** to verify the name of the CD.

   The program displays a list of devices and file systems currently mounted. The last line displayed should look similar to the following example:

```
/cdrom/informix on /vol/dev/dsk/c0t2d0/informix read
only/setuid/maplcase/noglobal/rr/traildot/dev=16c0001 on
(current date and time)
```

6. Enter the following commands:

   . /opt/informix/bin/cmsenv

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 a message similar to the following:

```
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 a message similar to the following:

```
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 XXXX
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!
.................
.................
.................
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  ACN#C325473
Informix Dynamic Server 2000  Serial Number  AAC#A865230
INFORMIX-Client SDK  Serial Number  AAC#A898732
```

    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 enter **`: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/`

Enabling fail over of the alternate boot device

Overview

The alternate boot device is a fail-safe device. If for some reason you are unable to boot from the primary boot disk you can set the system to boot from the alternate device until further notice. The alternate boot device can be enabled from either the boot prompt or from root.

Platform considerations

This procedure is for *mirrored systems* only.

NOTE:

The alternate boot device must be created before it can be enabled. See Creating an alternate boot device on page 62.

Procedure

To enable the alternate boot device, perform one of the following actions:

- From the `ok` prompt, enter:

  ```
  setenv boot-device disk bootdevice2
  ```

- From the `#` prompt, enter:

  ```
  eeprom boot-device="disk bootdevice2"
  ```

  NOTE:

  For more information on how to enable the alternate boot device on a E3501 or E3503 system see Resetting a device alias on page 64.

Maintaining the chkDisks crontab

The chkDisks crontab runs each night and checks to see whether any potential or actual drive problems have been logged. For example, loss of the primary boot drive. The results of the search are mailed to the *root* user.

Platform considerations

This procedure is for *mirrored systems* only.

Contents

"Maintaining the chkDisks crontab" contains the following procedures:

Activating chkDisks

To activate chkDisks:

1. At the # prompt, enter:

   crontab -e

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

2. Add the following line to the end of the **cron** file:

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

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

   :wq!

4. Enter:

   chmod +x /olds/chkDisks

Verifying chkDisks

To verify that `cron` is running:

1. Enter at the `#` prompt:

   `crontab -l`

2. Check the listing to see that there is an entry for chkDisks.

Changing the chkDisks run time

This line tells the system to run chkDisks every day at 15 minutes past hour zero, or 12:15 AM. You can change that schedule by changing the first five fields as necessary. The fields, in order of appearance, are: minute, hour, day of the month, month of the year, and day of the week. An asterisk means “all legal values.” The /olds/chkDisks line in the cron file is generally in the following format:

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

For more information, see the manual (man) page for the crontab command.

Canceling chkDisks

To stop cron from running:

1. Enter at the `#` prompt:

   `crontab -e`

2. With the file loaded in the editor, comment out the entry for chkDisks and write and quit the file.

Identifying a faulty disk

Overview

This section explains how to identify a faulty disk in a mirrored system.

Platform considerations

This procedure is for *mirrored systems* only.

Contents

"Identifying a faulty disk" contains the following procedures:

Identifying down chunks

To identify any down chunks:

1. Set the Informix environment by entering:

   . /opt/informix/bin/setenv

2. Enter:

   onstat -d | grep D

   The system displays a list of any down chunks on a faulty disk.

```
Informix Dynamic Server 2000 Version 9.XX.UCX     -- On-Line -- Up 00:52:45 -- s
Dbspaces
bc30018  89  9   512000   128000   0                 MD-   /dev/rdsk/c1t6d0s1
bc30188  90  9   0        128000   0                 MD-   /dev/rdsk/c1t6d0s1
bc302f8  91  9   256000   128000   0                 MD-   /dev/rdsk/c1t6d0s0
bc30468  92  9   384000   128000   0                 MD-   /dev/rdsk/c1t6d0s1
bc305d8  93  9   512000   128000   0                 MD-   /dev/rdsk/c1t5d0s4
................
................
................
bc32188  112 10  896000   128000   0                 MD-   /dev/rdsk/c1t6d0s4
bc322f8  113 10  128000   128000   0                 MD-   /dev/rdsk/c1t6d0s4
bc32468  114 10  256000   128000   0                 MD-   /dev/rdsk/c1t6d0s4
bc325d8  115 10  512000   128000   0                 MD-   /dev/rdsk/c1t6d0s4
```

Identifying the disk

If a disk problem is not identified with the **onstat** command, check the **/var/adm/messages** file.

NOTE:

Not all disk failures are identified in the **/var/adm/messages file**. You must perform the procedure for Identifying down chunks on page 368 in addition to this procedure.

To identify the down disk:

1. Enter:

   cd /var/adm

2. Enter:

   `vi messages`

   The system displays the following file:

```
Jun 12 16:27:08 leopard unix: WARNING:
Jun 12 16:27:08 leopard unix: Error for command 'read(10)' Error Level: R
Jun 12 16:27:09 leopard unix: retryable
Jun 12 16:27:09 leopard unix: Requested Block 0, Error Block: 0
Jun 12 16:27:09 leopard unix: Sense Key: Media Error
Jun 12 16:27:09 leopard unix: Vendor 'SEAGATE':
Jun 12 16:27:09 leopard unix: ASC = 0x31 (medium format corrupted), ASCQ
= 0x0, FRU = 0x9
Jun 12 16:27:09 leopard unix: WARNING:
/sbus@3,0/SUNW,fas@3,8800000/sd@2,0
```

NOTE:

The line shown in bold indicates a disk problem. The `sd@2,0` represents SCSI disk.

3. Enter:

   `:q!`

   The system exits the file without making any changes.

4. To determine which disk has the problem, enter:

   `ls -l /dev/dsk/c*`

   The system displays the following message:

```
      .
      .
      .
lrwxrwxrwx   1 root     root          50 Apr 24 15:21 /dev/dsk/c0t2d0s0 ->
../../devices/sbus@3,0/SUNW,fas @3,8800000/sd@2,0:a
lrwxrwxrwx   1 root     root          50 Apr 24 15:21 /dev/dsk/c0t2d0s1 ->
../../devices/sbus@3,0/SUNW,fas @3,8800000/sd@2,0:b
.......
.......
.......
#
```

5. Search the output for a device description matching that in the warning message.

   If the "`sd@2,0:`*X*" information matches the same information in the warning message, then that disk is the faulty disk.

   NOTE:

   The *X* at the end of the device is the partition number. The partition information may not be displayed in the **/var/adm/messages** file. The following table shows what letters correspond to which disk partition.

Letter	Disk partition
a	0
b	1
c	2
d	3
e	4
f	5
g	6
h	7

Identifying the submirrors

Perform this procedure only if the failed disk is the primary or secondary boot drive.

To identify the submirrors:

1. Enter:

   `metastat`

   The system displays messages similar to the following:

```
d32: Submirror of d3
 Size: 14960160 blocks
  Stripe 0:
   Device   Start Block  Dbase  State  Hot Spare
   c0t2d0s1        0        No  Maintenance
  Stripe 1:
   Device   Start Block  Dbase  State  Hot Spare
       c0t4d0s3        0        No     Okay
```

2. Search the output for the name of the faulty disk.

   The faulty disk is usually indicated by a state of `Maintenance`.

   Example:

   The following lines indicate that the faulty c0t2d0 disk is in d32:

```
d32: Submirror of d3
 Size: 14960160 blocks
  Stripe 0:
   Device   Start Block  Dbase  State  Hot Spare
   c0t2d0s1        0        No  Okay
  Stripe 1:
   Device   Start Block  Dbase  State  Hot Spare
       c0t4d0s3        0        No     Okay
```

   Be sure to check all the submirrors. If the disk is also listed under d11 or d12, it is a boot disk belonging to two different submirrors.

3. Record the metadevices to which the disk belongs.

   Example:

   `d11` and `d31`

4. After identifying all of the faulty disks and associated submirrors, see Recovering a mirrored system after disk failure on page 372.

Recovering a mirrored system after disk failure

Overview

"Recovering a mirrored system after disk failure" contains procedures for the recovery of a mirrored system after the failure of a hard drive.

IMPORTANT:
If the system loses both the primary boot disk and the alternate boot disk, the system will need to be rebuilt to factory standards and any data restored. See Restoring a mirrored system with a CMSADM backup on page 392

Platform considerations

This procedure is for *mirrored systems* only.

Prerequisites

Before you recover a mirrored system, perform the following tasks:

- Verify that the alternate boot device is set up. See Enabling fail over of the alternate boot device on page 364 for more information.
- Identify the faulty disk or disks. See Identifying a faulty disk on page 367 for more information.

Contents

"Recovering a mirrored system after disk failure" contains the following procedures:

- Recovering a mirrored system after a single data disk fails on page 379
- Recovering a mirrored system after a matched pair of data disks fail on page 381

Installing a replacement disk

To install the replacement disk:

1. Install the replacement disk.

   NOTE:
   For more information about installation of hard drives, see the appropriate Hardware Installation, Maintenance, and Troubleshooting book for your platform.

2. Enter:

   ```
   devfsadm -Cc disk
   ```

3. Use the **`format`** command to partition and format the replacement disk.

   NOTE:
   For more information about formatting hard drives, see the appropriate *Hardware Installation, Maintenance, and Troubleshooting* book for your platform.

4. Choose one of the following procedures depending on the type of disk that failed:
   - Recovering a mirrored system after the primary boot disk fails on page 373
   - Recovering a mirrored system after the secondary boot disk fails on page 377
   - Recovering a mirrored system after a single data disk fails on page 379

Recovering a mirrored system after the primary boot disk fails

"Recovering a mirrored system after the primary boot disk fails" contains the following procedures:

- Manually enabling the secondary boot device to boot on page 374
- Enabling the primary boot device on page 375

Manually enabling the secondary boot device to boot

If the primary boot disk on a system fails and does not automatically reboot off of the secondary boot disk, then the secondary boot device must be manually enabled to boot. If the system boots off the secondary boot device, go to Enabling the primary boot device on page 375.

To enable the boot device to boot:

1. At the `ok` prompt, enter:

   `boot bootdevice2`

   NOTE:
   Some systems may loose a primary boot disk and not reboot to the `ok` prompt. If this is the case, use **Stop**+**A** to halt the system and get to an `ok` prompt.

2. Enter the root password for system maintenance.

   The system displays the following message:

```
Openwindows?
```

3. Enter: **`n`**

   The system displays the command prompt.

4. Enter:

   `metadb -i`

   The system displays all of the database replicas.

```
 flags            first blk       block count
     M    p  luo        16              1034            /dev/dsk/c0t0d0s1
     M    p  luo        1050            1034            /dev/dsk/c0t0d0s1
     M    p  luo        2084            1034            /dev/dsk/c0t0d0s1
     M    p  luo        3118            1034            /dev/dsk/c0t0d0s1
.................
.................
.................
 o - replica active prior to last mddb configuration change
 u - replica is up to date
 l - locator for this replica was read successfully
 c - replica's location was in /etc/opt/SUNWmd/mddb.cf
 p - replica's location was patched in kernel
 m - replica is master, this is replica selected as input
 W - replica has device write errors
 a - replica is active, commits are occurring to this replica
 M - replica had problem with master blocks
 D - replica had problem with data blocks
 F - replica had format problems
 S - replica is too small to hold current data base
 R - replica had device read errors
```

5. Look for any replicas with a capital status letter in the first column. All replicas with a capital status letter need to be removed.
6. To remove any damaged database replicas, enter:

   `metadb -d -f /dev/dsk/`*`disk_slice`*

   Where ***`disk_slice`*** is the physical device partition number containing the damaged database replica.

   Example:

   Using the output obtained in Step 4, the command would be entered as:

   `metadb -d -f /dev/dsk/c0t0d0s1`
7. Enter:

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

   The system boots from the secondary boot drive.
8. Enter:

   `cmssvc`

   The system displays the CMS Services menu.
9. Enter **`4`** to select `run_cms`.

Enabling the primary boot device

To enable the primary boot device:

1. Replace the faulty disk at a convenient time. See Installing a replacement disk on page 373 for more information.
2. Verify the file properties for partitions 0, 1, 3, 4, 5, 6, and 7. The group and owner should be informix, and the permissions should be 660.

   a. If the file properties are not correct, enter the following commands for partitions 0, 1, 3, 4, 5, 6, and 7:

      `chown informix:informix /dev/rdsk/c`*`X`*`t`*`X`*`d0s`*`X`*

      `chmod 660 /dev/rdsk/c`*`X`*`t`*`X`*`d0s`*`X`*

      Where **`c`*`X`*** is the device controller number.

      Where **`t`*`X`*** is the device target number. The target number is the slot number for the hard drive.

      Where **`s`*`X`*** is the device partition number.

   NOTE:

   For more information about hard drive device names, see the appropriate Hardware Installation, Maintenance, and Troubleshooting book for your platform.

3. Enter:

   cmssvc

   The system displays the CMS Services menu.

4. Enter **5** to select `disk_space`.

   The system displays the following message:

```
Initializing the boot disk (this may take several minutes!) ...

Disk_space_manager options are:

  1) Add New Disks
  2) Initiate Mirroring
  3) Synch Primary and Mirror

Enter choice (1-3) or q to quit:
```

5. Enter **3** to select `Synch Primary and Mirror`.

   The system begins to resync the disks. This process can take several hours to complete.

6. Set the INFORMIX environment by entering:

   . /opt/informix/bin/setenv

7. Enter:

   onstat -d | egrep "MD|PD|R|X"

   When the system displays only the command prompt as output, the mirroring and resync process is complete.

   CAUTION:
   Do not reboot the system until the resync is complete. If you reboot the system before the resync is complete you will have to wait for Solaris to finish resyncing before resyncing Informix. The Solaris resync can take up to five hours.

8. When the system finishes syncing the disks, reboot the system when convenient. It is recommended you perform this step during low busy hours. After the reboot the system will boot normally from the primary disk.

Recovering a mirrored system after the secondary boot disk fails

To recover a mirrored system after the secondary boot disk fails:

1. Replace the faulty disk. See Installing a replacement disk on page 373 for more information.
2. Verify the file properties for partitions 0, 1, 3, 4, 5, 6, and 7. The group and owner should be informix, and the permissions should be 660.
   a. If the file properties are not correct, enter the following commands for partitions 0, 1, 3, 4, 5, 6, and 7:

      chown informix:informix /dev/rdsk/c*X*t*X*d0s*X*

      chmod 660 /dev/rdsk/c*X*t*X*d0s*X*

      Where **c*X*** is the device controller number.

      Where **t*X*** is the device target number. The target number is the slot number for the hard drive.

      Where **s*X*** is the device partition number.

   NOTE:
   For more information about hard drive device names, see the appropriate Hardware Installation, Maintenance, and Troubleshooting book for your platform.
3. Enter:

   cmssvc

   The system displays the CMS Services menu.

```
Avaya 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_ids      Turn Informix Database on or off
   4) run_cms      Turn CentreVu CMS on or off
   5) disk_space   Format/Assign disk space to Database Server
   6) setup        Set up the initial configuration
   7) swinfo       Display switch information
   8) swsetup      Change switch information
   9) patch_inst   Install a single CMS patch from CD
  10) patch_rmv    Backout an installed CMS patch
  11) load_all     Install all CMS patches found on CD
  12) back_all     Backout all installed CMS patches from machine
Enter choice (1-12) or q to quit:
```

4. Enter **4** to select `run_cms`.
5. Enter **3** to turn off both CMS and IDS.
6. Enter:

   `cmssvc`

   The system displays the CMS Services menu.
7. Enter **3** to select `run_ids`.

   NOTE:
   This can take up to 10 minutes.
8. Enter **1** to turn on IDS.
9. Enter:

   `cmssvc`

   The system displays the CMS Services menu.
10. Enter **4** to select `run_cms`.
11. Enter **1** to turn on CMS.
12. Enter:

    `cmssvc`

    The system displays the CMS Services menu.
13. Enter **5** to select `disk_space`.

    The system displays the following message:

```
Initializing the boot disk (this may take several minutes!) ...

Disk_space_manager options are:

  1) Add New Disks
  2) Initiate Mirroring
  3) Synch Primary and Mirror

Enter choice (1-3) or q to quit:
```

14. Enter **3** to select `Synch Primary and Mirror`.

    The system begins to resync the disks. This process can take several hours to complete.
15. Set the INFORMIX environment by entering:

    `. /opt/informix/bin/setenv`

16. Enter:

    `onstat -d | egrep “MD|PD|R|X”`

    When the system displays only the command prompt as output, the mirroring and resync process is complete.

    CAUTION:
    Do not reboot the system until the resync is complete. If you reboot the system before the resync is complete you will have to wait for Solaris to finish resyncing before resyncing Informix. The Solaris resync can take up to five hours.

17. When the system finishes syncing the disks, reboot the system when convenient. It is recommended you perform this step during low busy hours. After the reboot the system will boot normally from the primary disk.

Recovering a mirrored system after a single data disk fails

To recover a mirrored system after a single data disk fails:

CAUTION:
This procedure is only for data disks, not a boot or alternate boot device. Performing this procedure on the incorrect disk type will result in the system being rebuilt back to factory standards.

1. Replace the faulty disk. See Installing a replacement disk on page 373 for more information.
2. Verify the file properties for partitions 0, 1, 3, 4, 5, 6, and 7. The group and owner should be informix, and the permissions should be 660.
   a. If the file properties are not correct, enter the following commands for partitions 0, 1, 3, 4, 5, 6, and 7:

      `chown informix:informix /dev/rdsk/cXtXd0sX`

      `chmod 660 /dev/rdsk/cXtXd0sX`

      Where **`cX`** is the device controller number.

      Where **`tX`** is the device target number. The target number is the slot number for the hard drive.

      Where **`sX`** is the device partition number.

NOTE:

For more information about hard drive device names, see the appropriate Hardware Installation, Maintenance, and Troubleshooting book for your platform.

3. Enter:

   `cmssvc`

   The system displays the CMS Services menu.

4. Enter **4** to select `run_cms`.
5. Enter **3** to turn off both CMS and IDS.
6. Enter:

   `cmssvc`

   The system displays the CMS Services menu.

7. Enter **3** to select `run_ids`.
8. Enter **1** to turn on IDS.

   NOTE:

   This can take up to 10 minutes.

9. Enter:

   `cmssvc`

   The system displays the CMS Services menu.

10. Enter **4** to select `run_cms`.
11. Enter **1** to turn on CMS.
12. Enter:

    `cmssvc`

    The system displays the CMS Services menu.

13. Enter **5** to select `disk_space`.

    The system displays the following message:

```
Initializing the boot disk (this may take several minutes!) ...

Disk_space_manager options are:

  1) Add New Disks
  2) Initiate Mirroring
  3) Synch Primary and Mirror

Enter choice (1-3) or q to quit:
```

14. Enter **3** to select `Synch Primary and Mirror`.

    The system begins to resync the disks. This process can take several hours to complete.

15. Set the INFORMIX environment by entering:

    `. /opt/informix/bin/setenv`

16. Enter:

    `onstat -d | egrep “MD|PD|R|X”`

    When the system displays only the command prompt as output, the mirroring and resync process is complete.

    CAUTION:
    Do not reboot the system until the resync is complete. If you reboot the system before the resync is complete you will have to wait for Solaris to finish resyncing before resyncing Informix. The Solaris resync can take up to five hours.

Recovering a mirrored system after a matched pair of data disks fail

To recover a mirrored system after a matched pair of data disks fail:

1. Turn off CMS and IDS.

   WARNING:
   CMS setup will be re-run in this procedure. Record any current CMS administration.

2. Replace the faulty disk pair. See Installing a replacement disk on page 373 for more information.

3. Verify the file properties for partitions 0, 1, 3, 4, 5, 6, and 7. The group and owner should be informix, and the permissions should be 660.

   a. If the file properties are not correct, enter the following commands for partitions 0, 1, 3, 4, 5, 6, and 7:

      chown informix:informix /dev/rdsk/c*X*t*X*d0s*X*

      chmod 660 /dev/rdsk/c*X*t*X*d0s*X*

      Where **c*X*** is the device controller number.

      Where **t*X*** is the device target number. The target number is the slot number for the hard drive.

      Where **s*X*** is the device partition number.

   NOTE:

   For more information about hard drive device names, see the appropriate Hardware Installation, Maintenance, and Troubleshooting book for your platform.

4. Set the IDS environment by entering:

   . /opt/informix/bin/setenv

5. Enter:

   vi /opt/informix/etc/onconfig.cms

   The system displays the following message:

```
#**************************************************************************
#
#            INFORMIX SOFTWARE, INC.
#
#  Title:onconfig.cms
#  Description: Informix Dynamic Server Configuration Parameters for CMS
#
#**************************************************************************

# Root Dbspace Configuration

ROOTNAME  rootdbs   # Root dbspace name
ROOTPATH  /dev/rdsk/c0t0d0s4 # Path for device containing root dbspace
ROOTOFFSET 0        # Offset of root dbspace into device (Kbytes)
ROOTSIZE  190000    # Size of root dbspace (Kbytes)

# Disk Mirroring Configuration Parameters

MIRROR    1         # Mirroring flag (Yes = 1, No = 0)
MIRRORPATH          # Path for device containing mirrored root
MIRROROFFSET 0      # Offset into mirrored device (Kbytes)

# Physical Log Configuration

PHYSDBS   physdbs   # Location (dbspace) of physical log
PHYSFILE  4000      # Physical log file size (Kbytes)

# Logical Log Configuration

LOGFILES  4         # Number of logical log files
LOGSIZE   2000      # Logical log size (Kbytes)
.....................
.....................
.....................
VPCLASSPATH
```

6. Change the `PHYSDBS` setting to:

   rootdbs

7. Change the `LOGFILES` setting to:

   3

8. Press **Esc**, and then enter:

   :wq!

   The system saves and exits the file.

9. Verify the file properties for the **onconfig.cms** file. The group and owner should be informix, and the permissions should be 644.
   a. If the file properties are not correct, enter the following commands:

      chown informix:informix /opt/informix/etc/onconfig.cms

      chmod 644 /opt/informix/etc/onconfig.cms
10. Enter the following commands:

    cd /opt/informix/etc

    rm onconfig.bak

    rm onconfig.def
11. Enter:

    oninit -i

    The system displays the following message:

```
This action will initialize Informix Dynamic Server 2000;
any existing Informix Dynamic Server 2000 databases will NOT be
accessible -

Do you wish to continue (y/n)?
```

12. Enter: **y**
13. If the CMS load is r3v9ai or later, perform the following steps:
    a. Enter:

       metaclear -a

       The system removes all soft partition metadevices on the system.
    b. To verify that all soft partition metadevices have been removed, enter:

       metastat -p
    c. Record all the device names of any remaining soft partition metadevices.The devices have a format similar to /dev/rdsk/md/d*XXX*.

d. If any soft partition metadevices remain, choose one of the following procedures to remove the remaining soft partition metadevices:

- To remove soft partition metadevices on a single disk, enter:

  metaclear -p c*X*t*X*d0s7

  Where **c*X*** is the device controller number.

  Where **t*X*** is the device target number. The target number is the slot number for the hard drive.

- To remove individual soft partition metadevices, enter:

  metaclear -r d*XXX*

  Where **d*XXX*** is the soft partition metadevice.

  Example:

  metaclear -r d100 d101 d102

e. Enter:

/cms/install/bin/ins_proc -l /cms/install/logdir/admin.log -m

14. Check the IDS software by entering:

    onstat

    The system displays several sets of data:

```
Informix Dynamic Server 2000 Version X.XX.UCX     -- On-Line -- Up 00:00:55 -- 18432 Kbytes

Userthreads
address  flags   sessid   user     tty      wait     tout locks nreads   nwrites
a30c018  ---P--D 1        root     -        0        0    0     27       37510
a30c608  ---P--F 0        root     -       0        0    0     0        1132
....................
....................
....................
ixda-RA  idx-RA   da-RA    RA-pgsused lchwaits
4        0        47       51         0
```

15. Verify that IDS is on.

16. Enter:

    cmssvc

    The system displays the CMS Services menu.

17. Enter **5** to select `disk_space`.

    The system displays the following message:

```
Initializing the boot disk (this may take several minutes!) ...

Disk_space_manager options are:

  1) Add New Disks
  2) Initiate Mirroring
  3) Synch Primary and Mirror

Enter choice (1-3) or q to quit:
```

NOTE:

If IDS fails to turn on after the configuration of the IDS dbspaces, contact the National Customer Care Center (1-800-242-2121), or consult with your product distributor or representative.

```
oninit: Fatal error in shared memory initialization
```

18. Enter **1** to add new disks.

    The system displays a list of disk pairs.

```
The choices for primary/secondary disk pairs are:
............
............
............
Enter choice (X-X) or q to quit:
```

19. Repeat Steps 16 through 18 for every new hard drive installed on the system.

    When all disks have been added, the system displays the following message:

```
All disks are currently administered for the system.
Finished Adding New Disks
```

20. Choose one of the following procedures:

IMPORTANT:
It is preferred that CMS be set up from the flat file. The CMS setup information is found in the Unix flat file. This information is updated automatically when a CMSADM backup is performed. If updates have been made since the last CMSADM backup, it may be necessary to run CMS setup interactively.

- To set up CMS interactively.

  See Setting up CMS interactively from a terminal on page 183.

- To set up CMS from a Unix flat file.

  i. Enter:

  `uname -n`

  The system displays the Unix system name.

  ii. Record the Unix system name for use later in this procedure.

  _____

  iii. Enter:

  `vi /cms/install/cms_install/cms.install`

  iv. Verify that the second line has an entry for the unix system name. If it does not, add the unix system name you recorded in Step ii.

Example:

```
# Enter a name for this UNIX system (up to 256 characters):
cms3
# Select the type of backup device you are using
...........
...........
...........
# Enter number of VDNs (0-Maximum):
```

  v. Press **Esc**, and then enter:

  `:wq!`

  vi. Enter:

  `cmssvc`

  The system displays the CMS Services Menu.

vii. Enter **6** 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)
```

viii. Enter the number for the language used on the system.

The system displays a message similar to the following:

```
The input will be read from
  1) the terminal
  2) a flat file
Enter choice (1-2):
```

NOTE:

An additional option for a converter created setup file may be displayed on some systems

ix. Enter the number associated with the `flat file` option.

The system displays the following message:

```
*** The rest of this command is running in the background ***
```

x. 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.

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
................
................
................
Setup completed successfully Mon Nov  6 12:24:20 MST 2000
```

xi. Press **Delete** to break out of the `tail -f` command.

21. Enter:

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

    The system reboots.

22. Log in to the system as **root**.

23. Enter:

    `onstat -d | egrep “MD|PD|R”`

    When the system displays only the command prompt as output, the mirroring and resync process is complete.

24. Restore the CMS data and verify the Free Space Allocation. See Verifying Free Space Allocation during a maintenance restore on page 320 for more information.

    WARNING:
    If the system is rebooted, enter:

    `onstat -d | egrep “MD|PD|R”`

    to verify that the resync process is complete. If the resync process is not complete, select `Synch Primary` and `Mirror` from the `disk_space` option in the CMSSVC menu.

25. Enter:

    `cmssvc`

    The system displays the CMS Services menu.

26. Enter **`4`** to select the `run_cms` option.

27. Enter **2** to turn off CMS.
28. Enter:

    /olds/olds -cleanup
29. Enter:

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

    The system reboots.
30. Enter:

    cmssvc

    The system displays the CMS Services menu.
31. Enter **5** to select `disk_space`.

    The system displays the following message:

```
Initializing the boot disk (this may take several minutes!) ...

Disk_space_manager options are:

  1) Add New Disks
  2) Initiate Mirroring
  3) Synch Primary and Mirror

Enter choice (1-3) or q to quit:
```

32. Enter **2** to select `Initiate Mirroring`.

    The system initiates mirroring and then displays a prompt to reboot the system.

```
Mirroring has been started.
You MUST reboot the system for mirroring to take effect. Execute
        '/usr/sbin/shutdown -i6 -y -g0'
to shut the system down
disk_space command completed Wed Apr 18 17:12:23 MDT 2001
```

33. Enter:

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

    The system reboots and displays the following message.

```
Proceeding to mirror the IDS dbspaces ...
Archive to tape device '/dev/null' is complete.

Program over.
Synchronizing disks in the background.
```

34. Log into the system as **root**.
35. Turn on CMS.

Restoring a mirrored system with a CMSADM backup

Purpose

This procedure describes how to restore an entire system in the event of both boot disks crashing or becoming corrupt. You must re-enable the system to boot, initiate mirroring and then reinstall the missing packages.

CAUTION:
Only TSC PERSONNEL should perform data recovery procedures.

Prerequisites

Before you begin restoring the system, perform the following tasks:

- Obtain the CMSADM file system backup tapes.

  NOTE:
  If no CMSADM backup is available, see Restoring a system without a CMSADM backup on page 324.

- Obtain the most recent Maintenance backup tapes.

Procedure

To restore a mirrored system with a CMSADM backup:

1. Perform the following procedures found in Installing the Solaris Operating System on page 27:
   a. Booting from the Solaris Software CD on page 29
   b. Identifying the system on page 31
   c. Setting the date and time on page 38
   d. Selecting the Solaris system files on page 41
   e. Partitioning the hard disks on page 46

NOTE:

The system may display the following window during the disk partitioning process. Select **OK**.

f. Assigning a root password on page 55

g. Finalizing the Solaris installation on page 57

h. Enabling the Korn shell on page 59

2. Perform the following procedure found in “Installing CMS and Supporting Software” :

   a. Installing DiskSuite on page 106

   NOTE:

   It is not necessary to install any hardware drivers before the DiskSuite installation. The drivers will be restored from tape.

3. Insert the cmsadm backup tape into the tape drive.

4. If you do not know 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 first noncompressing tape drive with the lowest target address
`/dev/rmt/1`	Indicates the second noncompressing tape drive with the second lowest target address
`/dev/rmt/0c`	Indicates the first compressed-mode tape drive with the lowest target address
`/dev/rmt/1c`	Indicates the second compressed-mode tape drive with the second lowest target address

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:

```
HP DDS-4 DAT (Sun) tape drive:
   sense key(0x0)= No Additional Sense   residual= 0   retries= 0
   file no= 0   block no= 0
```

CAUTION:

Do not open any additional windows or vi any files while performing this procedure. If you do, it may be necessary to restart the restore procedure.

5. Enter:

   `cd /`

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

   `cpio -icmudv -C 10240 -I /dev/rmt/`*`dev#`*` "olds" "olds/*"`

   Where ***`dev#`*** is the tape device name.

   The system displays a message similar to the following:

```
olds/S96cleanup
olds/S96mirror
olds/chkDisks
olds/olds
olds/olds-funcs
2116580 blocks
#
```

   The restoration, can take some time depending on the tape drive. As the restore proceeds, the light-emitting diode (LED) on the tape drive will alternately flash and light steadily.

7. Enter:

   `mkdir /opt/informix`

8. Add a new group to the system by entering:

   `groupadd -g 100 informix`

9. Add a new user to the system by entering the following command on a single line at the command prompt:

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

10. Enter:

    `cd /olds`

11. Enter:

    `OLDSDIR=/olds`

12. Enter:

    `LOGFILE=/tmp/admin.log`

13. Enter:

    `touch /tmp/admin.log`

14. Enter:

    `. ./olds-funcs`

15. Enter:

    `BOOTDISK=c0t0d0`

16. Enter:

    `BOOTDISK2=c`*`X`*`t`*`X`*`d0`

    Where **`c`*`X`*** is the device controller number.

    Where **`t`*`X`*** is the device target number. The target number is the slot number for the hard drive.

    Example:

    - For a Enterprise 3000 system enter:

      `BOOTDISK2=c0t11d0`

    - For a Enterprise 3500 system enter:

      `BOOTDISK2=c1t4d0`

    - For a Sun Blade 100 system enter:

      `BOOTDISK2=c0t2d0`

17. Enter:

    `check_disk_geometries $BOOTDISK $BOOTDISK2`

18. Enter:

    `cp -p /etc/vfstab /etc/vfstab.old`

19. Enter:

    `vi /etc/vfstab`

    The system displays the **vfstab** file.

```
"/etc/vfstab" 11 lines, 477 characters
#device           device           mount     FS      fsck    mount    mount
#to mount         to fsck          point     type    pass   at boot  options
#
#/dev/dsk/c1d0s2 /dev/rdsk/c1d0s2  /usr           ufs         1    yes       -
fd     -/dev/fd   fd      -     no        -
/proc  -/proc     proc   -     no        -
/dev/dsk/c0t0d0s1      -     -     swap        -     no      -
/dev/dsk/c0t0d0s0     /dev/rdsk/c0t0d0s0       /     ufs       1        no
-
/dev/dsk/c0t0d0s3    /dev/rdsk/c0t0d0s3       /cms            ufs 2       yes
..................
..................
..................
"/etc/vfstab" 11 lines, 477 characters
```

20. Change the entry for `/dev/dsk/c0t0d0s1` to:

    `/dev/md/dsk/d2`

21. Change the entry for `/dev/dsk/c0t0d0s3` `/dev/rdsk/c0t0d0s3` to:

    `/dev/md/dsk/d3  /dev/md/rdsk/d3.`

22. Save and exit the file by pressing **Esc**, and then entering:

    `:wq!`

23. Enter:

    cat /etc/vfstab

    The **vfstab** file should look similar to the following:

```
"/etc/vfstab" 11 lines, 477 characters
#device           device           mount     FS      fsck    mount    mount
#to mount         to fsck          point     type    pass   at boot  options
#
#/dev/dsk/c1d0s2 /dev/rdsk/c1d0s2  /usr           ufs         1    yes       -
fd     -/dev/fd   fd      -     no        -
/proc  -/proc     proc   -     no         -
/dev/md/dsk/d2      -     -     swap        -     no      -
/dev/dsk/c0t0d0s0     /dev/rdsk/c0t0d0s0       /     ufs       1        no
-
/dev/md/dsk/d3    /dev/md/rdsk/d3             /cms            ufs 2       yes
..................
..................
..................
"/etc/vfstab" 11 lines, 477 characters
```

24. Enter:

    swap_to_file

25. Enter:

    make_primary_submirrors

26. Enter:

    create_toplevel_mirrors

27. Enter:

    copy_partition_image ${BOOTDISK} ${BOOTDISK2}

28. Enter:

    make_secondary_submirrors

29. Enter:

    metaroot d1

30. Enter:

    lockfs -fa

31. Enter:

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

    The system reboots.

32. Log in to the system as **root**.

33. Re-enable the Korn shell. See Enabling the Korn shell on page 59 for more information.
34. Enter:

    `cd /olds`
35. Enter:

    `. ./olds-funcs`
36. Enter:

    `LOGFILE=/tmp/admin.log`
37. Enter:

    `touch /tmp/admin.log`
38. Enter:

    `BOOTDISK=c0t0d0`
39. Enter:

    `BOOTDISK2=c`*`X`*` t`*`X`*`d0`

    Where **`c`*`X`*** is the device controller number.

    Where **`t`*`X`*** is the device target number. The target number is the slot number for the hard drive.

    Example:

    - For a Enterprise 3000 system enter:

      `BOOTDISK2=c0t11d0`
    - For a Enterprise 3500 system enter:

      `BOOTDISK2=c1t4d0`
    - For a Sun Blade 100 system enter:

      `BOOTDISK2=c0t2d0`
40. Enter:

    `metattach d3 d32`
41. Enter:

    `metattach d2 d22`
42. Enter:

    `dumpadm -d /dev/dsk/${BOOTDISK}s1`
43. Enter:

    `rm -f /swap`

44. Enter:

    metattach d1 d12

45. Enter:

    check_errors 2

46. Enter:

    cd /

47. Verify that you are in the root directory by entering:

    pwd

    The system displays the following message:

```
/
```

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

    cpio -icmudvf -C 10240 -I /dev/rmt/*dev#* "dev/dsk" "dev/rdsk" "dev/dsk/*" "dev/rdsk/*" "etc/path_to_inst" "dev/md" "dev/md/*" "devices" "devices/*" "etc/system"

    Where ***dev#*** is the device name.

    The restoration, can take several hours. As the restore proceeds, the light-emitting diode (LED) on the tape drive will alternately flash and light steadily.

49. 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
```

50. Look for a `cm:` entry in the file. If a `cm:` entry is present, remove it.
51. Look for a `id:` entry in the file. If a `id:` entry is present, remove it.

52. Press **Esc**, and then enter:

    `:wq!`

53. Enter:

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

    The system reboots.

54. Log in to the system as **root**.

55. Change permissions to partition 4 by entering the following commands:

    `chown informix:informix /dev/rdsk/c0t0d0s4`

    `chmod 660 /dev/rdsk/c0t0d0s4`

56. Set the IDS environment by entering:

    `. /opt/informix/bin/setenv`

57. Enter:

    vi /opt/informix/etc/onconfig.cms

    The system displays the following message:

```
#**************************************************************************
#
#            INFORMIX SOFTWARE, INC.
#
#  Title:onconfig.cms
#  Description: Informix Dynamic Server Configuration Parameters for CMS
#
#**************************************************************************

# Root Dbspace Configuration

ROOTNAME  rootdbs   # Root dbspace name
ROOTPATH  /dev/rdsk/c0t0d0s4 # Path for device containing root dbspace
ROOTOFFSET 0        # Offset of root dbspace into device (Kbytes)
ROOTSIZE  190000    # Size of root dbspace (Kbytes)

# Disk Mirroring Configuration Parameters

MIRROR    1         # Mirroring flag (Yes = 1, No = 0)
MIRRORPATH/dev/rdsk/c0t11d0s4 # Path for device containing mirrored root
MIRROROFFSET 0      # Offset into mirrored device (Kbytes)

# Physical Log Configuration

PHYSDBS   physdbs   # Location (dbspace) of physical log
PHYSFILE  4000      # Physical log file size (Kbytes)

# Logical Log Configuration

LOGFILES  34        # Number of logical log files
LOGSIZE   2000      # Logical log size (Kbytes)
......................
......................
......................
VPCLASSPATH
```

58. If there is a path in the `MIRRORPATH` setting, delete it.
59. Change the `PHYSDBS` setting to:

    rootdbs

60. Change the `LOGFILES` setting to:

    3

61. Press **Esc**, and then enter:

    :wq!

    The system saves and exits the file.

62. Verify the file properties for the **onconfig.cms** file. The group and owner should be informix, and the permissions should be 644.

    a. If the file properties are not correct, enter the following commands:

    chown informix:informix /opt/informix/etc/onconfig.cms

    chmod 644 /opt/informix/etc/onconfig.cms

63. Enter:

    cd /

    Enter:

    cp /etc/system /etc/system.orig

64. Enter:

    cpio -icmudv -C 10240 -I /dev/rmt/*dev#* "etc/system"

    Where ***dev#*** is the device name.

65. Enter:

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

    The system reboots.

66. Log in as **root**.

67. Verify that the Informix parameters are set correctly. See Setting the Informix configuration parameters for CMS on page 237 for more information

68. Enter:

    oninit -i

    The system displays the following message:

```
This action will initialize Informix Dynamic Server 2000;
any existing Informix Dynamic Server 2000 databases will NOT be
accessible -

Do you wish to continue (y/n)?
```

69. Enter: **y**

70. Perform the following steps only if soft partitioning is enabled on a mirrored system:

    a. Enter:

    `swap -a /dev/md/dsk/d2`

    b. Enter:

    `dumpadm -d swap`

    c. To recreate any soft partitioning metadbs, enter:

    `/olds/olds -soft_part_mdbs`

    NOTE:

    If the swap partition is not being utilized, this step will fail. If this step does fail, enter the following command to verify the swap partition:

    `swap -l`

    The system should display the swap file as **/dev/md/disk/d2**.

    The swap device will need to be re-created if it has not been set up, or has been set up incorrectly.

71. Check the IDS software by entering:

    `onstat`

    The system displays several sets of data and an "`On-Line`" message.

```
Informix Dynamic Server 2000 Version X.XX.UCX     -- On-Line -- Up 00:00:55 -- 18432
....................
....................
....................
ixda-RA  idx-RA   da-RA    RA-pgsused lchwaits
4        0        47       51         0
```

72. Enter:

    `cmssvc`

    The system displays the CMS Services menu.

73. Enter **5** to select `disk_space`.

    The system displays the following message:

```
Initializing the boot disk (this may take several minutes!) ...

Disk_space_manager options 5) are:

  1) Add New Disks
  2) Initiate Mirroring
  3) Synch Primary and Mirror

Enter choice (1-3) or q to quit:
```

74. Enter **1** to add new disks.

    If the system displays the following message:

```
The choices for primary disks are:
...........
...........
...........
Enter choice (X-X) or q to quit:
```

75. Repeat Steps 72 through 74 for every hard drive the system displays.

    When all disks have been added, the system displays the following message:

```
All disks are currently administered for the system.
Finished Adding New Disks
```

76. Enter:

    `cd /olds`

77. Enter:

    `. ./olds-funcs`

78. Enter the following command for each set of mirrored disk pairs on the system:

    `copy_partition_image` *`primary_disk mirrored_disk`*

    Where the options for ***`primary_disk`*** and ***`mirrored_disk`*** are shown in the following tables.

Enterprise 3000 mirrored disk pairs:

primary_disk	*mirrored_disk*
c0t0d0	c0t11d0
c0t1d0	c0t12d0
c0t2d0	c0t13d0
c0t3d0	c0t14d0

Enterprise 3500 mirrored disk pairs:

primary_disk	*mirrored_disk*
c0t0d0	c1t4d0
c0t1d0	c1t5d0
c0t2d0	c1t6d0
c0t3d0	c1t7d0

Sun Blade 100 mirrored disk pairs:

primary_disk	*mirrored_disk*
c0t0d0	c0t2d0
c1t0d0	c1t2d0
c1t1d0	c1t3d0

79. Enter:

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

    The system reboots and displays the ok prompt.

80. Enter:

    boot -r

    The system reboots.

81. Log in as **root**.

82. Turn on IDS.

83. Choose one of the following procedures:

IMPORTANT:
It is preferred that CMS be set up from the flat file. The CMS setup information is found in the Unix flat file. This information is updated automatically when a CMSADM backup is performed. If updates have been made since the last CMSADM backup, it may be necessary to run CMS setup interactively.

- To set up CMS interactively.

  See Setting up CMS interactively from a terminal on page 183.

- To set up CMS from a Unix flat file.

  i. Enter:

  `uname -n`

  The system displays the Unix system name.

  ii. Record the Unix system name for use later in this procedure.

  _____

  iii. Enter:

  `vi /cms/install/cms_install/cms.install`

  iv. Verify that the second line has an entry for the unix system name. If it does not, add the unix system name you recorded in Step ii.

Example:

```
# Enter a name for this UNIX system (up to 256 characters):
cms3
# Select the type of backup device you are using
............
............
............
# Enter number of VDNs (0-Maximum):
```

  v. Press **Esc**, and then enter:

  `:wq!`

vi. Enter:

cmssvc

The system displays the CMS Services Menu.

vii. Enter **6** 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)
```

viii. Enter the number for the language used on the system.

The system displays a message similar to the following:

```
The input will be read from
  1) the terminal
  2) a flat file
Enter choice (1-2):
```

NOTE:

An additional option for a converter created setup file may be displayed on some systems

ix. Enter the number associated with the `flat file` option.

The system displays the following message:

```
*** The rest of this command is running in the background ***
```

x. 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.

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
................
................
................
Setup completed successfully Mon Nov  6 12:24:20 MST 2000
```

xi. Press **Delete** to break out of the `tail -f` command.

84. Enter:

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

The system reboots.

85. Log in to the system as **root**.

CAUTION:

Do not continue with this procedure until CMS setup is complete. If CMS setup is not complete, the system will not mirror correctly.

86. Enter:

`cmssvc`

The system displays the CMS Services menu.

87. Enter **`4`** to select the `run_cms` option.

88. Enter **`1`** to turn on CMS.

89. Enter:

`LOGFILE=/cms/install/logdir/admin.log`

90. Set the INFORMIX environment by entering:

`. /opt/informix/bin/setenv`

91. Enter:

    ```
    /cms/install/bin/ins_proc -l $LOGFILE -m
    ```

    Where `l` is the letter l.

    The system begins to resync the disks. This process can take several hours to complete.

    CAUTION:
    Do not reboot the system until the resync is complete. If you reboot the system before the resync is complete you will have to wait for Solaris to finish resyncing before resyncing Informix. The Solaris resync can take up to five hours.

92. Enter:

    ```
    /cms/install/bin/ins_proc -l $LOGFILE -M
    ```

    Where `l` is the letter l.

93. Enter:

    ```
    onstat -d | egrep “MD|PD|R|X”
    ```

    When the system displays only the command prompt as output, the mirroring and resync process is complete.

94. Restore the CMS data and verify the Free Space Allocation. See Verifying Free Space Allocation during a maintenance restore on page 320 for more information.

Upgrading a non-mirrored system to a mirrored system

To upgrade a non-mirrored system to a mirrored system, see Setting up a mirrored system on page 218.

IMPORTANT:
Before upgrading a system for mirroring, verify that all the hardware requirements and prerequisites for Setting up a mirrored system on page 218 have been met.

Troubleshooting

Overview

"Troubleshooting" provides solutions for common software related problems. Use these procedures to troubleshoot the Call Management System (CMS) software.

Contents

The following troubleshooting procedures are for all systems:

The following troubleshooting procedures are only for mirrored systems:

- About Mirrored Systems on page 481
- Troubleshooting an installation of the DiskSuite software on page 487
- Checking for disk recognition errors on page 493
- Common error messages with Mirrored Systems on page 499

NOTE:

When executing commands that take a long time to complete, (such as `cpio` commands), use the `nohup` command to ensure that the command will complete without interruption if the data line disconnects. An example of 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.

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

If you are reinstalling the X.25 software and license, and have misplaced your X.25 password:

IMPORTANT:
Solaris 8 installs packages 3 - 5 during the Solaris installation. If the X.25 software needs to be uninstalled, do not remove SUNWllc, SUNWllcr, and SUNWllcx.

1. Enter the following command to display the password:

   ```
   cat /etc/opt/licenses/licenses_combined
   ```

   If this file no longer exists, check the customer acceptance worksheet in Chapter 4, Turning the System Over to the Customer. If you still cannot find the password, you must call Sun license support to 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 Sun license support to obtain a permanent version of the X.25 license.
`hostname: Wrong hostid, exiting`	The hostid is wrong for the host name. This can happen if the boot ROM or motherboard is replaced.	Call Sun license support to obtain a new X.25 license key for this new hostid name.

`Starting the X.25 software - please wait`
`X.25 : Creating link XX....`
`X.25 : link XX has been started`
`Unable to get license, X.25 exiting`
`The network failed to come up correctly.`
	- The X.25 license password was entered incorrectly
	- The password was generated for the wrong hostid or hostname
	- The license manager process (lmgrd) did not start when you started CMS.
		- Enter the password correctly
		- Call Sun to reissue the password for the correct hostid or hostname
		- Check the license manager with the **`ps - ef | grep lmgrd`** command. If the lmgrd process is not running, restart the license manager with the **`/etc/rc2.d/S85lmgrd start`** command.

Recognizing new hardware devices

Purpose

Use this procedure if externally powered devices, such as disk drives and tape drives, are not recognized during a Solaris installation. This problem may occur if:

- the devices are not connected to power
- the devices are not turned on
- 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. Reboot the system by entering:

   `init 0`

2. To force the system to recognize the new components, enter:

   `boot -r`

   The system reboots.

3. Log in as **root**.

CMS error logs

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.

- 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. The system uses an internal load numbering (such as 3.1z).

Checking installed software packages

Overview

Use this procedure 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

To check what software packages are installed on your system:

- From the root prompt, enter:

  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> expected <cms> actual	After the installation and before setup.
/usr/lib/cms/pbxtrcflags	pathname does not exist	After the installation and before setup.
/cms/env/cms_mon/State_tbl	group name <bin> expected <other>actual	After the setup and before running cms.
/cms/install/logdir/admin.log	group name <root> expected <cms>actual	After the setup and before running cms.
/usr/lib/cms/pbxtrcflags	pathname does not exist	After the setup and before running cms.
/cms/env/cms_mon/State_tbl	group name <bin> expected <cms> actual	After running cms.
/cms/install/logdir/admin.log	group name <root> expected <cms> actual	After running cms.
/usr/lib/cms/pbxtrcflags	group name <bin> expected <cms> actual	After running cms.

Using the Alarm Admin tool

Overview

CentreVu Alarm Admin provides a graphical user interface to the CMS Alarm Origination Manager (AOM) feature. Authorized technical support personnel can use Alarm Admin to administer, view, save and resolve AOM alarms.

In addition, CMS customers can use Alarm Admin to view the list of current active AOM alarms. For instruction on viewing active AOM alarms, see Viewing, saving and resolving active alarms on page 427. Note that CMS customers do not have the ability to save or resolve alarms.

CMS technical support personnel who need to install and set up the AOM software on a CMS server should see Setting up the Alarm Origination Manager on page 232.

Running Alarm Admin

Alarm Admin can be run by either of two methods:

- from software installed locally on a client PC
- directly from the CMS server

Running Alarm Admin from a client installation

Alarm Admin software can be installed and run from the client PC. A connection between the client Alarm Admin application to the CMS server can be established either directly over the local area network (CMS customers) or by first establishing a remote modem dial-up connection and then starting the application (CMS technical support personnel).

Technical support personnel who are remotely accessing the CMS server must establish a point-point protocol (ppp) connection before Alarm Admin is started. Alarm Admin is launched by clicking on the button provided for that purpose in the Maestro **cmsalarms** tab.

Customers who connect to the CMS server over their local area network can start Alarm Admin by either clicking on the Alarm Admin icon on the desktop or selecting **Alarm Admin** from the Windows **Start** menu. Alternately, Alarm Admin can also be started by accessing the Alarm Admin installation directory and selecting the **startup.bat** file. Alarm

Admin users who logging in to the server from Alarm Admin. For log in instructions, see Logging in to Alarm Admin on page 420.

Running Alarm Admin directly on the CMS server

Alarm Admin can also be run directly on the CMS server.

To run Alarm Admin on the CMS server:

1. Log into the server and enter the following commands:

```
cd /opt/cc/aot/bin
. ./aom_env
. ./aomgui
```

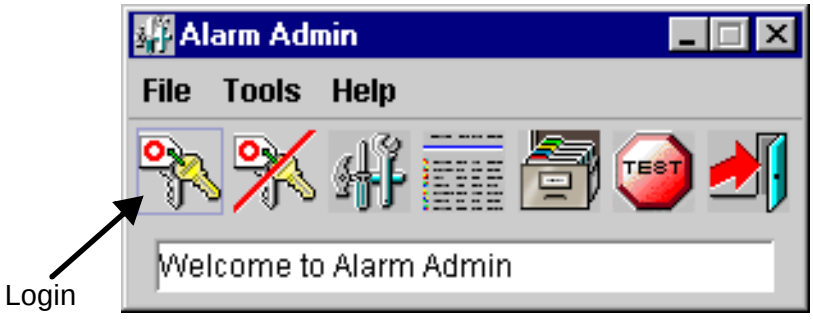
Logging in to Alarm Admin

Alarm Admin users are only required to log in to the CMS server when they are using a client-side Alarm Admin installation and connecting to the server over their local area network. Remote users who use a modem dial-up and establish a ppp connection to the CMS server, or customers who access the software directly on the CMS server, are not required to use the Alarm Admin login procedure.

Procedure

To log into Alarm Admin:

1. When the Alarm Admin application is launched, the main Alarm Admin dialog is displayed:



2. Select **File**, and then **Login**, or click the login icon on the toolbar.

   The Login Details dialog is displayed. The dialog presents three fields, for which the following information is required:

   - the server network address (server name)
   - Login ID (either cmssvc or other valid id)
   - Password

Alarm Administration tools

Alarm Admin provides the following basic user tools:

- **Alarm Administration -** allows for basic AOM administration of supported call center products, provides current status information for products and alarms, alarm enabling/disabling, administration and enabling/disabling of specific alarm types
- **Alarm Viewer** - allows you to filter and view alarms, save selected alarm records to a local file, and resolve active alarms so that they are cleared from the alarm list
- **Log Viewer -** allows you to filter, view and save information obtained from system error log files

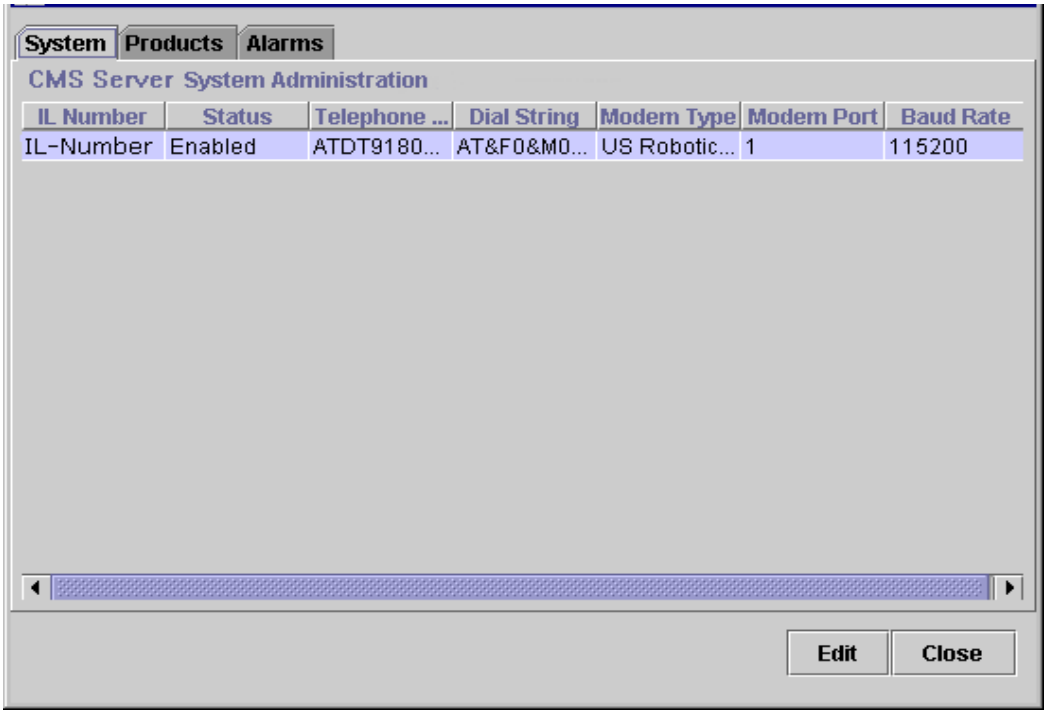
Alarm Administration functions

Alarm Admin includes an Alarm Administration tool that allows you to administer system, product and alarm parameters. To access the Alarm Administration window select Tools, and then Alarm Administration from the main Alarm Admin window.

The Alarm Administration window provides three dialogs used to administer AOM functions: System Administration, Products, and Alarms.

System administration

The System Administration dialog allows you to edit basic system configuration parameters related to the AOM system, such as the server IL number, modem type and dial-out number. The AOM system information associated with these functions are retrieved from the AOM system config file, **sysSetup.cfg** and displayed in the System Administration dialog.



The System Administration dialog includes the following fields:

- Alarm Server Name
- IL Number
- Status
- Telephone Number
- Dial String
- Modem Type
- Modem Port
- Baud Rate

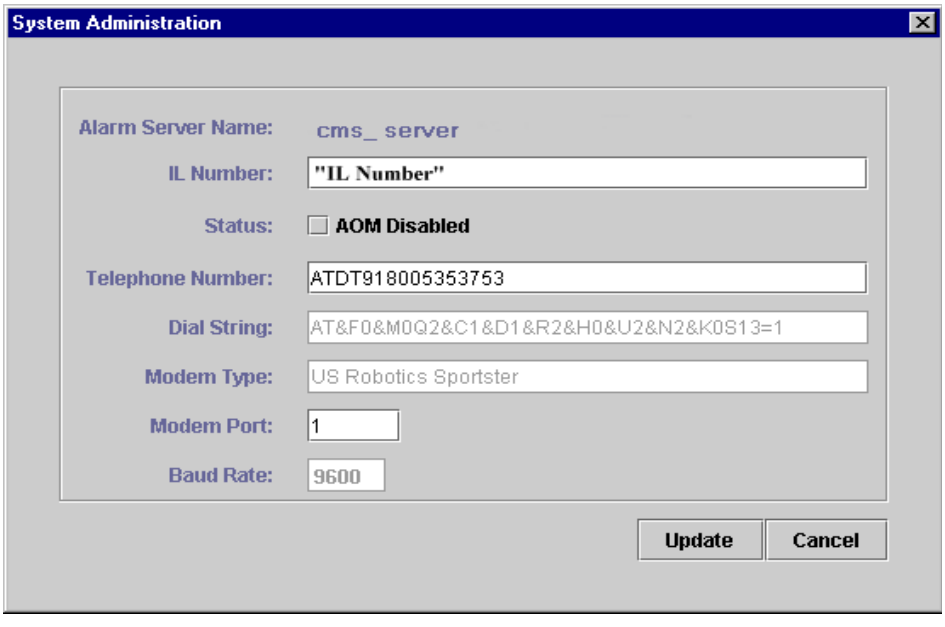
Editing AOM system configuration values

The configuration fields provided in the System Administration dialog should be edited only under special circumstances, such as when the modem telephone number or port number are changed.

To edit AOM system configuration fields:

1. In the System Administration dialog, click the **Edit** button, which is located near the bottom of the dialog window.

   The System Administration update dialog is displayed.



2. Enter input values in the appropriate fields and click the **Update** button.

   A warning dialog presents the following message:

   `System setup has been modified, please send a Test error.`

Product administration

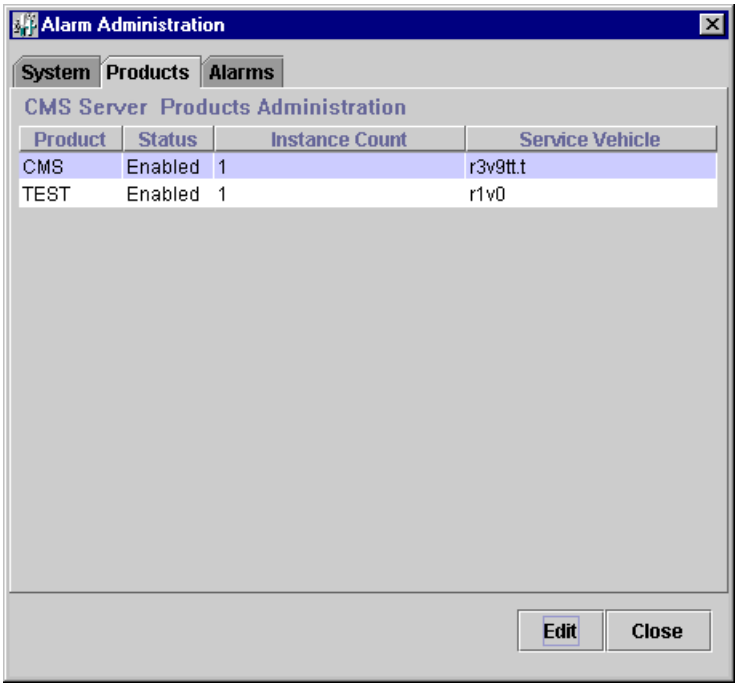
The Product Administration dialog provides basic information about the AOM product setup which is extracted from the AOM product config file, **prodSetup.cfg** and displayed in the Product Administration dialog. It also reports the current alarm status for both supported call center products (currently limited to CMS) and the test alarm function. Alarm enabling or disabling is also done from the Product Administration dialog.

Enabling or disabling AOM functions for an entire product

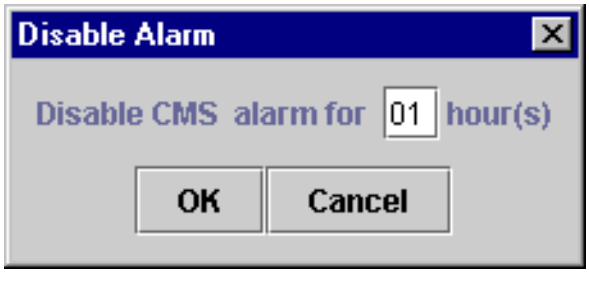
To enable or disable alarming for either an entire product or the test alarm function, perform the following steps:

1. In the Product Administration update dialog, click the mouse anywhere in the row of the product you wish to enable or disable and then click the **Edit** button.

   The Product Administration update dialog is displayed.



   Depending on the current alarm status of the selected item, either an **Enable** or **Disable** button will be displayed at the bottom of the dialog. If the **Disable** button is enabled, selecting it causes the Disable Alarm dialog to display:



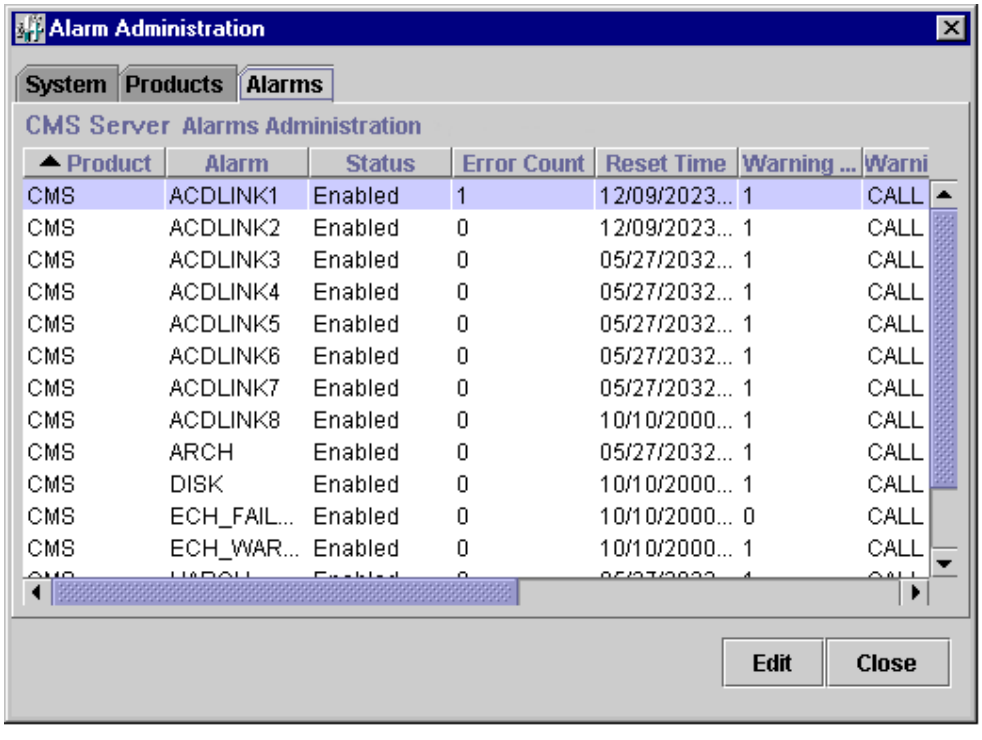
2. If the Disable Alarm dialog is displayed, enter a value in the **hour(s)** field and click the **OK** button.

CAUTION:

Input for the hour(s) field must consist of whole integer values ranging from 1 to 72. If you attempt to enter other, non-integer values, such as 0.5, Alarm Admin disables CMS alarms for 5 hours, instead of 0.5 hours. Similarly, if you attempt to enter a value of 1.5 hours, Alarm Admin disables CMS alarms for 15 hours.

Alarms administration

The Alarms Administration dialog presents current status and settings for each of the AOM alarm types supported by AOM and allows you to make global changes to any of them.



Product	Alarm	Status	Error Count	Reset Time	Warning ...	Warni
CMS	ACDLINK1	Enabled	1	12/09/2023...	1	CALL
CMS	ACDLINK2	Enabled	0	12/09/2023...	1	CALL
CMS	ACDLINK3	Enabled	0	05/27/2032...	1	CALL
CMS	ACDLINK4	Enabled	0	05/27/2032...	1	CALL
CMS	ACDLINK5	Enabled	0	05/27/2032...	1	CALL
CMS	ACDLINK6	Enabled	0	05/27/2032...	1	CALL
CMS	ACDLINK7	Enabled	0	05/27/2032...	1	CALL
CMS	ACDLINK8	Enabled	0	10/10/2000...	1	CALL
CMS	ARCH	Enabled	0	05/27/2032...	1	CALL
CMS	DISK	Enabled	0	10/10/2000...	1	CALL
CMS	ECH_FAIL...	Enabled	0	10/10/2000...	0	CALL
CMS	ECH_WAR...	Enabled	0	10/10/2000...	1	CALL

The fifteen alarm types currently supported by AOM include:

- ACDLINK # (1 through 8)
- ARCH
- DISK
- ECH_FAILURE
- ECH_WARNING
- ES_ALARM

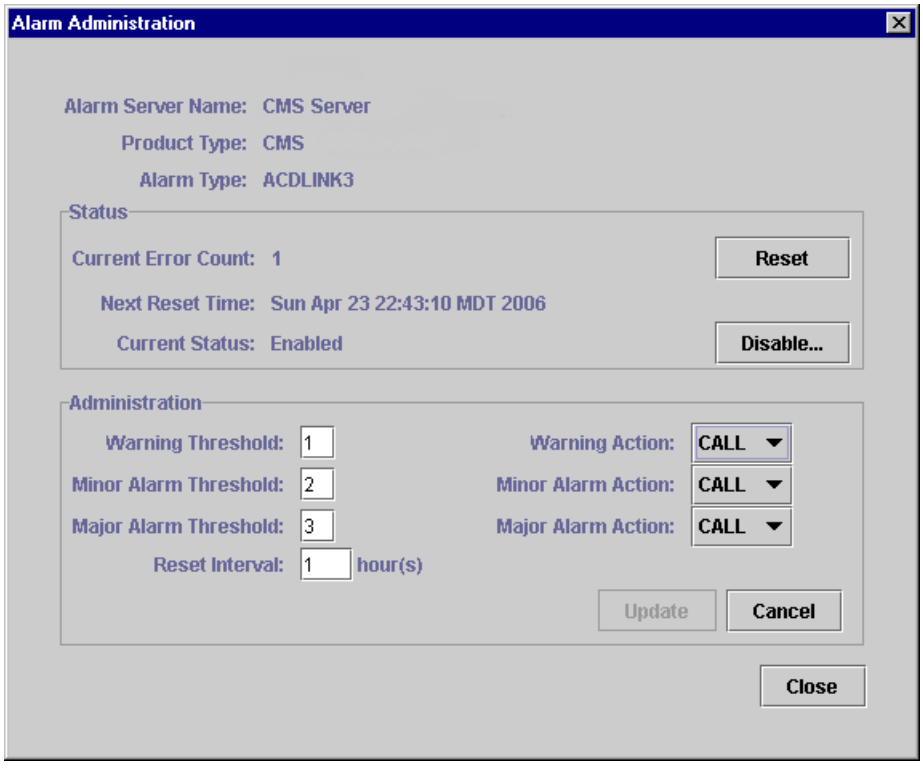
- HARCH
- TEST_ALARM

Editing an AOM alarm type

To change the status of an alarm type or change one or more of its settings, perform the following steps:

1. In the Alarms Administration dialog, either double-click anywhere in the row of a selected alarm type, or else highlight the row and click the **Edit** button.

   The Alarms Administration update dialog is displayed.



   The input fields and command buttons provided in this dialog are self-explanatory. The following modifications can be performed:

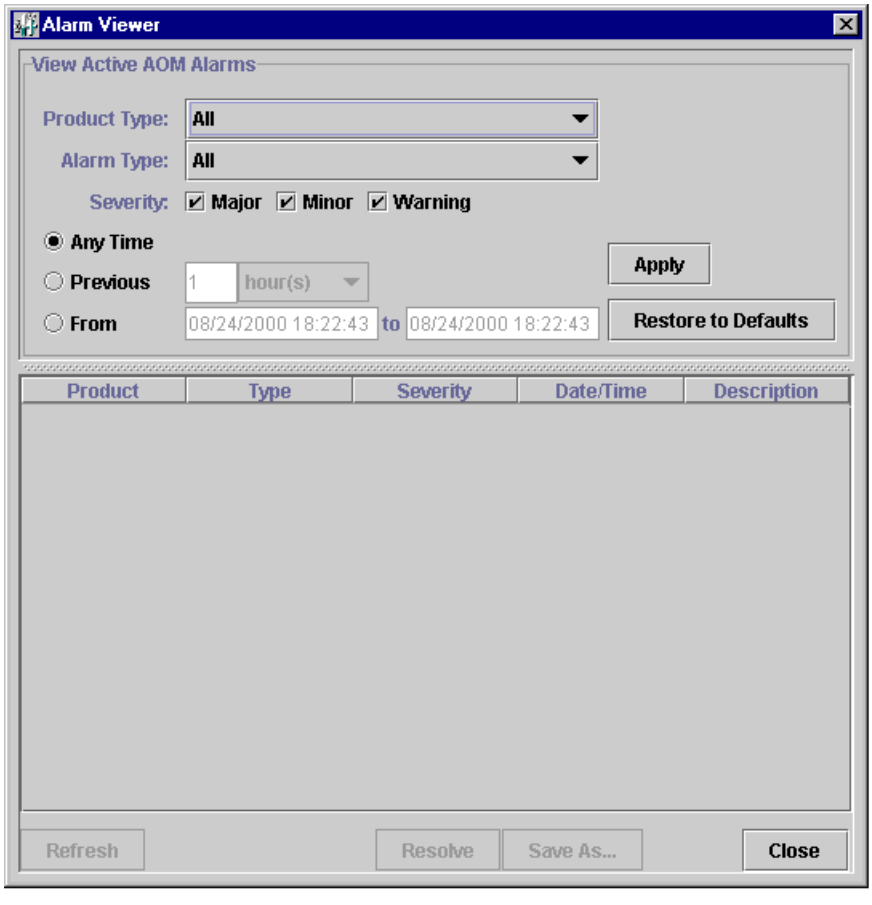
   - reset error count to zero
   - enable/disable alarm
   - change alarm thresholds (the incremental error count value that triggers an alarm action)
   - change alarm action (action values are none, log, call)
   - reset interval (elapsed time interval at which error count is reset to zero)

Viewing, saving and resolving active alarms

The Alarm Viewer tool allows you to:

- filter and view alarms
- save selected alarm records to a local file
- resolve alarms so that they are cleared from the alarm list.

To access the Alarm Viewer tool, select **Tools**, and then **Alarm Viewer**.



Filtering alarms

The initial Alarm Viewer display requires you to either select the filtering criteria appropriate for your needs or else accept the default filter settings. The default settings will display all alarm records that are currently active.

Alarms can be filtered according to the following criteria:

- Product type (all, CMS, or Test)
- Alarm Type
- Severity (major, minor, warning)
- Time, or time interval, of occurrence for alarm event

After you specify your filtering criteria or accept the defaults, click the **Apply** button. The current list of active alarms is displayed in the lower frame of the Alarm Viewer dialog. Listed alarms may be viewed, saved or resolved.

Manipulating the alarm list view

Information associated with the various alarms in the list can be sorted and rearranged in a number of ways. Alarms in the list can be sorted by keying on a specified field and arranging entries in that column in ascending or descending order. The ordering criteria is alphabetical or numerical, depending on the column used as the sorting key. In addition, the sequence in which individual columns appear can be rearranged.

To sort the alarm list on the basis of a specific field:

Click in the header cell for that field to activate the sorting function. Repeated clicks will invert the ordering.

To reorder entire columns:

Click in the header field for a selected column and drag the column to the position at which you want it to be displayed.

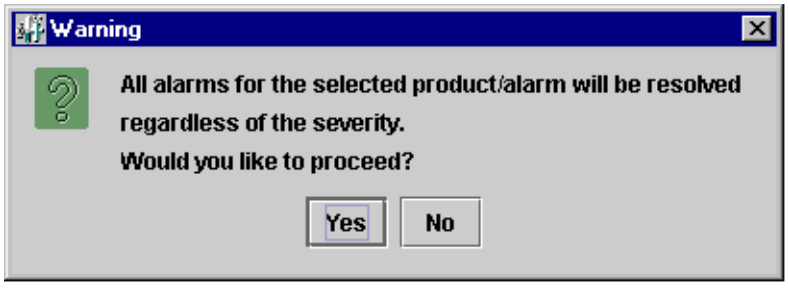
Saving alarm records

Alarm records can be selected and saved to a local file. Clicking anywhere within the row of a selected alarm selects all alarm records associated with that alarm type.

In addition, multiple alarm types can be selected concurrently by using either of the standard **Ctrl** + **left-click** or **Shift** + **left-click** selection modes.

Resolving alarms

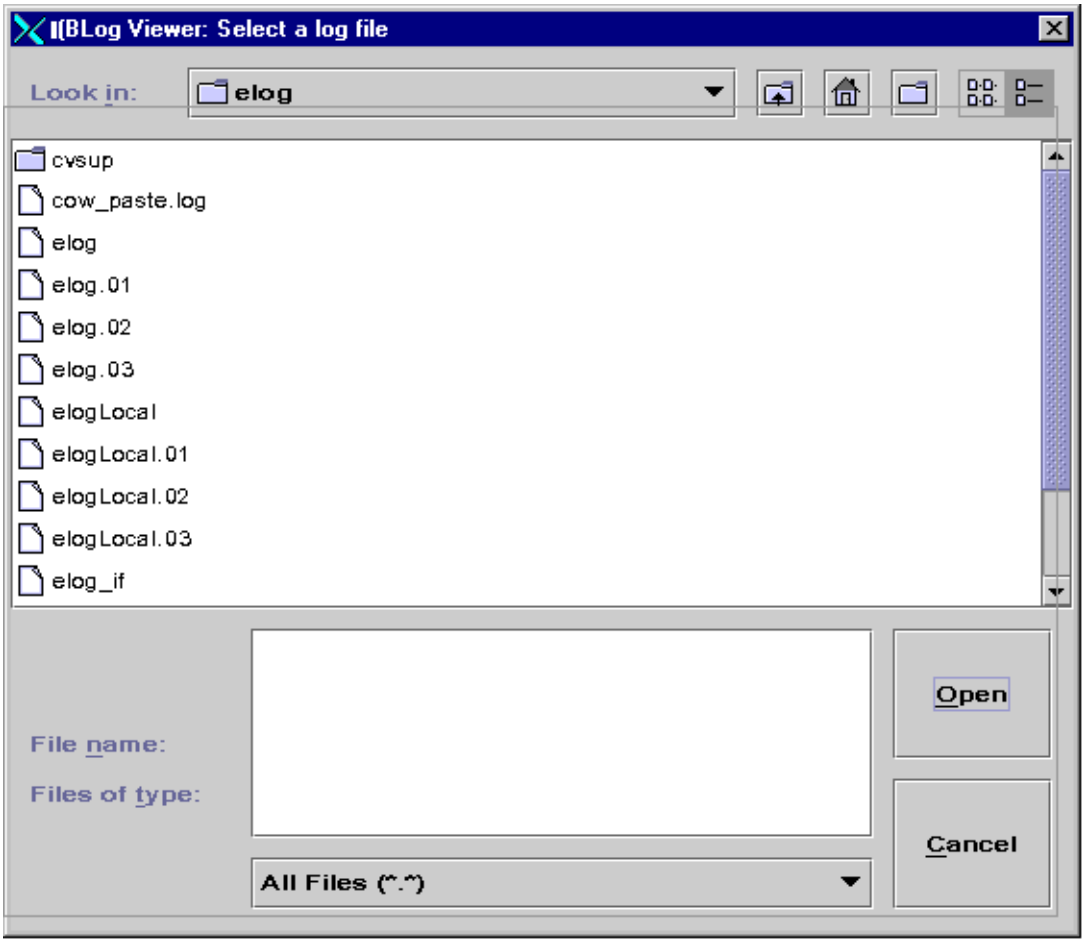
Alarm records can be resolved and cleared from the active alarm list be selecting an alarm type and clicking the **Resolve** button. When the Resolve function is invoked, the following Warning dialog is displayed:



Using the Log Viewer tool

The Log Viewer tool allows you to filter, view and save information obtained from system error log files. To access the Log Viewer dialog,

select **Tools**, and then **Alarm Viewer** from the main Alarm Admin window.

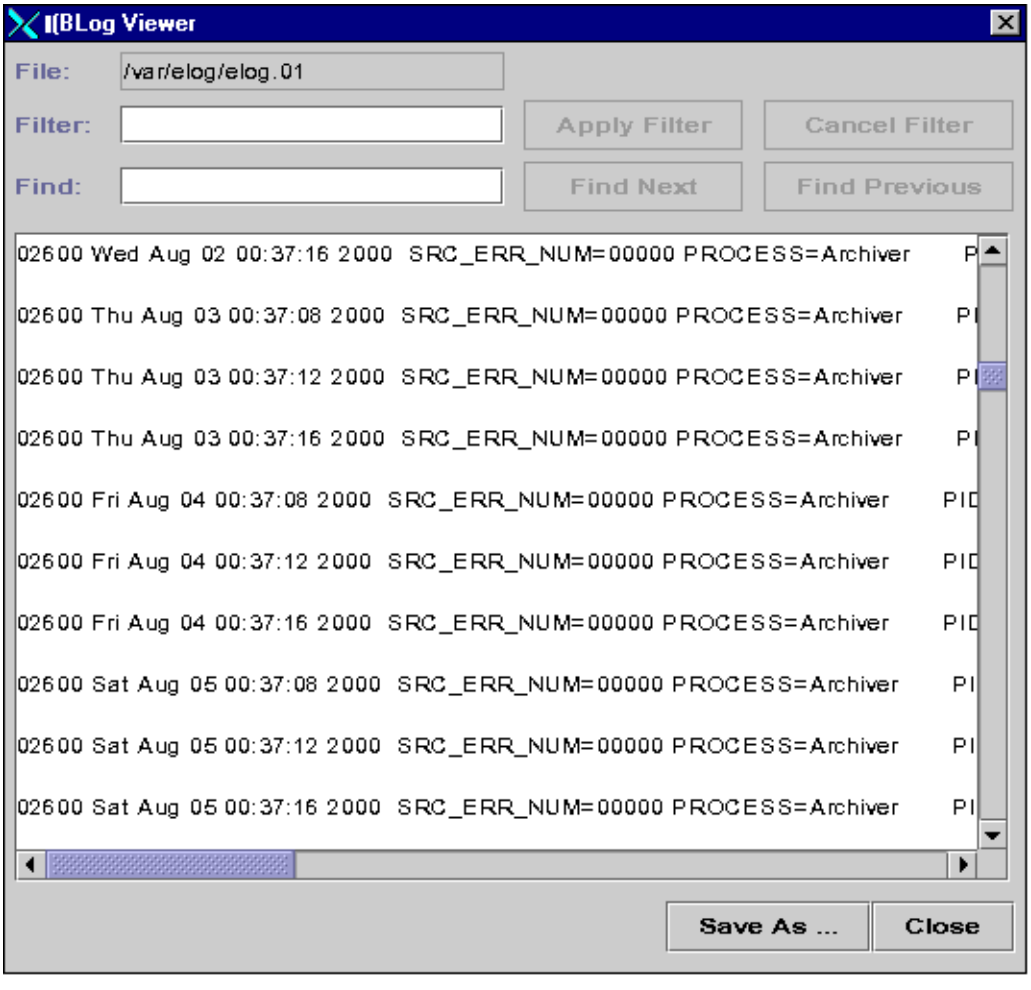


Log Viewer is initially set to the default path `/usr/elog`, but other system files can be accessed by using one of the following methods:

- navigating through the directory structure and double-clicking on the file of interest
- directly inputting the appropriate path and file name and then clicking the **Open** button or entering **Alt**+**O**.

Manipulating and saving log records

The Log Viewer display dialog presents the contents of the selected file, and provides file filter, search and save capabilities.



- To filter a log file for specific lines of text:

  Enter your filtering criteria in the **Filter:** field and click the **Apply Filter** button.

- To find specific text strings:

  Enter your search phrase in the **Find:** input field and click either the **Find Next** or **Find Previous** button.

- To save the contents of either an entire or filtered log file:

  Click the **Save As ...** button. When the **Log Viewer: Select a file to save** dialog displays, enter a file name and click the **Save** button or enter **Ctrl** + **s**.

Using the Advanced Debugging tool

The Advanced Debugging tool allows qualified personnel to configure and run a number of troubleshooting-related functions.

Debugging features include:

- trace activation
- trace levels specification (minimal-event, moderate-interface, verbose-debug)
- settings for total number of rollover files and file size

To access the Advanced Debugging feature, click **Tools**, and then **Advanced Debugging**

CAUTION:

The Advanced Debugging feature should be used only by qualified Services personnel. Any changes made using this tool may have a negative impact on system performance.

Troubleshooting a system that fails to auto-boot

Overview

Use this procedure if the system fails to automatically pass the boot prompt (stops at the **ok** prompt). When the system reboots, a boot environment variable may be set incorrectly.

Contents

Checking the boot environment variables

To check the boot environment variables:

1. Enter:

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

2. At the `ok` prompt enter:

   printenv

3. 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` or for the alternate boot device on a mirrored system `bootdevice2`.

Changing the boot environment variables

To change 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`

Diagnosing a machine panic

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`** command. See the hardware installation document for your platform, Appendix D, describing factory installation procedures for details.
- Output of the **`prtconf -pv`** command.
- 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. Enter:

   `cd /var/crash/`*`hostname`*

   The system changes to the **dump** directory.
3. Verify that `unix.n` and `vmcore.n` are present, and match the date for the crash in question.
4. Enter:

   `showrev -p > showrev.out`

   The system retrieves the output from the *showrev -p* buffer.
5. Enter:

   `dmesg > dmesg.out`

   The system creates a **dmesg.out** file.

6. Enter:

   `prtconf -pv>prtconf.out`

   The system retrieves the output from the *prtconf -pv* buffer.

7. Enter:

   `cp /var/adm/messages messages`

   The system copies the output from the **/var/adm/messages** file.

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 displays a list of all of the files.

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

    `rm unix.`*`X`*` vmcore.`*`X`*` dmesg.out showrev.out prtconf.out messages`

    Where the letter ***X*** represents the number of the crashdump.

    The system removes the temporary files.

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

"Using the remote console" consists of the following procedures:

Remote console ports

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

Hardware Platform	Port A	Port B
Sun Enterprise 3000 Sun Enterprise 3500	Remote Console	Switch Link (optional)
Sun Blade 100	Remote Console[1]	N/A
Sun Ultra 5	Switch Link (optional)	Remote Console

1. Port A is used exclusively for the remote console on a Sun Blade 100 system.

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

To redirect 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 tty*X*

   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 tty`*`X`*

   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
Proceding 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/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. 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 or exit 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:

     ```
     eeprom output-device=screen
     eeprom input-device=keyboard
     eeprom ttyX-rts-dtr-off=true
     eeprom 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 tty`*X*`-rts-dtr-off true`

  `setenv tty`*X*`-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 tty*X* port, enter:

   `/cms/install/bin/abcadm -k`

5. To start a port monitor on ttya, enter:

   `/cms/install/bin/abcadm -i -b 9600 tty`*X*

   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/abcadm -k`
6. To start a port monitor on tty*X*, enter:

   `/cms/install/bin/abcadm -i -b 9600 tty`*X*

   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. It often takes a person on-site to look at the dial-in access problems.

No ringing and answered responses

Problem:

You do not get the `RINGING` and `ANSWERED` responses displayed on the screen.

Solution:

Check the following:

- Port connectivity - Refer to the hardware installation document for your platform for more details.
- Modem setup - Refer to the hardware installation document for your platform for more details.
- Serial port administration - Refer to the hardware installation document for your platform for more details.

Answered and Connected responses do not display

Problem 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, Sun Blade 100, and Enterprise 3500
  - Port B to the Sun Ultra 5 platform

Problem 2:

The remote user gets `Answered` and `Connected` responses displayed on the screen, but no login.

Solution:

1. Perform *one* of the following actions to make sure that a monitor is running:
   - **`pmadm -l; sacadm -l`**
   - **`/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`

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

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 displays a message similar to the following example:

```
PMTAG           PMTYPE          FLGS RCNT STATUS     COMMAND
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 displays a message similar to the following 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.

   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 displays the following message:

```
cms2# pmadm -l
PMTAG          PMTYPE         SVCTAG         FLGS ID
<PMSPECIFIC>
ttymona        ttymon         ttya           u    root
/dev/term/a b - /usr/bin/login - n9600 ldterm,ttcompat login:
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/abcadm -i -b *baud* tty*X*

   Where ***X*** is **a** or **b**.
6. If the port monitor is running and is at the correct baud rate, try to fix the problem by disabling and then reenabling the port monitor. Enter the following commands:

   pmadm -d -p ttymona -s tty*X* /* disables */

   pmadm -e -p ttymona -s tty*X* /* reenables */

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

Login prompt is scrambled

Problem:

The dial-in gives you garbage characters instead of a login.

Solution 1:

Try pressing a few keys to see if the problem corrects itself.

Solution 2:

If the dial-in continues to display garbage characters instead of a *login*, check the baud rate of the remote console by doing the following:

1. Have an on-site person run the following command:

   `/cms/install/bin/abcadm -k`

2. Make sure the baud rate is consistent with the modem connected on-site and the modem and console at the remote site.

3. 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`*** **`tty`**`X`

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

   The system reboots.

4. If there is a baud rate inconsistency with the remote site, reconfigure the remote site and redial.

Solution 3:

If the dial-in continues to display garbage characters instead of a *login*, set the console back to local by switching to the local console via the OpenBoot method. See Using the remote console on page 437 for details.

Remote console port will not initialize

Problem:

The remote console port will not initialize for dialing in or dialing out.

Solution:

To correct this problem:

1. Enter:

   `sacadm -l`

   If the system status reports `NO_SAC`, the port is not working properly.

2. Enter:

   `/cms/install/bin/abcadm -i -b 9600 tty`*X*

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

   This should initialize the port. If the port does not initialize, continue with Step 3.

3. Enter:

   `/cms/install/bin/abcadm -r tty`*X*

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

   This removes the port administration.

4. Enter:

   `ps -ef | grep sac`

   This finds any SAC processes that are running. If any processes are found, continue with Step 5. Otherwise, continue with Step 6.

5. Enter:

   `kill -9 <pid>`

   Use this command to kill any SAC processes still running. Process numbers are represented by ***<pid>***.

6. Enter:

   `/usr/lib/saf/sac -t 300`

   This restarts SAC.

7. Enter:

   `sacadm -l`

   Confirm that SAC is running. The system should show `ENABLED`.

8. Enter:

   /cms/install/bin/abcadm -i -b 9600 tty*X*

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

   This should initialize the port.

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

To boot Solaris into single user mode:

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 performing the following procedure:

   a. Select a new window on the local console.

   b. In the new window, enter:

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

   c. On the remote console, enter:

      boot -s

Common problems with NTS administration

Overview

Use these procedures to solve some common problems with NTS administration.

Contents

"Common problems with NTS administration" contains the following procedures:

Version numbers do not match

Problem:

When you first start na it reports version R13.3, 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, the system displays an error similar to *cmsterm*<n> *not responding* 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 from the console terminal.

Serial port warnings

Problem:

The system displays warnings for serial port parameters such as input_buffer_size, 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 asks 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 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.

To repair the corrupt file:

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 NTS drivers on page 86.

5. Power cycle the NTS. Within 15 seconds, push the **Test Switch** button on the front of the NTS.

   The NTS perform hardware diagnostics, and the system displays the following message:

```
Monitor:
```

6. 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 displays the following message:

```
Annex network administrator R(current release number and date)
command:
```

10. From the `command:` prompt, enter:

    `annex cmsterm`*X*

    Where ***X*** is the number of the NTS.

    The system displays a message similar to the following example:

```
cmsterm(x): Annex-3UXR7, 64 ports

command:
```

11. From the `command:` prompt enter the following commands:

    `read`

    `/etc/local.admin/nts`*X*`info`

    Where ***X*** is 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 335.

Common problems using the CD-ROM drive

Overview

Use these procedures if you experience problems with the CD-ROM drive.

Contents

"Common problems using the CD-ROM drive" contains the following procedures:

CD-ROM drive fails to open

If CD-ROM drive fails to open when you press the eject button:

- 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 to **/** and repeat the `eject` command.

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.

To repair the driver pointers:

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 installation as you normally would.

Removing 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**
- switched users — **`su'd`** to **root** or **root2**
- 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 and the system displays a `cannot add another instance of CMS` message, either the CMS package was not removed or the removal was not completely successful.

To continue with the installation:

1. Enter:

   `pkgrm cms`

2. Enter:

   `cd /`

3. Restart the CMS installation.

CMSADM backup problems

If you receive an error message during a backup or recovery, refer to Common error messages on page 461.

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 displaying (wait 10 minutes or longer to make certain the software is not just copying a very large table).
- The tape is not spinning.
- The system has not displayed messages prompting you to change tapes or informing you that the backup has completed.
- Clean the tape drive with the appropriate tape cleaning kit. It may be necessary to repeat this process several times.
- If the tape drive is new, clean the drive several times with the appropriate tape cleaning kit before use.

If you encounter problems, call the National Customer Care Center at 1-800-242-2121.

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

To display system messages:

1. Enter:

   dmesg

   The system displays the most recent messages as shown in the following example:

```
Wed Feb 14 11:01:59 MST 2001
Feb 14 08:19:20 tern pseudo: [ID 129642 kern.info] pseudo-device: tod0
Feb 14 08:19:20 tern genunix: [ID 936769 kern.info] tod0 is /pseudo/tod@0
Feb 14 08:19:22 tern syslogd: going down on signal 15
...........
...........
...........
Feb 16 14:24:08 tern scsi: [ID 365881 kern.info] /pci@1f,0/pci@1/scsi@1,1/st@5,:
Feb 16 14:24:08 tern    <HP DDS-4 DAT (Sun)>
Feb 16 14:24:08 tern scsi: [ID 193665 kern.info] st12 at glm1: target 5 lun 0
Feb 16 14:24:08 tern genunix: [ID 936769 kern.info] st12 is /pci@1f,0/pci@1/scs0
Feb 19 10:17:59 tern automountd[198]: [ID 784820 daemon.error] server cortex nog
Feb 19 10:18:27 tern last message repeated 6 times
```

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 **/var/adm/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

Message: `<synonym name> begins with non-alpha character. Change name after migration. Look for synonym in synonym group`

Cause: Synonym names must begin with a letter in CMS R3V8 or later. The synonym `synonym name` does not begin with a letter and was migrated to CMS R3V9.

Resolution: List the synonym in the R3V9 Dictionary subsystem, and modify *`synonym name`* to begin with a letter.

Message: `Cannot find database item in dictionary: <name>`

Cause: The database item `item name` was not found in the R3V9 Dictionary.

Resolution: If you need the database item in a custom report, manually add it to the R3V9 Dictionary.

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 R3V9 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 R3V9 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 R3V9 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: `Date field being deleted because it goes beyond the width of report: row=<row> col=<col> width=<width>`

Cause: The length of the date field in the migrated real-time report exceeds 132 columns and cannot be migrated.

Resolution: Use the editor to add the field to the migrated report.

Message: `device: <devicename> cannot be setup, or does not exist...`

Cause: The disk you are trying to attach is turned off, does not exist, or was removed from the system.

Resolution: 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 **`boot -r`** command from the open boot prompt.

Message: `Dictionary collision: name='<name>' item_type='<cust_def>'`

Cause: There is already the same custom table with the same item name already defined in the Dictionary subsystem.

Resolution: 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.

Message: `Dictionary collision: name='<name>' item_type='<const>' formula='<value>'`

Cause: There is already a constant with the name but a different value.

Resolution: You need to enter the constant again and rename it.

Message: `Dictionary collision: name='<name' item_type='<calc>' formula='<calculation>'`

Cause: There is already a calculation with '*name*' as the name but with different contents.

Resolution: You need to enter the formula again and rename it.

Message:	`Dictionary collision: name='<column name>' table= '<table name>'`
Cause:	There is already a Dictionary item for this column in the same table.
Resolution:	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:	`Due to name collision, <item type> '<name>' (<username>) has been changed to <tempname>`
Cause:	The name of the migrated historical report, real-time report, timetable, or shortcut belonging to user `<username>` has been renamed `<tempname>` because of a collision with an already existing, identically named item in R3V9.
Resolution:	Rename the report to something more meaningful than `<tempname>`.

Message:	`Error in adding directory.`
Cause	The migration program could not add the home directory to the UNIX system.
Resolution:	Use the FACE program to add the login to the UNIX system.

Message:	`Error in adding <login ID> to UNIX.`
Cause:	The migration program could not add `<login ID>` to the password file.
Resolution:	Use the FACE program to add the login to the UNIX system.

Message:	`Error in adding <synonym name> to table.`
Cause:	The migration program could not add the synonym `<synonym name>` to the R3V9 Dictionary database.
Resolution:	List the names (synonyms) in the R3V9 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.

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 R3V9 Dictionary subsystem, and add the member 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 R3V9.

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: `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 R3V9 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: `Getting user input...`

Cause: Informational 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:	`Initializing temporary database tables...`
Cause:	Informational 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 R3V9 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 R3V9 system found permission information for a deleted user, so did not migrate the permissions.
Resolution:	No action required.

Message:	`metadb: <system: device:> has a metadevice database replica`
Cause:	There are already state database replicas existing on the indicated system and device.
Resolution:	No action required.

Message:	`Multiple repeat statements on different rows in this report. Can’t swap.`
Cause:	CMS R3V9 does not allow a vertically-repeated field to appear above another repeated field.
Resolution:	Use the R3V9 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: `<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 R3V9 Dictionary. Usually this occurs when a 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.

Resolution: Perform the following:

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 R3V9 Dictionary subsystem to correct the spelling. Note that if you correct the spelling, the calculation or database item may work in R3V9.

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 <rownumber>: where clause contains too many characters, <length>, maximum is 468.`

Cause: When the criteria for row search ID `rownumber` was migrated to R3V9, 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: `Terminated by user request?`
`User not administered on UNIX: user login`

Cause: The login `user login` was migrated to CMS R3V9 but does not exist as a login on the UNIX system.

Resolution: Users will be unable to log into CentreVu CMS R3V9 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 R3V9. 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 R3V9 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 R3V9.

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 R3V9. 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: `This report goes beyond the maximum number of rows (25).`

Cause: This is a quad report, which R3V9 does not allow. Only the first quadrant is migrated.

Resolution: To regain the other quadrants, you must create an R3V9 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 R3V9 report.

Resolution: Edit the custom report via the R3V9 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 migration program could not open the tape drive to read the 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 migration program could not open the tape drive to read the 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 R3V9 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 R3V9 Dictionary database when this migration was done.

Resolution: Modify the R2 VDN synonym name, and manually add it to the R3V9 Dictionary subsystem if necessary.

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 R3V9.

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 R3V9 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 R3V9.

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:

ABNRINGTIMEO_ABNRINGCALLS
ADJROUTETIMEO_ABNVECCALLS
BH_OBUSYCALLSO_BACKUPCALLS
BH_ODISCCALLSO_BUSYCALLS
HOLDABNTIMEO_CONNECTCALLS
INTERFLOWTIMEO_DISCCALLS
LOOKFLOWTIMEO_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 R3V9.

Resolution: Before trying to run the custom report, review and edit it to ensure accuracy.

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.

CMS disk partition values

Overview

The following partition information is provided for troubleshooting purposes. See Chapter 2 for specific instructions on setting up the Solaris disk partitions.

"CMS disk partition values" contains the following topics:

Boot disk partition values

The following Boot disk partition table on page 472 is for CMS R3V9 systems only.

NOTE:

The default size of the overlap file system is always the size of the entire disk. Do not change this value or slice name.

Boot disk partition table:

Disk slice	0	1	2	3	4	5	6	7
Slice name	/ **or** (blank) if alternate boot on mirrored systems	swap **or** (blank) if alternate boot on mirrored systems	*overlap*[1]	/cms	*(blank)*	*(blank)*	*(blank)*	*(blank)*
Flag	wm	wu	wm	wm	wm	wm	wm	wm
	Partition size							
18-GB	4096 MB or 4.0 GB	1024 MB or 1.0 GB	*(Do not change)*	3072 MB or 3.0 GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Remainder*[2]*)*
20-GB	4096 MB or 4.0 GB	1024 MB or 1.0 GB	*(Do not change)*	3072 MB or 3.0 GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Remainder)*
36-GB	4096 MB or 4.0 GB	1024 MB or 1.0 GB	*(Do not change)*	3072 MB or 3.0 GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Remainder)*

1. Occasionally the system will display the name of the *overlap* partition as *backup*. Do not change the slice 2 partition size or slice name. If the disk drive you are partitioning does not match one of these values, you have a non-standard disk. Report the issue to technical support.

2. To calculate the *(remainder)* in cylinders take the total number of cylinders on the disk, and subtract the starting cylinders for the last partition.

Non-boot disk partition values

The following Non-boot partition table on page 473 is for CMS R3V9 systems only.

NOTE:

The default size of the overlap file system is always the size of the entire disk. Do not change this value or slice name.

Non-boot partition table:

Disk Slice	0	1	2	3	4	5	6	7
Slice name	*(blank)*	*(blank)*	*overlap*[1]	*(blank)*	*(blank)*	*(blank)*	*(blank)*	*(blank)*
Flag	wm	wm	wm	wm	wm	wm	wm	wm
	Partition size in MB							
4.2-GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Do not change)*	*(Remainder*[2]*)*	-	-	-	-
8.4-GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Do not change)*	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Remainder)*	-	-
9.1-GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Do not change)*	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Remainder)*	-	-
18-GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Do not change)*	2048 MB or 2.0 GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Remainder)*
20-GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Do not change)*	2048 MB or 2.0 GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Remainder)*
36-GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Do not change)*	2048 MB or 2.0 GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	2048 MB or 2.0 GB	*(Remainder)*

1. Occasionally the system will display the name of the overlap partition as backup. Do not change the slice 2 partition size or slice name. If the disk drive you are partitioning does not match one of these values, you have a non-standard disk. Report the issue to technical support.

2. To calculate the (remainder) in cylinders take the total number of cylinders on the disk, and subtract the starting cylinders for the last partition.

Soft partitions

Overview

Soft partitioning is managed through DiskSuite as metadevices on partition 7. The soft partitions are automatically created through the `disk_space` option in the CMSSVC menu. Disk sizes smaller than 12 GB do not require soft partitions so only 18 GB and larger disks will contain any soft partitions. Soft partitioning will be available in CMS loads later than r3V9ah.

Numbering scheme for metadevices

The metadevice numbering scheme is represented as d*mnk*.

- Where d designates a metadevice.
- Where *m* is the numeric designation for the metadevice.
  - *m* = 1, 2, 3, 4, 5, or 6.
- Where *nk* is the number of the soft partition on the disk.
  - *n* indicates the type of disk
    - On a primary disk *n* = 0, 1, 2, 3, or 4
    - On a mirror disk *n* = 5, 6, 7, 8, or 9
  - *k* = 0, 1, 2, 3, 4, 5, 6, 7, 8, or 9.

NOTE:
Disk sizes smaller than 18 GB do not require soft partitions.

Examples:

Non-mirrored E3000 with 18-GB disks:

Disk	Slices 0 - 6 do not contain soft partitions	Slice 7 meta devices	
1 (c0t0d0)		d100	d101
2 (c0t1d0)		d200	d201
3 (c0t2d0)		d300	d301

Mirrored E3000 with 18-GB disks:

Disk		Slice 7 meta devices	
Primary 1 (c0t0d0)	Slices 0 - 6 do not contain soft partitions	d100	d101
Mirror 1 (c0t11d0)		d150	d151
Primary 2 (c0t1d0)		d200	d201
Mirror 2 (c0t12d0)		d250	d251
Primary 3 (c0t2d0)		d300	d301
Mirror 3 (c0t13d0)		d350	d351

Soft partition setup

Soft partitions are placed only on slice 7, the following tables show how slice 7 is partitioned on a boot and non-boot disk. The disk space on slice 7 is added in 2 GB soft partitions. Any disk space that is less than 2.0 GB is added as 256 MB soft partitions. Any remaining space that is less than 256 MB is not added.

Examples of soft partitions on a boot disk:

Metadevice (d*mnk*)	d*mn*0	d*mn*1	d*mn*2	d*mn*3	d*mn*4
18-GB	2.0 GB	256 MB	256 MB	256 MB	
20-GB	2.0 GB	2.0 GB	256 MB	256 MB	256 MB

Examples of soft partitions on a non-boot disk:

Meta device (d*mnk*)	d*mn*0	d*mn*1	d*mn*2	d*mn*3	d*mn*4	d*mn*5
18-GB	2.0 GB	2.0 GB	256 MB	256 MB	256 MB	
20-GB	2.0 GB	2.0 GB	2.0 GB	256 MB	256 MB	256 MB

Troubleshooting soft partitioning

Use the procedures in "Troubleshooting soft partitioning" to help determine any problems during the creation of soft partitions.

NOTE:

The screens in this section are representative of the typical output you would see on your system. The screens will vary depending on the type of platform and system configuration.

1. To determine if any soft partitions were set up, enter:

   `cat /cms/install/disk_mgr/mirror/softpartition`

   The system displays one of the following messages:

   - For a non-mirrored system:

```
d100 2097152
d101 2097152
d102 262144
d103 262144
d104 262144
d105 262144
d200 2097152
d201 2097152
d202 2097152
d203 262144
d204 262144
d205 262144
```

   - For a mirrored system:

```
d100 d150 2097152
d101 d151 2097152
d102 d152 262144
d103 d153 262144
d104 d154 262144
d200 d250 2097152
d201 d251 2097152
d202 d252 262144
d203 d253 262144
d204 d254 262144
```

2. Verify that erroneous soft partitions were not created, and that all soft partitions on a mirrored system are correctly matched up.

   Example of an erroneous file:

```
d100 d150 2097152
d101 d151 2097152
d102 d152 262144
d103 d153 262144
d104 d154 262144
d200 d250 2097152
d201 d251 2097152
d202 d252 262144
d203 d253 262144
d204 d254 262144
d205 2097152
d206 2097152
d207 2097152
d203 262144
d300 262144
d301 262144
```

   If errors are found, check the appropriate platform file for any inconsistencies (for example, extra lines or characters). The platform files are found at **/cms/install/disk_mgr/mirror/*platform***

   Where ***platform*** is the model of your CMS system.

3. To determine what metadevices exist, enter:

   `metastat -p`

   The system displays one of the following messages:

   - For a non-mirrored system:

```
d2 -m d21 2
d21 1 1 c0t0d0s1
d100 -p c0t0d0s7 -o 1 -b 4194304
d101 -p c0t0d0s7 -o 4194306 -b 4194304
d102 -p c0t0d0s7 -o 8388611 -b 524288
d103 -p c0t0d0s7 -o 8912900 -b 524288
d104 -p c0t0d0s7 -o 9437189 -b 524288
d105 -p c0t0d0s7 -o 9961478 -b 524288
d200 -p c0t1d0s7 -o 1 -b 4194304
d201 -p c0t1d0s7 -o 4194306 -b 4194304
d202 -p c0t1d0s7 -o 8388611 -b 4194304
d203 -p c0t1d0s7 -o 12582916 -b 524288
d204 -p c0t1d0s7 -o 13107205 -b 524288
d205 -p c0t1d0s7 -o 13631494 -b 524288
```

- For a mirrored system:

```
d1 -m d11 d12 1
d11 1 1 c0t0d0s0
d12 1 1 c0t2d0s0
d2 -m d21 d22 2
d21 1 1 c0t0d0s1
d22 1 1 c0t2d0s1
d3 -m d31 d32 1
d31 1 1 c0t0d0s3
d32 1 1 c0t2d0s3
d100 -p c0t0d0s7 -o 1 -b 4194304
d101 -p c0t0d0s7 -o 4194306 -b 4194304
d102 -p c0t0d0s7 -o 8388611 -b 524288
d103 -p c0t0d0s7 -o 8912900 -b 524288
d104 -p c0t0d0s7 -o 9437189 -b 524288
d150 -p c0t2d0s7 -o 1 -b 4194304
d151 -p c0t2d0s7 -o 4194306 -b 4194304
d152 -p c0t2d0s7 -o 8388611 -b 524288
d153 -p c0t2d0s7 -o 8912900 -b 524288
d154 -p c0t2d0s7 -o 9437189 -b 524288
d200 -p c1t0d0s7 -o 1 -b 4194304
d201 -p c1t0d0s7 -o 4194306 -b 4194304
d202 -p c1t0d0s7 -o 8388611 -b 524288
d203 -p c1t0d0s7 -o 8912900 -b 524288
d204 -p c1t0d0s7 -o 9437189 -b 524288
d250 -p c1t2d0s7 -o 1 -b 4194304
d251 -p c1t2d0s7 -o 4194306 -b 4194304
d252 -p c1t2d0s7 -o 8388611 -b 524288
d253 -p c1t2d0s7 -o 8912900 -b 524288
d254 -p c1t2d0s7 -o 9437189 -b 524288
```

4. Verify that the system recognizes all the soft partitions as metadevices.
5. To determine what metadevices are in use, enter the following commands:

   `. /opt/informix/bin/setenv`

   `onstat -d | egrep “md” | more`

   The system displays one of the following messages:

   NOTE:

   The 2 GB partitions are configured as eight 256 MB chunks.

- For a non-mirrored system:

```
cc18a28  166 4   0        1000000  999997            PO-   /dev/md/rdsk/d100
cc18b98  167 7   128000   128000   127997            PO-   /dev/md/rdsk/d101
cc18d08  168 7   0        128000   127997            PO-   /dev/md/rdsk/d101
cc18e78  169 33  256000   128000   127997            PO-   /dev/md/rdsk/d101
cc19018  170 33  384000   128000   127997            PO-   /dev/md/rdsk/d101
cc19188  171 7   512000   128000   127997            PO-   /dev/md/rdsk/d101
cc192f8  172 7   640000   128000   127997            PO-   /dev/md/rdsk/d101
cc19468  173 7   768000   128000   127997            PO-   /dev/md/rdsk/d101
cc195d8  174 7   896000   128000   127997            PO-   /dev/md/rdsk/d101
cc19748  175 7   0        128000   127997            PO-   /dev/md/rdsk/d102
cc198b8  176 7   0        128000   127997            PO-   /dev/md/rdsk/d103
cc19a28  177 7   0        128000   127997            PO-   /dev/md/rdsk/d104
cc19b98  178 7   0        128000   127997            PO-   /dev/md/rdsk/d105
cc19d08  179 7   0        128000   127997            PO-   /dev/md/rdsk/d200
cc19e78  180 7   128000   128000   127997            PO-   /dev/md/rdsk/d200
cc1a018  181 7   256000   128000   127997            PO-   /dev/md/rdsk/d200
cc1a188  182 7   384000   128000   127997            PO-   /dev/md/rdsk/d200
cc1a2f8  183 7   512000   128000   127997            PO-   /dev/md/rdsk/d200
cc1a468  184 7   640000   128000   127997            PO-   /dev/md/rdsk/d200
cc1a5d8  185 7   768000   128000   127997            PO-   /dev/md/rdsk/d200
cc1a748  186 7   896000   128000   127997            PO-   /dev/md/rdsk/d200
cc1a8b8  187 7   0        128000   127997            PO-   /dev/md/rdsk/d201
cc1aa28  188 7   128000   128000   127997            PO-   /dev/md/rdsk/d201
cc1ab98  189 7   256000   128000   127997            PO-   /dev/md/rdsk/d201
cc1ad08  190 7   384000   128000   127997            PO-   /dev/md/rdsk/d201
cc1ae78  191 7   512000   128000   127997            PO-   /dev/md/rdsk/d201
cc1b018  192 7   640000   128000   127997            PO-   /dev/md/rdsk/d201
cc1b188  193 7   768000   128000   127997            PO-   /dev/md/rdsk/d201
cc1b2f8  194 7   896000   128000   127997            PO-   /dev/md/rdsk/d201
cc1b468  195 7   0        128000   127997            PO-   /dev/md/rdsk/d202
cc1b5d8  196 7   128000   128000   127997            PO-   /dev/md/rdsk/d202
cc1b748  197 7   256000   128000   127997            PO-   /dev/md/rdsk/d202
cc1b8b8  198 7   384000   128000   127997            PO-   /dev/md/rdsk/d202
cc1ba28  199 7   512000   128000   127997            PO-   /dev/md/rdsk/d202
cc1bb98  200 7   640000   128000   127997            PO-   /dev/md/rdsk/d202
cc1bd08  201 7   768000   128000   127997            PO-   /dev/md/rdsk/d202
cc1be78  202 7   896000   128000   127997            PO-   /dev/md/rdsk/d202
cc1f018  203 7   0        128000   127997            PO-   /dev/md/rdsk/d203
cc1f188  204 7   0        128000   127997            PO-   /dev/md/rdsk/d204
cc1f2f8  205 7   0        128000   127997            PO-   /dev/md/rdsk/d205
```

- For a mirrored system:

```
cc02a28  34  10  384000   128000   127997            PO-   /dev/md/rdsk/d200
cc142f8  34  10  384000   128000   0                 MO-   /dev/md/rdsk/d250
cc02b98  35  10  256000   128000   127997            PO-   /dev/md/rdsk/d201
cc14468  35  10  256000   128000   0                 MO-   /dev/md/rdsk/d251
cc02d08  36  10  512000   128000   127997            PO-   /dev/md/rdsk/d201
cc145d8  36  10  512000   128000   0                 MO-   /dev/md/rdsk/d251
cc02e78  37  10  128000   128000   127997            PO-   /dev/md/rdsk/d200
cc14748  37  10  128000   128000   0                 MO-   /dev/md/rdsk/d250
cc03018  38  10  768000   128000   127997            PO-   /dev/md/rdsk/d200
cc148b8  38  10  768000   128000   0                 MO-   /dev/md/rdsk/d250
cc03188  39  10  512000   128000   127997            PO-   /dev/md/rdsk/d200
cc14a28  39  10  512000   128000   0                 MO-   /dev/md/rdsk/d250
cc032f8  40  10  640000   128000   127997            PO-   /dev/md/rdsk/d201
cc14b98  40  10  640000   128000   0                 MO-   /dev/md/rdsk/d251
cc03468  41  10  768000   128000   127997            PO-   /dev/md/rdsk/d201
cc14d08  41  10  768000   128000   0                 MO-   /dev/md/rdsk/d251
....................
....................
....................
cc15e78  53  9   640000   128000   0                 MO-   /dev/md/rdsk/d151
cc04748  54  8   0        128000   119977            PO-   /dev/md/rdsk/d101
cc16018  54  8   0        128000   0                 MO-   /dev/md/rdsk/d151
cc048b8  55  8   512000   128000   127997            PO-   /dev/md/rdsk/d101
cc16188  55  8   512000   128000   0                 MO-   /dev/md/rdsk/d151
cc04a28  56  9   768000   128000   127997            PO-   /dev/md/rdsk/d101
cc162f8  56  9   768000   128000   0                 MO-   /dev/md/rdsk/d151
cc04b98  57  9   896000   128000   127997            PO-   /dev/md/rdsk/d101
cc16468  57  9   896000   128000   0                 MO-   /dev/md/rdsk/d151
cc04d08  58  9   0        128000   127997            PO-   /dev/md/rdsk/d102
cc165d8  58  9   0        128000   0                 MO-   /dev/md/rdsk/d152
cc04e78  59  8   128000   128000   127997            PO-   /dev/md/rdsk/d101
cc16748  59  8   128000   128000   0                 MO-   /dev/md/rdsk/d151
cc05018  60  9   0        128000   127997            PO-   /dev/md/rdsk/d104
cc168b8  60  9   0        128000   0                 MO-   /dev/md/rdsk/d154
cc05188  61  9   0        128000   127997            PO-   /dev/md/rdsk/d103
cc16a28  61  9   0        128000   0                 MO-   /dev/md/rdsk/d153
cc05b98  68  10  0        128000   127997            PO-   /dev/md/rdsk/d202
cc1a468  68  10  0        128000   0                 MO-   /dev/md/rdsk/d252
cc05d08  69  10  0        128000   127997            PO-   /dev/md/rdsk/d203
cc1a5d8  69  10  0        128000   0                 MO-   /dev/md/rdsk/d253
cc0c8b8  110 10  0        128000   127997            PO-   /dev/md/rdsk/d200
cc1e188  110 10  0        128000   0                 MO-   /dev/md/rdsk/d250
```

NOTE:

On a non-mirrored system, d100 is assigned to dbtemp. On a mirrored system d100 and d150 are assigned to dbtemp.

6. Verify that IDS recognizes all the soft partitions.

About Mirrored Systems

Overview

The CMS system allows you to build a hard disk system containing two complete sets of data. Having such data redundancy greatly reduces the risk of data loss should a hard disk drive fail or your system crash.

While mirrors greatly reduce the risk of losing data, they are not meant to be a substitute for regular backups. Data can still become corrupt, and the corruption is then duplicated on the mirror. *Mirrored systems must be backed up just as often as unmirrored systems.*

Contents

"About Mirrored Systems" contains the following topics:

How CMS implements mirroring

CMS disk mirroring is done by using a combination of the DiskSuite and INFORMIX software. DiskSuite is used to mirror the root, /cms, and swap partitions. The remaining data is mirrored through INFORMIX.

Mirroring through INFORMIX

Chunks

A chunk is a unit of physical disk space used to store database data that is managed by IDS.

Dbspace

A dbspace is a logical unit that overlays the chunks. A dbspace can consist of one or more chunks.

A CMS system contains the following dbspaces:

- rootdbs
- physdbs
- logdbs
- dbtemp
- aasdbs
- cmsdbs
- freedbs
- acd1 through acd26

Cooked disk space

Cooked disk space contains regular operating system files. These files are organized and managed by the Solaris operating system. On a CMS system, the root, /cms, and swap partitions are cooked partitions. All other partitions are raw.

Raw disk space

Raw disk space contains data that is organized and managed by INFORMIX, not the Solaris operating system.

Mirroring

When mirroring is initiated on a CMS system, INFORMIX creates duplicate sets of data on the primary and mirror disks. All of the dbspaces and associated chunks are duplicated in their exact relative position on the mirror disk.

Mirroring through DiskSuite

State databases

The DiskSuite software tracks which disk partitions belong to which metadevices in a state database. A state database stores information on disk about the state of your Solstice DiskSuite configuration.

The state database consists of multiple copies of the basic database. The copies, referred to as state database replicas, ensure that the data in the database is always valid. Multiple copies of the state database will protect against data loss from single points-of-failure. The state database tracks the location and status of all state database replicas.

Solstice DiskSuite cannot operate until you have created the state database and its replicas. The software must have an operating 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 slices can be accessed only through the metadevice.

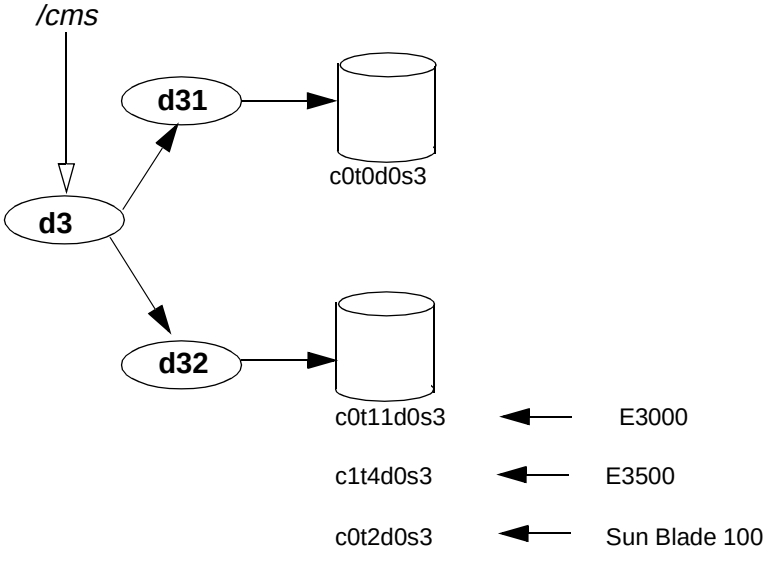
Mirrors

A mirror is a metadevice that can copy data from one metadevice to another. The metadevices containing the data are called submirrors. The process of copying the data between submirrors is called mirroring.

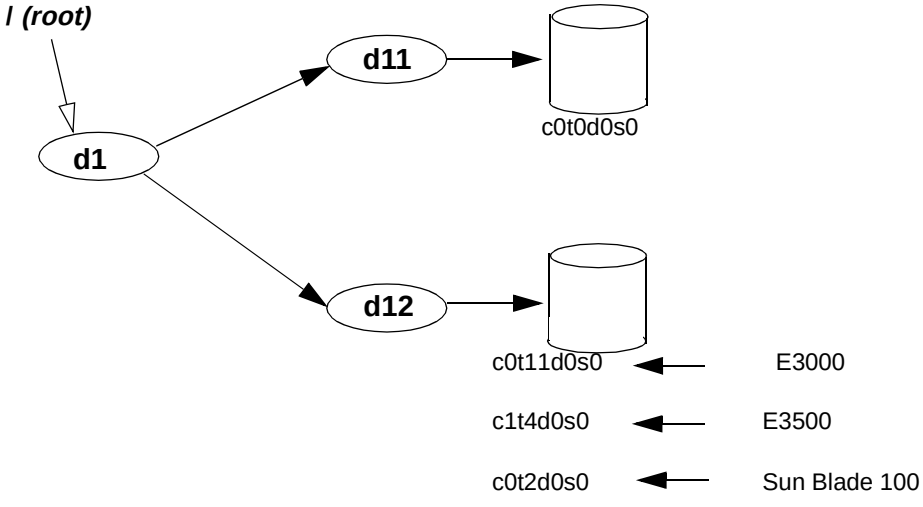
Slices

Solstice DiskSuite metadevices are built from slices (disk partitions). A system controlled by Solstice DiskSuite may contain any number of metadevices, each of which may comprise any combination of slices.

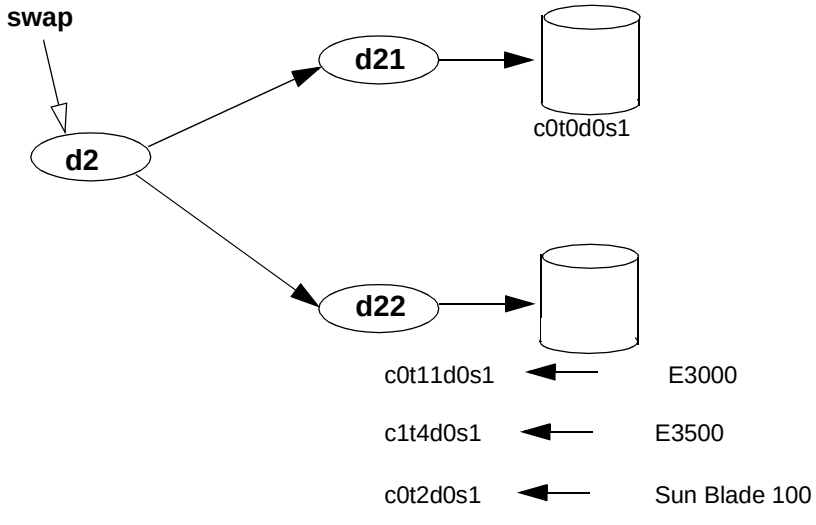
To implement disk mirroring, a metadevice d32 is created as a duplicate of d31, and the two metadevices are configured as submirrors of d3, as shown in the following example:



In a CMS computer system with */cms* mirrored, *root* is also mirrored. The root mirror is d1; its submirrors are d11 and d12. For example:



If your computer system is running CMS R3V9, your swap partition is also mirrored. The swap mirror is d2; its submirrors are d21 and d22. For example:



CMS supports only two-way mirrors. Disk concatenation is not supported.

Mirror layouts

Mirror layouts differ depending upon the hardware platform.

Drive Device Name

A hard drive device name can be represented as c*X*t*X*d*X*s*X.*

- Where c*X* is the device controller number.
- Where t*X* is the device target number. The target number is the slot number for the hard drive.
- Where d*X* is the device disk list number. On CMS systems this is always 0.
- Where s*X* is the device partition slice number for the hard drive.

Example:

A drive in slot 0 has the device name c0t0d0. The drive in slot 0 is always the primary boot disk.

Mirror layout on a Sun Enterprise 3000 computer

mirror d1 (/ *(root)* filesystem)		mirror d2 (swap partition) (CMS r3v9)		mirror d3 (*/cms* filesystem)	
submirror d11	**submirror d12**	**submirror d21**	**submirror d22**	**submirror d31**	**submirror d32**
c0t0d0s0	c0t11d0s0	c0t0d0s1	c0t11d0s1	c0t0d0s3	c0t11d0s3

Mirror layout on a Sun Enterprise 3500 computer

mirror d1 / *(root)* filesystem		mirror d2 swap partition (CMS r3v9)		mirror d3 */cms* filesystem	
submirror d11	**submirror d12**	**submirror d21**	**submirror d22**	**submirror d31**	**submirror d32**
c0t0d0s0	c1t4d0s0	c0t0d0s1	c1t4d0s1	c0t0d0s3	c1t4d0s3

Mirror layout on a Sun Blade 100 computer

mirror d1 (/ *(root)* filesystem)		mirror d2 (swap partition) (CMS r3v9)		mirror d3 (*/cms* filesystem)	
submirror d11	**submirror d12**	**submirror d21**	**submirror d22**	**submirror d31**	**submirror d32**
c0t0d0s0	c0t2d0s0	c0t0d0s1	c0t2d0s1	c0t0d0s3	c0t2d0s3

Troubleshooting an installation of the DiskSuite software

Overview

Use the procedures and tips in this section to help you identify and resolve problems with:

- CMS scripts that administer DiskSuite software
- physical disks
- metadevice
- **/cms** file system

Platform considerations

This procedure is for *mirrored systems* only.

Contents

Excessively long resync

When using metadetach and metattach to detach and then reattach a submirror, it may take a long time—sometimes hours—for resync to complete. You cannot do any maintenance (adding or replacing disks and so on) while the resync is in progress. That behavior is normal. Try again later.

Problems with CMS administration scripts

To verify that the Solstice DiskSuite software is installed:

1. Enter:

   `pkginfo -x|grep SUNWmd`

   The system displays a message similar to the following:

```
SUNWmdg         Solstice DiskSuite Tool
SUNWmdja        Solstice DiskSuite Japanese localization
SUNWmdnr       Solstice DiskSuite Log Daemon Configuration Files
SUNWmdnu        Solstice DiskSuite Log Daemon
SUNWmdr         Solstice DiskSuite Drivers
SUNWmdu         Solstice DiskSuite Commands
SUNWmdx         Solstice DiskSuite Drivers(64-bit)
```

2. If the Solstice DiskSuite software has not been installed, you will have to reinstall DiskSuite.
3. 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 Chapter 3.

   If you receive an error message from the `olds` script, see Problems with disk administration on page 492.

Disk I/O problems

Check the system console and the **/var/adm/messages** log for messages that indicate problems with a specific hard disk.

If a disk is generating errors, it may need to be replaced. For procedures related to recovering from disk crashes and replacing hard disk drives, see *CentreVu CMS Sun Blade 100 Workstation Hardware Installation, Maintenance, and Troubleshooting,* 585-310-783, *CentreVu Sun Enterprise 3500 Computer Hardware Installation, Maintenance and Troubleshooting,* 585-215-873, *CentreVu Sun Ultra 5 Computer Hardware Installation, Maintenance and Troubleshooting,* 585-215-871 and *CentreVu Call Management System Sun Enterprise 3000 and SPARCserver Computer Hardware, Maintenance and Troubleshooting,* 585-214-016 for additional maintenance information.

Checking metadevices

To verify that a metadevice is set up properly, perform the following procedure:

1. Enter:

   `metastat`

   The system displays the following message:

```
d3: Concat/Stripe
    Size: 1819440 blocks
    Stripe 0:
        Device              Start Block  Dbase
        c0t3d0s3                   0     No
```

2. To verify the metadevice 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 the disks in your system.

Checking the /cms file system

To check the **/cms** file system for errors:

1. Log in as **root**.
2. Enter the following:

   `vi /etc/vfstab`

   The system displays a message, which looks similar to the following example:

```
#device          device         mount         FS      fsck   mount   mount
#to mount        to fsck        point         type    pass   at boot options
#
#/dev/dsk/c1d0s2 /dev/rdsk/c1d0s2 /usr        ufs     1      yes     -
fd      -       /dev/fd fd      -       no     -
/proc   -       /proc   proc    -       no     -
/dev/dsk/c0t3d0s4       -       -       swap   -       no     -
/dev/dsk/c0t3d0s0      /dev/rdsk/c0t3d0s0     /       ufs    1      no        -
/dev/md/dsk/d3         /dev/md/rdsk/d3        /cms    ufs    2      yes       -
```

3. Add a pound sign (#) at the beginning of the `/dev/md/dsk/d3` line. This “comments out” that line.
4. Press **Esc** and enter:

   `:wq!`

5. Enter:

   `init 6`

   The system reboots.

6. When the system is back up, log in as **root**.

7. Check the **/cms** file system by entering:

   `fsck -y /dev/md/rdsk/d3`

   The system displays a message, which looks similar to the following example:

```
** /dev/md/rdsk/d3
** 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 system displays a message, which looks similar to the following example:

```
#device          device         mount         FS      fsck   mount   mount
#to mount        to fsck        point         type    pass   at boot options
#
#/dev/dsk/c1d0s2 /dev/rdsk/c1d0s2 /usr        ufs     1      yes    -
fd      -       /dev/fd fd      -       no    -
/proc   -       /proc   proc    -       no    -
/dev/dsk/c0t3d0s4       -       -       swap  -       no     -
/dev/dsk/c0t3d0s0      /dev/rdsk/c0t3d0s0     /       ufs    1      no        -
#/dev/md/dsk/d3        /dev/md/rdsk/d3        /cms    ufs    2      yes       -
```

9. Delete the pound sign (#) at the beginning of the `/dev/md/dsk/d3` line. This “uncomments” that line.

10. Press **Esc**, and enter:

    `:wq!`

11. Enter:

    `mount /cms`

    The system mounts the CMS file system.

12. If you have trouble mounting **/cms**:
    a. Verify that the **/cms** directory exists by entering:

       `ls -ld /cms`

    b. If **/cms** does not exist, enter the following command to create it:

       `mkdir /cms`

    c. Use the **`metastat`** command to determine the metadevice being used. Then verify that the entry for **/cms** in the **/etc/vfstab** file is correct. If you find any errors, correct them.

Problems with disk administration

In a system with the 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/lvm/md.cf** to verify that the Solstice DiskSuite software recognizes all the drives on your system. This applies to mirrored systems only.

- **/etc/vfstab** should name the d3 metadevice (*/dev/md/rdsk/d3*) 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/lvm/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 d3 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 493.

Checking for disk recognition errors

Overview

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

CAUTION:
Use this procedure only if the DiskSuite scripts indicate there is a disk recognition error.

Platform considerations

This procedure is for *mirrored systems* only.

Contents

Disk recognition errors on a Sun Blade 100

To check for disk recognition errors:

1. Reboot the system with an **`init 0`** command.

   The system reboots and displays the `ok` prompt.
2. Turn off the system.
3. Turn on the power the system.

   When you power on the system unit, the system begins to boot.

4. Interrupt the boot by pressing **Stop** + **A**.

   The system displays the `ok` prompt.

5. Enter:

   `setenv auto-boot? false`

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

6. Enter:

   `reset-all`

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

7. 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 )
         Removeable ATAPI Model: CRD-8240B

  Device 2  ( Secondary Master )
         Not present

  Device 3  ( Secondary Slave )
         Not present
```

8. 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@5/scsi@2,1

/pci@1f,0/pci@1/pci@5/scsi@2,1
Target 0
  Unit 0  Disk      QUANTUM VK4550J SUN18G8610
Target 4
  Unit 0  Removeable Tape     HP     C56P3A    C005
```

9. Verify that all of the disk drives are recognized.

   If the devices are still not recognized, see *CentreVu Sun Blade 100 Computer Hardware Installation, Maintenance, and Troubleshooting,* 585-310-783 for more information.

10. 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.

11. Enter:

    `boot -r`

    The system reboots.

12. Log in as **root**.

Disk recognition errors on an Enterprise 3500

To check for disk recognition errors:

1. Enter:

   `init 0`

   The system reboots and displays the `ok` prompt.

2. Turn off the system.
3. Turn on the system.

   The system begins to boot.

4. Interrupt the boot by pressing **Stop** + **A**.

   The system responds with the `ok` prompt.

5. Enter:

   `setenv auto-boot? false`

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

6. Enter:

   `reset-all`

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

7. Enter:

   probe-scsi-all

   The system verifies all available SCSI devices, and displays a message, which looks similar to the following example:

```
/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
```

8. Verify that all of the SCSI devices are recognized.

   If the devices are still not recognized, see *CentreVu Call Management System Sun Enterprise 3500 Computer Hardware Installation, Maintenance and Troubleshooting,* 585-215-873, for more information.

9. Enter:

   probe-fcal-all

   The system verifies all available fiber channel disk drives, and displays a message which looks similar to the following example:

```
/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
```

10. Verify that all of the fiber channel disk drives are recognized.

    If the disk drives are still not recognized, see *CentreVu Call Management System Sun Enterprise 3500 Computer Hardware Installation, Maintenance and Troubleshooting,* 585-215-873 for more information.

11. 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.

12. Enter:

    `boot -r`

    The system reboots.

13. Log in as **root**.

Disk recognition errors on an Enterprise 3000

To check for disk recognition errors:

1. Enter:

   `init 0`

   The system reboots and displays the `ok` prompt.

2. Turn off the system.

3. Turn on the system.

   The system begins to boot.

4. Interrupt the boot by pressing **Stop** + **A**.

   The system responds with the `ok` prompt.

5. Enter:

   `setenv auto-boot? false`

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

6. Enter:

   `reset-all`

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

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

   `probe-scsi-all`

   The system verifies all available SCSI devices, and displays a message, which looks similar to the following example:

```
/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
```

8. Verify that all of the disk drives are recognized.

   If the devices are still not recognized, see *CentreVu Call Management System Sun Enterprise 3000 SPARCserver Computer Hardware Installation, Maintenance and Troubleshooting,* 585-214-016 for more information.

9. When you have verified that the system recognizes 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.

10. Enter:

    `boot -r`

    The system reboots.

11. Log in as **root**.

Common error messages with Mirrored Systems

This section presents, in alphabetical order, the messages commonly associated with Solstice DiskSuite and disk mirroring on a CMS system. Each message is accompanied by its probable cause and the likely solution.

Error Messages

Message:	`disk diskname already setup, exiting...`
Explanation:	You are trying to attach a disk that is already attached or is part of the base configuration. No response is necessary.

Message:	`DiskSuite must be installed`
Explanation:	You must install the Solstice DiskSuite software package.
Response:	See Installing DiskSuite on page 106.

Message:	`/etc/system has been updated since the last reboot. CMS cannot run without an up-to-date /etc/system file.`
Explanation:	**/etc/system** can change when a particular Solaris patch is applied to the system or when state database replicas are removed and re-added during a boot disk replacement.
Response:	Reboot the system.

Message:	`Failed activating new replicas, replicas already active, or a second disk does not exist`
Explanation:	The system does not have all the replicas it needs to be functional (it needs at least three), or the replicas you attempted to create already exist.
Response:	Use **`metadb -i`** to verify that at least three replicas are active. If not, add replicas (see Chapter 3).

Error Messages (Continued)

Message:	`Failed: disk cxtyd0 or cx'ty'd0 already setup, exiting ...`
Explanation:	You are trying to set up a disk that is already a part of the configuration. You probably mistyped the name.
Response:	Set up the disk with the appropriate device name.

Message:	`metadetach: systemname: d21: resync in progress`
Explanation:	You cannot detach a metadevice while a resync is in progress.
Response:	Try again later. To find out how far along the resync has progressed, enter a **`metastat`** command.

Message:	`panic: vfs_mountroot: cannot mount root rebooting... resetting....`
Explanation:	The system is misconfigured.
Response:	There are two possible causes: 1. *You attempted to boot from a nonbootable device.* Check the device name and try again. The alternate boot device may be set up incorrectly. 2. *You failed to reboot after initiating mirroring* (`olds -mirrored`), leaving the system unstable. In that case, do the following: a. Boot from the CD. b. Mount */dev/dsk/c0t0d0s0 /a* (or whatever partition is your root partition). c. Remove Solstice DiskSuite entries from */a/etc/system* (i.e. everything between tags "mddb ...") d. Remove */a/etc/lvm/md** files, i.e.: `rm /a/etc/opt/SUNWmd/md*` e. Replace */dev/md/rdsk/d1* entries with */dev/rdsk/c0t3d0s0* (or whatever your boot device name is). f. Boot: **`/usr/sbin/shutdown -y -g0 -i6`** g. If the system still refuses to reboot, reload *Solaris*.

Error Messages (Continued)

Message:	`filename restored from filebackup`
Explanation:	The action failed, and the md.tab file was restored from the previous version. Consequently, the configuration files reflect the previous system setup.
Response:	Determine the cause of the problem and try again.

Message:	`resync in progress`
Response:	The command entered cannot be executed because the mirrors are currently being resynched. Try again later. You can tell whether a resync is in progress by entering a `metastat` command.

Message:	`stale databases`
Response:	The state database contains old information. Recreate the database.

Message:	`syntax error`
Response:	Check the syntax and usage of the command. Reenter the command, correcting syntax errors you have made.

Message:	`The DiskSuite Software must be installed to run this script.`
Response:	Install Solstice DiskSuite software before attempting to run this script.

Message:	`The file` *filename* `could not be restored.`
Explanation:	The previous action failed, and the **`md.tab`** or **`vfstab`** file could not be copied back. The existing files may not accurately reflect the system environment.
Response:	Check the file and repair it if necessary.

Message:	`The /cms filesystem needs to be mounted`
Explanation:	*/cms* must be mounted for the command to work.
Response:	Mount */cms* with the command: **`mount /cms`**

Error Messages (Continued)

Message:	This command may hang the system if a **Stop**+**A** or halt command has been executed. Please type reset-all to reset the system before executing this command. Do you wish to continue?
Response:	Perform the following: 1. Enter: **`N`** (to prevent the probe from continuing). 2. Enter: **`setenv auto-boot? false`** (to keep the system from rebooting) 3. Enter: **`reset-all`** The reset may take a minute to complete. Once it does, you may do the *probe-scsi* or *probe-scsi-all* and perform any other boot prom level diagnostics. **IMPORTANT!** 4. Before you reboot again, enter: **`setenv auto-boot? true`** Failure to do so will cause the reboot to stop at the boot prompt.

Message:	`touch: /cms/db/unix_start cannot create`
Explanation:	A CMSADM backup was done when CMS was still running. An attempt is made to restart cms, but cms files are not yet available.
Response:	No response required. The message will disappear after you have restored and migrated CMS.

Message:	`Unbalanced configurations not supported.`
Explanation:	You tried to set up a system with an odd number of disk drives, or you tried to add disks without having rebooted via a “**`boot -r`**” command.
Response:	If necessary, add another disk drive to make the drive count even. Then reboot the system with “**`boot -r`**”.

Error Messages (Continued)

Message:	`Warning: inode blocks/cyl group (230 >= data blocks (135) in lost cylinder group. This implies 2160 sector(s) cannot be allocated.`
Explanation:	Some sectors will not be used by the filesystem. This is just a warning; the filesystem should be fine.

Message:	`x25netd: failed to open driver /dev/hihx (Bad file number [n] )`
Response:	Enter the following command: **`/cms/toolsbin/lnSBusdev`**

Message:	`You must be root in order to run this command.`
Explanation:	You are not logged in as the *root* user, but you must be in order to run the command.
Response:	Log in as *root* and retry the command.

Glossary

Access Permissions Permissions assigned to a Call Management System (CMS) user so that the user can access different subsystems in CMS or administer specific elements (splits/skills, trunks, vectors, and so on) of Automatic Call Distribution (ACD). Access permissions are specified as read or write permission. Read permission allows the CMS user to access and view data (for example, run reports or view the Dictionary subsystem). Write permission allows the CMS user to add, modify, or delete data and execute processes.

ACD See Automatic Call Distribution (ACD)

Acknowledgment A window that requires the user to confirm an action or to acknowledge a system message (for example, system going down, warning, or fatal error for the user window). This window cannot be moved, sized, or scrolled and disappears only when the user confirms the message.

Action List A menu in the upper right corner of most user windows. The menu lists the actions available for that particular user window (for example, add, modify, delete, and so on). The user selects an action after entering necessary data in the window.

Add Package A Solaris operating system command (**pkgadd**) that allows you to add an additional software package.

ADU See Asynchronous Data Unit (ADU)

Agent A person who answers calls to an extension in an ACD split. This person is known to CMS by a login identification keyed into a voice terminal.

Agent Login ID A 1- to 4-digit number (Generic 2) or a 1- to 9-digit number (Generic 3) entered by the agent at the ACD extension to activate the position. Agent logins are required for all CMS-measured ACD agents.

Agent Skill The different types of calls a particular agent can handle. An agent can be assigned up to four skills. These skills are assigned as either primary or secondary skills. See “Primary Skill” or “Secondary Skill” definitions in this Glossary.

Agent State A feature of agent call handling that allows agents to change their availability to the system (for example, ACW, AVAIL, ACD).

Automatic Call Distribution (ACD)	A switch feature. ACD is software that channels high-volume incoming call traffic to agent groups (splits or skills). Also an agent state where the extension is engaged in an ACD call (with the agent either talking to the caller or the call waiting on hold).
Backup	The process of protecting data by writing the contents of the disk to a tape that can be removed from the computer and stored safely. A spare copy of data or software that you keep in case the original is damaged or lost. CMS provides three different types of backups: CMSADM File System Backup, CMS Full Maintenance Backup, and CMS Incremental Maintenance Backup.
Boot	To load the system software into memory and start it running.
Bus	A signal route to which several items of a computer system may be connected in parallel so that signals can be passed between them. In general, a multiconductor electrical path used to transfer information over a common connection from any of several sources to any of several destinations.
Cables	Wires or bundles of wires configured with adapters or connectors at each end and used to connect two or more hardware devices.
CLI **Call Level Interface**	A database programming interface from the Structured Query Language (SQL) Access Group, an SQL membership organization. Under CLI, SQL statements are passed directly to the server without being recompiled.
Call Management System Query Language (CMS-QL)	A relational database management (operating) system used to organize most of CMS's data. Automatically comes with CMS and runs in the background.
Call Vectoring	A highly flexible method for processing ACD calls using Vector Directory Numbers (VDNs) and vectors as processing points between trunk groups and splits or skills. Call vectoring permits treatment of calls that is independent of splits or skills.
Cartridge Tape	A 0.25-inch (6.35-mm) magnetic tape used in the tape drive of the Desktop Backup Pack and External Storage Module to read and write data.
CentreVu® CMS	CentreVu Call Management System (CMS). A software product used by business customers that have a Lucent Technologies telecommunications switch and receive a large volume of telephone calls that are processed through the Automatic Call Distribution (ACD) feature of the switch.
CMS	Call Management System. See *CentreVu®* CMS.
CMSADM	Call Management System Administration. The part of the CMS software that allows a user to administer features of CMS. See also "CMSSVC."

CMSADM file system backup A backup that saves all the file systems on the machine which includes *Solaris* 8 system and programs, CMS programs and data, and non-CMS data you place on the computer in addition to the CMS data. See the “Backup” definition for more details.

CMSSVC Call Management System Services. The part of the CMS software product that allows a user to manage CMS system services. See also “CMSADM.”

Command A command is an instruction used to tell the computer to perform a function or to carry out an activity.

Common Desktop Environment A desktop user interface for Solaris. This replaces OpenWindows.

Configuration Configuration is the way that the computer is set up to allow for particular uses or situations.

Copy Copy means to duplicate information.

Custom Reports Real-time or historical reports that have been customized from standard reports or created from original design.

Daemon Pronounced “demon.” A UNIX program that executes in the background ready to perform an operation when required. Usually unattended processes initiated at start-up, such as print spoolers, e-mail handlers or schedulers.

Data Collection Off CMS is not collecting ACD data. If you turn off data collection, CMS will not collect data on current call activity.

Database A group of files that store ACD data according to a specific time frame: current and previous intrahour real-time data and intrahour, daily, weekly, and monthly historical data.

Database Item A name for a specific type of data stored in one of the CMS databases. A database item may store ACD identifiers (split numbers or names, login IDs, VDNs, and so on) or statistical data on ACD performance (number of ACD calls, wait time for calls in queue, current states of individual agents, and so on).

Database Tables Tables that CMS uses to collect, store, and retrieve ACD data. Standard CMS items (database items) are names of columns in the CMS database tables.

Device The term used to refer to the peripheral itself; for example, a hard disk or a tape drive. A peripheral is sometimes referred to as a subdevice or an Logical Unit (LU).

Disk A round platter, or set of platters, coated with magnetic medium and organized into concentric tracks for storing data.

DSIMM	Dynamic random access memory Single In-line Memory Module. A small printed circuit card that contains Dynamic Random Access Memory (DRAM)
EAD	See Expert Agent Distribution (EAD)
EAS	See Expert Agent Selection (EAS)
ECC	See Error Correction Codes (ECC)
EIA	Electronic Industries Association. An organization that sets standards for consumer products and electronic components.
Error Correction Code (ECC)	A code that protects the customer's system and data from single bit soft errors that can occur frequently depending on the environment.
Error Message	An error message is a response from a program indicating that a problem has arisen or something unexpected has happened, requiring your attention.
Ethernet	A type of network hardware that allows communication between systems connected directly together by transceiver taps, transceiver cables, and a coaxial cable. Also implemented using twisted-pair telecommunications wire and cable.
Ethernet Address	A unique number assigned to each system when it is manufactured. The Ethernet address of your system is displayed on the banner screen that appears when you power on your system.
Exception	A type of activity on the ACD which falls outside of the limits the customer has defined. An exceptional condition is defined in the CMS Exceptions subsystem, and usually indicates abnormal or unacceptable performance on the ACD (by agents, splits or skills, VDNs, vectors, trunks, or trunk groups).
Expert Agent Distribution (EAD)	A call queued for a skill will go to the most idle agent (primary skill agent). Agents who are idle and have secondary agent skills will receive the call queued for a skill if there are no primary agents available.
Expert Agent Selection (EAS)	An optional feature that bases call distribution on agent skill (such as language capability). EAS matches the skills required to handle a call to an agent who has at least one of the skills required.
Forecast Reports	These reports display expected call traffic and agent or trunk group requirements for the customer's call center for a particular day or period in the future.
Gigabyte (GB)	One gigabyte equals 2^{30} bytes (1073741824 bytes).
Hand-Shaking Logic	A format used to initiate a data connection between two data module devices.
Hard Disk	A device that stores operating systems, programs, and data files.

High Speed Serial Interface (HSI) The HSI controller card is a 4-port serial communications card. Each of the four ports is used for a single physical X.25 link. It is an add-on package that is needed by CMS for multiple ACDs.

Historical Database Contains intrahour records for up to 62 days in the past, daily records for up to 5 years in the past, and weekly or monthly records for up to 10 years for each CMS-measured agent, split or skill, trunk, trunk group, vector, and VDN.

Historical Reports Reports that display past ACD data for various agent, split or skill, trunk, trunk group, vector, or VDN activities.

Host Computer A computer that is attached to a network and provides services other than simply acting as a store-and-forward processor or communication switch. The Sun SPARCserver or Sun Enterprise 3000 computer is your host computer and hosts the CMS application software.

Host Name A name that you (or your system administrator) assign to your system unit to uniquely identify it to the *Solaris 8* operating system (and also to the network).

Hung System A system that does not respond to input from the keyboard or mouse.

IDS See Informix Dynamic Server (IDS)

ITU See International Telecommunications Union (ITU)

INFORMIX A relational database management system used to organize CMS data. An add-on software package needed by CMS.

Informix Dynamic Server The relational database management system used with CMS Release 3 Version 9.

Install The procedures used to set up the hardware and software of a computer, terminal, printer, and modem so that they can be used. Installing often includes customizing the system for a particular situation or user.

Interface A common boundary between two systems or pieces of equipment.

International Telecommunications Union (ITU) Formerly the Consultative Committee for International Telephony and Telegraphy (CCITT). An international organization that sets communications standards.

Internet Protocol (IP) An integral part of the internet communication protocol system (see Transmission Control Protocol/Internet Protocol [TCP/IP]). The IP provides the routing mechanism of the TCP/IP. See also Network Address.

LAPB See Link Access Procedure Balanced (LAPB)

Link Access Procedure Balanced (LAPB)	The ITU standard error correction protocol used on most current X.25 packet switching networks.
Link	A transmitter-receiver channel or system that connects two locations.
Log In	The process of gaining access to a system by entering a user name and, optionally, a password.
Log Out	The process of exiting from a system.
Logical Unit	The term used to refer to a peripheral device such as a disk drive.
Measured	A term that means an ACD element (agent, split or skill, trunk, trunk group, vector, VDN) has been identified to CMS for collection of data.
Megabyte (MB)	One megabyte equals 2^{20} bytes (1048576 bytes).
Menu	A list of items from which the user can select one. A menu cannot be moved or sized and does not count in the user window count.
Multi-user Mode	A mode of CMS in which any administered CMS user can log into CMS. Data continues to be collected if data collection is “on.”
Network Address	A unique number assigned to each system on a network, consisting of the network number and the system number. Also known as Internet Address or Internet Protocol (IP) address.
Network Hub	Hardware that connects a computer to a Network Terminal Server (NTS).
Network Terminal Server (NTS)	A hardware terminal that connects to the Network Hub via cabling. The NTS provides 50-pin switch champ connectors used to attach 64 serial devices using the patch panel cables and patch panels.
Network Terminal Server Patch Panel	Hardware that has ports for connecting serial peripheral devices (for example, printers, terminals and modems). The NTS patch panel connects to the NTS via PBX-Champ cabling.
Non-Volatile Random Access Memory (NVRAM)	A random access memory (RAM) system that holds its contents when external power is lost.
NTS	See Network Terminal Server (NTS)
NVRAM	See Non-Volatile Random Access Memory (NVRAM)

Open Window A window that remains open because the user has not yet closed it with the “Exit” Screen Label Key (SLK). An open window becomes the current window when it initially appears on the screen or when the user makes it the current window using the “Current” SLK.

Operating System (OS) The software that controls and allocates the resources, such as memory, disk storage, and the screen display for the computer.

Partitions Sections of the hard disk that are used to store an operating system and data files or programs. By dividing the disk into partitions, you can use the space allocated in a more efficient and organized manner.

Password A character string that is associated with a user name. Provides security for a user account. Desktop computers require you to type a password when you log into the system, so that no unauthorized person can use your system.

Port (I/O Port) A designation of the location of a circuit that provides an interface between the system and lines and/or trunks.

Primary Skill An agent will handle calls to many skills before calls to secondary skills. See “Agent Skill” in this Glossary.

Primary Window The first window opened in response to a menu selection. A primary window may also generate another user window (secondary window). A primary window can be moved, sized, or scrolled, and counts in the window count.

Printer A physical device that takes electronic signals, interprets them, and prints them on paper.

Processor Interface (PI) A hardware device on the Generic 3i switches that prepares and sends architecture messages to other switches or application adjuncts.

QIC Quarter-Inch Cartridge

Recommended Standard (RS) Any one of several Electronic Industries Association (EIA) standards commonly used in U.S. electronic applications.

Refresh Rate The number of seconds CMS should wait for each update of the real-time report data. A user’s fastest allowable refresh rate is defined in the User Permissions — User Data window as a minimum refresh rate. The default refresh rate when a user brings up the report input window is the administered minimum refresh rate plus 15 seconds.

RISC Reduced Instruction Set Computer. A computer architecture that reduces chip complexity by using a simpler instruction set. RISC keeps instruction size constant, bans the indirect addressing mode, and retains only those instructions that can be overlapped and made to execute in one machine cycle or less.

RS	See Recommended Standard (RS)
RS-422	A balanced electrical interface (for example, RS-422 has a positive and a negative voltage). This interface is used by the HSI card.
RS-449	A 37-pin physical interface used by the HSI card.
SBus	The Input/Output bus for the Sun SPARCserver and Enterprise computers. Provides slots for additional cards (for example, HSI Controller Card).
SBus Expansion Subsystem	A peripheral device attached to a computer system. The SBus expansion subsystem provides three additional SBus slots and space for two optional SCSI hard disk drives. The SBus expansion subsystem consists of the following: the SBus expansion chassis, the expansion adapter card (in the computer system), and the SBus expansion subsystem cable.
Screen Labeled Key (SLK)	The first eight function keys at the top of the keyboard that correspond to the screen labels at the bottom of the terminal screen. The screen labels indicate the function each key performs.
SCSI	See Small Computer System Interface
SCSI Bus	An industry standard peripheral bus that is used to connect intelligent peripherals to a computer. It uses a daisy-chained cabling arrangement that originates at the Host Adapter to interconnect up to seven intelligent peripheral controllers on the bus. The Sun SPARCserver computer uses a fast SCSI-2 implementation.
SCSI ID	Each tap on the SCSI bus is required to have a unique identification or address, which is the SCSI ID. The ID is set by a switch located on each controller. In a Lucent Technologies' implementation, the Host Adapter card (with a SCSI ID of 7) is preset. The remainder can be set with external devices "push buttons." Users never have to open a chassis or touch a circuit-board switch.
SCSI Single-Ended Bus	A version of the SCSI bus designed to minimize cost and space. Cable lengths up to 6 meters are supported. It is not compatible with the differential version of the SCSI bus.
Secondary Skill	An agent will handle secondary skill calls after primary skill calls. See "Agent Skill" in this Glossary.
Secondary Window	A user window that is generated from a primary window. Secondary windows can be moved, sized, or scrolled and do not count in the user window count.
Serial Asynchronous Interface/PCI	A card that provides access to eight serial ports by connecting to an eight-port patch panel.

Single-User Mode A CMS mode in which only one person can log into CMS. Data collection continues if data collection is “on.” This mode is required to change some CMS administration.

Skill In relationship to the call center, think of skill as a specific customer need or requirement, or perhaps a business need of the call center.

SQL See Structured Query Language (SQL)

Slot An electronic connection designed to receive a module or a printed circuit board (such as a Single In-line Memory Module [SIMM] or a frame buffer board).

Small Computer System Interface (SCSI) A hardware interface that allows the connection of peripheral devices (such as hard disks, tape drives and CD-ROM drives) to a computer system.

Split A group of extensions that receive special-purpose calls in an efficient, cost-effective manner. Normally, calls to a split arrive over one or a few trunk groups.

Storage Device A hardware device that can receive data and retain it for subsequent retrieval. Such devices cover a wide range of capacities and speeds of access.

Structured Query Language (SQL) A language used to interrogate and process data in a relational database. SQL commands can be used to interactively work with a database or can be embedded within a programming language to interface to a database.

Submenu A menu that appears as a result of a menu selection. All menu selections followed by a “>” have submenus.

Subsystem Each CMS main menu selection (for example, Reports, Dictionary, System Setup, Exceptions, and so on), along with Timetable and Shortcut, is referred to as a subsystem of the Call Management System throughout this document.

Sun Enterprise System A series of host computer systems manufactured by Sun Microsystems Inc. The Sun Enterprise 3000 or 3500 computer is a platform used to support CentreVu® CMS R3V6 and later versions as a replacement for the discontinued Sun SPARCserver 10/20 platforms.

Super-user A user with full access privileges on a system, unlike a regular user whose access to files and accounts is limited.

Switch A private switch system providing voice-only or voice and data communications services (including access to public and private networks) for a group of terminals within a customer’s premises.

Syntax The format of a command line.

System A general term for a computer and its software and data.

Tap	A tap is any intelligent (microprocessor-based) controller connected to the SCSI bus.
Tape Cartridge	A magnetic piece of hardware that is used as a storage unit for data.
TCP/IP	See Transmission Control Protocol/Internet Protocol (TCP/IP)
TSC	Technical Service Center. The Avaya organization that provides technical support for Avaya products.
Transmission Control Protocol/Internet Protocol (TCP/IP)	A communications protocol that provides interworking between dissimilar systems. It is the de facto standard for UNIX systems.
Trunk	A telephone line that carries calls between two switches, between a Central Office (CO) and a switch, or between a CO and a phone.
Trunk Group	A group of trunks that are assigned the same dialing digits — either a phone number or a Direct Inward Dialing (DID) prefix.
UNIX System	The operating system on the computer on which CMS runs. A user can access the UNIX system from the “Commands” SLK. SUN uses Solaris as its UNIX operating system.
User ID	The login ID for a CMS user.
User Name	A combination of letters, and possibly numbers, that identifies a user to the system.
User Window	A window the user can move, size, or scroll. It may contain input fields, reports, or help information.
VDN	See Vector Directory Number (VDN)
Vector	A list of steps that process calls in a user-defined manner. The steps in a vector can send calls to splits, play announcements and/or music, disconnect calls, give calls a busy signal, or route calls to other destinations. Calls enter vector processing by way of VDNs, which may have received calls from assigned trunk groups, from other vectors, or from extensions connected to the switch.

Vector Directory Number (VDN)	An extension number that is used in ACD software to permit calls to connect to a vector for processing. A VDN is not assigned an equipment location; it is assigned to a vector. A VDN can connect calls to a vector when the calls arrive over an assigned automatic-in trunk group or when calls arrive over a dial-repeating (DID) trunk group, and the final digits match the VDN. The VDN by itself may be dialed to access the vector from any extension connected to the switch.
Write Permission	A mode of CMS that allows the CMS user to add, modify, or delete data and execute processes. Write permission is granted from the User Permissions subsystem.
X.25	An ITU communications protocol standard for packet switching networks that typically operates at 56 Kbps or less. An add-on software package that allows CMS to communicate with the switch using X.25 protocol.

Index

A

B

C

D

E

F

G

H

I

K

L

M

N

O

P

R

S

T

U

V

X

How Are We Doing?

Document Title: R3V9 Software Installation, Maintenance, and Troubleshooting

Document No.: 585-215-956

Issue No. Issue 4.0

Date: December 2001

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