Lucent Technologies
Bell Labs Innovations

CentreVu™ Call Management System

Release 3 Version 5

Sun® *Enterprise*™ 3000 System

Software Installation

585-215-836
Comcode 108048380
Issue 1
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CentreVu Call Management System
Release 3 Version 5
Software Installation

Table of Contents

Preface

Overview

This document—*CentreVu™ Call Management System Release 3 Version 5 Software Installation and Maintenance,* Issue 1 (585-215-836)—is written for technicians and Lucent Technologies call center customers who install and maintain the *CentreVu* Call Management System (CMS) using the *Solaris** 2.5.1 operating system.

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

Organization

This document is organized as follows:

- **Chapter 1 — Introduction**
  Provides an overview of the supported *CentreVu* CMS software, supported hardware platforms, required software, and supported switch releases. It also includes helpline information.
- **Chapter 2— Setting Up *CentreVu* CMS and Installing Feature Packages**
  Explains how to set up the *CentreVu* CMS application and install additional *CentreVu* CMS feature packages.
- **Chapter 3— Turning the System Over to the Customer**
  Provides the procedures that a technician performs before system cutover and a worksheet that the technician fills out for the customer.
- **Chapter 4— Troubleshooting**
  Discusses how to fix various software installation problems.
- **Chapter 5— Maintenance**
  Discusses CMSADM file system backups and other maintenance procedures.
- **Appendix A — CMSSVC and CMSADM Menus**
  Provides an overview of the CMSSVC and CMSADM menu options.
- **Appendix B — Factory Software Installation Procedures**
  Outlines the factory software installation procedures. A technician might use these procedures at a customer site if problems occur.

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CentreVu CMS Documents

The following documents are available for the *CentreVu* CMS R3V5 product:

- *CentreVu™ Call Management System Release 3 Version 5 Administration* (Volumes 1 and 2), *Issue 1* (585-215-820)
- *CentreVu™ Call Management System Release 3 Version 5 Real-Time and Historical Reports*, *Issue 1* (585-215-821)
- *CentreVu™ Call Management System Release 3 Version 5 Custom Reports*, *Issue 1* (585-215-822)
- *CentreVu™ Call Management System Release 3 Version 5 Change Description* — request the most current issue (585-215-823)
- *CentreVu™ Call Management System Release 3 Version 5 External Call History Interface, Issue 1* (585-215-824)
- *CentreVu™ Call Management System Release 3 Version 5 Forecast* (585-215-825)
- *CentreVu™ Call Management System Release 3 Version 5 Upgrades and Migration*, *Issue 2* (585-215-826)
- *CentreVu™ Call Management System Release 3 Version 5 Sun® SPARCserver™ Computers Installation and Maintenance* (Volumes 1 and 2), *Issue 1* (585-215-827)
- *CentreVu™ Call Management System Release 3 Version 5 Sun® SPARCserver™ Computers Connectivity Diagram, Issue 1* (585-215-828)
- *CentreVu™ Call Management System Release 3 Version 5 Sun® Enterprise™ 3000 System Installation and Maintenance, Issue 1* (585-215-837)
- *CentreVu™ Call Management System Release 3 Version 5 Sun® Enterprise™ 3000 Systems Connectivity Diagram*, *Issue 1* (585-215-838)
- *CentreVu™ Call Management System Release 3 Version 5 Documentation CD-ROM*, *Issue 1* (585-215-891).

To order, call the BCS Publication Center at **1-800-457-1235**.

Other *CentreVu* Documents

The following documents are available for the *CentreVu* Supervisor product:

- *CentreVu™ Supervisor Version 5 User Guide*, *Issue 1* (585-215-829)
- *CentreVu™ Supervisor Version 5 Installation and Getting Started, Issue 1* (585-215-830).
- *CentreVu™ Report Designer Version 5 User Guide, Issue 1* (585-215-831).

To order, call the BCS Publication Center at **1-800-457-1235**.

Chapter 1
Introduction

List of Tables

Overview

CentreVu™ Call Management System Release 3 Version 5 (*CentreVu* CMS R3V5) is a software application offered in association with the Automatic Call Distribution (ACD) feature of Lucent Technologies switches. The *CentreVu* CMS application provides monitoring and recording of ACD calls, agents handling these calls, and the use of Vector Directory Numbers (VDNs) for these calls to measure system and agent performance.

CentreVu CMS software supports the following features, which Lucent Technologies can enable at installation:

- Expert Agent Selection (EAS) (switch feature)
- Call Vectoring (switch feature and *CentreVu* CMS feature package)
- Forecasting Feature Package (*CentreVu* CMS)
- Graphics Package (*CentreVu* CMS)
- External Call History Package (*CentreVu* CMS)
- Multiple ACDs (*CentreVu* CMS).

Supported Hardware Platforms

CentreVu CMS R3V5 is certified to run on the following computers:

- *Sun*[*] *Enterprise*[†] 3000
- *Sun SPARCserver*[‡] 20
- *Sun SPARCserver* 10[§]
- *Sun SPARCserver* 5
- 3332[§]
- *StarServer*® S[§]
- 6386 WGS 33/S[§]
- 6386 WGS 25/S[§]

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‡SPARCserver is a trademark of SPARC International Inc.
§Supports *CentreVu* CMS R3V5 only as a bug fix.

Required Software

To operate properly, *CentreVu* CMS R3V5 requires the following software packages on the *Sun Enterprise* 3000 system:

- *Solaris*[*] 2.5.1
- Common Desktop Environment (CDE) 1.0.2
- HSI/S 2.0v1.37 (for systems having multiple ACDs)
- *INFORMIX*[†] 7.13
- *Network Terminal Server*[‡]
- *SunLink*[§] X.25 Network Interface Software, version 9.0 or later.
- *Solstice DiskSuite*[\] 4.0

Supported Switch Releases

The *CentreVu* CMS R3V5 is certified to run with the following Lucent Technologies switches:

- *DEFINITY* ® Communications System Generic 2.1 Release 3.3 (QPPCN 629DR) and later.
- *DEFINITY* Communications System Generic 2.2 Release 3.0 and later (QPPCN 696DR)
- *DEFINITY* Communications System Generic 3i Release 13.3 and later (QPPCN 576)
- *DEFINITY* Communications System Generic 3r Release 8.5 and later
- *DEFINITY* Communications System Generic 3s Release 14.2 and later
- *DEFINITY* Communications System Generic 3 Version 1
- *DEFINITY* Communications System Generic 3 Version 2 Load 82 and later
- *DEFINITY* Communications System Generic 3 Version 3
- *DEFINITY* Communications System Generic 3 Version 4
- *DEFINITY* Enterprise Communications Server Release 5

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AnswerBook Software

The *AnswerBook** software package is on-line documentation provided by *Sun Microsystems*†, Inc. To access the *AnswerBook* software package, you must be at the local system console (monitor) and have the CDE interface running. The *AnswerBook* software package uses the following pair of windows for browsing, searching, bookmarking, and printing on-line document collections:

- *AnswerBook Navigator* v3.5.1.
- *AnswerBook Viewer* v3.5.1.

The *AnswerBook* software installed on your system should include the following:

- *Solaris* 2.5 System Administrator Handbook
- *Solaris* 2.5.1 Supplemental System Admin *Answerbook*
- *Solaris* 2.5 Reference Manual *Answerbook*
- *Enterprise* 3000 Hardware *Answerbook*

If those packages are not installed on your system, see the “Installing the *Solaris AnswerBook* Software” section in Appendix B, “Factory Software Installation Procedures,” for details.

To save hard disk space, the data for the *AnswerBook* software package are not stored on the hard disk. To access the data, you must insert the Server Supplement 1.1 CD into the CD-ROM drive.

See the *AnswerBook Administration Guide* for more details.

Starting *AnswerBook* Software

To start the *AnswerBook* software, do the following:

1. Start the CDE interface. If the interface is not displayed, reboot the machine.
2. Remove the “Server Supplement 1.1’’ CD from its case and load it into the CD-ROM drive.
3. Select **one** of the following ways to access the *AnswerBook* software:
   - From a command window, enter the following command:

```
# answerbook
```

*Answerbook is a trademark of Sun Microsystems, Inc.
†Sun Microsystems is a trademark of Sun Microsystems, Inc.

- From the desktop:
  a. Click somewhere on the desktop (outside of an open window) to display the menu and menu options.
  b. Use the right mouse button to display the menus and make menu selections:

     From the **Workspace** menu, select the **Programs** option.

     From the **Programs** menu, select the **AnswerBook** option.

The *AnswerBook* Navigator window appears. This window allows you to locate the information you want and then display it in the *AnswerBook* Viewer window.

Navigating Through *AnswerBook* Software

1. To browse the contents of an *AnswerBook* software package, click on Contents, and continue to double click on areas you want to see.

   NOTE:

   To access the sections of the document you want to see, you can double click or single click on the topic, and click the View button.

2. To search for an item of interest:
   a. Click on the Search button.
   b. Enter the item to search for at the prompt.
   c. Press Back Space to search for a different item.
3. To delete the *AnswerBook* Viewer window:
   a. Select **Quit** at the Window menu.
4. To get to the Window menu:
   a. Click the cursor in the bar at the top of the window.
   b. Press the right mouse button.
   c. While holding down the right mouse button, select **Quit**.
5. To view a topic, select the **View** option to access the *AnswerBook* Viewer window.

   The *AnswerBook* Viewer window appears. This window allows you to read the documents you select in the *AnswerBook* Navigator window and to print them.

Exiting *AnswerBook* Software

To exit the *AnswerBook* software package, do the following:

1. Close each window by selecting **`Close`** from its window menu or by pressing the Open key on the keyboard (which toggles Open/Close).
2. Exit each window or icon by selecting **`Quit`** from its window menu.

   When you quit both the *AnswerBook* Navigator window and the *AnswerBook* Viewer window, you quit both the Navigator and the Viewer; quitting the *AnswerBook* Viewer window exits **only** the Viewer.

   NOTE:

   You can also use the keyboard equivalents that apply to all Desk Set applications to close or quit the Navigator and the Viewer.

3. At the system prompt, enter the **`eject cdrom`** command.

Roles and Responsibilities

This document was written for Lucent Technologies Technical Service Center (TSC) technicians, and *CentreVu* CMS administrators who want to install, set up, and maintain *CentreVu* CMS.

The installation of the prerequisite hardware and software should have been completed by the factory before the computer was shipped. The factory software installation procedures are in Appendix B.

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

Table 1-1: Task Responsibility

Chapter	Task	Tech	TSC	Customer
2	Setting authorizations		X	
2	Setting up data storage parameters		X	
2	Setting up the *CentreVu* CMS application		X	
2	Installing the Forecasting feature package			X
2	Installing the External Call History package			X
3	Verifying the system date and time	X		
3	Testing the *CentreVu* CMS connection to the TSC		X	
3	Testing the *CentreVu* CMS R3V5 software	X		
3	Turning the system over to the customer	X		
4	Solving *CentreVu* CMS-related problems	X	X	X
4	Solving installation-related problems	X	X	
4	Checking error logs	X	X	
5	Performing backups and restores			X
5	Checking installed software packages	X	X	

CentreVu CMS Helplines

If an installation problem arises that requires assistance, Lucent Technologies technicians or the customer may call the following numbers:

Customer Number

1-800-242-2121

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

The customer will be prompted to identify the type of problem (ACD, hardware, or R3V5 *CentreVu* CMS) and will be connected to the appropriate service organization.

Technician Number

1-800-248-1234

The technician should provide the TSC personnel with the customer's name, the password for the *root* login ID on the *Sun Enterprise* 3000 system, the phone number of the dial-in port, and a description of the problem.

If the TSC engineers cannot solve the problem, they will escalate it to the Customer Support Organization of Lucent Technologies.

International Support

For international support contact your Lucent Technologies Representative/Distributor for more information.

Chapter 2
Setting Up *CentreVu* CMS and Installing Feature Packages

Overview

Once the on-site technicians have finished the hardware installation, Technical Service Center (TSC) engineers set up the *CentreVu*™ Call Management System (CMS) application to work with the customer's configuration. If the customer has ordered additional *CentreVu* CMS feature packages, these need to be installed as well.

This chapter describes how to do the following:

- Set authorizations.
- Set up data storage parameters.
- Set up the *CentreVu* CMS application.
- Install the External Call History and Forecasting feature packages.

TSC engineers verify authorizations, set up data storage parameters, and set up the *CentreVu* CMS application remotely. On-site technicians should call the TSC to coordinate this process. Customers can install any additional *CentreVu* CMS feature packages that have been authorized.

Things to Do Before You Start

The TSC should check that the on-site technicians have completed the following tasks:

- Connected the console terminal to the *Sun** computer
- Connected the *Sun* computer to the TSC's Remote Maintenance Center (remote console)
- Connected additional terminals and printers to the network terminal servers
- Connected the link between the *Sun* computer and the switch

  NOTE:

  If the hardware link or the Automatic Call Distribution (ACD)/CMS feature is not properly administered, the *CentreVu* CMS software cannot communicate with the switch. For switch administration procedures, see *CMS R3V5 Sun Enterprise 3000 Hardware Installation and Maintenance* (585-215-837).
- Connected the network terminal servers and the *Sun Enterprise* 3000 computer to the network hub unit.

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Things to Know Before You Start

Throughout the setup, you will be prompted to enter values specific to the system being installed. For each question, an appropriate range is displayed in the format of (*XX-XX*). The individual values represented by *XX* specify the limits of each range.

The *CentreVu* CMS application must be installed before you can install the Forecasting or External Call History feature packages.

Setting Authorizations

Before TSC engineers can set up *CentreVu* CMS, they need to set authorizations for *CentreVu* CMS features purchased by the customer. Authorizations apply to all administered ACDs.

You can use the **auth_set** option in the *CentreVu* CMS Services (CMSSVC) menu to do the following:

- Set the purchased version of *CentreVu* CMS.
- Add authorizations to features.
- Increase the number of agents, ACDs, or Supervisor logins.
- Remove authorizations from the following:
  - Forecasting (if the package is not installed)
  - Vectoring (if no administered ACDs use vectoring)
  - Graphics
  - External Call History (if the package is not installed)
  - Expert Agent Selection (if no administered ACDs use Expert Agent Selection)
  - External Application
  - *CentreVu* Supervisor
  - *CentreVu* Report Designer.
- Reduce the maximum number of agents provided the total number of agents across all administered ACDs does not exceed the reduced number.
- Reduce the maximum number of ACDs provided the total number of all administered ACDs does not exceed the reduced number.
- Reduce the number of Supervisor logins.

To run the **auth_set** option, do the following:

1. Access the *CentreVu* CMS Services menu by entering the following command:

```
# cmssvc
```

   The program responds:

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

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

2. Enter **2** to select the **auth_set** option. The program responds:

```
Password:
```

3. Enter the appropriate password

NOTE:

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

The program responds:

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

NOTE:

This response only occurs the first time you run **auth_set** on the machine.

If you answer yes, the program responds (for example):

```
What version has the customer purchased?
1) R3V1
2) R3V2
3) Lucent Technologies CentreVu(TM) CMS R3V4
4) Lucent Technologies CentreVu(TM) CMS R3V5
Enter choice (1-4):
```

4. Enter the option number of the version the customer originally purchased. *If this is a bugfix load, do* not *select the r3v5 option.*

   NOTE:

   The program uses the above information to populate the “Purchased CMS Release” field of the *System Setup:Switch Setup* screen.

   The program continues with the following questions:

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

5. Enter **y** if the customer purchased Forecasting; otherwise, press Enter.

   The program responds:

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

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

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

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

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

8. Enter y if the customer purchased the External Call History feature; otherwise, press Enter. The program responds:

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

9. Enter **y** if the customer purchased the Expert Agent Selection feature; otherwise, press Enter. The program responds:

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

10. Enter **y** if the customer purchased the External Application feature; otherwise, press Enter. The program responds:

```
Enter the number of simultaneous Lucent Technologies
CentreVu(TM) Supervisor logins the customer has purchased
(0-250): (default: 0)
```

11. Enter the number of simultaneous logins purchased: The system responds:

```
Has the customer purchased Lucent Technologies CentreVu(TM)
Report Designer? (y/n): (default: n)
```

12. Enter **y** if the customer purchased report designer; otherwise, press Enter. The program responds:

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

The number represented by “xxxx” will be either 5200 (for *Intel* machines and *Sun* machines without *Solstice DiskSuite** software) or 10000 (for *Sun* machines with *Solstice DiskSuite* software).

13. Enter the maximum possible number of split/skill members that the customer might use based on the switch agent size purchased. “Split/skill members” are defined as the number of CMS-measured agent-split and agent-skill combinations logged in at the same time. Each split an agent logs into is an agent-split combination. Each skill assigned to an agent while logged in is an agent-skill combination. The numbers recommended are those in the following table:

Switch Agent Size Range Purchased	Provisioning for ACD Members (split/skill pairs)			
	NonEAS		EAS	
	INTEL / Sun* without *Solstice DiskSuite	***Sun* with *Solstice DiskSuite***	***INTEL / Sun* without *Solstice DiskSuite***	***Sun* with *Solstice DiskSuite***
0-12	100	100	500	500
0-25	100	100	500	500
0-50	200	200	1000	1000
0-100	400	400	2,000	2,000
0-300	1,200	1,200	5,200	6,000
0-600	2,400	2,400	5,200	10,000
0-max. agents	5,200	10,000	5,200	10,000

Note that the minimum size configuration for CMS is 0-25; that’s the reason groups 0-12 and 0-25 have the save provisioning. You should also note that the customer will be able to limit the split/skill

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RAM memory allocation to the size actually needed for the current configuration of agents and splits/skills. That is accomplished via the "Total split/skill members summed over all splits/skills" field, which is accessed through the **setup** option of the CMS Services menu.

The program responds:

```
Enter the maximum number of ACDs that can be installed (1-4):
(default: 1)
```

14. Enter the number of ACDs the customer purchased.
15. Verify that authorizations were set by entering:

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

The *admin.log* file contains information relating to *CentreVu* CMS administration procedures. The file should display the following message:

```
Capabilities/capacities authorized <date/time>
```

Setting Up Data Storage Parameters

TSC engineers modify specific data storage parameters on the *Sun SPARCserver* computer so the *CentreVu* CMS R3V5 application can operate properly. The *storage.def* file contains these data storage parameters which are default values.

The default values may not correspond to the system you are installing. Use the values determined by the Account Executive, System Consultant, and Design Center based on the customer configuration.

Do the following steps to set up the data storage parameters in the *storage.def* file:

1. Change to the */cms/install/cms_install* directory by entering:

```
cd /cms/install/cms_install
```

   If you delete or damage the *storage.def* file, you can find a copy of this file (*storage.skl*) in the same directory.

2. Edit the *storage.def* file, and enter the appropriate values for each question. Place the answer to each question on the line below the question.

   The *storage.def* file looks like the following screens:

```
# Information for ACD 1 and any ACDs created using acd_create
# command
# Intrahour interval (15, 30, 60 minutes):
30
# Week start day (Sunday, Monday, Tuesday, Wednesday, Thursday,
  Friday, Saturday):
Sunday
# Week end day (Sunday, Monday, Tuesday, Wednesday, Thursday,
  Friday, Saturday):
Saturday
# Daily start time (regular time):
12:00 AM
# Daily stop time (data will be collected for seconds of last
  minute):
11:59 PM
# Number of agent login/logout records (0-999999):
10000
# Number of agent trace records:
10000
# Number of call records (0-5000 internal or 0-99999 external):
0
# Number of exceptions records (1-2000):
500
# Days of intrahour for splits (1-62):
31
# Days of daily splits (1-1825):
387
# Weeks of weekly splits (1-520):
0
# Months of monthly splits (1-120):
0
# Days of intrahour for agents (1-62):
31
# Days of daily agents (1-1825):
387
# Weeks of weekly agents (1-520):
0
# Months of monthly agents (1-120):
0
# Days of intrahour for trunk groups (1-62):
31
# Days of daily trunk groups (1-1825):
387
# Weeks of weekly trunk groups (1-520):
0
```

```
# Months of monthly trunk groups (1-120):
0
# Days of intrahour for trunks (1-62):
31
# Days of daily trunks (1-1825):
387
# Weeks of weekly trunks (1-520):
0
# Months of monthly trunks (1-120):
0
# Days of intrahour for call work codes (1-62):
0
# Days of daily call work codes (1-1825):
0
# Weeks of weekly call work codes (1-520):
0
# Months of monthly call work codes (1-120):
0
# Days of intrahour for vectors (1-62):
31
# Days of daily vectors (1-1825):
387
# Weeks of weekly vectors (1-520):
0
# Months of monthly vectors (1-120):
0
# Days of intrahour for VDNs (1-62):
31
# Days of daily VDNs (1-1825):
387
# Weeks of weekly VDNs (1-520):
0
# Months of monthly VDNs (1-120):
0
# Information for ACD 2
   .

   .

   .
```

The file repeats the previous statements for ACDs 2 through 4.

3. After entering the appropriate values, write and quit the file.

After the *CentreVu* CMS application is running, the System Administrator can change the data storage parameters using the Data Storage Allocation window in the System Setup subsystem. See the *CentreVu™ CMS R3V5 Administration* (585-215-820) document.

Setting Up the *CentreVu* CMS Application

Prerequisites: You must be logged in as *root*, the computer must be in run-level **2** or **3**, and all file systems must be mounted.

You can set up the *CentreVu* CMS feature package using one of two methods:

a. **Interactively from a Terminal** — Using the interactive option, the program prompts you for the necessary information to set up the *CentreVu* CMS application (for example, system type, number of agents, trunks, vectors, VDNs, etc.).

   To set up the *CentreVu* CMS application using this option, see the "Setting Up *CentreVu* CMS Interactively from a Terminal'' section in this chapter.

b. ***UNIX*** System Flat File** — Using the flat file option, you edit a *UNIX* System flat file containing the necessary information (for example, system type, number of agents, trunks, vectors, VDNs, etc.) to set up the *CentreVu* CMS application. When you execute the program, it runs in the background and uses the *UNIX* System flat file data to set up the *CentreVu* CMS application. To set up the *CentreVu* CMS application using this option, see "Setting Up *CentreVu* CMS Using a *UNIX* System Flat File'' in this chapter.

Setting Up *CentreVu* CMS Interactively from a Terminal

Do the following steps to set up *CentreVu* CMS interactively from a terminal:

1. Access the *CentreVu* CMS Services menu by entering:

```
# cmssvc
```

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The program responds:

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

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

2. Enter the number of the *setup* option.

   The program responds:

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

3. Enter the host name of the computer. The name was assigned during the factory installation procedures and is used by the TSC to maintain and identify this specific *CentreVu* CMS.

   The program responds:

```
Select the type of backup device you are using
   1) SCSI QIC-150 cartridge tape - 150MB tape
   2) SCSI QIC-60 cartridge tape - 60MB tape
   3) 14.0 Gbyte 8mm tape
   4) 5.0 Gbyte 8mm tape
   5) SCSI QIC-2.5 cartridge tape - 2.5GB tape
Enter choice (1-5):
```

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

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

5. Press Enter to select the default.

   The program responds:

```
Enter number of ACDs being administered (1-4):
```

6. Enter the number of ACDs to be administered. (This number may be less than the number of ACDs authorized.)

   The program responds:

```
Information for ACD 1

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

7. Enter the name for the switch associated with ACD1. Include “R3” in the name to indicate R3 CMS. The program responds:

```
Select the model of switch for this ACD
  1) Definity-G2.1
  2) Definity-G2.2
  3) Definity-G3i
  4) Definity-G3r
  5) Definity-G3V2
  6) Definity-G3V3
  7) Definity-G3V4
  8) Definity-G3V5

Enter choice (1-8):
```

8. Enter the number that represents the switch model associated with this ACD.

   If the switch supports vectoring and vectoring is authorized, the following message appears; otherwise, go to Step 11.

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

9. Enter **y** if vectoring is enabled on this switch; otherwise, enter **n**.

   The following message appears if vectoring is enabled, the switch supports EAS, and EAS is authorized. If the message does not appear, go to Step 11.

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

10. Enter **y** if Expert Agent Selection is enabled on this switch; otherwise, enter **n**. The program responds:

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

11. Enter **y** if the CentreVu CMS is located in the U.S., then go to Step 13. If you answer **n**, the system responds with the following:

```
ACD calls shorter than the Phantom Abandon Call Timer value
will be counted as abandoned.

Enter the Phantom Abandon Call Timer value in seconds (1-
10): (default:10)
```

12. Enter the Phantom Abandon Call Timer value.

NOTE:

The Phantom Abandon Call Timer value can be changed through the cmssvc: swsetup menu.

The program responds:

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

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

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

14. Enter the remote port or channel number on the switch. The program responds (for example):

```
Select the device used for x.25 connectivity to the
switch:
1) Serial Port B
2) HSI link 0
3) HSI link 1
4) HSI link 2
5) HSI link 3
6) Software loopback link 0
7) Software loopback link 1
```

15. Enter the number that corresponds to the device used for x.25 connectivity.

NOTE:

Except for the loopback links, which are for testing only, the choices on the menu correspond to the hardware connections that can be made between the *CentreVu* CMS and the switch.

If you choose a serial port, but you have an HSI/S card, you receive an error message. For example:

```
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/S card, you receive an error message. For example:

```
Without an HSI card you must use serial port B
for your x.25 connectivity.
Re-enter your selection.
```

If you choose a loopback link, the program responds with the following message:

```
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 do (y/n)?
```

If you choose **y**, the selection takes effect. If you choose **n**, the system redisplays the menu.

When you have entered an acceptable choice, the program prompts:

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

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

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

17. Enter the maximum number of split/skill members that will be logged into this ACD simultaneously, considering shift overlap.

    For NonEAS, sum all agent-split combinations, counting each split an agent will log into (maximum is 4) as a split member.

    For EAS, sum all agent-skill combinations that will be logged in at the same time, counting the maximum number of skills the supervisors expect to assign to each agent (up to 20) during a shift.

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

    The program responds:

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

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

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

19. Enter the start time for shift 1; for example, **8:00AM**. The program responds:

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

20. Enter the stop time for shift 1; for example, 5:00PM.

    The program responds:

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

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

    NOTE:

    Steps 19 through 21 repeat for the number of shifts entered in Step 18.

    The program continues:

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

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

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

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

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

24. Enter the number of unmeasured facilities associated with this ACD.
    - If the switch supports call work codes, you will see a message to enter the number of codes.

- If vectoring is enabled on the switch (you entered **y** for Step 9), you will see this message:

  `Creating database tables`.

  Then, you will be prompted to enter the number of vectors and VDNs.

The program repeats Steps 7 through 23 for each ACD entered in Step 6. After you define the last ACD, the program continues:

```
Updating database

Computing space requirements and file system space
availability.

Setup completed successfully.
```

25. If the setup completes with warnings, you get the following warning message:

```
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.
```

26. Verify the installation completed successfully by entering:

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

The *CentreVu* CMS software is successfully set up when you see a message similar to the following:

```
File systems/space available:
  /cms XXXXXXXX

File systems/current blocks free:
  /cms XXXXXXXX
/cms: AGENT,SPLIT,VDN,TRUNK,TKGRP,VECTOR,AGENT_LOG_REC,
      AGENT_ TRACE_REC,
EXCEPTIONS_REC,WORKCODE,CALL_REC, Setup completed
successfully <date/time>
```

You may edit this file for additional information.

If you need to install additional *CentreVu* CMS-related feature packages (Forecasting or External Call History), go to the appropriate section and follow the procedures.

Now you may turn on the *CentreVu* CMS software. See the “run_cms’’ section in Appendix A, “CMSADM and CMSSVC Menus,’’ for details.

Setting Up *CentreVu* CMS Using a *UNIX* System Flat File

Setting up the *CentreVu* CMS feature package using a *UNIX* System flat file consists of editing the *cms.inst.skl* file (the flat file) and starting the install program.

1. Change to the *cms_install* directory by entering:

```
# cd /cms/install/cms_install
```

2. Copy the *cms.inst.skl* file by entering:

```
#  cp  cms.inst.skl  cms.install
```

3. Edit the *cms.install* file by entering:

```
# vi cms.install
```

   The file contains a series of questions and value ranges for the ACD/switch configuration. The following is a sample flat file:

```
# Enter a name for this UNIX system (up to 256 characters):
# Select the type of backup device you are using
#    1) SCSI QIC-150 cartridge tape - 150MB tape
#    2) SCSI QIC-60 cartridge tape - 60MB tape
#    3) 14.0 Gbyte 8mm tape
#    4) 5.0 Gbyte 8mm tape
#    5) SCSI QIC-2.5 cartridge tape - 2.5GB tape
# Enter choice (1-5):
# Default backup device paths based on device type:
# Device                                  Default backup path
# SCSI QIC-150 cartridge tape - 150MB tape /dev/rmt/0
# SCSI QIC-60 cartridge tape - 60MB tape   /dev/rmt/0
# 14.0 Gbyte 8mm tape                     /dev/rmt/0c
# 5.0 Gbyte 8mm tape                      /dev/rmt/0
# SCSI QIC-2.5 cartridge tape - 2.5GB tape /dev/rmt/0c
# Enter the default backup device path:
```

```
# Enter number of ACDs being administered (1-4):
# The following information is required per ACD:
# Information for ACD 1:
# Enter switch name (up to 20 characters):
# Select the model of switch for this ACD
#    1) System85-R2V4
#    2) Definity-G1.1
#    3) Definity-G2.1
#    4) Definity-G2.2
#    5) Definity-G3i
#    6) Definity-G3r
#    7) Definity-G3V2
#    8) Definity-G3V3
#    9) Definity-G3V4
#   10) Definity-G3V5
# Enter choice (1-10):
# Is Vectoring enabled on the switch? (y/n):
# Is Expert Agent Selection enabled on the switch? (y/n):
# Does the Central Office have disconnect supervision? (y/n):
# 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):
# Enter the local port assigned to switch (1-64):
# Enter the remote port assigned to switch (1-64):
# Select the device used for x.25 connectivity to the switch
#    1) Serial port B
#    2) HSI link 0
#    3) HSI link 1
#    4) HSI link 2585
#    5) HSI link 3
#    6) Software loopback link 0
#    7) Software loopback link 1
# Enter choice (1-7):
# Maximum number of splits/skills based on switch type:
# Release(s)                                      Value
# System85-R2V4/Definity-G2.1/Definity-G2.2        60
# Definity-G1.1/Definity-G3i/Definity-G3r          99
# Definity-G3V2/Definity-G3V3/Definity-G3V4       255
# Definity-G3V5/Definity-G2.2(EAS)                600
# Number of splits/skills (0-Maximum):
# Maximum number of split/skill members based on switch type:
# Release(s)                                                 Value
# Definity-G1.1                                                400
# Definity-G3i                                                 500
# System85-R2V4/Definity-G2.1/Definity-G2.2/Definity-G3r      1023
# Definity-G2.2(EAS)                                          5115
# Definity-G3V2/Definity-G3V3/Definity-G3V4                   5200
# Definity-G3V5                                              10000
```

```
# Total split/skill members, summed over all splits/skills (0-Maximum):
# Number of shifts (0-4):
# Enter the start time for shift 1 (hh:mmXM):
# Enter the stop time for shift 1 (hh:mmXM):
# Number of agents logged into all splits/skills during shift 1 (1-Maximum):
# Enter the start time for shift 2 (hh:mmXM):
# Enter the stop time for shift 2 (hh:mmXM):
# Number of agents logged into all splits/skills during shift 2 (1-Maximum):
# Enter the start time for shift 3 (hh:mmXM):
# Enter the stop time for shift 3 (hh:mmXM):
# Number of agents logged into all splits/skills during shift 3 (1-Maximum):
# Enter the start time for shift 4 (hh:mmXM):
# Enter the stop time for shift 4 (hh:mmXM):
# Number of agents logged into all splits/skills during shift 4 (1-Maximum):
# Maximum number of trunk groups based on switch type:
# Release(s)                                                    Value
# Definity-G1.1/Definity-G3i                                      99
# System85-R2V4/Definity-G2.1/Definity-G2.2/Definity-G3r         255
# Definity-G3V2/Definity-G3V3/Definity-G3V4/Definity-G3V5        666
# Number of trunk groups (0-Maximum):
# Maximum number of trunks based on switch type:
# Release(s)                                                    Value
# Definity-G1.1/Definity-G3i                                      400
# System85-R2V4/Definity-G2.1/Definity-G2.2/Definity-G3r/
  Definity-G3V2/Definity-G3V3/Definity-G3V4/Definity-G3V5       4000
# Number of trunks (0-Maximum):
# Number of unmeasured facilities (0 to (Maximum trunks - Number of trunks)):
# Minimum number of call work codes based on switch type:
# Release(s)                                                    Value
# System85-R2V4/Definity-G1.1/Definity-G2.1                         0
# Definity-G2.2/Definity-G3i/Definity-G3r/Definity-G3V2/
  Definity-G3V3/Definity-G3V4/Definity-G3V5                         1
# Maximum number of call work codes based on switch type:
# Release(s)                                                    Value
# System85-R2V4/Definity-G1.1/Definity-G2.1                         0
# Definity-G2.2/Definity-G3i/Definity-G3r/Definity-G3V2/
  Definity-G3V3/Definity-G3V4/Definity-G3V5                      1999
# Number of call work codes (Minimum-Maximum):
Maximum number of vectors based on switch type:
# Release(s)                                                    Value
# Definity-G1.1                                                     0
# System85-R2V4/Definity-G2.1                                     128
# Definity-G3i                                                    256
# Definity-G2.2                                                   511
# Definity-G3r/Definity-G3V2/Definity-G3V3/Definity-G3V4/
  Definity-G3V5                                                   512
# Enter number of vectors (0-Maximum):
# Maximum number of VDNs based on switch type:
# Release(s)                                                    Value
# Definity-G1.1                                                     0
# Definity-G3i                                                    500
# System85-R2V4/Definity-G2.1/Definity-G2.2/Definity-G3r/
  Definity-G3V2/Definity-G3V3/Definity-G3V4/Definity-G3V5        2000
# Enter number of VDNs (0-Maximum):
# Information for ACD 2:
```

(file repeats preceding statements for ACDs 2 through 4)

4. Enter the appropriate values for your configuration.

   CAUTION:

   Make sure you use the computer's host name for the *UNIX* system name. The computer's host name should have been assigned during the factory installation.

   After you have entered all the appropriate values, write and quit the file.

5. Change to the root directory by entering:

```
# cd /
```

6. Access the *CentreVu* CMS Services menu by entering:

```
# cmssvc
```

   The program responds:

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

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

7. Select the **`setup`** option. The program responds:

```
The input will be read from
  1) the terminal
  2) a flat file
Enter choice (1-2):
```

8. Select the option for using a flat file. The program responds:

```
*** The rest of this command is running in the background ***
```

9. Verify that the installation completed successfully by entering:

```
# tail -f /cms/install/logdir/admin.log
```

The **-f** option in the **tail** command updates the console terminal as messages are written to the *admin.log* file.

The *CentreVu* CMS software is successfully set up when you see a message similar to the following:

```
File systems/space available:
/cms      XXXXXXXXX

File systems/current block free:
/cms      XXXXXXXXX
/cms: AGENT,SPLIT,VDN,TRUNK,TKGRP,VECTOR,AGENT_LOG_REC,
      AGENT_TRACE_REC, EXCEPTIONS_REC,WORKCODE,CALL_REC,
Setup completed successfully <date/time>
```

Press Del to break out of the **tail -f** command.

Installing the Forecasting Feature Package

Prerequisites: You must be logged in as *root*, the computer must be in run-level **2** or **3**, all file systems must be mounted, and *CentreVu* CMS must be turned off.

Do these steps to install the Forecasting feature package:

1. Access the *CentreVu* CMS Services menu by entering:

```
# cmssvc
```

   The program responds:

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

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

2. Select **`auth_display.`** The system lists the authorizations. For example:

```
          Capability/Capacity     Authorization
          -------------------     -------------
                    vectoring     authorized
                forecasting       authorized
                   graphics       authorized
        external call history     authorized
       expert agent selection     authorized
         external application     authorized
      CentreVu(TM) Supervisor     not authorized
             Report Designer      authorized
    Maximum number of agents      5200
      Maximum number of ACDs      4
 Simultaneous CentreVu logins     5
```

3. Verify that the system is authorized to install the Forecasting package.

   NOTE:

   If Forecasting has not been authorized but should be, go to the "Setting Authorizations'' section and follow those procedures.

4. Access the *CentreVu* CMS Administration menu by entering:

```
# cmsadm
```

   The program responds:

```
Lucent Technologies CentreVu(TM) Call Management System
Administration Menu
Select a command from the list below.
   1) acd_create  Define a new ACD
   2) acd_remove   Remove all administration and data for an ACD
   3) backup      Filesystem backup
   4) diskmap     Estimate disk requirements
   5) memory      Estimate memory requirements
   6) realtime    Estimate real-time report refresh rate
   7) pkg_install Install a feature package
   8) pkg_remove  Remove a feature package
   9) run_cms     Turn CentreVu CMS on or off
Enter choice (1-9) or q to quit:
```

5. Enter **7** to select the **`pkg_install`** option.

   The program responds:

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

   NOTE:

   The program displays only feature packages that are authorized and not yet installed.

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

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

   The dots continue to appear as the program sets up the Forecasting tables. After the Forecasting tables are completed, these messages appear:

```
Computing space requirements and file system space
availability.
```

7. Verify that the installation completed successfully by entering:

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

   The Forecasting package is successfully installed when you see this message:

```
   .
   .
   .
Forecasting package installed <date/time>
```

   You may edit this file for additional information.

If you need to install the External Call History package, go to the next section and follow the procedures.

Installing the External Call History Package

Prerequisites: The customer must have a separate computer for the storage and reporting of call records. Both the storage machine and the *CentreVu* CMS machine must be administered in *uucp*. If the storage machine is not running the *UNIX* system, use a DOS version of *uucp*.

You must be logged in as *root*, the computer must be in run-level **2** or **3**, all file systems must be mounted, and *CentreVu* CMS must be turned off.

NOTE:

Once the External Call History package is installed, you will no longer be able to access any call record data from *CentreVu* CMS. For more information, see the *CentreVu™ CMS R3V5 External Call History Interface* (585-215-824) document. It explains how to administer the UUCP link port on network terminal servers.

Do these steps to install the External Call History feature package:

1. Access the CentreVu CMS Services menu by entering:

```
# cmssvc
```

The program responds:

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

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

2. Select **auth_display.** The system responds by displaying the current authorizations. For example:,:

```
          Capability/Capacity     Authorization
          -------------------     -------------
                    vectoring     authorized
                  forecasting     authorized
                     graphics     authorized
         external call history     authorized
       expert agent selection     authorized
         external application     authorized
      CentreVu(TM) Supervisor     not authorized
              Report Designer     authorized
     Maximum number of agents     5200
       Maximum number of ACDs     4
Simultaneous CentreVu logins      5
```

3. Verify that the system is authorized for the External Call History package.

   NOTE:

   If External Call History is not authorized but should be, go to the "Setting Authorizations'' section in this chapter and follow those procedures.

4. Access the *CentreVu* CMS Administration menu by entering:

```
# cmsadm
```

The program responds:

```
Lucent Technologies CentreVu(TM) Call Management System
Administration Menu
Select a command from the list below.
   1) acd_create  Define a new ACD
   2) acd_remove  Remove all administration and data for an ACD
   3) backup      Filesystem backup
   4) diskmap     Estimate disk requirements
   5) memory      Estimate memory requirements
   6) realtime    Estimate real-time report refresh rate
   7) pkg_install Install a feature package
   8) pkg_remove  Remove a feature package
   9) run_cms     Turn CentreVu CMS on or off
Enter choice (1-9) or q to quit:
```

5. Enter the number of the **pkg_install** option.

   The program responds:

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

NOTE:

The system displays only feature packages that are authorized and not yet installed.

6. Enter the number that corresponds to External Call History. The program responds:

```
Enter the name of computer to which to send call records
       (up to 256 characters):
```

7. Enter the name of the Call History Reporting machine that was administered in *uucp*. The program responds:

```
Enter password for nuucp login on xxxxxxxx (up to 8
characters)
```

8. Enter the password for *nuucp* of the Call History Reporting machine that was administered in *uucp*. The program responds:

```
Enter CMS port for connection to xxxxxxxx (s_pdevxxx):
```

9. Enter the *CentreVu* CMS port administered for the Call History Reporting machine. This port can either be on one of the 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 R3V5 Sun Enterprise 3000 Hardware Installation and Maintenance* (585-215-837), Chapter 3, “Administering Terminals, Printers, and Modems.”)

   The program responds:

```
Select a speed for this connection
1) 19200
2) 38400
```

10. Enter the speed that the connection between the *CentreVu* CMS and Call History Reporting machine will be using. The program responds:

```
Number of call segments to buffer for ACD xxxxxxx (0-99999
```

11. Enter the number of call records to be held in the buffer if the Call History machine cannot accept the data. (This step reserves disk space; therefore, sufficient disk space must be available.)

    NOTE:

    Step 10 is repeated for each administered ACD.

The program responds:

```
Computing space requirements and file system space
availability.


External Call History package installed
```

12. Verify that the installation completed successfully by entering:

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

The External Call History package is installed successfully when you see this message:

```
   . . . .
   . . . .
 External Call History package installed <date/time>
```

You may edit this file for additional information on packages which were installed or authorized.

Chapter 3
Turning the System Over to the Customer

Overview

This chapter describes how to test the *CentreVu*™ Call Management System Release 3 Version 5 (CMS R3V5) software to ensure that the application is working properly. In addition, a worksheet is provided at the end of this chapter for turning the system over to the customer. You should do these tests after:

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

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

- Connect the computer to the switch.
- Translate the switch with the *CentreVu* CMS feature enabled.
- Connect the switch to an active link.

The procedures in this chapter comprise the following:

- Testing the operating system parameters
- Testing the connection between the computer and the Technical Service Center (TSC)

  NOTE:

  Do this test only after initially installing the *CentreVu* CMS R3V5 software, not after installing a new base load or field update.

- Testing the sanity of the *CentreVu* CMS feature package

  NOTE:

  Do this test after initially installing or upgrading the *CentreVu* CMS R3V5 software.

- Testing the sanity of any *CentreVu* CMS-related feature packages (Vectoring, Graphics, and Forecasting)

  NOTE:

  Do this test after initially installing or upgrading the *CentreVu* CMS R3V5 software.

- Testing the link configuration between the computer and the switch.

If you encounter a problem that you cannot solve, escalate the problem through normal procedures.

Verifying the System Date and Time

This section describes how to verify that the *Solaris** 2.4 system time and the current local time are the same.

Checking the *Solaris* System Date and Time

Verify that the system time is correct by entering:

```
# date
```

If the system time is correct, go to the "Testing the Connection to the Technical Service Center" section in this chapter. Otherwise, continue with the "Setting the System Date and Time" section.

Setting the System Date and Time

Do these steps to set the system time:

1. Log in as *root*.
2. Change to an OpenBoot mode with the following command:

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

NOTE:

The **-i0** portion of the **shutdown** command string changes the system to an OpenBoot mode.

3. At the **ok** prompt, execute the following command:

```
# boot  -s
```

The system responds:

```
.
.
Resetting.....
Type Ctrl-d to proceed with normal startup
(or give root password for system maintenance):
```

*Solaris is a registered trademark of Sun Microsystems, Inc.

4. Enter the *root* password

   The system responds:

```
Entering System Maintenance Mode
Enter Terminal Type: (default is 615):
```

5. At the prompt, enter the type of terminal, and press Enter.
6. As *root*, enter the date command to set the time and date.

```
# date mmddHHMM[yy]
```

   For example:

   - **mm (month):** Enter the month (numeric). Range: 01-12 (01=January, 02=February, etc.).
   - **dd (day):** Enter the day of the month. Range: 01-31.
   - **HH (Hour):** Enter the current hour of the day, military time. Range: 00-23.
   - **MM (minute):** Enter the minute of the hour. Range: 00-59.
   - **yy (year):** Enter the last two digits of the current year (96, for example, for “1996”).

7. Set the time zone environment variable in the */etc/default/init* file by doing the following:

   a. Examine the */usr/share/lib/zoneinfo* directory for time zones. For more information about time zones, see the next section, “Setting the System Country and Time Zones.”

   b. Edit the */etc/default/init* file with a text editor (for example, vi).

   c. Change the */etc/default/init* file by using the **`w!`** command to overwrite the file.

NOTE:

For additional information, enter the **`man date`** command at the system prompt, or see *AnswerBook** on-line software package.

*AnswerBook is a trademark of Sun Microsystems, Inc.

8. Return to a multi-user state with the following command:

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

NOTE:

The **-i6** parameter changes the system to multi-user state.

Setting the System Country and Time Zones

To set the country and time zone, do the following:

1. At the console, exit to the system prompt if necessary.
2. To initiate an OpenBoot mode, enter the following command:

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

NOTE:

The **-i0** parameter changes the system to a OpenBoot mode.

3. At the **ok** prompt, execute the following command:

```
ok boot -s
```

The system responds:

```
            .
            .
          Resetting.....
          Type Ctrl -d to proceed with normal startup
          (or give root password for system maintenance):
```

4. Enter the *root* password.

   The system responds:

```
Entering System Maintenance Mode
Enter Terminal Type: (default is 615):
```

5. Enter the type of terminal.

6. Modify the */etc/default/init* file with an appropriate value from the */usr/share/lib/zoneinfo* directory.

   NOTE:

   The entry in the *init* file is essentially a relative path name from the */usr/share/lib/zoneinfo* directory.

7. Specify the relative path name.

   For example, for Colorado, the contents of */etc/default/init* could be **TZ**=MST or **TZ**=US/Mountain. In this example, **MST** (Mountain Standard Time) is a file in */user/share/lib/zoneinfo,* and Mountain is a file in */usr/share/lib/zoneinfo/US*.

8. Reboot the machine using the following command:

```
init 6
```

   NOTE:

   For additional information, enter the **man date** command at the system prompt, or see *AnswerBook* on-line software package.

Testing the Connection to the Technical Service Center

The information in this section is used to verify that the TSC is properly connected to the computer. This connection allows the TSC to do remote maintenance.

Testing the Remote Access Port

Use the information in this section to verify that the TSC can dial in remotely and perform routine maintenance procedures on the computer.

This section describes how to redirect port A (remote console port) on the computer using the *Solaris* software package. Redirecting the console allows the TSC to dial in and do remote maintenance.

Test port A on the back of the *Sun SPARCserver* computer by redirecting the console to the remote terminal and then redirecting the console back to the *Sun* monitor.

How to Remote the Console

To test the connection between the TSC and the remote console, do the following:

1. Dial in (from the remote terminal) to the remote console modem (for example, access port A on the computer), and log in as *root*.
2. Remove the port monitor by entering the following command:

```
# /cms/install/bin/abcadm -r ttya
```

   The program responds:

```
ttya is currently set to incoming

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

3. Enter **y**. The program responds:

```
ttya administration removed
```

4. To check the speed of the modem, enter the following command:

```
# abcadm -k
```

NOTE:

All remote access ports have a default baud rate of 9600.

5. Redirect the console to the A port (remote console) by entering the following commands:

```
# /cms/install/bin/abcadm -c -b <9600> ttya
```

The program responds:

```
This change requires a reboot to take affect

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

6. Enter y.

```
Starting port monitor.
Setting console parameters.
Proceeding to reboot.
```

The system automatically reboots.

As the system reboots, shutting down, reset, and rebooting messages will appear on the *Sun* monitor. When the system starts to come back up, the *Sun* monitor should go blank, and the system boot diagnostics should appear on the remote console terminal. After the system reboots, a **`console login:`** prompt should appear on the remote console terminal. The XDM login appears on the local monitor.

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

NOTE:

At this time, an XDM login window for the *OpenWindows* interface appears on the *Sun SPARCserver* monitor.

How to Redirect Back to Local

1. Redirect the console back to the local console by entering the following command:

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

   The program responds:

```
Console set to local

This change requires a reboot to take affect

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

2. Enter **y**. The system automatically reboots and the A port comes up as the console.

   As the system reboots, “shutting down” messages appear on the remote console monitor. When the system starts to come back up, the system boot diagnostics should appear on the monitor. After the system reboots, a **`console login:`** prompt should appear on the monitor. A **`login:`** prompt should appear on the dial-in terminal.

3. Log into the local console as *root*.

4. Log into the dial-in terminal as *root*.

   The console has been redirected to the remote terminal and redirected back to the system console.

Assigning Passwords

This section describes how to assign passwords to each login on the *Sun SPARCserver* computer. Prior to testing the *CentreVu* CMS R3V5 software, you must assign passwords to each of the following logins:

- *root*
- *cms*
- *cmssvc*
- any other administration logins you add to the *Sun SPARCserver* computer.

NOTE:

Store the passwords for each login on the provided “Turning the System Over to the Customer” form at the end of this chapter.

To assign passwords, do the following procedures for each login:

1. Log in as *root*.
2. At the system prompt, enter the following command:

```
# passwd <login>
```

The system responds:

```
New password:
```

3. At the **new password:** prompt, enter the new password.
4. Enter the password again.

Testing the *CentreVu* CMS R3V5 Software

The following procedure should be completed by the on-site technician after the *CentreVu* CMS R3V5 software has been installed or upgraded to verify the sanity of *CentreVu* CMS R3V5 software:

1. If the Common Desktop Environment (CDE) is not displayed, log off the system console and log back on.
2. From the welcome screen, click **`Options - Session - Common Desktop Environment (CDE)`**.
3. Enter the user name.
4. Enter the password.

   The CDE interface starts. If you have been in CDE before, it starts at the point you were at the last time you used it.

   NOTE:

   If you get a window that says "xterm'' at the top of the screen, then the TERM should be set to **`xterm`**. If the window says "*Sun* command window,'' then the TERM should be set to **`sun-cmd`**.

5. In one of the windows at a console terminal, log into the system by using a *CentreVu* CMS administrator's login ID (**`su cms`**). Supply the correct password when prompted.
6. Access the *CentreVu* CMS R3V5 main menu by typing **`cms`** and entering the correct terminal type.
7. Test the Real-Time Reports subsystem by doing the following from the *CentreVu* CMS Main Menu:
   a. Select the **`Reports`** option.
   b. Select the **`Real-time`** option.
   c. Select the **`Split/Skill`** option.
   d. Select the **`Split Status`** or **`Skill Status`** option.
   e. Verify that the Split/Skill Status Report Input window appears.
   f. Enter a valid split number in the **`Split:`** or **`Skill`** field.
   g. Select the **`Run`** action list item, and run the report.
   h. Verify that the Split or Skill Status Report window appears.
   i. Press the **Commands** Screen Label Key (SLK).
   j. Select the **`Print window`** option to send the report to the printer.

k. Look at the message line near the bottom of the window, and verify that there is a confirmation message about sending the report to the printer.

l. Verify that the report printed by checking the printer for the report.

m. Return to the *CentreVu* CMS Main Menu screen by pressing the Exit SLK twice.

8. Test the Historical Reports subsystem by doing the following from the *CentreVu* CMS Main Menu:

   a. Select the **Reports** option.

   b. Select the **Historical** option.

   c. Select the **Split/Skill** option.

   d. Select the **Status** option.

   e. Verify that the Split/Skill Status Report Input window appears.

   f. Enter a valid split number in the **Split/Skill:** field.

   g. Enter **-1** in the **Date:** field.

   h. Select the **Run** action list item, and run the report.

   i. Verify that the report window appears and information is displayed in the appropriate fields.

      NOTE:

      If no historical data exists, the fields in the report window should be blank.

   j. Return to the *CentreVu* CMS Main Menu by pressing the Exit SLK twice.

9. Test the Dictionary subsystem by doing the following from the *CentreVu* CMS Main Menu:

   a. Select the **Dictionary** option.
   b. Select the **Login Identifications** option.
   c. Enter an ***** in the **Login ID:** field.
   d. Select the **List all** action list item to list all the login IDs.
   e. Verify that the logins are displayed.
   f. Return to the *CentreVu* CMS Main Menu by pressing the Exit SLK twice.

10. Test the Exceptions subsystem by doing the following from the *CentreVu* CMS Main Menu:
    a. Select the **Exceptions** option.
    b. Select the **Real-time Exception Log** option.
    c. Verify that the window is accessible.

       NOTE:

       For a new installation, this window may be blank.

    d. Return to the *CentreVu* CMS Main Menu by pressing the Exit SLK once.
11. Test the ACD Administration subsystem by doing the following from the *CentreVu* CMS Main Menu:
    a. Select the **ACD Administration** option.
    b. Select the **Call Work Codes** option.
    c. Press the Enter key.
    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.
    f. Return to the *CentreVu* CMS Main Menu by pressing the Exit SLK once.
12. Test the Custom Reports subsystem by doing the following from the *CentreVu* CMS Main Menu:
    a. Select the **Custom Reports** option.
    b. Select the **Real-time** option, and verify that the names of existing custom reports are listed. If there are no reports, you receive a message saying the submenu is empty.
    c. Return to the *CentreVu* CMS Main Menu by pressing the Exit SLK once.
13. Test the User Permissions subsystem by doing the following from the *CentreVu* CMS Main Menu:
    a. Select the **User Permissions** option.
    b. Select the **User Data** option.
    c. Verify that the User Data Input window appears.
    d. Return to the *CentreVu* CMS Main Menu by pressing the Exit SLK once.

14. Test the System Setup subsystem by doing the following from the *CentreVu* CMS Main Menu:
    a. Select the **System Setup** option.
    b. Select the **CMS state** option.
    c. Verify that *CentreVu* CMS is operating in the **Multi-user mode**.
    d. Return to the *CentreVu* CMS Main Menu by pressing the Exit SLK once.
15. Test the Maintenance subsystem by doing the following from the *CentreVu* CMS Main Menu:
    a. Select the **Maintenance** option.
    b. Select the **Printer Administration** option.
    c. Enter a valid printer name in the **CMS printer name:** field.
    d. Select the **List all** action list item, and list the printer parameters.
    e. Verify that the printer has been administered correctly.
    f. Return to the *CentreVu* CMS Main Menu by pressing the Exit SLK twice.
16. If the Graphics feature package has been enabled, test the Graphics subsystem by doing this from the *CentreVu* CMS Main Menu:
    a. Select the **Graphics** option.
    b. Verify that a Real-time Graphics screen can be accessed.
    c. Return to the *CentreVu* CMS Main Menu by pressing the Exit SLK once.
17. At each *CentreVu* CMS terminal, log in as **cms** and choose the correct terminal type to verify that the terminals are working properly. To log off, select the **Logout** option from the *CentreVu* CMS Main Menu. Return to the system **login** prompt.
18. If you were able to complete each of the steps in the test successfully, do a CMSADM file system backup before you turn the R3V5 *CentreVu* CMS application over to the customer. See Chapter 5, “Maintenance,” for details.

NOTE:

If any of the steps in the test fail, see Chapter 4, “Troubleshooting,” and try to solve the problem associated with the step that failed. If you encounter a problem that you cannot solve, escalate the problem through normal procedures.

To complete the test, do the following before you turn the *CentreVu* CMS R3V5 application over to the customer:

1. If you have not already done so, back up the file systems by following the procedures outlined in the “Performing a CMSADM Backup” section in Chapter 5, “Maintenance.”
2. If you have not already done so, back up the customer’s historical data by doing a full maintenance backup from the Maintenance subsystem in *CentreVu* CMS. See the *CentreVu™ CMS R3V5 Administration* (585-215-820) document.
3. Log in at the console terminal and start *CentreVu* CMS. When the *CentreVu* CMS Main Menu appears, look at the banner line at the top of the window. You are looking for the time and the ACD link indicator.

   The time is at the left side of the banner line, just after the date. Make sure the time displayed is current.

   The link indicator consists of the “carets” (“∧” and “∨”) at the right side of the banner line. There should be one caret for each ACD, and all should be **UP.** (If you have four ACDs, for example, the link indicator should look like this: ∧∧∧∧. That means that all four ACDs are up and running.)

   To log off, select the **`Logout`** option on the *CentreVu* CMS Main Menu. This completes the test. You can now turn the *CentreVu* CMS R3V5 application over to the customer.

Turning the System Over to the Customer

When you finish the tests in this chapter, go to Chapter 5, “Maintenance,” and perform the backup procedures. Then, complete the worksheet below, attach the indicated printouts and screen dumps, and give the resulting package to the customer’s *CentreVu* CMS administrator

NOTE:

For system security, the *CentreVu* CMS administrator must store written passwords, *INFORMIX** serial number and key license information, and X.25 license information in a secure place.

*INFORMIX is a registered trademark of Informix Software, Inc.

❒ **Passwords for system login IDs:**

Login ID: root **Password:** _____

Login ID: _____ **Password:** _____

Login ID: _____ **Password:** _____

❒ ***CentreVu*** **CMS administrator login IDs and passwords:**

Login ID: cms **Password:** _____

Login ID: _____ **Password:** _____

Login ID: _____ **Password:** _____

❒ **`df -t` results** (attach screen dump showing **`df -t`** command results, or record results here):

_____

_____

_____

_____

_____

_____

_____

_____

❒ **Printer administration:**
Print out the CMS **`Maintenance - Printer Administration - List all`** window

❒ **Free Space Allocation:**
Print out the CMS **`System Setup - Free Space Allocation`** window

❒ **Data Storage Allocation parameters:**
Print out the CMS **`System Setup - Data Storage Allocation`** window for each ACD

Chapter 4
Troubleshooting

List of Figures

List of Tables

Overview

This chapter contains troubleshooting information about the *CentreVu*™ Call Management System Release 3 Version 5 (CMS R3V5) application. You should use the information to clear problems that may arise during and after the *CentreVu* CMS software installation.

The troubleshooting sections in this chapter are:

- Solving Installation-Related Problems
- Checking Error Logs.

See the *CentreVu*™ *CMS R3V5 Administration* (585-215-820) document for information about restoring data, using backup strategies, accessing error logs, and using error messages.

Solving Installation-Related Problems

This section provides some suggestions for solving problems that could arise during an installation. The following installation-related problems are described:

- Troubleshooting a *Solstice DiskSuite** File System
- When a *Solaris* Patch Install Fails
- Checking for Error Messages
- Solving X.25 License Install Problems
- When X.25 Install Hangs Up
- Details for Installing *INFORMIX*†-SE
- Installing *CentreVu* CMS.

Troubleshooting a *Solstice DiskSuite* Software Installation

The *Solstice DiskSuite* software package allows multiple disk partitions to be logically combined to create a single large partition. Using the *Solstice DiskSuite* package allows CMS databases to span multiple disks, and so grow quite large.

In order to troubleshoot problems with the *Solstice DiskSuite* software or the /cms file system, you must understand two basic concepts of *Solstice DiskSuite* operation: **state databases** and **metadevices.**

A state database contains the *Solstice DiskSuite* configuration information for the system, and is stored on a raw disk partition created for that purpose. At boot time, the operating system accesses the state database to configure the system. Typically, a system contains multiple copies of the state database.

A metadevice is a logical device that consists of a set of physical disk partitions. A system controlled by *Solstice DiskSuite* software can contain any number of metadevices; the state database contains a record of which disk partitions belong to which metadevices. Once a metadevice has been set up, the underlying disk partitions can be accessed only through the metadevice.

(For a complete description of *Solstice DiskSuite* software and its basic technical concepts, see *Solstice DiskSuite 4.0 Administration Guide,* published by Sun Microsystems, Inc.)

*Solstice DiskSuite is a trademark of Sun Microsystems, Inc.
†INFORMIX is a registered trademark of Informix Software, Inc.

CMS uses the *Solstice DiskSuite* software to set up three state databases, and to create a single metadevice containing all the disk partitions used to store CMS data:

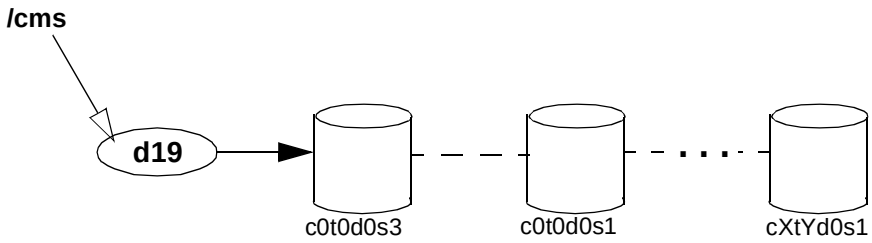

Figure 4-1: The Metadevice and the /cms File System

Identifying Problems

Use the procedures and hints in this section to help identify and resolve problems with the CMS scripts that administer *Solstice DiskSuite* software, with the physical disks, with the state databases, with the metadevice, or with the /cms file system.

Problems with CMS Administration Scripts

Use the **`pkginfo`** command to verify that the *Solstice DiskSuite* software is installed:

```
# pkginfo  -l  SUNWmd
```

If it has not been installed, you may have to reinstall the operating system and repartition your disks. Once the software has been installed, you must use **`olds`** script to set up the environment so CMS can access the disks. See Chapter 3 of *CentreVu CMS R3V5 Upgrades and Migration* (585-215-826) for a step-by-step description of installing *Solstice DiskSuite* software and using the **`olds`** script. If you receive an error message from the **`olds`** script, see “Common Error Messages,” below.

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 Chapter 6, “Maintenance,” in *CentreVu™ CMS R3V5 Sun Enterprise 3000 Systems Hardware Installation and Maintenance* (585-215-837).

State Database Problems

Check the system console and the */var/adm/* messages log for messages that indicate problems with a state database. Be aware that on a multiple-disk system, there should always be two copies of the state database on the first internal disk drive, and a third copy on the second internal disk drive. On a single-disk system, there should be three copies of the state database on the only disk.

Use the **`metadb`** command to check the status of the state database:

```
# /usr/opt/SUNWmd/sbin/metadb  -i
      .
      .
      .
#
```

If the response indicates a state database problem, you must remove and re-create the state database that is causing the problem. Follow these steps:

1. Check to see if the error is caused by an underlying disk problem. If it is, recover or replace the disk (see the *CentreVu™ CMS R3V5 Sun Enterprise 3000 Systems Hardware Installation and Maintenance* manual) (585-215-837).
2. If you find no disk problem, or if the state database problem persists after the disk has been repaired, use the metadb command to remove and re-create the state database causing the problem. For example:

```
# /usr/opt/SUNWmd/sbin/metadb  -d  mddb01
# /usr/opt/SUNWmd/sbin/metadb  -a  mddb01
#
```

Metadevice Problems

Use the **metastat** command to verify that the metadevice is set up correctly. For example:

```
# /usr/opt/SUNWmd/sbin/metastat
d19: Concat/Stripe
    Size: 31315536 blocks
    Stripe 0:
        Device      Start Block   Dbase
        c0t1d0s1           0       No
    Stripe 1:
        Device       Start Block    Dbase
        c0t0d0s3            0       No
            .
            .
            .
     Stripe 9:
        Device       Start Block    Dbase
        c2t1d0s1            0       No
#
```

To verify the metadevice setup, you must examine the response to the command. You are looking for two things:

a. *All your disk drives must be accounted for.* You can verify that simply by checking the Size figure (it should roughly equal the total capacity of all your disks) and counting the number of devices listed (there should be a “Stripe” section for every drive). If some of your drives seem to be missing, check to make sure that all your drives are plugged in and turned on, and that each external drive has a unique target number.

b. *The device names must reflect the appropriate slice numbers.* The slice numbers are represented by the final two characters of the device name. A properly set up /cms file system begins with slice 3 of the first internal disk, and slice 1 of each of the remaining disk drives. Consequently, the device name of the first internal disk drive must be c0t0d0s3; all other device names must end in s1.

If there is any discrepancy between reality and the output of the **metastat** command, you will have to set up your disk drives again.

Problems with the /cms File System

Use the following steps to check the /cms file system for errors:

1. Log in as *root*.
2. Edit the /etc/vfstab file and comment out the */dev/md/rdsk/d19* and */cms/swap* entries. Then save the file. For example:

```
# vi /etc/vfstab

<contents of the file is displayed>

#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     -
/proc           -               /proc        proc   -      no      -
fd              -               /dev/fd      fd     -      no      -
#swap           -               /tmp         tmpfs  -      yes     -
/dev/dsk/c0t0d0s0       /dev/rdsk/c0t0d0s0   /      ufs    1       no
-
/dev/md/dsk/d19         /dev/md/rdsk/d19     /cms   ufs    2       yes
-
/swap1          -       -        swap   -    no     -
/cms/swap       -       -        swap   -    no     -
```

In this case, you would comment out (by inserting pound signs at the beginnings of the lines) the */dev/md/dsk/d19* and */cms/swap* lines. Then write and quit the file.

3. Reboot the system:

```
# init 6
```

4. When the system is back up, log in as *root*.
5. Check the /cms file system:

```
# fsck  -y  /dev/md/rdsk/d19
```

6. Mount /cms:

```
# mount /cms
```

7. Edit the /etc/vfstab file and uncomment the entries you commented out earlier. Then save the file. For example:

```
# vi /etc/vfstab

<contents of the file is displayed>

#device         device          mount         FS      fsck    mount   mo
#to mount       to fsck         point         type    pass    at boot opt
#
#/dev/dsk/c1d0s2 /dev/rdsk/c1d0s2 /usr        ufs     1       yes     -
/proc           -               /proc         proc    -       no      -
fd              -               /dev/fd       fd      -       no      -
#swap           -               /tmp          tmpfs   -       yes     -
/dev/dsk/c0t0d0s0       /dev/rdsk/c0t0d0s0    /       ufs     1       no
-
# /dev/md/dsk/d19         /dev/md/rdsk/d19      /cms    ufs     2
-
/swap1          -       -       swap    -     no      -
# /cms/swap     -       -       swap    -    no       -
```

Now, delete the pound signs (#) at the beginnings of the */dev/md/dsk/d19* and */cms/swap* lines, and write and quit the file.

If the check fails, examine the system for problems with the metadevice, state databases, or disks. If you find no other problems, you may need to recover /cms.

If you have trouble mounting /cms:

- Enter an **`ls`** command to verify that the /cms directory exists:

```
# ls  -ld  /cms
```

If /cms does not exist, use a **`mkdir`** command to create it.

- Use the **`metastat`** command to determine the metadevice being used. Then verify that the entry for /cms in the /etc/vfstab file is correct. If you find any errors, correct them.

Common Error Messages

The text below presents, in alphabetical order, the messages commonly associated with installing and setting up the *Solstice DiskSuite* software to work with a CMS system. Each message is accompanied by its probable cause and the likely corrective procedure.

/cms: Deadlock situation detected/avoided

Both CMS and the operating system are trying to access the swap file, leading to a deadlock. Turn off CMS, deactivate (**`swap -d /cms/swap`**) all the swap files residing on /cms, and reenter

the command. Remember to reactivate (**`swap -a /cms/swap`**) the swap files back when the **`growfs`** command completes.

device: c0t6d0 will not be used

Warning that c0t6d0 will not be set up for *Solstice DiskSuite*. Since c0t6d0 is the CD-ROM drive, that is not a problem.

device: *devicename* **cannot be setup, or does not exist...**

The disk you are trying to attach is turned off, does not exist, or was removed from the system. Power-up the disk drive, or verify the correct name for the disk (stop-a, probe-scsi), or attach the disk to the system and reboot with a **`boot -r`** command from the open boot prompt.

Disk *devicename* **already attached, exiting...**

You are trying to attach a disk that is already attached. Verify the name of the disk by doing a *stop-a, probe-scsi-all.* Look at the target number on the back of the disk drive if possible, or consult the device documentation.

disk: *devicename* **partition 1 is not partitioned correctly**

You need to repartition disk *devicename.* Use the **`format`** command. See Chapter 6, “Maintenance,” of *CentreVu™ CMS R3V5 Sun Enterprise 3000 Systems Hardware Installation and Maintenance* (585-215-837) for details about adding disk drives to a CMS system.

DiskSuite must be installed

You must install the *Solstice DiskSuite* software package. See Appendix B, “*Factory Software Installation Procedures*,” of this document.

In order to attach disk, /cms must already be mounted, exiting...

The /cms file system was not mounted. Execute a **`mount /cms`** command and rerun the command that failed.

metadb: *systemname***:** *devicename***: has a metadevice database replica**

There are already state database replicas existing on the indicated system and device. No further action is required.

metainit: *systemname***: /etc/opt/SUNWmd/md.tab line 12: d19: unit already set up**

An initial setup of the file system has already been performed.

If you are trying to attach a new disk, execute an **olds -setup** command for that device. To attach device c0t2d0, for example, you would enter:

```
# /olds/olds  -setup  c0t2d0
#
```

If you need to do an initial setup, use these commands:

```
# /olds/olds  -cleanup
      .
      .
      .
  <reboot when command completes>
# /olds/olds -check_disks
# /olds/olds -mk_files
# /olds/olds -metadbs
# /olds/olds -setup
```

Then restore all your swap files and their **/etc/vfstab** entries.

metainit: syntax error

This is the **olds** general failure message. The most likely cause is that the **/etc/opt/SUNWmd.tab** file disagrees with your configuration. (The file, for example, says you have seven disks in a given metadevice, but your configuration only has six.) Verify that **/etc/opt/SUNWmd.tab** is accurate. As a last resort, use an old md.tab file or do an initial **olds** setup.

newfs of cms metadevice failed

There is an internal problem with one of your disks. Enter a **/usr/opt/SUNWmd/sbin/metaclear d19** command, and then rerun the **olds -setup** script. If the same error recurs after all that, repartition your disks or call Lucent Technologies National Customer Care Center at 1-800-242-2121.

prtvtoc: /dev/rdsk/c0t6d0: Device busy

This message usually implies that the device probed by the script is not to be used as a disk because it is a read-only disk (i.e., a CD-ROM drive). This is not a problem.

Warning: Current Disk has mounted partitions

Ignore this message. The format command is warning you that it is probing a mounted disk. A probe, however, is a nondestructive task that poses no danger to your data.

You must be root in order to run this command

Superuser privileges are necessary to run this script because most of the commands are related to system administration.

You need to have at least one disk set up, before attaching one, exiting...

You tried to use olds to attach a disk, but the metadevice has not yet been set up. To set it up, run the **`olds -setup`** command without arguments.

When a *Solaris* Patch Installation Fails

When a *Solaris* patch installation fails (for example, during **`/tmp/patches /install-patches`**), you can attempt to fix the source of the error and rerun **`/tmp/patches/install-patches`**. As a last resort, you can comment out the lines relating to the bad patch and rerun the script. You must resolve the problem and install the patch before returning the system to service.

A *Solaris* patch installation may fail with a message about bad permissions on */kernel* and */kernel/drv*. Do this to resolve the problem:

1. Enter the following two commands:
   ```
   /usr/sbin/installf  SUNWcar  /kernel
   /usr/sbin/installf  SUNWcar  /kernel/drv
   ```
2. Restart the patch installation.

Pkgchk Errors

The **`pkgchk -n cms`** command lists some common error messages that do not signal a problem. The error messages in Table 4-1 (next page) can be ignored:

Table 4-1: Error Messages to Ignore

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	path name 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	path name does not exist.	After the setup and before running cms.
/cms/env/cms_mon/State_tbl	group name <bin> expected <cms> actual.	After running cms.
/cms/install/logdir/admin.log	group name <root> expected <cms> actual.	After running cms.
/usr/lib/cms/pbxtrcflags	group name <bin> expected <cms> actual.	After running cms.

Solving X.25 License Installation Problems

Error messages are generated by the license system if you have problems during the installation. The error messages are divided into three categories: informational, configuration, and daemon software errors. For example:

- Informational Error Message:
  `DEMO mode supports only one SERVER host!`

  An attempt was made to configure a demonstration version of the software for more than one server.

- Configuration Error Message:
  `hostname: Wrong hostid, exiting`

  The hostid is wrong for the host name.

- Daemon Software Error Message:
  `hostname: Can't allocate server table space`

  A malloc error. Check swap space.

See the "License Error Messages" section of the *SunLink X.25 8.02 Installation Guide* for a complete list of licensing error messages.

Details for Installing *INFORMIX*-SE

The serial numbers required to install *INFORMIX*-SE can be found on the back of the *INFORMIX*-SE CD-ROM.

CentreVu CMS Package Details

This section provides some *CentreVu* CMS package-related details to help you solve problems that could occur during installation. For example:

- The wrong cms package instance is used.
- The system fails to remove a cms package.
- The system fails to update a cms package.

Identifying *CentreVu* CMS Package Instances

You can have up to two *CentreVu* CMS package instances:

- *cms* — the base package instance used for regular installs
- *cms.2* —the package instance used for updates.

To identify the version of *CentreVu* CMS software you need, enter the **`pkginfo -x cms.*`** command at the system prompt.

Removing *CentreVu* CMS Package Fails

If you are exited from the system when removing a *CentreVu* CMS package (*cms* or */cms.2*), you may have done the following:

- Logged in as **`cmssvc`**
- Switched user — **`su'd`** to **`root/root2`**
- Ran **`cmssvc`**.

Solution:

- Log in directly as **`root/root2`**
- Remove package(s) as instructed by the system.

Checking Installed *Solaris* Patches

To verify that the correct *Solaris* patches are installed, do the following:

1. Enter the **`showrev -p`** command at the system prompt.

```
# showrev -p
```

The system responds:

```
# showrev -p
Patch:  100982-02  Obsoletes:  Packages:  SUNWcsr.2 11.5.0,
        REV=1.0.15.2,PATCH=15
Patch:  100992-03  Obsoletes:  Packages:  SUNWcsr.3 11.5.0,
        REV=1.0.15.2,PATCH=68
Patch:  100999-51  Obsoletes: 100985-06,100998-02,10108602,
        100998-02,101086-02,1011
Patch:  101014-05  Obsoletes:  Packages:  SUNWcsu.3 11.5.0,
        REV=      1.0.15.1,PATCH=85
   .
   .
   .
```

2. Check the list to verify that all the *Solaris* patches you need are installed.

   More information about *Solaris* patches is in Chapter 5, “Maintenance” and Appendix B, “Factory Software Installation Procedures.”

When an Update Fails

Do the following if the installation of an update fails:

1. At the system prompt, enter **`pkgrm cms.2`**.
2. From the information displayed, identify and correct the problem.
3. Reinstall the update. See the *CentreVu™ CMS R3V5 Upgrades and Migration* (585-215-826) document for details.

When Installing an Update Fails

Table 4-2 provides a list of error messages that indicate when an update save (upd_save) fails during installation (upd_inst).

Table 4-2: Error Messages When a Save Update Fails During Installation

Error Message	Problem	Solution
“up_install: another update is already installed’’	There is already an update installed.	Remove the Update (upd_remove), and then install an Update (upd_install).
“You must remove cms.2 before installing this update’’	There is already an update installed.	Remove the Update (upd_remove), and then install an Update (upd_install).
“no update spooled run upd_save and then upd_install’’	There is no update spooled.	Run the Save Update (upd_save), and then reinstall the Update (upd_install).
“*<X>* blocks and *<Y>* modes are required in the *<Z>* file system to install this package’’	There is not enough space in */cms* to install the update.	Remove the failed instance with an Update Remove (upd_remove) or a Package Remove (pkgrm). Reclaim the space in the file system, and attempt to install again.
“*<M>* free blocks and <N> free modes exist’’	There is not enough space in */cms* to install the update.	Remove the failed instance with an Update Remove (upd_remove) or a Package Remove (pkgrm). Reclaim the space in the file system, and attempt to install the update again.

See the *CentreVu™ CMS R3V5 Upgrades and Migration* (585-215-826) document for more information about installing an update.

When an Update Save Fails

Table 4-3 provides a list of error messages that indicate when saving an update fails (upd_save).

Table 4-3: Error Messages When Update Save Fails

Error Message	Problem	Solution
“upd_save: pkgadd was unable to spool the package into the temporary directory.’’	The */tmp* directory is out of space.	Clear out the */tmp* directory, and attempt an upd_save again.
“upd_save: cannot determine if package is an update.’’	The update tape is not an update.	You might be using the wrong tape, or the tape is corrupted. You must get a new tape.
“upd_save: CMS version X is not an update.’’	The update tape is not an update.	You are using the wrong tape. Use the correct tape.
“upd_save: cannot determine version of update.’’	You cannot get the version number.	You are probably using the wrong tape, or the tape is corrupted. Use the correct tape.
“Failed to save installation files.’’	Not enough space in /cms to spool packages.	Check the amount of free space in *CentreVu* CMS. If the space is low, try to remove or clear out unnecessary files.

See the *CentreVu™ CMS R3V5 Upgrades and Migration* (585-215-826) document for more information about installing an update.

When an Update Remove Fails

The following list provides some possible reasons why removing an update (upd_remove) fails:

- The original install failed (most common).
- No updates are installed.
- The *pkgmap* file is not present (unlikely situation).

  An update remove could fail if the *pkgmap* file in */var/sadm/pkg/cms.2/save/pkgmap* was removed or was never present. You can remove the update instance, but there is no way to determine if the files are in an update; therefore, the files cannot be restored. The *checksums* will not be updated and *pkgchk* could show errors.

See the *CentreVu™ CMS R3V5 Upgrades and Migration* (585-215-826) document for more information about installing an update.

AnswerBook Package Details

When you start the *AnswerBook* software package, you may get an error message like this one:

AnswerBook *<title>* **is not accessible. Verify that the card catalog entry for this AnswerBook is correct.**

(where *<title>* is the title of the book being accessed). Usually it means you did not insert the *AnswerBook* CD into the CD-ROM drive. Do the following to correct the problem:

1. Click **Continue**.
2. Insert the *AnswerBoo*k CD and wait until the light stops flashing on the disk drive.
3. Click **Modify Library**.
4. Click **Solaris 2.5 Answerbook**
5. Click **Apply.**

See "*AnswerBook* Software Package'' in Chapter 1, "Introduction,'' for more information.

Responding to a SCSI Probe "Hang" Warning

When you are attempting to probe SCSI devices at the boot prom level, you may receive the following 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?

Respond with the following steps:

1. Enter: **N** (to prevent the probe from continuing).
2. Enter: **setenv auto-boot? false**
   (to keep the system from rebooting when you do the **reset-all**)
3. Enter: **reset-all**
   It may take a minute to complete.
   You may now do the **probe-scsi** or **probe-scsi-all** and perform any other boot prom level diagnostics.
4. **IMPORTANT:** Before you reboot again, enter the command:
   setenv auto-boot? true

   Failure to do so will cause the reboot to stop at the boot prompt instead of proceeding through the normal boot-up.

Checking Error Logs

This section describes some common log characteristics and covers information about each of the logs provided.

The following types of problems will generate an entry into the error log:

- Data conversion problems
- Start-up and shut-down problems
- Installation problems
- Set-up problems
- Critical or warning messages.

Wrapping Techniques

Many of the log files use a common, general purpose file wrapping technique to keep a controlled amount of historical log information. It keeps the current log in a file always named the name of the log. For example, the error log is named **`elog`**, and there may be three older logs kept called **`elog.01, elog.02,`** and **`elog.03`**.

When the current active log file becomes full, it rolls over and a new log file is started. At the time that the log rolls over, the oldest log is deleted, each of the other logs moves to its new name, and a new log file is started.

The size of the logs is controlled by the file size. If a specific number of hours of log information is needed, some monitoring will be needed to see how much time is covered by a log.

Each log file concludes with a message that the file size limit has been reached and that a new log will be started. This is particularly useful if using the *Solaris* 2.4 command **`tail -f`** to monitor ongoing activity in the log. When the message is displayed, a new **`tail`** command will need to be started. After you finish reviewing log activity, press Del to exit.

Administering Options

You can administer the following options:

- Location of the log files
- Number of historical log files
- Size of the Files.

CAUTION:

Only qualified TSC personnel should administer these log files. Do not delete or change any information in these log files without first contacting the Technical Service Center.

Running Logs

The logs run under a variety of circumstances:

- Always running when *CentreVu* CMS and/or *Solaris* are running and cannot be stopped
- Must be manually started and stopped
- Are also automatically stopped after a reboot and/or restarting *CentreVu* CMS.

Contact the Technical Service Center for more information.

Contents of Error Logs

Each error log 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 — usually 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).
- First Implemented in Load — indicates the first load when the log is available — an internal load numbering (such as 3.1z) is used.

Summary of Error Logs

Refer to Table 4-4 to identify which error log to use to resolve a problem.

Table 4-4: Types of Error Logs

Type of Log	Name of Error Log	Default Location
General Error Logs	elog	/usr/elog/elog
	elog_elog	/usr/elog/elog
	elog_if	/usr/elog/elog_if
	customer elog	*INFORMIX* database table customer_log
	cow_paste.log	/usr/elog/cow_paste.log
Link-Related Logs	spi.err	/cms/pbx/acd1/spi.err
	spi.lnk	/cms/pbx/acd1/sim.lnk
	spi.log	/cms/pbx/acd1/spi.log
	ag.log	/cms/pbx/acd1/ag.log
	sim.err	/cms/pbx/acd1/sim.err
	sim.lnk	/cms/pbx/acd1/sim.lnk
	xln.log	/cms/pbx/acd1/xln.log

Table 4-4: Types of Error Logs (Contd)

Type of Log	Name of Error Log	Default Location
Process-Related Logs	proc_log	/cms/env/cms_mon/proc_log
	mq_clean	/cms/env/cms_mon/mq_clean
	gem_log	/cms/env/gem/gem_log
	rt_gem	/cms/env/gem/rt_gem
Solaris Logs	messages	/var/adm/messages
Special Task Logs	harch.log	/cms/db/LogAdmin/hachiver
	arch.log	/cms/dc/archive/arch.log
	ttlog	/cms/db/journal/timetable/ttlog
	cow_paste.log	/usr/elog/cow_paste.log
	r3mig.log	/cms/migrate/r3mig.log
	back.log	/cms/maint/backup/back.log
	rest.log	/cms/maint/restore/rest.log
	migrate.log	/cms/migrate/migrate.log
	mig.log	/cms/maint/r3mig/mig.log
Installation/Upgrade/cmsadm Logs	install.log	/cms/install/logdir/install.log
	backup.log	/cms/install/logdir/backup.log (see also admin.log)
	admin.log	/cms/install/logdir/admin.log
CentreVu Supervisor Specific Logs	.win.log	$HOME/.win.log
	cman.log	/cms/env/cman/cman.log
Miscellaneous Logs	log_msg	/lib/log_msg
	printer.errors	
	bp.uid	/cms/tmp/bp.uid

Chapter 5
Maintenance

List of Tables

Overview

This chapter explains how to maintain the *CentreVu*™ Call Management System Release 3 Version 5 (CMS R3V5) software. Refer to the *Sun Enterprise* 3000 System documentation for hardware maintenance information.

This chapter discusses the following maintenance procedures:

- Performing Backups and Restores
- Checking Installed Software Packages
- Auditing *CentreVu* CMS Package
- Moving Back to a Previous Load
- Backing Out of a *Solaris*[*] Patch
- Adding *INFORMIX*[†] SQL

Personnel at the Technical Service Center (TSC) will need assistance from an on-site technician or the customer's *CentreVu* CMS administrator to do most of the procedures in this chapter.

*Solaris is a registered trademark of Sun Microsystems, Inc.
†INFORMIX is a registered trademark of Informix Software, Inc.

Performing Backups and Restores

A backup copies the data stored on the *CentreVu* CMS R3V5 hard disk to a removable tape. Regular backups provide a way to recover data that would otherwise be lost. *CentreVu* CMS provides two different types of backups:

- CMSADM File System Backup
- *CentreVu* CMS Maintenance Backup — Full and Incremental.

From backup tape(s) you can restore your system and data. For more information about backups and restores, see the *CentreVu™ CMS R3V5 Administration* (585-215-820) document.

Performing a CMSADM File System Backup

The CMSADM file system backup saves all the file systems on the machine onto a tape. This includes the following:

- *Solaris* 2.5 system files and programs
- *CentreVu* CMS programs and data
- Non-*CentreVu* CMS customer data placed on the computer (in addition to the *CentreVu* CMS data).

The CMSADM file system backup should be done as follows:

- At the factory

  This backup is shipped with a new system and can be used during installation, if necessary.

- After the *CentreVu* CMS is provisioned

  This backup contains the *Solaris* system files and programs and *CentreVu* CMS configuration data placed on the computer by TSC provisioning personnel.

  In addition, field technicians should perform a *CentreVu* CMS full maintenance backup before they turn a new system over to the customer. See the *CentreVu™ CMS R3V5 Administration* (585-215-820) document.

- Before and after the *CentreVu* CMS software is upgraded or updated.
- Monthly.

The number of cartridge tapes required to complete a CMSADM file system backup depends on the amount of data on the system and the

capacity of the backup tape. The program estimates the number of tapes required and informs the user.

Before starting the backup procedures in this section, log in as *root,* and enter this command:

```
# lp /etc/vfstab
```

The output from the printer is necessary when doing a system restore.

> You should bundle the printout of the */etc/vfstab* file with the system backup tape(s) for future reference.

Do these steps to perform a CMSADM file system backup:

1. At the system console, log in as *root,* and verify that the computer is in a *Solaris* multi-user state (**2** or **3**).
2. To check if you are in the multi-user state, enter this command:

   ```
   # who -r
   ```

   > The **who -r** command gives you one line of output that describes the state of the terminal.

   A sample response for the **who -r** command for a machine in run-level **3** follows:

   ```
   who -r

   . run-level 3 Feb 2 16:52 3 0 S
   ```

3. In the multi-user state, enter the following command to access the *CentreVu* CMS Administration menu:

   ```
   # cmsadm
   ```

The *CentreVu* CMS Administration menu displays:

```
Lucent Technologies CentreVu(TM) Call Management System
Administration Menu
Select a command from the list below.
  1) acd_create  Define a new ACD
  2) acd_remove  Remove all administration and data for an ACD
  3) backup      Filesystem backup
  4) diskmap     Estimate disk requirements
  5) memory      Estimate memory requirements
  6) realtime    Estimate real-time report refresh rate
  7) pkg_install Install a feature package
  8) pkg_remove  Remove a feature package
  9) run_cms     Turn CentreVu CMS on or off
Enter choice (1-9) or q to quit:
```

4. Enter the number of the **backup** option.

   The system responds:

```
Select tape drive to use:
   1) 150MB cartridge tape
   2) 60MB cartridge tape
   3) 14.0 Gbyte 8mm tape
   4) 5.0 Gbyte 8mm tape
   5) 2.5 Gbyte cartridge tape

Enter choice (1-5):
```

5. Enter **3**.

   The system begins calculating the approximate number of tapes required. You are not prompted.

   If the number of tapes required is 1, the system responds:

```
The backup will need approximately 1 tape.

Please insert the first cartridge tape into </dev/rmt/x>.

Press ENTER when ready:
```

If the number of tapes required is more than one, the system responds:

```
The backup will need approximately <X> tapes.

You will be prompted for additional tapes.

Be sure to number the cartridge tapes consecutively in the
order they will be inserted.

Please insert the first cartridge tape into </dev/rmt/x>.

Press ENTER when ready:
```

6. To begin the backup, insert the cartridge tape, wait for the tape to rewind and reposition, and press Enter.

   If *CentreVu* CMS is turned on, the system responds:

```
The backup is about to begin, CMS is currently on. CMS
will
be turned off automatically during that portion of the
backup which needs CMS off. Press ENTER to proceed or
BREAK
to quit.
```

7. To continue the backup, press Enter.

   If you are using one tape, the system responds:

```
Backing up files...
.................
...(dots continue to display as the system is backed up)
XXXXXX Blocks
```

   If you are using more than one tape, a message prompts you to insert the next tape:

```
Backing up files ...
.................
.................
.................
Please remove the current tape, number it, insert
tape number X, and press ENTER.
```

8. Insert the next tape and press Enter to continue.

   When you insert another tape, allow it to rewind and reposition before you press Enter.

After the system completes the back up, it verifies the back up.

```
Tape Verification
Insert the first tape

Press return to proceed:(there is a delay as tape is verifi
```

9. Insert the first tape and press Enter to continue.

   If you are using more than one tape, a message prompts you to insert the next tape.

```
Tape Verification
Insert the first tape

Press return to proceed:(there is a delay as tape is
verified)

Please insert tape number X and press return: (there is a
delay as tape is verified)
```

   After the tape verification, the system prompts you to label the tapes and then returns you to the system prompt.

```
Please label the backup tape(s) with the date and the curre
CMS version (<version>).
```

10. Label the CMSADM backup tapes with the date and *CentreVu* CMS version.

Restoring from a CMSADM File System Backup

If backups are available, the file systems on the *Sun Enterprise 3000 system* can be restored when an accidental loss of data occurs.

To restore the file systems from a CMSADM backup, do the following:

1. Obtain the cartridge tape(s) that contain the system backups.
2. Obtain the printout of the */etc/vfstab* file that was stored with the backup tapes.
3. See “Recovering from Disk Corruption” in *“Sun Enterprise* 3000 Hardware Installation and Maintenance” (585-215-838).

Checking Contents of a CMSADM Backup Tape

To list the content of the CMSADM backup tapes, do the following:

1. Insert the first backup tape.
2. To list the files on the tape, enter the following commands:

```
# ulimit unlimited
# cpio -ict -C 10240 -I /dev/rmt/0c -M "Please remove the
current tape, insert tape number %d, and press ENTER"
```

The system displays a list of files.

Performing a *CentreVu* CMS Maintenance Backup

CentreVu CMS maintenance backups save only *CentreVu* CMS data (administration and historical).

The *CentreVu* CMS data for each ACD should be backed up as follows:

- After the *CentreVu* CMS is provisioned
- After the *CentreVu* CMS software is upgraded or updated
- Weekly.

You run these backups from the Maintenance: Back Up Data window. See the *CentreVu™ CMS R3V5 Administration* (585-215-820) document.

Performing a *CentreVu* CMS Maintenance Restore

The *CentreVu* CMS R3V5 software application allows you to restore *CentreVu* CMS data lost due to system failure, disk crashes, etc. You can restore all *CentreVu* CMS data that you previously backed up via a *CentreVu* CMS maintenance backup.

NOTE:

You can execute a *CentreVu* CMS maintenance restore from the console terminal; however, the console terminal must be powered on and *CentreVu* CMS must be in the single-user mode. Verify you are in the single-user mode from the System Setup: CMS State window.

After the CMSADM restore is completed or after you have the system in an operable state, restore the *CentreVu* CMS administration and historical data from available *CentreVu* CMS maintenance backups by running a restore from the Maintenance: Restore Data window. See the *CentreVu™ CMS R3V5 Administration* (585-215-820) document.

CentreVu CMS Maintenance Backups Available

The *CentreVu* CMS maintenance restore loads the *CentreVu* CMS data up to the time of the last *CentreVu* CMS maintenance backup. See the *CentreVu™ CMS R3V5 Administration* (585-215-820) document.

Only Full Maintenance Backups Available

If only full *CentreVu* CMS maintenance backups are available, the following steps are the fastest way to get the system running:

1. Load the *most recent* full backup tape.
2. Do an automatic restore of the system administration data, ACD-specific data, historical data, and non-CMS data by entering **y** in the **Restore from last backup (y/n):** field.

NOTE:

When the *CentreVu* CMS restore is complete, turn the *CentreVu* CMS off and then back on so the *CentreVu* CMS runs with the newly restored administration data. To turn *CentreVu* CMS off and on, see the “run_cms’’ section in Appendix A, “CMSADM and CMSSVC Menus.’’

Combination Full and Incremental Maintenance Backups Available

If a combination of full and incremental *CentreVu* CMS maintenance backups are available, the following steps are the fastest way to get the system running:

1. Load the *most recent* full backup tape.
2. Do a manual restore of the system administration data, ACD-specific data, historical data, and non-CMS data by entering **n** in the **Restore from last backup (y/n):** field.
3. Load the *most recent* incremental backup tape.
4. Restore the system administration data, ACD-specific data, historical data, and non-CMS data.

NOTE:

When the *CentreVu* CMS restore is complete, turn the *CentreVu* CMS off and then back on so the *CentreVu* CMS runs with the newly restored administration data. To turn *CentreVu* CMS off and on, see the “run_cms’’ section in Appendix A, “CMSADM and CMSSVC Menus.’’

Changing the Date or Time

The switch time is displayed at the top of most *CentreVu* CMS screens.

NOTE:

Changing the switch time may cause a small distortion in the *CentreVu* CMS data when the change is made. A small amount of data may also be lost when the change occurs. For example, if the *Solaris* system time is advanced, the switch connection is reestablished causing a small amount of data to be lost.

Changing the System Date and Time

Do these steps to change the *Solaris* system time:

1. Log in as *root*.
2. Change to an OpenBoot mode with the following command:

```
# init 0
      .
      .
      .
```

3. At the **ok** prompt, enter the following command:

```
ok  boot -s
      .
      .
      .
Resetting...
Type Ctrl-d to proceed with normal startup
(or give root password for system maintenance):
```

4. Enter the *root* password. The system responds:

```
Entering System Maintenance Mode
Enter Terminal Type: (default is 6300+):
```

5. At the prompt, enter the terminal type.
6. At *root*, enter the **date** command to set the time and date.

```
# date mmddHHMM[yy]
```

For example:

- ***mm* (month):** Enter the month (numeric). Range: 1-12 (1=January, 2=February, etc.).
- ***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.
- ***[yy]* (year):** Enter the last two digits of the year (96, for example, means 1996).

7. Set the time zone environment variable in the */etc/default/init* file by doing the following:
   a. Examine the */usr/share/lib/zoneinfo* directory for time zones. For more information about time zones, see the next section "Changing the System Country and Time Zones" in this chapter.
   b. Edit the */etc/default/init* file with a text editor (for example, vi).
   c. Change the */etc/default/init* file by using the **`w!`** command to overwrite the file.

   NOTE:

   For more information, enter the **`man date`** command at the system prompt, or see *AnswerBook** on-line software.

8. Return to a multi-user state with the following command:

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

   NOTE:

   The **`-i6`** option of the **`shutdown`** command changes the system to a multi-user state.

*AnswerBook is a trademark of Sun Microsystems, Inc.

Changing the System Country and Time Zones

To set the country and time zones, do the following:

1. At the console, exit the *OpenWindows** environment if it is currently running.
2. To initiate an OpenBoot mode, enter the following command:

```
# init 0
```

3. At the **ok** prompt, enter the following command:

```
ok  boot -s
      .
      .
      .
Resetting...
Type Ctrl-d to proceed with normal startup
(or give root password for system maintenance):
```

4. Enter the *root* password.

   The system responds:

```
Entering System Maintenance Mode
Enter Terminal Type: (default is 6300+):
```

5. At the prompt, enter the terminal type.
6. Edit the */etc/default/init* file and set the **TZ** variable to equal the appropriate value in the */usr/share/lib/zoneinfo* directory. Then write and quit the file. For example:

```
# vi /etc/default/init

<contents of the file is displayed>

# @(#)init.dfl 1.2 92/11/26
#
# This file is /etc/default/init. /etc/TIMEZONE is a symlink to this file.
# This file looks like a shell script, but it is not. To maintain
# compatibility with old versions of /etc/TIMEZONE, some shell constructs
# (i.e., export commands) are allowed in this file, but are ignored.
#
# Lines of this file should be of the form VAR=value, where VAR is one of
# TZ, LANG, or any of the LC_* environment variables.
#
TZ=US/Mountain   <-- This is the line you modify.
```

*OpenWindows is a trademark of Sun Microsystems, Inc.

As an example for Mountain Standard Time, the **TZ** variable can be set to **MST** or **US/Mountain**. The entry in the *init* file is essentially a relative path name from the */usr/share/lib/zoneinfo* directory. **MST** is a file in */usr/share/lib/zoneinfo,* and **Mountain** is a file in */usr/share/lib/zoneinfo/US*.

7. Reboot the machine using the following command:

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

NOTE:

For more information, enter the **man date** command at the system prompt, or see *AnswerBook* on-line software.

Resynchronizing the I/O Board Clock

In certain situations, the clock on the I/O or I/O graphics board may be different from the clock on the clock board. That may happen, for example, when you must install a card to use the SBus slot on the I/O graphics board. While the board is out of the *Enterprise* cabinet, the clock is unpowered. When you reinstall the board, its clock will be different from the clock board's clock, causing a warning message to display each time you reboot.

To resync the clocks, do the following:

1. If CMS is running, turn it off.
2. Go to the boot prompt. You can do that in one of three ways:
   a. You can type **init 0**, or
   b. You can type **/usr/sbin/shutdown -y -g0 -i0**, or
   c. You can press Stop-A while the *Enterprise* is booting, after the *Sun* logo displays
3. Type the following command:
   copy-clock-tod-to-io-boards
4. Boot the machine by typing one of the following commands:
   boot
   boot -r *(to reconfigure for new devices)*

Checking Installed Software Packages

To verify that the correct software packages have been installed, do the following steps:

1. Enter the following command at the system prompt:

```
# pkginfo | more
```

   The system responds:

```
# pkginfo |more
  application    SUNWabe       Solaris 2.5 User AnswerBook
  system         SUNWaccr      System Accounting, (Root)
  system         SUNWaccu      System Accounting, (Usr)
  .
  .
  .
```

2. Compare the list generated by the **pkginfo** command to Table 5-1, which lists all the basic *Solaris* and *CentreVu* CMS software packages installed on a *Sun Enterprise 3000 system*.

   See Appendix B, “Factory Software Installation Procedures” for more information about installing *CentreVu* CMS software.

Table 5-1: Installed *Solaris* and *CentreVu* CMS Software Packages

Type of Package	Package Name	Description
application	SUNWaadm	*Solaris* 2.5 System Administrator *AnswerBook*
application	SUNWabe	*Solaris* 2.5 User *AnswerBook*
application	SUNWabes2	*Sun Enterprise* 3000 System Hardware *AnswerBook*
application	SUNWabmd	*DiskSuite* 4.0 *AnswerBook*
application	SUNWabsa	*Solaris* 2.5.1 Supplemental System Administration *AnswerBook*
application	SUNWabx25	*SunLink* X.25 9.0 *AnswerBook*
system	SUNWaccr	System Accounting, (Root)
system	SUNWaccu	System Accounting, (Usr)
system	SUNWadmap	System administration applications
system	SUNWadmc	System administration core libraries
system	SUNWadmfw	System & Network Administration Framework

Table 5-1: Installed *Solaris* and *CentreVu* CMS Software Packages (Contd)

Type of Package	Package Name	Description
system	SUNWadmr	System & Network Administration Root
application	SUNWaman	*Solaris* 2.5 Reference Manual *AnswerBook*
system	SUNWapppr	PPP/IP Asynchronous PPP daemon configuration files
system	SUNWapppu	PPP/IP Asynchronous PPP daemon and PPP login service
system	SUNWaudio	Audio applications
system	SUNWbcp	*SunOS** 4.x Binary Compatibility
system	SUNWbnur	Networking UUCP Utilities, (Root)
system	SUNWbnuu	Networking UUCP Utilities, (Usr)
system	SUNWbtool	CCS tools bundled with *SunOS*
system	SUNWcar	Core Architecture, (Root)
system	SUNWcg6	GX (cg6) Device Driver
system	SUNWcsd	Core *Solaris* Devices
system	SUNWcsr	Core *Solaris*, (Root)
system	SUNWcsu	Core *Solaris*, (Usr)
system	SUNWdfb	Dumb Frame Buffer Device Drivers
system	SUNWdoc	Documentation Tools
system	SUNWdtbas	CDE base
system	SUNWdtcor	CORE (CDE)
system	SUNWdtdmn	CDE daemons
system	SUNWdtdst	CDE DESKTOP APPS
system	SUNWdtdte	CDE DESKTOP LOGIN ENVIRONMENT
system	SUNWdtft	CDE fonts
system	SUNWdthe	CDE HELP RUNTIME
system	SUNWdthev	CDE HELP VOLUMES
system	SUNWdticn	CDE icons
system	SUNWdtim	CDE DESKTOP APPS
system	SUNWdtma	CDE man pages
system	SUNWdtrme	CDE README FILES
system	SUNWdtwm	CDE DESKTOP WINDOW MANAGER
system	SUNWesu	Extended System Utilities

Table 5-1: Installed *Solaris* and *CentreVu* CMS Software Packages (Contd)

Type of Package	Package Name	Description
system	SUNWhmd	*SunSwift*† SBus Adapter Drivers
system	SUNWhmdu	*SunSwift* SBus Adapter Headers
system	SUNWhsis	HSI/S Driver/Utilities 2.0 v1.6
system	SUNWhsis.2	HSI/S Driver/Utilities 2.0 Patch 101130-10 v1.37
system	SUNWinst	Install Software
system	SUNWipc	Interprocess Communications
system	SUNWkey	Keyboard configuration tables
system	SUNWkvm	Core Architecture, (Kvm)
system	SUNWlibC	*SPARCompiler*‡ Bundled libC
system	SUNWlibCf	*SPARCompiler* Bundled libC (cfront version)
system	SUNWlibms	*SPARCompiler* Bundled shared libm
application	SUNWlicsw	FlexLM License System
application	SUNWlit	STE License Installation Tool
application	SUNWllc2a	LLC2 kernel modules and include files for *Solaris* and *SPARC*
application	SUNWllc2a.2	LLC2 kernel modules and include files for *Solaris* and *SPARC*
application	SUNWllc2b	LLC2 user programs and man pages for *Solaris* and *SPARC*
system	SUNWloc	System Localization
system	SUNWlpmsg	LP Alerts
system	SUNWlpr	LP Print Service, (Root)
system	SUNWlps	LP Print Service - Server, (Usr)
system	SUNWlpu	LP Print Service - Client, (Usr)
system	SUNWman	On-Line Manual Pages
system	SUNWmd	*Solstice DiskSuite*
system	SUNWmd.2	*Solstice DiskSuite*
system	SUNWmfrun	*Motif* RunTime Kit
system	SUNWnisr	Network Information System, (Root)
system	SUNWnisu	Network Information System, (Usr)
system	SUNWolaud	*OPEN LOOK*** Audio applications
system	SUNWolbk	*OpenWindows*†† online handbooks
system	SUNWoldcv	*OPEN LOOK* document and help viewer applications

Table 5-1: Installed *Solaris* and *CentreVu* CMS Software Packages (Contd)

Type of Package	Package Name	Description
system	SUNWoldst	*OPEN LOOK* deskset tools
system	SUNWoldte	*OPEN LOOK* Desktop Environment
system	SUNWolimt	*OPEN LOOK* imagetool
system	SUNWolrte	*OPEN LOOK* toolkits runtime environment
system	SUNWowbcp	*OpenWindows* binary compatibility
system	SUNWowrqd	*OpenWindows* required core package
system	SUNWploc	Partial Locales
system	SUNWplow	*OpenWindows* enabling for Partial Locales
system	SUNWpppk	PPP/IP and IPdialup Device Drivers
system	SUNWscbcp	*SPARCompilers* Binary Compatibility Libraries
system	SUNWscpr	Source Compatibility, (Root)
system	SUNWscpu	Source Compatibility, (Usr)
system	SUNWssadv	*SPARCstorage*‡‡ Array Drivers
system	SUNWssaop	*SPARCstorage* Array Utility
system	SUNWter	Terminal Information
system	SUNWtltk	ToolTalk runtime
system	SUNWtoo	Programming Tools
application	SUNWvlxil	VIS/XIL Support
system	SUNWvolg	Volume Management Graphical User Interface
system	SUNWvolr	Volume Management, (Root)
system	SUNWvolu	Volume Management, (Usr)
application	SUNWx25a	X.25 kernel modules and include files for *Solaris* and *SPARC*
application	SUNWx25a.2	X.25 kernel modules and include files for *Solaris* and *SPARC*
application	SUNWx25b	X.25 user programs and libraries for *Solaris* and *SPARC*
application	SUNWx25b.2	X.25 user programs and libraries for *Solaris* and *SPARC*
system	SUNWxcu4	XCU4 Utilities
application	SUNWxgldg	*XGL**** Generic Loadable Libraries
application	SUNWxgler	*XGL* English Localization
application	SUNWxglft	*XGL* Stroke Fonts
application	SUNWxglrt	*XGL* Runtime Environment

Table 5-1: Installed *Solaris* and *CentreVu* CMS Software Packages (Contd)

Type of Package	Package Name	Description
application	SUNWxildg	XIL Loadable Pipeline Libraries
application	SUNWxiler	XIL English Localization
application	SUNWxilow	XIL Deskset Loadable Pipeline Libraries
application	SUNWxilrt	XIL Runtime Environment
system	SUNWxwcft	*X Windows*††† common (not required) fonts
system	SUNWxwdv	*X Windows* window drivers
system	SUNWxwfnt	*X Windows* platform required fonts
system	SUNWxwman	*X Windows* online user man pages
system	SUNWxwmod	*OpenWindows* kernel modules
system	SUNWxwopt	Nonessential MIT core clients and server extensions
system	SUNWxwplt	*X Windows* platform software
system	SUNWxwpsr	Sun4u platform-specific X server auxiliary filter modules
application	cms	*CentreVu*™ Call Management System
application	spatches	CMS-supplied *Solaris* patches

* SunOS is a trademark of Sun Microsystems, Inc.
† SunSwift is a trade mark of Sun Microsystems, Inc.
‡ SPARCompiler is a registered trademark of SPARC International, Inc. Licensed exclusively to SUN Microsystems, Inc.
** OPEN LOOK is a registered trademark of Novell, Inc.
†† OpenWindows is a trademark of Sun Microsystems, Inc.
‡‡ SPARCstorage is a trademark of SPARC International, Inc.
*** XGL is a trademark of Sun Microsystems, Inc.
††† The X Window System is a trademark of The Open Group

Auditing *CentreVu* CMS Package

Do these steps to audit a *CentreVu* CMS Package:

1. To check the base package (**cms**), enter the following command:

```
# pkgchk -n cms
```

   The system responds:

```
ERROR: /cms/install/logdir/admin.log
    group name <root> expected <cms> actual
ERROR: /cms/install/logdir/install.log
    group name <root> expected <cms> actual
ERROR: /usr/lib/cms/Aname
    pathname does not exist
ERROR: /usr/lib/cms/Pname
    pathname does not exist
ERROR: /usr/lib/cms/Sname
    pathname does not exist
ERROR: /usr/lib/cms/pbxtrcflags
    group name <bin> expected <cms> actual
```

   NOTE:

   The error messages listed above might print out after installing CMS. The messages do **not** signal a problem and can be disregarded.

2. To check an update (**cms.2**), enter the following command:

```
# pkgchk -n cms.2
```

   The system responds:

```
# pkgchk -n cms.2

WARNING: no pathname save associated with <cms.2>.
```

   NOTE:

   The warning message in the example above indicates there is no update present. If there *is* an update, the message will be different.

Moving Back to a Previous Load

CAUTION:

Only **TSC PERSONNEL** should perform the procedures in this section.

If the installation of an upgrade fails, the upgrade has to be removed. If the upgrade fails, do the following:

1. Remove any currently installed updates. See the *CentreVu™ CMS R3V5 Upgrades and Migration* (585-215-826) document.
2. Remove the *CentreVu* CMS base package, and answer **no** to the system prompt:

   ```
   Do you want to preserve data?
   ```

   See the *CentreVu™ CMS R3V5 Upgrades and Migration* (585-215-826) document.
3. Restore the *CentreVu* CMS from the CMSADM backup you performed just before upgrading to the current load. This restores the *CentreVu* CMS data as it existed just prior to the upgrade.

Backing Out of a *Solaris* Patch

If an update, upgrade, or new installation is administered, you may not need a specific patch.

CAUTION:

You should perform the following procedures only when instructed by the TSC or upon receipt of a release letter.

To back out of a *Solaris* patch, do the following steps.

1. Enter the following commands at the system prompt:

```
# cd /var/sadm/patch
# <patch-id>/backout <patch-id>
```

The *<patch-id>* is identified by the TSC or in the release letter. The system responds (for example):

```
# 101122-07/backoutpatch 101122-07
@(#) 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. Reboot by entering the following command:

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

Rebooting helps to make sure the patches are activated correctly.

Adding *INFORMIX* SQL

This section describes how to install and set up the *INFORMIX* Structured Query Language (SQL) package on your system.

NOTE:

The *INFORMIX* SQL package is optional. If you received the package, you do not need to install it on your system. **Only** the *INFORMIX* Standard Engine (SE) package needs to be installed. *INFORMIX* SQL is an optional package and must be purchased separately.

NOTE:

To add *INFORMIX* SQL to your current system, you remove the current version of *INFORMIX* SE, install *INFORMIX* SQL, and finally reinstall *INFORMIX* SE. If you do not follow that scenario, CMS errors may occur.

Installing the *INFORMIX* Software

Prerequisites: The *Solaris* operating system should be installed, you should be logged in as *root* at the console terminal, and you must have the *INFORMIX* Serial Number and Serial Number Key (on the back of the *INFORMIX* CD).

To install the *INFORMIX* SQL software after the *Sun Enterprise 3000* system has been installed, you must complete the following tasks:

1. Remove the current *INFORMIX* SE software
2. Set the environment
3. Install the *INFORMIX* SQL package
4. Install the *INFORMIX* SE package.

NOTE:

Make sure to set the environment variables. If you log out before completing the installation, you lose the environment variables you set.

Additional References

For more information, refer to the following documentation:

INFORMIX UNIX Products Installation Guide Version 6.05*
INFORMIX UNIX Products Installation Guide Version 7.13.

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Step 1: Remove the Current *INFORMIX* Software

Do these steps to remove the current *INFORMIX* software:

1. Turn off the *CentreVu* CMS. Do the following steps:
   a. At the system prompt, enter the following command:

   ```
   # cmsadm
   ```

   The system displays the CMSADM (Call Management System Administration Menu).

   b. From the *CentreVu* CMS Administration Menu, enter the number of the **`run cms`** option.

   c. At the prompt, enter **2** to turn off the *CentreVu* CMS. You are returned to the system prompt.

2. Enter the following command to move to the existing *INFORMIX* directory:

   ```
   # cd /opt/informix
   ```

3. Verify that you are in the */opt/informix* directory by entering the following command:.

   ```
   # pwd
   ```

4. Remove the existing INFORMIX software by entering the following command:

   CAUTION:

   The following command removes every file and subdirectory under the current directory

   ```
   # rm -fr *
   ```

   The *INFORMIX* software is now removed.

Step 2: Set Up the *INFORMIX* Environment

Do the following steps to set up the *INFORMIX* environment:

1. To set the environment variables, enter the following commands:

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

2. Change to the */opt/informix* directory by entering:

```
# cd $INFORMIXDIR
```

3. Make sure you are in the */opt/informix* directory by entering:

```
# pwd
```

The *INFORMIX* installation environment is now set up.

Step 3: Install the *INFORMIX* SQL Package

NOTE:

This software package is optional and is needed only if you are using *INFORMIX* reports. If you do not need this package, skip this section.

To install the *INFORMIX* SQL software, do the following:

1. Remove the *INFORMIX* SQL CD from its case and record the *INFORMIX* SQL Serial Number and the Serial Number Key exactly as they appear on the CD.
2. Load the CD into the CD-ROM drive tray.
3. Enter the following command to check that the CD has mounted:

```
#  mount
```

The system responds by listing the mounted devices. For example:

```
/ on /dev/dsk/c0t0d0s0 read/write/setuid on Mon Jun 2 06:23:29
/proc on /proc read/write/setuid on Mon Jun  2 06:23:29 1997
/dev/fd on fd read/write/setuid on Mon Jun  2 06:23:29 1997
/cms on /dev/md/dsk/d19 setuid/read/write on Mon Jun  2 06:23:
1997
/cdrom/unnamed_cdrom on /vol/dev/dsk/c0t6d0/unnamed_cdrom read
on Mon Jun  2 09:49:13 1997
```

4. Verify the name of the installation file. For example:

```
#  ls  /cdrom/unnamed_cdrom
sql.tar
#
```

5. Enter the following command to extract the *INFORMIX* SQL files from the CD:

```
# tar xvf /cdrom/unnamed_cdrom/sql.tar
```

   The system responds:

```
x installsql, 1047 bytes, 3 tape blocks
x bin/cace, 2417 bytes, 5 tape blocks
     .
     .
     .
x demo/sql2/state.unl, 697 bytes, 2 tape blocks
x demo/sql2/stock.unl, 2937 bytes, 6 tape blocks
```

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

```
# ./installsql
```

   The system responds with the following screen:

```
INFORMIX-SQL Version 6.05.UC1
Copyright (C) 1984-1995 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 this system.

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

7. Press Enter to continue with the installation procedure.

   After a few minutes, your terminal displays the following message:

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

8. Enter the 11-character serial number that you wrote down in Step 1. The system responds:

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

9. Enter the 6-character serial number key you wrote down in Step 1. The system responds:

```
WARNING: This INFORMIX SOFTWARE, INC. SOFTWARE is licensed
for use by XX SIMULTANEOUS USER(S) on this computer system.
In the event you exceed XX simultaneous user(s), the End User
License Agreement, and the licenses granted to you thereunder
are subject to immediate termination by Informix.

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

10. Press the Enter key to continue with the installation procedure. The system responds:

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

#
```

11. Eject the CD by entering the following command:

```
# eject cdrom
```

12. Remove the CD from the disk tray and return it to its case.

The *INFORMIX* SQL software is now installed.

Step 4: Reinstall the *INFORMIX* SE Package

After you have installed the *INFORMIX* SQL package, reinstall the *INFORMIX* SE package you removed earlier. The *INFORMIX* SE software is on its own CD.

To reinstall the *INFORMIX* SE software package, do the following:

1. Remove the *INFORMIX* SE CD from its case, and write down the Serial Number and the Serial Number Key exactly as they appear on the CD.
2. Load the CD into the CD-ROM drive.

3. Enter the following command to copy the files from the CD to the current directory:

```
# tar xvf /cdrom/unnamed_cdrom*/se.tar
```

   The program responds:

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

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

```
# ./installse
```

   The program responds with the following screen:

```
INFORMIX-SE Version 7.13.UC1
Copyright (C) 1984-1994 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.
```

5. Press Enter to continue with the installation. After a few minutes, your terminal displays the following message:

```
Enter your serial number (for example, INF#R999999) >
```

6. Enter the 11-character serial number you wrote down in Step 1. The program responds:

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

7. Enter the 6-character serial number key you wrote down in Step 1. The program responds:

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

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

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

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

9. Open the CD-ROM drive by entering an **eject cdrom** command. Remove the CD and return it to its case.

Installation of *INFORMIX* is now complete.

Appendix A
CMSADM and CMSSVC Menus

List of Figures

CentreVu CMS Administration Menu (CMSADM)

The Call Management System (CMS) Administration (CMSADM) menu is intended for use primarily by the *CentreVu*™ CMS Administrator (see Figure 2-1).

```
Lucent Technologies CentreVu(TM) Call Management System
Administration Menu
Select a command from the list below.
   1) acd_create  Define a new ACD
   2) acd_remove   Remove all administration and data for an ACD
   3) backup      Filesystem backup
   4) diskmap     Estimate disk requirements
   5) memory      Estimate memory requirements
   6) realtime    Estimate real-time report refresh rate
   7) pkg_install Install a feature package
   8) pkg_remove  Remove a feature package
   9) run_cms     Turn CentreVu CMS on or off
Enter choice (1-9) or q to quit:
```

Figure A-1: CMSADM Menu Example

The *CentreVu* CMS Administrator can do the following from this menu:

- Define a new Automatic Call Distribution (ACD).
- Remove an ACD.
- Back up the file systems to tape.
- Estimate *CentreVu* CMS disk requirements, memory requirements, and real-time refresh rate.
- Install or remove a feature package.
- Turn *CentreVu* CMS on or off.

NOTE:

You must log in as *root* to access this menu. To access the cmsadm menu, enter **cmsadm** at the prompt. Select from the options on the *CentreVu* CMS Administration menu.

The following sections explain the options on the *CentreVu* CMS Administration menu.

acd_create

The **acd_create** option on the *CentreVu* CMS Administration menu allows you to define a new ACD.

NOTE:

The ACD must be authorized, and therefore purchased, before it can be added to the *CentreVu* CMS. See the "Setting Authorizations'' section in Chapter 6, "Setting Up *CentreVu* CMS and Installing Feature Packages,'' for details.

1. Access the *CentreVu* CMS Administration menu by entering:

```
# cmsadm
```

   The *CentreVu* CMS Administration menu appears.

```
Lucent Technologies CentreVu(TM) Call Management System
Administration Menu
Select a command from the list below.
   1) acd_create  Define a new ACD
   2) acd_remove  Remove all administration and data for an
ACD
   3) backup      Filesystem backup
   4) diskmap     Estimate disk requirements
   5) memory      Estimate memory requirements
   6) realtime    Estimate real-time report refresh rate
   7) pkg_install Install a feature package
   8) pkg_remove  Remove a feature package
   9) run_cms     Turn CentreVu CMS on or off
Enter choice (1-9) or q to quit:
```

NOTE:

Before you define a new ACD, you must turn off the *CentreVu* CMS.

2. To turn off *CentreVu* CMS, do the following:
   a. Enter **9** to select **run_cms** on the *CentreVu* CMS Administration menu.
   b. Enter **2** to turn off the *CentreVu* CMS. You will see the system prompt.
   c. Enter **cmsadm**. The *CentreVu* CMS Administration menu appears.

3. Enter **1** to choose **acd_create**.
4. At the prompts, you need to enter the following information:
   - Switch name for the new ACD
   - Switch model (release)
   - Vectoring enabled on the switch (if authorized)
   - Expert Agent Selection Enabled (if authorized)
   - Does Central Office have disconnect supervision? (Y/N)
   - Local port assigned to the switch
   - Remote port assigned to the switch
   - Device used for x.25 connectivity
   - 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 VDNs (if vectoring is enabled on the switch)

   After you have entered all the required information, the message **Updating database** appears, followed by **ACD created successfully**.
5. Turn the *CentreVu* CMS back on by doing the following:
   a. Enter **cmsadm**. The *CentreVu* CMS Administration menu appears.
   b. Enter **9** to select **run_cms** on the *CentreVu* CMS Administration menu.
   c. Enter **1** to turn on the *CentreVu* CMS.

   A message appears telling you that *CentreVu* CMS is running.

acd_remove

The **acd_remove** option on the *CentreVu* CMS Administration menu allows you to remove an ACD.

NOTE:

An ACD must be created before it can be removed.

NOTE:

To remove the master ACD, you must first designate some other ACD as the master. Use this procedure:

1. From the main CMS menu, select **System Setup - CMS State**.
2. Tab to the **Master ACD** field and type in a new name.
3. Access the action list and select **Modify**.
4. Return to the main menu and select **Logout**.

You are now free to use the procedure below to remove the ACD formerly designated the master.

1. Access the cmsadm (*CentreVu* CMS Administration) menu by entering **cmsadm**. The Administration menu appears.
2. Turn off *CentreVu* CMS by doing the following steps:
   a. Select **run_cms** from the CMSADM menu.
   b. When prompted, enter **2** to turn off *CentreVu* CMS. The system prompt returns.
   c. Enter **cmsadm** to restart cmsadm.
3. Enter **2** to select the **acd_remove** option.
4. To select the ACD you want to remove, enter your choice (**1-3**).

   A message appears telling you that all administration and historical data for this ACD will be deleted.
5. Answer **y** at the following prompt: "**Do you want to continue and delete all data for this ACD?**"

   The ACD will be removed in the background. A message appears telling you where you can find the complete message confirming the removal (for example, **/cms/install/logdir/admin.log**).
6. Since the ACD is removed in the background, you can turn CMS back on before the removal is complete. See the previous procedure "acd_create" to turn on the *CentreVu* CMS.

backup

The **backup** option on the *CentreVu* CMS Administration menu allows you to back up your file systems.

NOTE:

You do not need to turn off *CentreVu* CMS to start the backup. If *CentreVu* CMS is on, the system turns off *CentreVu* CMS during the portion of the backup which needs *CentreVu* CMS off. When that portion completes, the system turns *CentreVu* CMS back on.

See “Performing a CMSADM File System Backup” on page 5-2 for more information about this option.

diskmap

The **diskmap** option on the *CentreVu* CMS Administration menu allows you to estimate *CentreVu* CMS disk requirements.

1. Access the *CentreVu* CMS Administration menu by entering **cmsadm** at the system prompt. The *CentreVu* CMS Administration menu appears.
2. Enter **4** to select the **diskmap** option.
3. Answer the prompts that appear on the screen to estimate *CentreVu* CMS disk requirements.

   NOTE:

   You may back up one prompt at a time by entering any negative number (for example, -1).

You need the following information:

- Customer name
- *CentreVu* CMS host computer type
- Total amount of Random Access Memory (RAM) equipped.

<If you answer "**y**" to go to the table allocation part of the program, then you must enter the following information (in megabytes):>

- Total amount of disk space
- Amount of agent, split, and trunk data
- Amount of trunk group, vector, and VDN data
- Amount of call work code, exception, agent trace, and call history data
- Amount of forecast, agent login/logout, and non-CMS customer data.

<You are asked if you want to run another case? (y/n)>

<If you answer "**n**" not to go to the table allocation part of the program, then you must enter the following information:>

- Will pseudo-ACD data be added? (y/n)
- Number of ACDs (1-4)
- Number of minutes in one interval (15, 30, 60)
- Start and stop times for data collection
- Number of shifts

  <You must enter the following information for each shift:>

  — Number of agents

  — Start time

  — Stop time
- Number of splits
- Number of trunk groups
- Number of trunks
- Number of vectors
- Number of VDNs
- Number of call work codes (CWCs)
- Internal or external call history enabled?

<If you answer "**n**" to internal call history enabled, you will be asked

if external call history is enabled (y/n).>

- Number of exception records
- Number of agent trace records
- Number of call history records
- Number of days of intrahour data saved for, number of days of daily data saved for, number of weeks of weekly data saved for, and number of months of monthly data saved for:
  - splits
  - agents
  - trunk groups
  - trunks
  - vectors
  - VDNs
  - CWCs.
- Number of times an agent logs out during a shift
- Forecasting enabled?

<If you answer "**y**" to forecasting enabled, then you must enter the following information:>

- Number of days of intrahour data for splits
- Number of days of intrahour data for trunk groups
- Number of days of daily data for splits
- Number of special days (average per split)
- Number of days that current day reports will be saved (average per split)
- Extra non-CMS disk space specified by the customer
- Total recommended disk space.

<You are asked if you want to do disk allocations now (y/n).>

<You are asked if you want to run another case (y/n).>

memory

The **memory** option on the *CentreVu* CMS Administration menu allows you to estimate your memory requirements.

1. Access the CMSADM menu by entering **cmsadm** at the system prompt. The *CentreVu* CMS Administration menu appears.
2. Enter **5** to select the **memory** option.
3. At the prompts, enter the requested information.

   NOTE:

   You may back up one prompt at a time by entering any negative number (for example, -1).

   You need the following information:

   - Customer name
   - *CentreVu* CMS host computer type
   - Number of ACDs
   - Switch model
   - Maximum number of agents simultaneously logged in

     NOTE:

     If an agent logs in to multiple splits or skills, count that agent multiple times.

   - Number of splits/skills
   - Number of trunk groups
   - Number of trunks
   - Number of VDNs
   - Number of call work codes
   - Agent trace enabled?
   - Internal or external call history enabled?
     <If you answer "**n**" to internal call history enabled, you will be asked if external call history is enabled (y/n).>
   - Number of terminals simultaneously logged into *CentreVu* CMS
   - Number of real-time reports running per terminal
   - Number of agent group reports
   - Number of agents per group

- Number of agent, split-status, event-count-summary, or queue/agent status reports
- Number of trunk group reports
- Number of split reports
- Number of splits per split report
- Number of VDN reports
- Number of VDNs per VDN report
- Number of VDN skill preference reports
- Number of VDNs per VDN skill preference report
- Number of vector reports
- Number of vectors per vector report
- Number of call profile reports
- Number of graphical reports (excluding the graph-call-profile report)
- Number of queue/agent summary reports
- Number of historical and forecasting reports running simultaneously during the busy hour
- Number of real-time exception reports running simultaneously during the busy hour
- Will custom reports be created or edited during busy hour?
- If yes, number of windows running administration screens simultaneously during the busy hour?
  <If you answer "**y**" to custom reports being created or edited during the busy hour, then you must enter the following information:>
- Number of windows doing custom report creation or editing during busy hour
  <If you answer "**y**" to internal call history or agent trace reports to run during the busy hour, then you must enter the following information.>
- Number of windows running call history or agent trace reports during busy hour.
- Will backups be done during the busy hour?
- Do you want to run another case?
  <If you answer "**y**" to running another case, you are returned to entering a *CentreVu* CMS host computer type.>

realtime

The **realtime** option on the *CentreVu* CMS Administration menu allows you to estimate the real-time report refresh rate your system needs.

1. Access the *CentreVu* CMS Administration menu by entering **cmsadm** at the system prompt. The *CentreVu* CMS Administration menu appears.
2. Enter **6** to select the **realtime** option.
3. Answer the prompts that appear on the screen.

   NOTE:

   You may back up one prompt at a time by entering any negative number (for example, -1).

   You need the following information:

   - Customer name
   - *CentreVu* CMS host computer type
   - Number of ACDs
   - Number of agents per split
   - Number of trunks per trunk group
   - Number of agents per group report
   - Number of splits per split report
   - Number of vectors per vector report
   - Number of VDNs per VDN report
   - Number of VDNs per VDN skill preference report
   - Is vectoring enabled?
   - Archiving intervals in minutes (15, 30, or 60)
   - Will either of the following be used?
     - — Agents in multiple splits, without EAS
     - — Generic 2.2 EAS
     - — G3V4 with Expected Wait Time, rolling Average Speed of Answer, ii-digits, and ANI.
   - Will most calls be complex? (For example, will they involve either a hold, transfer, conference, or supervisor assist?)
   - Exceptions enabled?

- Internal call history enabled?
- External call history enabled?
- Call rate in calls per hour
- Agent trace enabled?

  <If you answered “**y**” to the agent trace enabled, then you must enter the following information:>

  — Approximate average agent service time, in minutes

  — Number of agents traced simultaneously.
- Number of terminals
- Number of ”COW” (CentreVu Supervisor) sessions simultaneously logged in to CMS.
- Number of internal call history or agent trace reports that will be run per hour (during prime time)
- Number of historical plus forecasting reports that will be run per hour while real-time reports are running

<If you enter “**1**” to get different periods for different types of reports, then you must enter the following information:>

- Number of real-time reports running per session

<You can answer “**y**” to give preferential treatment to running some reports faster at the expense of other reports.>

- Do you want to change the number of the reports?

<If you answer “n” to changing the number of reports, do you want to see the list of cpu times (the tau’s) so that you can do completely general tradeoffs?>

<If you answer “**y**” to changing the number of reports, you are returned to choose either “**1**” or “**2**”.>

<If you enter “**2**” to get a single period, you need to enter the number of each type of report that is running.>

- Split/Skill Report
- Split Report Status
- Split Call Profile Report
- Agent Report
- Group Report
- Queue/Agent Status Report
- Queue/Agent Summary Report
- Trunk Group Report
- Event Count Summary Report

- Multi-ACD Report
- Graph Split Report
- Graph Queue Report
- Graph Split Call Profile Report
- Graph VDN Call Profile Report
- Vector Report
- VDN Report
- VDN Call Profile Report
- VDN Skill Preference Report.

Do you want to change the number of reports?

Do you want to analyze another case?

pkg_install

The **pkg_install** option on the *CentreVu* CMS Administration menu allows you to install a feature package. For more information on this option, see Chapter 2, ‘‘Setting Up *CentreVu* CMS and Installing Feature Packages.’’

pkg_remove

The **pkg_remove** option on the *CentreVu* CMS Administration menu allows you to remove a feature package. This procedure removes all files and database items associated with the feature package.

CAUTION:

Be careful when removing a package: all features and data associated with that package will be lost.

1. Access the *CentreVu* CMS Administration menu by entering **cmsadm** at the system prompt. The *CentreVu* CMS Administration menu appears.
2. Enter **8** to select the **pkg_remove** option.

   A list of *CentreVu* CMS features that can be removed is displayed.
3. Enter the number corresponding to the feature package that you want to remove.

   A message is displayed telling you when the feature is removed.

run_cms

The **run_cms** option on the *CentreVu* CMS Administration menu allows you to turn *CentreVu* CMS on or off.

1. Access the *CentreVu* CMS Administration menu by entering **cmsadm** at the system prompt. The *CentreVu* CMS Administration menu appears.
2. Enter **9** to select the run_cms option.
3. Enter **1** to turn on *CentreVu* CMS or **2** to turn off *CentreVu* CMS.

CentreVu CMS Services Menu (CMSSVC)

The *CentreVu* CMS Services (CMSSVC) menu is intended for use primarily by Lucent Technologies services personnel (see Figure 2-2).

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

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

Figure A-2: CMSSVC Menu Example

This menu allows services personnel to do the following:

- Display *CentreVu* CMS authorizations.
- Authorize *CentreVu* CMS feature packages and capacities.
- Turn *CentreVu* CMS on and off.
- Set up the initial *CentreVu* CMS configuration.
- Display switch information.
- Change switch information.
- Install a *CentreVu* CMS patch.
- Back out an installed *CentreVu* CMS patch.
- Install all *CentreVu* CMS patches.
- Back out all installed *CentreVu* CMS patches.

You must log in as *root* to access this menu.

The following sections explain the options on the *CentreVu* CMS Services menu.

auth_display

From the **auth_display** option on the *CentreVu* CMS Services menu, you can display *CentreVu* CMS authorizations.

1. Access the *CentreVu* CMS Services menu by entering:

```
# cmssvc
```

   The *CentreVu* CMS Services menu appears.

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

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

2. Enter **1** to select the **auth_display** option.

   The purchased version of *CentreVu* CMS and the current authorization status for CMS features and capacities are displayed.

   The possibilities for authorization status are as follows:

   - Authorized – The feature has been paid for, and authorization has been turned on.
   - Not authorized – The feature has not been paid for, or authorization has not been turned on.
   - Installed – The feature is authorized, and the software to support the feature has been installed.

For more information on this option, see Chapter 6, ‘‘Setting Up *CentreVu* CMS and Installing Feature Packages.’’

auth_set

From the **auth_set** option on the *CentreVu* CMS Services menu, you can authorize *CentreVu* CMS features and capacities.

See the ‘‘Setting Authorizations’’ section in Chapter 6, ‘‘Setting Up *CentreVu* CMS and Installing Feature Packages,’’ for more information.

run_cms

From the **run_cms** option on the *CentreVu* CMS Services menu, you can turn *CentreVu* CMS on and off.

1. Access the *CentreVu* CMS Services menu by entering **cmssvc** at the system prompt. The *CentreVu* CMS Services menu appears.
2. Enter **3** to select the **run_cms** option.
3. Enter **1** to turn on *CentreVu* CMS or **2** to turn off *CentreVu* CMS.

setup

From the **setup** option on the *CentreVu* CMS Services menu, you can set up the initial *CentreVu* CMS configuration. For example, you can set up the type of backup device you want to use (QIC 2.5-GB, 14-GB, etc.).

NOTE:

Do not confuse this option with the **swsetup** which is for changing the switch information.

CAUTION:

If you run **setup** on an operating system, you will lose all customer data on that system.

See Chapter 2, ‘‘Setting Up *CentreVu* CMS and Installing Feature Packages,’’ for more information about this option.

swinfo

From the **swinfo** option on the *CentreVu* CMS Services menu, you can display the switch parameters.

1. Access the *CentreVu* CMS Services menu by entering **cmssvc** at the system prompt. *CentreVu* CMS Services menu appears.
2. Enter **5** to select the **swinfo** option.
3. Select the ACD you want to show information for.

   The following switch information is displayed:

   - Switch name
   - Switch model (release)
   - Vectoring
   - Expert Agent Selection
   - Central Office disconnect supervision
   - Local port
   - Remote port
   - Device for the x.25 link.

swsetup

From the **swsetup** option on the *CentreVu* CMS Services menu, you can change the switch parameters.

NOTE:

Do not confuse this option with the **setup** option which is for setting up *CentreVu* CMS.

NOTE:

When you change switch parameters, you should also check the parameters in the *CentreVu* 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.

1. Access the *CentreVu* CMS Services menu by entering **cmssvc** at the system prompt. The *CentreVu* CMS Services menu appears.
2. Turn *CentreVu* CMS off. See the “run_cms” section of this chapter for details.

3. After the *CentreVu* CMS is turned off, enter **cmssvc** again.
4. Enter **6** to select the **swsetup** option.
5. Answer the prompts that appear on the screen. You need the following information:
   - Switch name
   - Switch model (release)
   - Vectoring
   - Expert Agent Selection
   - Central Office disconnect supervision
   - Local port
   - Remote port
   - Device for the x.25 link.

   The link number represents the port that is connected to the switch:

   1) Serial Port B
   2) Corresponds to HSI/S Port 0
   3) Corresponds to HSI/S Port 1
   4) Corresponds to HSI/S Port 2
   5) Corresponds to HSI/S Port 3
   6) Software loopback link 0
   7) Software loopback link 1

   A display of the information is shown. The system will then ask if the above switch administration is correct.
6. Answer **y** or **n**.

patch_inst

From the **patch_inst** option on the *CentreVu* CMS Services menu, you can install a *CentreVu* CMS patch from the CD-ROM.

See the *CentreVu™ CMS R3V5 Upgrades and Migrations* document (585-215-826) for more information on patch_inst.

patch_rmv

From the **patch_rmv** option on the *CentreVu* CMS Services menu, you can back out a *CentreVu* CMS patch installed on the machine.

See the *CentreVu™ CMS R3V5 Upgrades and Migrations* document (585-215-826) for more information about patch_rmv.

load_all

From the **load_all** option on the *CentreVu* CMS Services menu, you can install all *CentreVu* CMS patches from the CD-ROM.

See the *CentreVu™ CMS R3V5 Upgrades and Migrations* document (585-215-826) for more information on load_all.

back_all

From the **back_all** option on the *CentreVu* CMS Services menu, you can back out all *CentreVu* CMS patches installed on the machine.

See the *CentreVu™ CMS R3V5 Upgrades and Migrations* document (585-215-826) for more information on back_all.

Appendix B
Factory Software Installation Procedures

List of Figures

List of Tables

B Factory Software Installation Procedures

Overview

This appendix outlines the software installation procedures performed by the factory for *Sun*[*] *Enterprise*[†] 3000 systems. You can use these procedures to bring a *Sun Enterprise* 3000 system in the field up to factory standard.

The factory performs the following installation procedures:

1. Install the *Sun Solaris*[‡] 2.5.1 operating system.
2. Install the Common Desktop Environment (CDE) 1.0.2
3. Install the *Solaris* 2.5.1 *AnswerBook*[§] software.
4. Install the Hardware *AnswerBook* software
5. Install the *SunLink*[\] HSI/S Version 2.0 software.
6. Install the Network Terminal Server (NTS) driver.
7. Install the *SunLink* X.25 Network Interface Version 9.0
8. Install the *INFORMIX*[¶] software.
9. Install the *Solstice DiskSuite*[**] software.
10. Install the *Sun Solaris* patches
11. Run the *Solstice DiskSuite* setup scripts.
12. Install the *CentreVu*™ Call Management System (CMS) application.
13. Install CMS patches.
14. Set up the remote console software.
15. Administer the *Network Terminal Server* drivers.

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

Installing the *Solaris* Operating System

Prerequisites: Make sure that your *Solaris* OS package is Release 2.5.1 and is dated May 1996.

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

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

Installing the *Solaris* 2.5.1 operating system on the *Sun Enterprise* system consists of the following tasks:

- Booting from the *Solaris* 2.5.1 CD-ROM
- Identifying the system
- Setting the system date and time
- Installing the *Solaris* 2.5.1 system files
- Partitioning the hard disks.

Things to Know Before You Start

You need the following information to install the *Solaris* 2.5.1 operating system:

- The system's name (as designated by Lucent Technologies' Technical Service Center [TSC])
- The system's IP address
- The number of disks equipped with the system
- The amount of Random Access Memory (RAM) equipped with the system.

Additional References

For additional information, refer to the following documentation:

Solaris 2.5.1 *SPARC*: "Installing *Solaris* Software."

Booting from the *Solaris* 2.5.1 CD-ROM

To boot the computer from the CD-ROM, do the following:

1. Turn on the system.
2. Load the "*Solaris* 2.5.1: May 1996 CD into the CD-ROM drive.
3. Press the Stop and A keys simultaneously. The following prompt displays:

```
ok
```

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

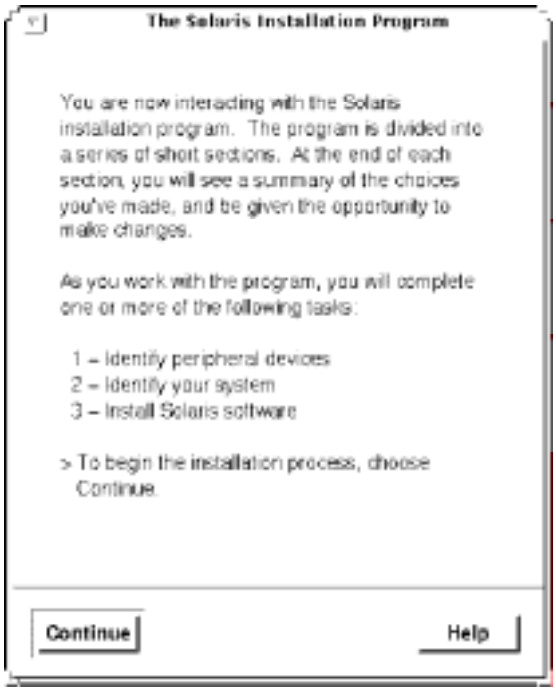
```
ok boot cdrom
```

The boot process takes approximately 5-10 minutes.

NOTE:

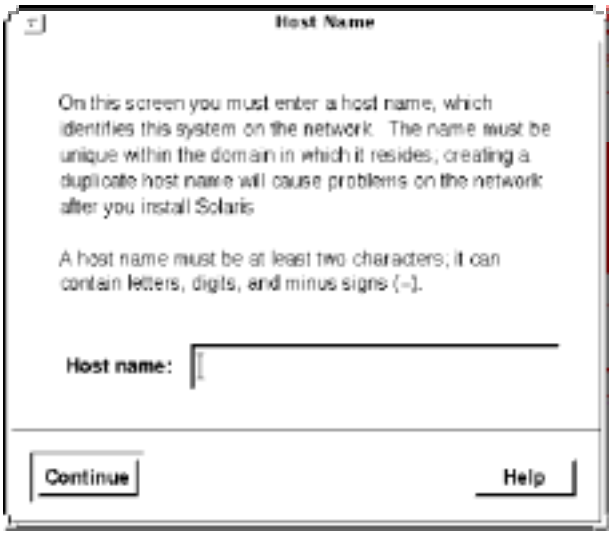
At the start of the boot process, the system displays parameters to the right of the *Sun* graphic. Note the amount of RAM equipped with the system (for example, 128-MB); you need that information later to partition the hard disks.

After the boot process, the system starts the *Solaris* Installation Program.



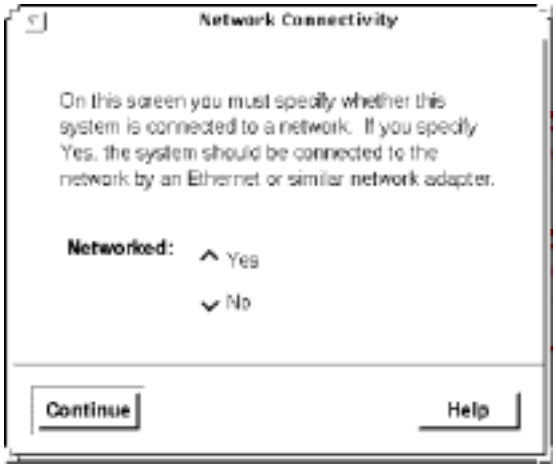
5. Click Continue. The Identify This System screen displays:

6. Click Continue. The Host Name screen displays:



7. Click the Host name box, type the host name for the workstation, and then click Continue. The host name for a specific system was designated by the TSC Provisioning personnel.

The Network Connectivity screen displays:

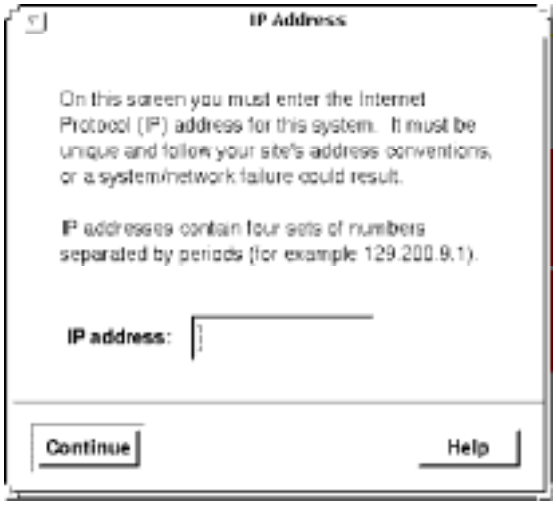


8. Click Yes, and then click Continue.

NOTE:

If the system is equipped with more than one network board, the Primary Network Interface screen displays. You should click le0, and then Continue.

The IP Address screen displays:



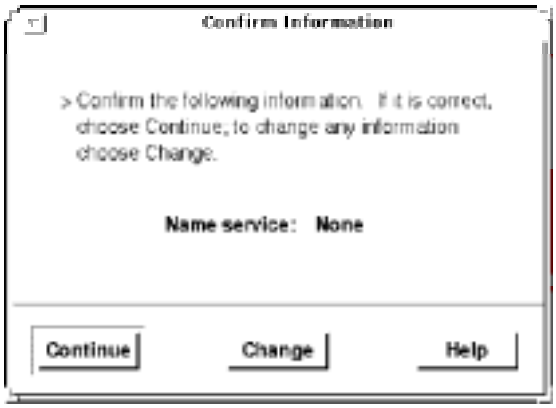
9. Click the IP address box, type the IP address (129.200.9.1 is recommended), and then click Continue.

The Confirm Information screen displays:

10. Click Continue if the displayed information is correct. If you click Change, the program returns to the Host Name screen.

    The Name Service screen displays:

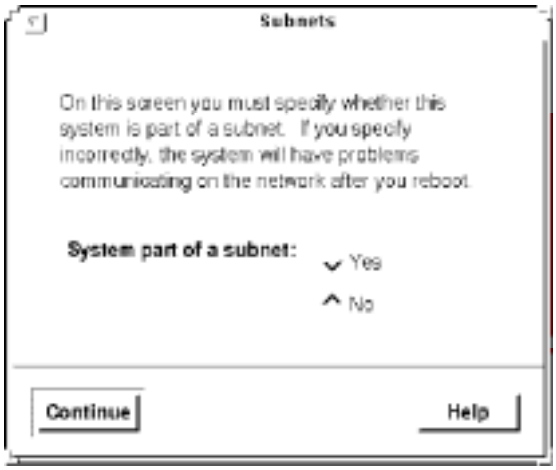
11. Click None, and then click Continue. The Confirm Information screen displays:



12. Click Continue if the displayed information is correct. If you click Change, the program returns to the Name Service screen.

Setting the Date and Time

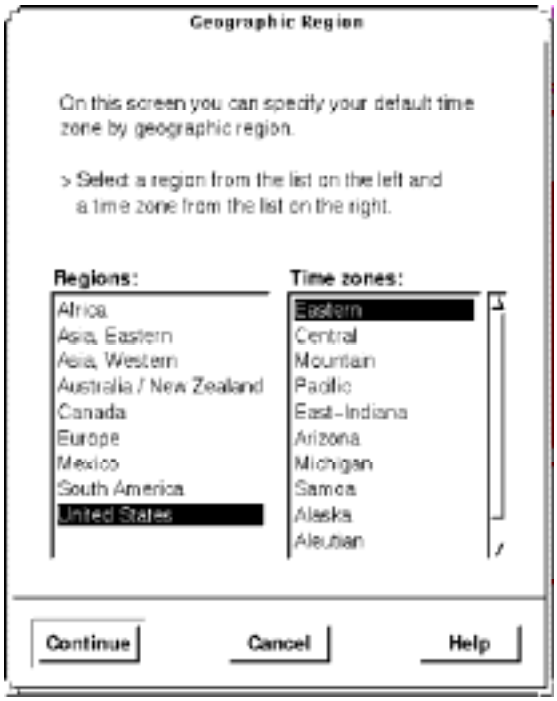
The Subnets screen displays:



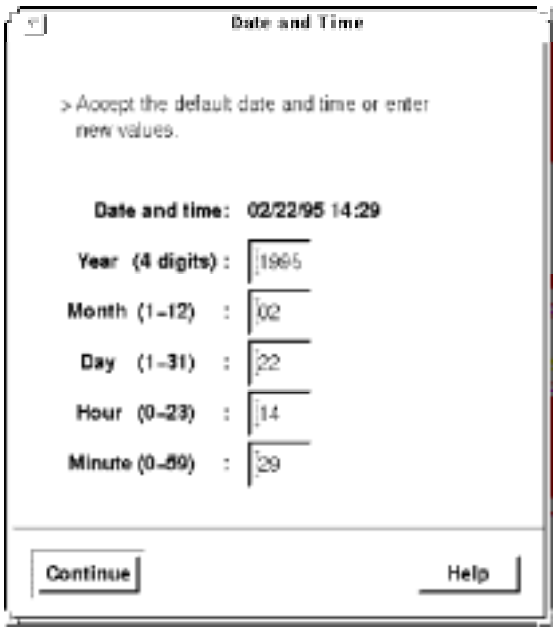
13. Click No, and then click Continue.

The Time Zone screen displays:

14. Click Geographic region, and then click Set. The Geographic Region screen displays:

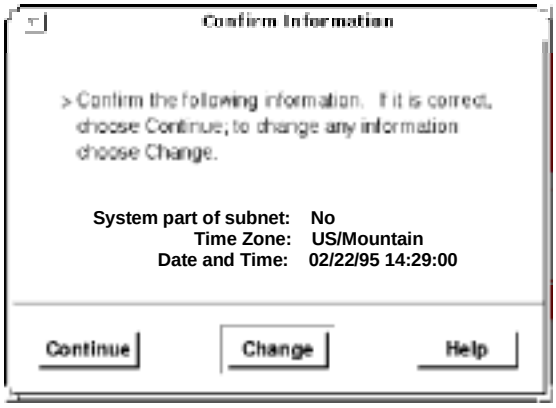


15. Click to highlight the region and time zone where this system is located, and then click Continue. The Date and Time screen displays:



16. Click Continue to accept the default date and time, or click and drag a value in a field you wish to change, and enter the appropriate information. Click Continue when all the information is correct.

    The Confirm Information screen displays:

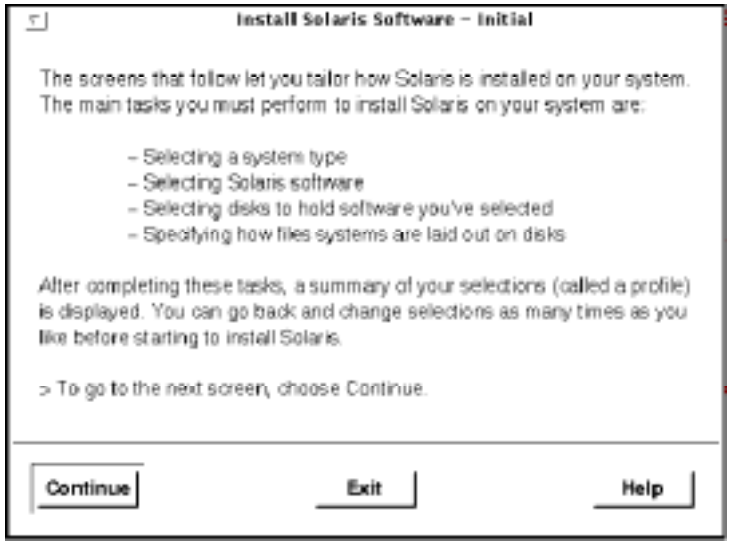


17. If the displayed information is correct, click Continue. If you click Change, the program returns to the Subnets screen.

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

Installing the *Solaris* 2.5.1 System Files

The Install *Solaris* Software screen displays:

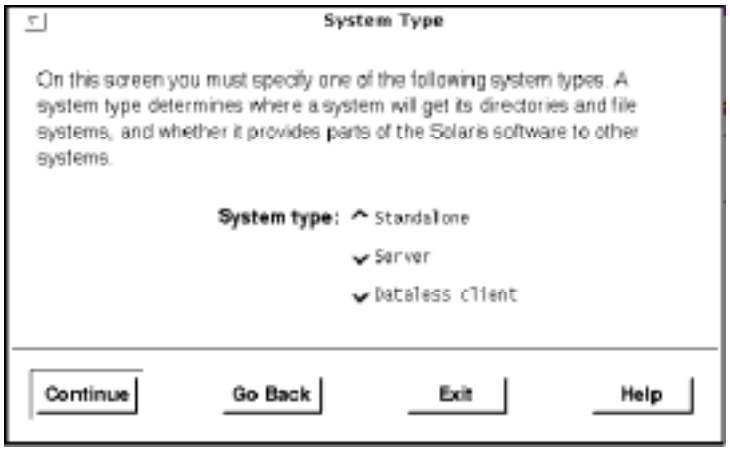


18. Click Continue.

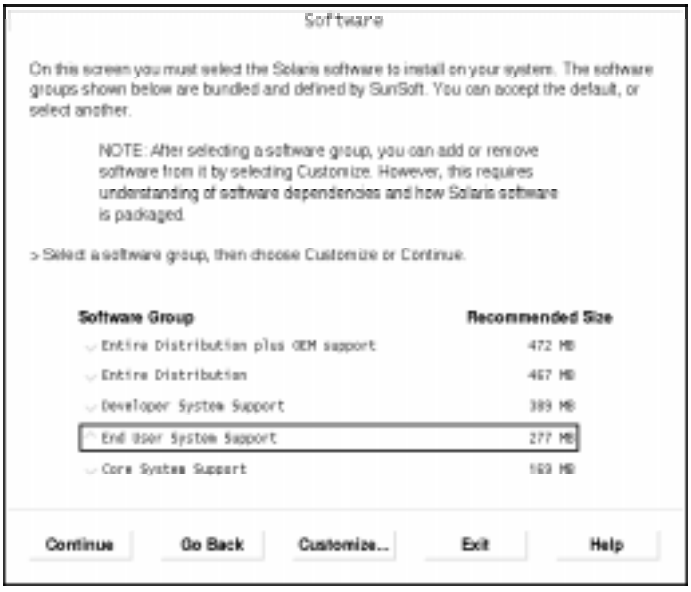
NOTE:

If *Solaris* is already installed on the machine, which is the case for machines in the field, the Upgrade screen displays. Click on **`Initial`** to reinstall the operating system.

The System Type screen displays:



19. Click Standalone, and then click Continue. The Software screen displays:



20. Click End User System Support, and then click Customize.

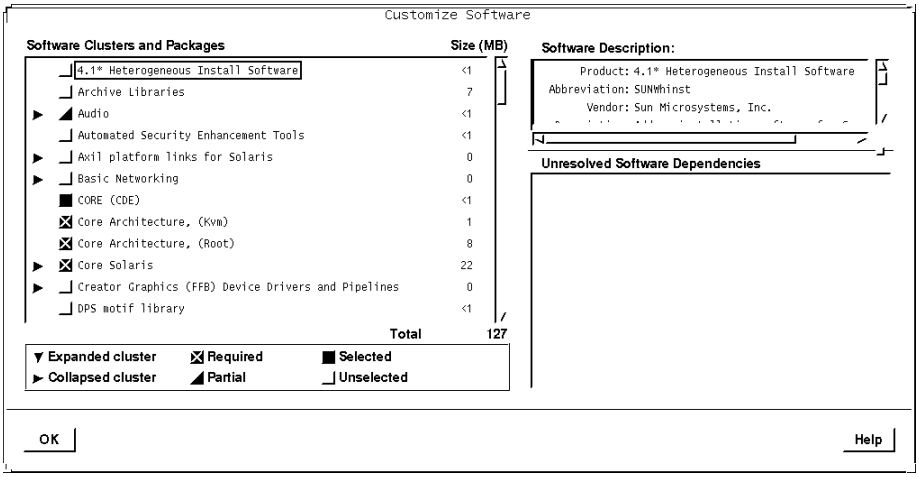
NOTE:

If you click Continue instead of Customize, the Disks screen (shown on page B-15) displays, which is incorrect. If this happens, click Go Back from the Disks screen.

NOTE:

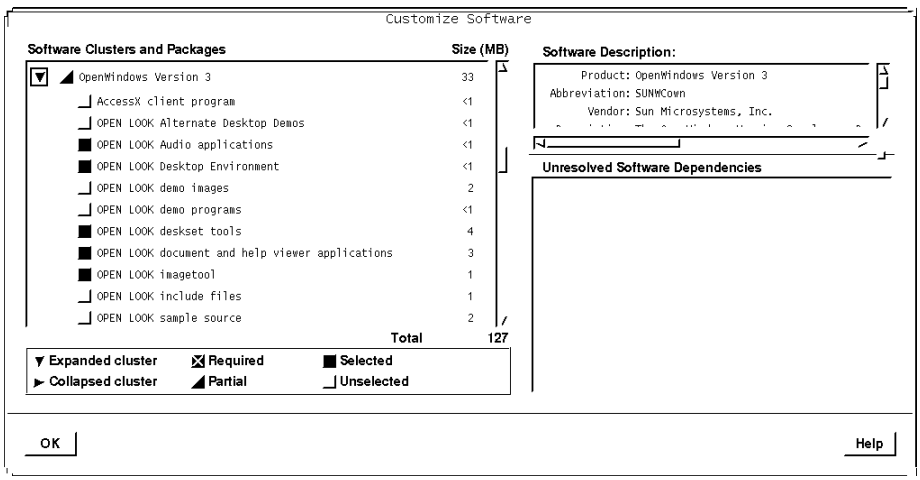
The screens shown in this section are only *examples.* The values on the screens that actually display may differ, depending upon your system configuration.

The Customize Software screen displays:



21. Click to select the following packages (using the scroll bar when necessary to bring the package names into view):
    - Basic Networking
    - On-Line Manual Pages
    - Point-to-Point Protocol
    - *Solaris* 2.5 User *AnswerBook*
    - System Accounting
    - Terminal Information
22. Scroll up, and then click the triangular icon to expand the *OpenWindows** Version 3 cluster.

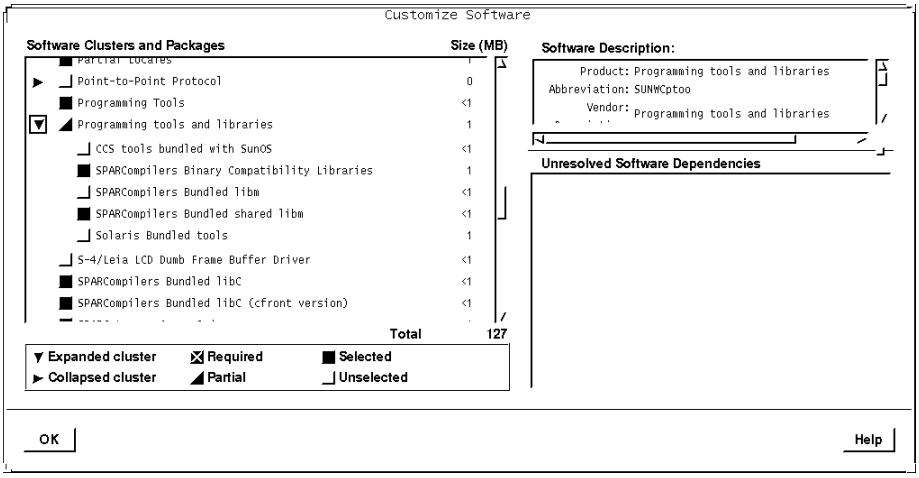
    The program responds:



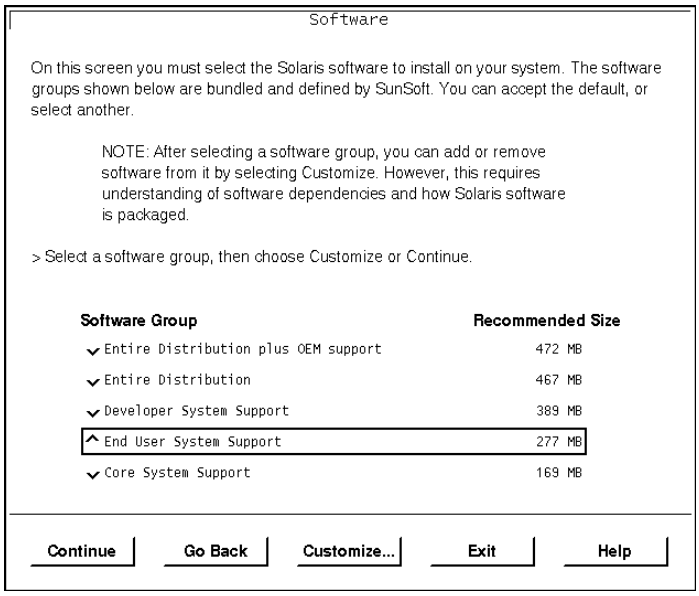
23. Scroll down and select X Windows online user man pages
24. Scroll up, then click the triangular icon to collapse the *OpenWindows* Version 3 cluster.
25. Click the triangular icon to expand the Programming tools and libraries cluster.

*OpenWindows is a trademark of Sun Microsystems, Inc.

The program responds:



26. Click to select the CCS tools bundled with *Sun*OS package.
27. Click the triangular icon to collapse the Programming tools and libraries cluster.
28. Click OK. The program returns to the Software screen.

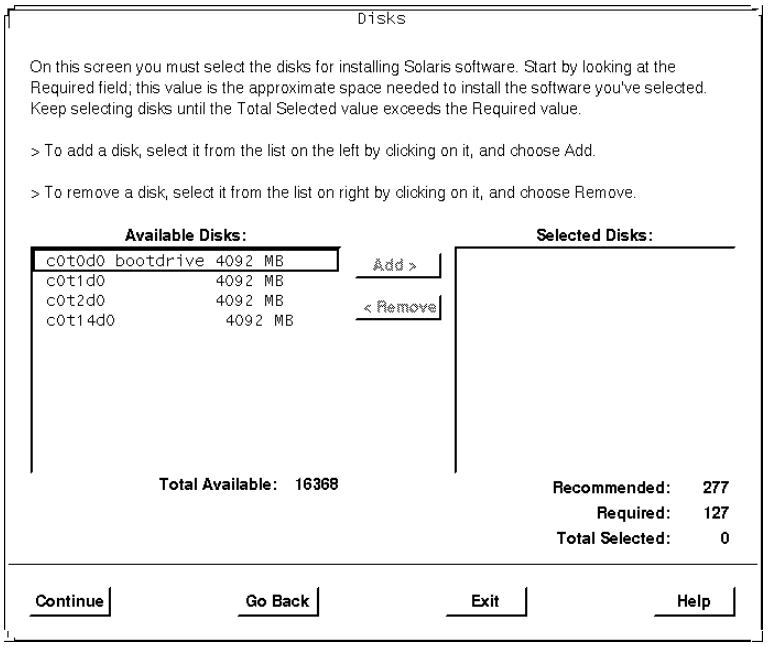


29. Click Continue.

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

Partitioning the Hard Disks

The Disks screen displays:

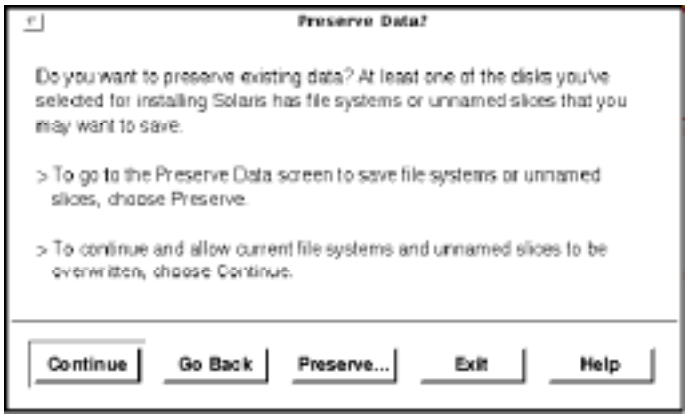


NOTE:

In the above screen, all the disks equipped with the system should be listed as available. If not, you may have a connectivity problem. In addition, the screen examples in this section show size values for 4.2-GB disks. The actual size values may differ according to your system's disk configuration.

30. Click to highlight an available disk.
31. Click Add so the available disk becomes a selected disk.
32. Repeat Steps 33 and 34 until all available disks become selected disks.
33. Click Continue.

The Preserve Data screen displays:



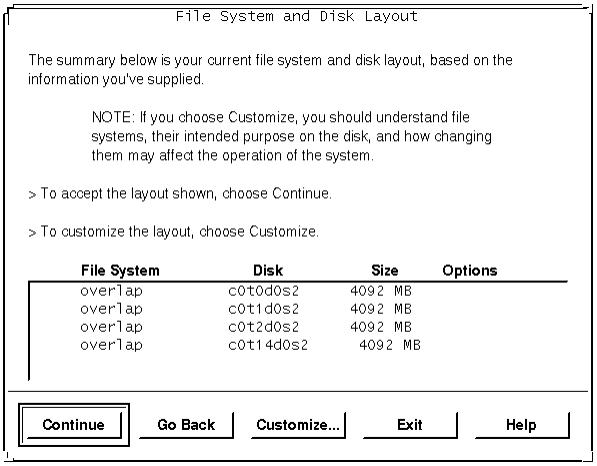
NOTE:

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

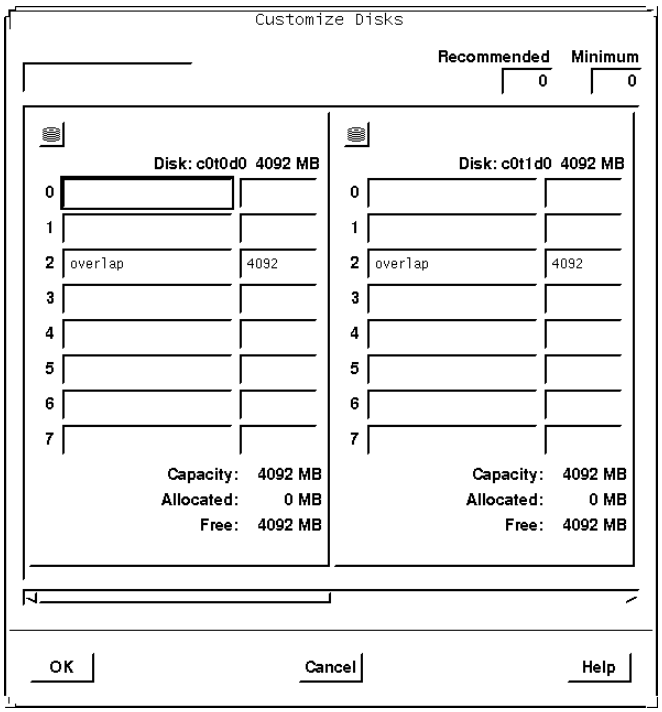
34. Click Continue.

    The Automatically Layout File Systems screen displays:

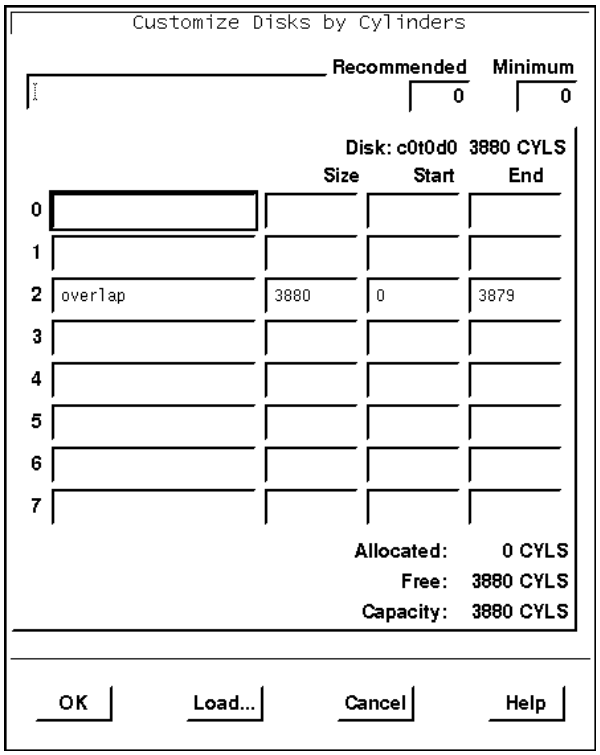
35. Click Manual Layout. The File System and Disk Layout screen displays:



36. Click Customize. The Customize Disks screen displays:



37. Click the cylinders icon in the upper left-hand corner of the disk 1 (c0t3d0) column.The Customize Disks by Cylinders screen displays:



38. Partition disk 1 (c0t0d0) by filling in the system name and size for each slice, using the names and numbers in Table B-1.

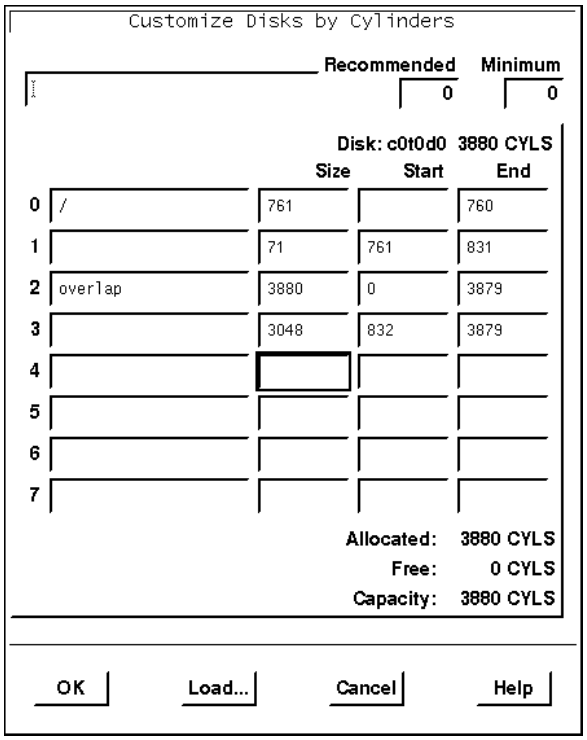
NOTE:

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

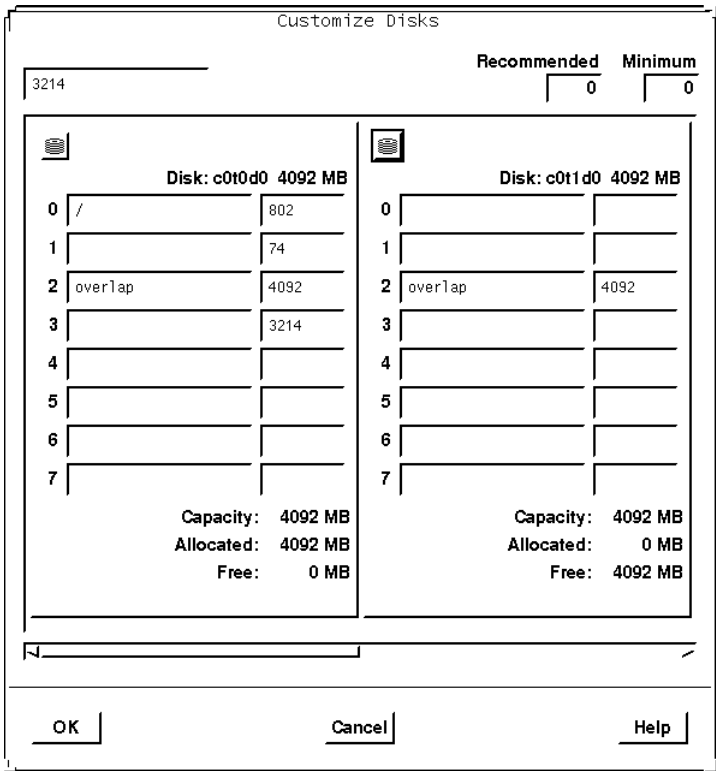
Table B-1: Internal Disk 1 (c0t0d0) Partitioning

Slice	File System Name	4.2G Disk Partition Size (cylinders)
0	/	761
1	*(unnamed)*	71
2	overlap	3880
3	*(unnamed)*	3048

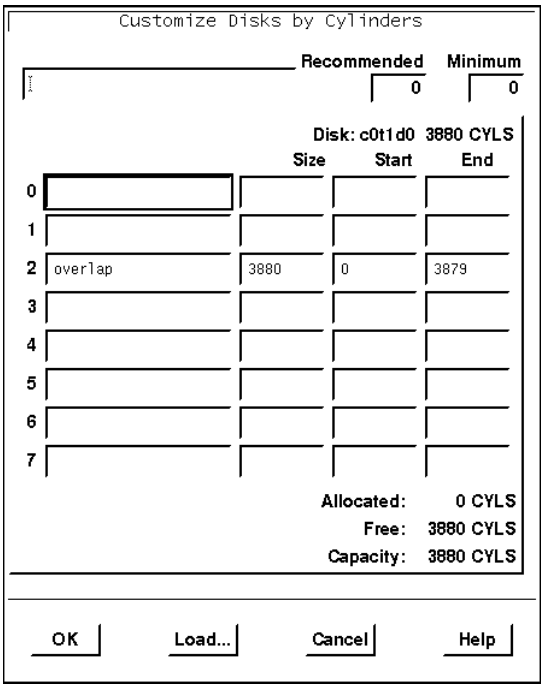
The following example shows how the Customize Disks by Cylinders screen looks for a system with a 4.2-GB disk 1:



39. Click OK after setting up the partitions for disk 1. The program returns to the Customize Disks screen.



40. Click the cylinders icon for the next disk to be partitioned, if there is one. The Customize Disks by Cylinders screen displays.



Partition the disk by filling in the system name and size for each slice. Use Table B-2 to determine the name and size of each slice.

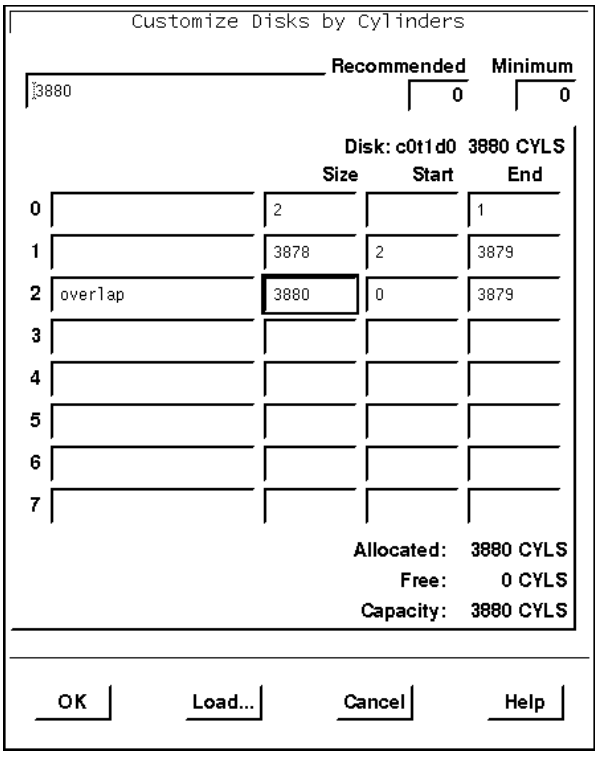
NOTE:

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

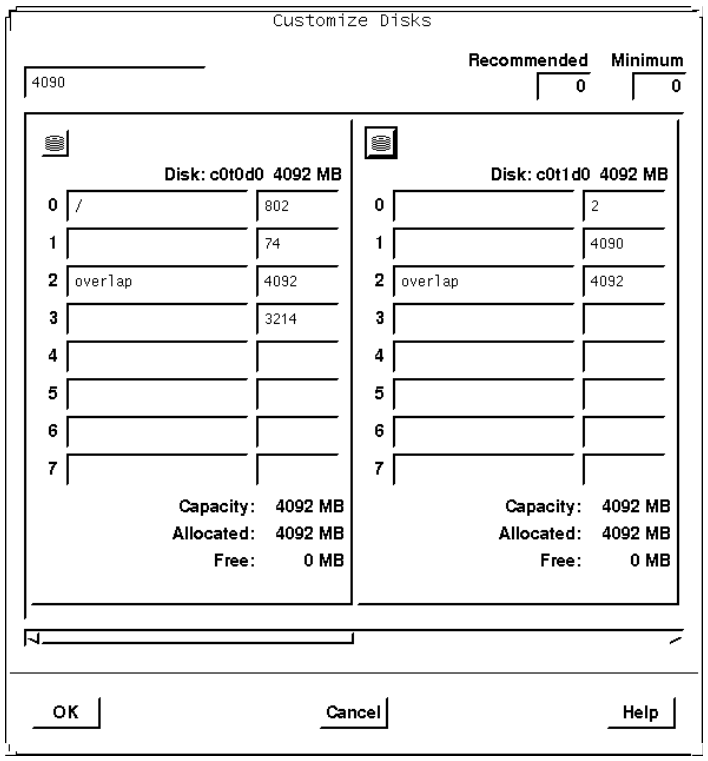
Table B-2: Partitioning for Disks 2-12

Slice #	File System	4.2GB Disk Size (cylinders)
0	*(unnamed)*	2
1	*(unnamed)*	3878
2	overlap	3880

Properly set up, for example, the Customize Disks by Cylinders screen for a 4.2-GB disk would look like this:



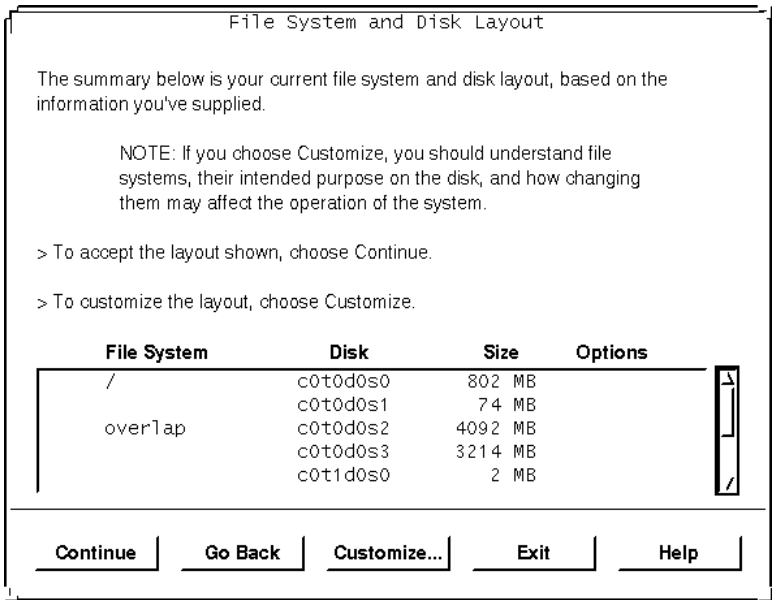
41. Click **OK**. The Customize Disks screen reappears:



If there is another disk attached to your system, repeat steps 40 and 41 for that disk. Continue on to step 42 only when you have partitioned every hard disk on your system.

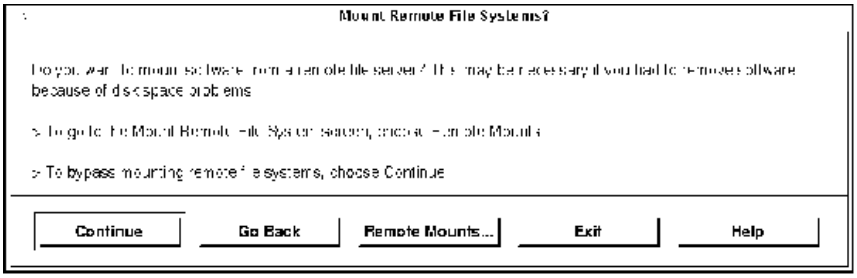
42. Click the OK button on the Customize Disks screen.

    The File System and Disk Layout screen displays:



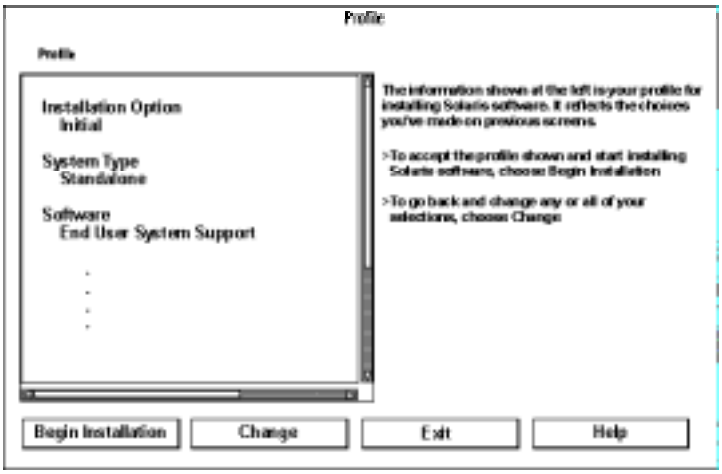
43. Click Continue.

    The Mount Remote File Systems screen displays:



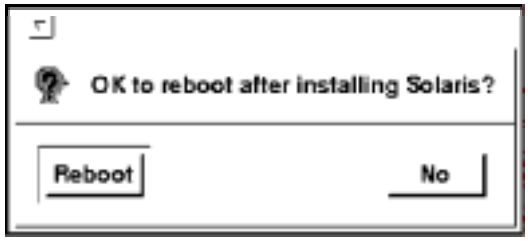
44. Click Continue.

    The Profile screen displays:



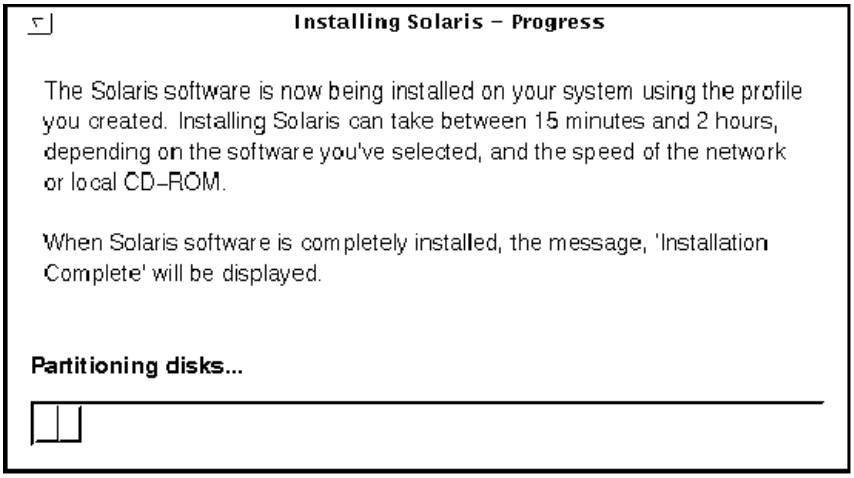
45. Click Begin Installation.

    The program responds:



46. Click Reboot.

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



The disk partitioning may take 40 minutes to 2 hours depending on the number of disks being partitioned. As the disks are partitioned and *Solaris* 2.5.1 system files are copied to the disk, the progress gauge is updated to indicate the progress of the installation.

When the installation completes, the machine reboots and displays:

```
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.
```

47. Enter the *root* password. The program responds:

```
Please reenter your root password?

Press Return to continue.
```

48. Reenter the *root* password. The program responds:

```
. . . . .
. . . . .
syslog services starting.
Print services started.
volume management starting.
The system is ready.

hostname console login:
```

49. Log in as *root*. The system prompt displays.
50. Edit the file */etc/default/login*. For example:

```
#  vi  /etc/default/login
```

Find the line:

CONSOLE=/dev/console

and comment it out by inserting a pound sign at the beginning of the line. After the change, the new line will look like this:

#CONSOLE=/dev/console

Set the EEPROM Parameters for the A and B Ports

This section describes how to set the firmware **eeprom** values for the A and B ports on the *Sun Enterprise* 3000 system.

1. Enter the following commands to set the **eeprom** values for port A:

```
# eeprom ttya-rts-dtr-off=true
# eeprom ttya-ignore-cd=false
# eeprom ttya-mode=9600,8,n,l,-
```

NOTE:

This sets the A port to 9600 baud.

2. Enter the following commands to set the eeprom values for port B:

```
# eeprom ttyb-rts-dtr-off=true
# eeprom ttyb-ignore-cd=false
# eeprom ttyb-mode=9600,8,n,l,-
```

NOTE:

This sets the B port to 9600 baud.

3. You must reboot the system to activate these commands. Execute the following command to reboot:

```
# init 6
```

Create the /var/crash/uname Directory

Create the /var/crash/uname directory by executing the following commands:

```
#  rm  /var/crash/‘uname -n‘
#  mkdir  /var/crash/‘uname -n‘
#
```

Edit the vfstab File

1. Edit the /etc/vfstab file by entering:

```
# vi  /etc/vfstab
```

You need to comment out the line in the file that sets up the swap space. Accordingly, you will insert a pound sign at the beginning of the line that begins with the word *swap*. In the following screen, for example, the line in boldface type has been commented out:

```
#device          device          mount    FS      fsck  mount    mo
#to mount        to fsck         point    type    pass  at boot  op
#
#/dev/dsk/c1d0s2 /dev/dsk/c1d0s2 /usr     ufs     1     yes      -
/proc            -               /proc    proc    -      no      -
fd               -               /dev/fd  fd              no      -
#swap            -               /tmp     tmpfs   -      yes     -
     .
     .
     .
```

2. Write and quit the file.

Turn On the System Activity Recorder

1. Make a copy of the **sys** file by executing the following commands:

```
#  cd /var/spool/cron/crontabs
#  cp -p sys sys.sav
#
```

2. Edit the original **sys** file, uncommenting the three entries by removing the pound signs. That is, change the lines:

```
# 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
```

   to:

```
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
```

Unload the CD

1. Remove the CD-ROM from the drive by entering:

```
# eject cdrom
#
```

2. Remove the CD-ROM from the disk tray, place the CD-ROM back in its case, and push the CD-ROM tray in until it closes.

   The installation of *Solaris* 2.5.1 and the disk partitioning are now complete.

Fix for the UniPack QIC 2.5-GB Tape Drive

When you add a 2.5-GB QIC tape drive to a *CentreVu* CMS system running *Solaris* 2.5.1, you must edit the */kernel/drv/st.conf* file so the new tape drive is recognized.

Do these steps to add the fix for the QIC 2.5-GB tape drive:

1. Log in as root.

1. Edit the **/kernel/drv/st.conf** file by entering the following command:

```
# vi /kernel/drv/st.conf
```

The program responds:

```
<contents of the file is displayed>
   .
   .
   .
```

2. Add the following four lines to the */kernel/drv/st.conf* file:

```
tape-config-list=
“TANDBERG TDC 4200”, “Tandberg 2.5 Gig QIC”,“TAND-25G-FIXED”;
TAND-25G-FIXED=1,0x37,512,0x867a,1,0x00,0;
TAND-25G-VAR=1,0x37,0,0x867b,1,0x00,0;
```

3. Write and quit the file.

Installing the Common Desktop Environment (CDE) 1.0.2

Prerequisites: The *Solaris* 2.5.1 operating system should be installed, and you should be logged in as *root* at the console terminal. In addition, you must have available to you the Desktop 1.1 CD, which is bundled with *Solaris* 2.5.1.

To install the CDE, do the following steps:

1. Load the CD into the CD-ROM drive.
2. Type the following command:

```
# mount
```

   The system responds by listing the devices currently mounted. The CD is listed in a message similar to the following:

```
      .
      .
      .
/cdrom/solaris_2_5_1_desktop_1_1 on
/vol/dev/dsk/c0t6d0/solaris_2_5_1_desktop_1_1 read only on Tue Ma
17:06:27 1997
```

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

```
# cd  /cdrom/solaris_2_5_1_desktop_1_1/CDE/sparc
```

4. Run the installation program by entering the following command:

```
# ./install-cde
```

The system responds:

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

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

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

5. Press Enter to select the default menu item. The system responds:

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

6. Press Enter. The system responds as follows:

```
CDE packages will now be automatically installed...
The average install time on a Sparc 2 is 30 minutes...
Cleaning up any existing CDE packages...
Starting Install.....
     .
  (copyright and trademark messages)
     .
Installation of <SUNWdtft> was successful.
     .
     .
     .
Installation of <SUNWdtrme> was successful.
_____________________________________________________________
Note: A pkgadd log which contains a complete log of all the outpu
      from the “pkgadd” utility can be found at:
  pkgadd log: /usr/tmp/SunSoft_CDE1.0.1_pkgadd.log.04Mar97-17:14:

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

7. Install CDE man pages by entering the following command:

```
#  pkgadd  -d  ./cde-developer
```

The system responds with an installation menu:

```
The following packages are available:
 1  SUNWdtab     CDE DTBUILDER
                 (sparc) 1.0.2, REV=10.96.04.12
 2  SUNWdtdem    CDE DEMOS
                 (sparc) 1.0.2, REV=10.96.04.12
 3  SUNWdthed    CDE HELP DEVELOPER ENVIRONMENT
                 (sparc) 1.0.2, REV=10.96.04.12
 4  SUNWdtinc    CDE Includes
                 (sparc) 1.0.2,REV=10.96.04.12
 5  SUNWdtma     CDE man pages
                 (sparc) 1.0.2,REV=10.96.04.12
 6  SUNWdtmad    CDE developer man pages
                 (sparc) 1.0.2,REV=10.96.04.12
 7  SUNWmfdev    Motif Development Kit
                 (sparc) 1.2.3,REV=10.95.09.29
 8  SUNWmfdm     Motif Demos
                 (sparc) 1.2.3,REV=10.95.09.20
 9  SUNWmfman    CDE Motif Development Kit Manuals
                 (sparc) 1.2.3,REV=10.95.09.20
10  SUNWtltkd    ToolTalk CDE developer support
                 (sparc) 3.5.0,REV=10.95.09.20
... 1 more menu choices to follow;
<RETURN> for more choices, <CTRL-D> to stop display:
```

8. Press Enter. The program responds:

```
 11  SUNWtltkm     ToolTalk CDE manual pages
                     (sparc) 3.5.0,REV=10.95.09.20
 Select package(s) you wish to process (or 'all' to process
 all packages). (default: all) [?,??,q]:
```

9. Select the number of the SUNWdtma option. The program displays *Sun* licensing information, and then installs SUNWdtma. For example:

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

CDE man pages
(sparc) 1.0.2
  Copyright 1996 Sun Microsystems, Inc. All Rights Reserved.
           Manufactured in the United States of America.
2550 Garcia Avenue,Mountain View,California,94043-1100 U.S.A.
      .
      .
      .
Installing CDE man pages as <SUNWdtma>

## Installing part 1 of 1.
/usr/dt/appconfig/appmanager/C/Information/InstallGuide.ps
/usr/dt/share/man/man1/dsdm.1x
      .
      .
      .
/usr/dt/share/man/man5/dttrashaction.5
/usr/dt/share/man/man6/ttsnoop.6
[ verifying class <none> ]

Installation of <SUNWdtma> was successful
```

When the installation finishes, the program redisplays the installation menu::

```
The following packages are available:
 1  SUNWdtab     CDE DTBUILDER
                 (sparc) 1.0.2, REV=10.96.04.12
     .
     .
     .
10  SUNWtltkd    ToolTalk CDE developer support
                 (sparc) 3.5.0,REV=10.95.09.20

... 1 more menu choices to follow;
<RETURN> for more choices, <CTRL-D> to stop display:
```

10. Press Ctrl-D. The program responds:

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

11. Enter **q.** The system prompt reappears.

12. Return to the root directory and unload the CD by entering the following commands:

```
# cd /
# eject cdrom
```

13. Reboot the machine by entering the following command:

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

When the system has rebooted, it shows the CDE desktop login. Log in as *root* to continue the installation.

Installing the *Solaris* 2.5.1 *AnswerBook* Software

Prerequisites: The *Solaris* 2.5.1 operating system and the CDE should be installed, and you should be logged in as *root* at the console terminal.

Installing the *Solaris* 2.5.1 *AnswerBook* software on the *Sun Enterprise* computer consists of installing only the drivers and programs necessary to start the *AnswerBook* programs. Therefore, when you use *AnswerBook*, you will need to have the appropriate CD ("Server Supplement 1.1") in the CD-ROM drive.

To install the *Solaris* 2.5.1 *AnswerBook* software, do the following steps:

1. Remove the *Solaris* 2.5.1 Server Supplement 1.1 CD from its case and load it into the CD-ROM drive.
2. Enter the following command to verify the name of the CD-ROM:

```
# mount
```

   The program responds with a list of devices/filesystems currently mounted. The device that corresponds to the CD-ROM drive begins "/cdrom...." For example:

```
      .
      .
      .
/cdrom/solaris_2_5_1_server on
/vol/dev/dsk/c0t6/solaris_2_5_1_server_1_1 read only on Fri Mar 14
11:08:05 1997
```

3. Enter the following command to start the installation of *AnswerBook*:

```
# /usr/sbin/pkgadd -d
/cdrom/solaris_2_5_1_server_1_1/SysAdmAB2.5.1/common
```

4. The program lists the packages available on the CD. For example:

```
The following packages are available:
1   SUNWaadm     Solaris 2.5 System Administrator AnswerBook
                 (all) 47.3.6
2   SUNWabsa     Solaris 2.5.1 Supplemental System Admin
Answerbook
                 (all) 99.1.5
2   SUNWaman     Solaris 2.5.1 Reference Manual AnswerBook
                 (all) 40.3.4

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

5. Press Enter. The program responds by displaying the *Sun* licensing information for SUNWaadm. For example:

```
Processing package instance <SUNWaadm> from
</cdrom/solaris_2_5_1_server_1_1/SysADMAB2.5.1/common>

Solaris 2.5 System Administration AnswerBook
(all) 47.3.6
  Copyright 1995 Sun Microsystems, Inc. All Rights Reserved.
            Manufactured in the United States of America.
2550 Garcia Avenue,Mountain View,California,94043-1100 U.S.A.
      .
      .
      .
```

When the licensing information finishes, the program displays the installation options:

```
      .
      .
      .
The installation options are as follows:
Option:  Description:
1.nil:   less than 1 Megabyte disk space required (slowest performance)
2.heavy: 51.69 Megabytes disk space required (best performance)
Enter the number of an installation option from the list above (1 or 2).

Note: If the install option which you choose below fails due to lack of
      space, try another location, or choose a lower install number.

Enter the number of an installation option from the list above (1 or 2):

Select an installation option:
```

6. Enter **`1`** to select the **`nil`** option. The program responds:

```
Installation option: nil selected.

The next request for input asks you to specify the parent
directory of AnswerBook.
Make sure to choose a parent directory on a file system big enough
to accommodate all the files to be moved for the INSTALL OPTION
you selected.

Specify the parent directory of the AnswerBook home directory:
```

7. Enter **`/opt`**. The program responds as follows:

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

8. Enter **y**. The program installs SUNWaadm and then moves on to the next package to be installed. For example:

```
## Installing part 1 of 1
## Executing postinstall script

Installation of <SUNWaadm> was successful.

Processing package instance <SUNWabsa> from
/cdrom/solaris_2_5_1_server_1_1/SysAdmAB2.5.1/common

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prior written authorization of Sun and its licensors, if any.
      .
      .
      .
```

When the licensing information finishes, the program displays SUNWabsa installation options. For example:

```
      .
      .
      .
The installation options are as follows:
Option:  Description:
1.nil:   less than 1 Megabyte disk space required [slowest performance]
2.heavy: 2.97 Megabytes disk space required (best performance)
Enter the number of an installation option from the list above (1 or
2).

Select an installation option:
```

9. Enter **1** to select the **nil** option. The program responds:

```
Installation option: nil selected.

The next request for input asks you to specify the parent
directory of AnswerBook.
Make sure to choose a parent directory on a file system big enough
to accommodate all the files to be moved for the INSTALL OPTION
you selected.


Specify the parent directory of the AnswerBook home directory:
```

10. Enter **/opt**. The program responds:

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

11. Enter **y**. The program installs SUNWabsa, and then moves on to the next package. For example:

```
Installing Solaris 2.5.1 Supplemental System Admin Answerbook as
<SUNWabsa>

## Installing part 1 of 1.
## Executing postinstall script

Installation of <SUNWabsa> was successful.

Processing package instance <SUNWaman> from
/cdrom/solaris_2_5_1_server_1_1/SysAdmAB2.5.1/common

Solaris 2.5 Reference Manual Answerbook
(all) 40.3.4
     Copyright 1995 Sun Microsystems, Inc. All Rights Reserved.
            Printed in the United States of America.
2550 Garcia Avenue,Mountain View,California,94043-1100 U.S.A.

      .
      .
      .
```

When the licensing information finishes, the program displays SUNWaman installation options:

```
      .
      .
      .
The installation options are as follows:
Option:  Description:
1.nil:   less than 1 Megabyte disk space required [slowest performance]
2.heavy: 88.64 Megabytes disk space required (best performance)
Enter the number of an installation option from the list above (1 or
2).

Select an installation option:
```

12. Enter **`1`** to select the **`nil`** option. The program responds as follows:

```
Installation option: nil selected.

The next request for input asks you to specify the parent
directory of AnswerBook.
Make sure to choose a parent directory on a file system big enough
to accommodate all the files to be moved for the INSTALL OPTION
you selected.


Specify the parent directory of the AnswerBook home directory:
```

13. Enter **/opt**. The program responds:

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

14. Enter **y**. The program installs SUNWaman and then redisplays the main installation menu. For example:

```
The following packages are available:
1   SUNWaadm     Solaris 2.5 System Administrator AnswerBook
                 (all) 47.3.6
2   SUNWabsa     Solaris 2.5.1 Supplemental System Admin
Answerbook
                 (all) 99.1.5
2   SUNWaman     Solaris 2.5.1 Reference Manual AnswerBook
                 (all) 40.3.4

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

15. Enter **q**. The program returns to the system prompt.
16. Enter the following command to eject the CD-ROM drive tray:

```
# eject cdrom
```

17. Remove the CD, place it back in its case, and push the CD-ROM tray in until it closes. The installation of the *Solaris* 2.5.1 System *AnswerBook* software is now complete.

Additional References

For additional information, refer to the following documentation:

Solaris 2.5.1 System AnswerBook Installation Guide.

Installing the Hardware *AnswerBook*

Prerequisites: The *Solaris* 2.5.1 operating system and the CDE should be installed, and you should be logged in as *root* at the console terminal.

Installing the *Enterprise* 3000 System Hardware *AnswerBook* software on the *Sun Enterprise* computer consists of installing only the drivers and programs necessary to start the *AnswerBook* programs. Therefore, when you use *AnswerBook*, you will need to have the appropriate CD ("*Ultra Enterprise* 3000 Hardware *AnswerBook*") in the CD-ROM drive. The CD is distributed inside the front cover of the *Enterprise* 3000 System Manual.

To install the software, do the following steps:

1. Remove the *Enterprise* 3000 Hardware *AnswerBook* CD from its case and load it into the CD-ROM drive.
2. .Enter the following command to verify the name of the CD:

```
# mount
```

   The program responds with a list of devices and file systems currently mounted. The device that corresponds to the CD-ROM drive begins "/cdrom...." For example:

```
      .
      .
      .
/cdrom/sun_ultra_enterprise_3000_hw_ab on
/vol/dev/dsk/c0t6d0/sun_ultra_enterprise_3000_hw_ab read only on
Fri Mar 14 11:08:05 1997
```

3. Enter the following command to start the installation of *AnswerBook*:

```
# /usr/sbin/pkgadd -d /cdrom/sun_ultra_enterprise_3000_hw_ab
```

4. The program lists the packages available on the CD. In this case, the CD contains only one package. For example:

```
The following packages are available:
1 SUNWabes2   Sun Ultra Enterprise 3000 System Hardware AnswerBook
              (all) 114.1.2

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

5. Enter **1**. The program responds by displaying the *Sun* licensing information for SUNWaadm. For example:

```
Processing package instance <SUNWabes2> from
</cdrom/sun_ultra_enterprise_3000_hw_ab>

Sun Ultra Enterprise 3000 System Hardware Answerbook
(all) 114.1.2
  Copyright 1995 Sun Microsystems, Inc. All Rights Reserved.
            Manufactured in the United States of America.
2550 Garcia Avenue,Mountain View,California,94043-1100 U.S.A.
      .
      .
      .
```

When the licensing information finishes, the program displays the SUNWabes2 installation options:

```
      .
      .
      .
The installation options are as follows:
Option:  Description:
1.nil:   less than 1 Megabyte disk space required (slowest
performance)
2.heavy: 9.99 Megabytes disk space required (best performance)
Enter the number of an installation option from the list above (1 or
2).

Note: If the install option which you choose below fails due to lack
of
      space, try another location, or choose a lower installation
      option number.
```

6. Enter **1** to select the **nil** option. The program responds:

```
Installation option: nil selected.

The next request for input asks you to specify the parent directory
AnswerBook.
Make sure to choose a parent directory on a file system big enough t
accommodate all the files to be moved for the INSTALL OPTION you
selected.

Specify the parent directory of the AnswerBook home directory:
```

7. Enter **/opt**.

The program responds:

```
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 <SUNWabes2>
[y,n,?]
```

8. Enter **y**. The program installs SUNWabes2 and then redisplays the installation menu. For example:

```
The following packages are available:
1 SUNWabes2   Sun Ultra Enterprise 3000 System Hardware AnswerBook
              (all) 114.1.2

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

9. Enter q.When the system prompt reappears, unload the CD-ROM drive by typing the following command:

```
#  eject  cdrom
```

Installing the High-Speed Serial Interface/Sbus (HSI/S) Software

Prerequisites: The *Solaris* 2.5.1 operating system should be installed, your system should have an HSI/S card installed, and you should be logged in as root at the console terminal.

NOTE:

Install the HSI/S software only if an HSI/S card is installed. The HSI/S card must be installed before the HSI/S software.

To install the HSI/S software, do the following steps:

1. Remove the "*SunLink* HSI/S 2.0" CD-ROM from its case.
2. Open the CD-ROM drive tray by pressing the eject button on the CD-ROM drive unit.
3. Gently press the CD-ROM in place in the CD-ROM disk tray. When the CD-ROM is properly inserted in the disk tray, the CD-ROM label is visible.
4. Push the CD-ROM drive tray in (towards the system unit) until it closes.
5. Enter the following command to verify the name of the CD-ROM:

```
# mount
```

6. The program responds with a list of devices/filesystems currently mounted. Locate the device that corresponds to the CD-ROM drive:

```
      . . .
      . . .
      . . .
/cdrom/unnamed_cdrom on /vol/dev/dsk
```

7. Enter the following command to start the installation of the HSI/S software:

```
# /usr/sbin/pkgadd -d /cdrom/unnamed_cdrom
```

8. The program responds with a list of the packages available on the CD-ROM (similar to the one below).

```
The following packages are available:
1   SUNWhsis     HSI/S Driver/Utilities 2.0 v1.6
                 (sparc) 2.0

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

9. Enter **all**. The program responds by displaying the *Sun* licensing information.

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

HSI/S Driver/Utilities 2.0 v1.6
(sparc) 2.0
      Copyright 1993 Sun Microsystems, Inc. All Rights
      Reserved.
            Printed in the United States of America.
2550 Garcia Avenue, Mountain View, California, 94043-1100 U.S.A.

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any means without prior written authorization of Sun and its
licensors, if any.
      . . .
      . . .
      . . .
```

The licensing information finishes, and the program begins checking for software/machine dependencies.

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

The X Window System is a product of the Massachusetts
Institute of Technology.

This product incorporates technology used under license
from Fulcrum Technology.

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 this
package [y,n,?]
```

10. Enter **y**. The program continues:

```
Installing HSI/S Driver/Utilities 2.0 v1.6 as <SUNWhsis>
## Installing part 1 of 1.
/opt/SUNWconn/hsis/drv/HSI
/opt/SUNconn/hsis/drv/HSI.SUN4d
/opt/SUNWconn/hsis/man/hsi.7
/opt/SUNWconn/hsis/man/hsi_init.1m
/opt/SUNWconn/hsis/man/hsi_loop.1m
/opt/SUNWconn/hsis/man/hsi_stat.1m
/opt/SUNWconn/hsis/SUNdiag/.usertest.hsis.diag
/opt/SUNWconn/hsis/SUNdiag/README.hsis.diag
/opt/SUNWconn/hsis/SUNdiag/SunLink.hsis.diag
/opt/SUNWconn/hsis/utilities/hsi_init
/opt/SUNWconn/hsis/utilities/hsi_loop
/opt/SUNWconn/hsis/utilities/hsi_stat
/opt/SUNWconn/hsis/utilities/hsi_trace
[ verifying class <none> ]
## Executing postinstall script.

Adding entries to /etc/devlink.tab
Checking if HSI hardware was installed
Installing driver into kernel; wait ... done
```

As the program continues, port initialization messages similar to the following appear on the screen:

```
hih0: reset
hih0: up and running baud ...
hih1: reset
hih1: up and running baud ...
    .
    .
    .
NOTE: HSI driver will be loaded when it is referenced

Installation of <SUNWhsis> was successful.
```

The program continues:

```
The following packages are available:
  1 SUNWhsis     HSI/S Driver/Utilities 2.0 v1.6
                 (sparc) 2.0

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

11. Enter **q**. The program returns you to the system prompt.
12. Enter the following command to remove the CD-ROM from the drive:

```
# eject cdrom
```

13. Remove the CD-ROM from the disk tray, place the CD-ROM back in its case, and push the CD-ROM tray in until it closes.

The installation of the HSI/S software is now complete.

Additional References

For additional information, refer to the following documentation:

SunLink HSI/S 2.0 Installation and Administration Guide,
Chapter 3: "Installing the *SunLink* HSI/S 2.0 Software"
Chapter 4: "HSI/S Utilities and *SunDiag* Operation."

Installing the Network Terminal Server (NTS) Driver

Prerequisites: The *Solaris* 2.5.1 operating system should be installed, and you should be logged in as root at the console terminal. Install this software only if your system is using an NTS.

To install the NTS software, do the following steps:

1. Load the Network Terminal Server CD into your CD-ROM drive.
2. Enter the following command to verify the name of the CD-ROM:

```
# mount
```

3. The program responds with a list of devices and file systems currently mounted. Locate the device that corresponds to the CD-ROM drive. For example:

```
      . . .
      . . .
      . . .
/cdrom/unnamed_cdrom#1 on /vol/dev/dsk/.....
#
```

4. Change directories to the CD-ROM drive mount point. For example:

```
# cd  /cdrom/unnamed_cdrom#1
```

5. Start the installation program by entering the following command:

```
#  ./install
```

6. The program responds (for example):

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

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

7. Press Enter. The program continues:

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

Enter desired action [1]:
```

8. Press Enter. The program responds:

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

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

9. Press Enter. The program continues:

```
            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-->
```

10. Press Enter. The program responds:

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

11. Press Enter. The program responds:

```
WARNING: The directory already exists. Host tools in this directo
         will be renamed prior to installation of new versions.
     .
     .
     .
BFS directory [/usr/spool/erpcd/bfs]:
```

12. Press Enter. The program asks if you want to install manual pages:

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

13. Press Enter. The program responds:

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

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

14. Press Enter. The program responds:

```
Manual pages there will be packed after being installed.
     .
     .
     .
Enter installation choice [1]:
```

15. Press Enter. The program responds:

```
To continue with this installation you need 7 MB of disk space in
directory /usr/annex/cs_R10.0-R4.2HT.
Please ensure that this disk space is available.
     .
     .
     .
Are you ready to continue (y/q=quit) [y]:
```

16. Press Enter. The program responds:

```
1)      Com-Server Annex 3
2)      Com-Server MicroAnnex
3)      Install all images
Please select the annex model(s) you will be using.
You can specify a list separated by spaces or 'N' for none:
```

17. Enter the number of the **`Install all images`** option. The program responds:

```
Calling command: tar -xf /opt/ntsinst/unix/software.tar
     .
     .
     .
Executing "du -s bin/[A-Z]*"
    3386        bin/SOL2
To save room on your system, the above directories can be removed
You may want to enter "?" at the prompt below to get more help.
Remove these directories (y/n) [n]:
```

18. Enter **y.** The program responds:

```
The access control protocol server (ACP) that handles security re
depends on data in a file named acp_regime.  This file does not e
and must be created with a line that specifies a security policy
your site.
What is your default security regime:
    1) acp
    2) native UNIX
    3) SecureID
    4) safeword
    5) kerberos
    6) deny (access will be denied)
    7) none (access is unconditionally granted)
    8) radius
Enter security regime [1]:
```

19. Enter the number corresponding to the **none** option.The program responds:

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

20. Press Enter. The program asks if you want the “erpcd daemon” to provide access control:

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

21. Enter **n**. The program responds with a list of files that have been updated, and asks if you want to install them:

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

22. Press Enter. The program asks for verification:

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

23. Press Enter. The program copies the files and then asks if you want to start up the new version of the erpcd daemon:

```
No more system files to create or update

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

24. Press Enter. The program starts the daemon, signals that it is done installing the Comm. Server software, and asks whether you want to install the Annex Manager:

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


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

25. Enter **n**. The program returns to the system prompt.
26. Create a startup file to run the annex boot daemon, erpcd, by entering the command:

```
# cat > /etc/rc2.d/S99annex-initd /bin/sh /etc/rc2.d/annex-initd
```

27. Link in the most useful binary files::

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

28. Finally, eject the CD-ROM drive tray:

```
#  eject  cdrom
```

Remove the CD and close the drive. The NTS driver installation is now complete.

Additional References

For additional information, refer to the following documentation:

Network Terminal Server Guide, Quick Installation Guide for the Sun Network Terminal Server Leaflet (Software Installation Notes section*), "Software Installation Notes for UNIX"*

Installing the *SunLink* X.25 Driver

Prerequisites: The *Solaris* 2.5.1 operating system should be installed, you should be logged in as root at the console terminal, and you need to know the **`hostname`** and **`hostid`** for the system.

Retrieve System Information

To properly install the X.25 license, you will need to know the *hostname* and *hostid* of the system. To determine that information, perform these steps:

1. Enter the following command:

```
# showrev
```

   The program displays something similar to the following:

```
Hostname: XXXXXXXX
Hostid: XXXXXXX
Release: 5.4
Kernel architecture: sun4m
Application architecture: sparc
Hardware provider: Sun_Microsystems
Domain:
Kernel version: SunOS 5.4 Generic <Date>
```

2. Identify the **`hostname`** and **`hostid`** (similar to that shown in bold on the previous screen). Use Table B-3 to record this information.

Table B-3: System Information for X.25 License

Description	Information
System hostname	
System hostid	

Install the *SunLink* X.25 Software

To install the *SunLink* X.25 software, do the following steps:

1. Remove the "*SunLink X.25 9.0*" CD from its case and load the CD into the CD-ROM drive.

2. Enter the following command to verify the name of the CD-ROM:

```
# mount
```

   The program responds with a list of devices and filesystems currently mounted:

```
      . . .
      . . .
      . . .
/cdrom/x25_9_0 on /vol/dev/dsk.....
#
```

3. Locate the device name of the CD-ROM drive:
4. Enter the following command to start the installation of the X.25 software:

```
# /usr/sbin/pkgadd -d /cdrom/x25_9_0/sparc
```

5. The program responds with a list of the packages available on the CD-ROM (similar to the one below).

```
The following packages are available:
  1   SUNWabx25    SunLink X.25 9.0 AnswerBook
                   (all) 20.2.7
  2   SUNWlicsw    FlexLM License System
                   (sparc) 4.1
  3   SUNWlit      STE License Installation Tool
                   (sparc) 2.0
  4   SUNWllc2a    LLC2 kernel modules and include files
                   for Solaris/SPARC (sparc) 1.23
  5   SUNW11c2b    LLC2 user programs and man pages for
                   Solaris/SPARC (sparc) 1.23
  6   SUNWx25a     X.25 kernel modules and include files
                   for Solaris/SPARC (sparc) 1.23
  7   SUNWx25b     X.25 user programs and libraries for
                   Solaris/SPARC (sparc) 1.23


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

6. Enter **all**. The program responds:

```
Processing package instance <SUNWabx25> from </cdrom/x25_9_0/sparc>

SunLink X.25 9.0 AnswerBook
(all) 20.2.7
  Copyright 1994 Sun Microsystems, Inc. All Rights Reserved.
           Printed in the United States of America.
2550 Garcia Avenue, Mountain View, California, 94043-1100
U.S.A.

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this product or related documentation may be reproduced in
any form by any means without prior written authorization
of Sun and its licensors, if any.
      . . .
      . . .
      . . .
```

The licensing information finishes, and the program continues by displaying installation options:

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

Using </opt> as the package base installation directory.

The installation options are as follows:
Option:     Description:
1.nil:   less that 1 Megabyte disk space required (slowest
         performance)
2.heavy: 8.41 Megabytes disk space required (best
         performance)
Enter the number of an installation option from the list above (1
or 2).


Select an installation option:
```

7. Enter **2** to select the **heavy** option. The program responds:

```
Installation option: heavy selected.

The next request for input asks you to specify the parent
directory of AnswerBook.
Make sure to choose a parent directory on a file system big
enough to accommodate all the files to be moved for the INSTALL
OPTION you selected.


Specify the parent directory of the AnswerBook home directory:
```

8. Enter **/opt**. The program responds:

```
  For the heavy option all files will be placed under
                                                  /opt/SUNWax25x.
## 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 this
package [y,n,?]
```

9. Enter **y**. The program responds:

```
Installing SunLink X.25 AnswerBook as <SUNWax25x>

## Installing part 1 of 1.
/opt/SUNWabx25/index
/opt/SUNWabx25/index/Keys
      . . .
      . . .
      . . .
```

10. The program lists the files being downloaded, prints an **`Installation of <SUNWxxxx> was successful`** message, and continues with the licensing agreement for the next package to be installed:

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

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

Do you want to continue with the installation of this
package [y,n,?]
```

11. Enter **y**. The program responds:

```
Installing FlexLM License System as <SUNWlicsw>

## Installing part 1 of 1.
/etc/opt/licenses/....
/etc/opt/licenses/....
      . . .
      . . .
      . . .
```

12. The program lists the files being downloaded, prints an **`Installation of <SUNWxxxx> was successful`** message, and continues with the licensing agreement for the next package:

```
      . . .
      . . .
      . . .
## 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 this
package [y,n,?]
```

13. Enter **y**. The program responds:

```
Installing STE License Installation Tool as <SUNWlit>
      . . .
      . . .
## Installing part 1 of 1.
/opt/SUNWste/....
/opt/SUNWste/....
      . . .
      . . .
      . . .
```

14. The program lists the files being downloaded, prints an **`Installation of <SUNWxxxx> was successful`** message, and continues with the licensing agreement for the next package:

```
      . . .
      . . .
      . . .
## 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 this
package [y,n,?]
```

15. Enter **y**. The program responds:

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

## Installing part 1 of 1.
/usr/include/netdlc....
/usr/include/netdlc....
      . . .
      . . .
      . . .
```

16. The program lists the files being downloaded, prints an **`Installation of <SUNWxxxx> was successful`** message, and continues with the licensing agreement for the next package:

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

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

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

17. Enter **y**. The program responds:

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

Installing LLC2 user programs and man pages for
Solaris/SPARC as <SUNWllc2b>

## Installing part 1 of 1.
/opt/SUNWconn/llc2/....
/opt/SUNWconn/llc2/....
      . . .
      . . .
      . . .
```

18. The program lists the files being downloaded, prints an **`Installation of <SUNWxxxx> was successful`** message, and continues with the licensing agreement for the next package:

```
      . . .
      . . .
      . . .
## 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 this
package [y,n,?]
```

19. Enter **y**. The program responds:

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

## Installing part 1 of 1.
/etc/SUNWconn/x25/....
/etc/SUNWconn/x25/....
      . . .
      . . .
      . . .
```

20. The program lists the files being downloaded, prints an **`Installation of <SUNWxxxx> was successful`** message, and continues with the licensing agreement for the next package:

```
      . . .
      . . .
      . . .
## 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 this
package [y,n,?]
```

21. Enter **y**. The program responds:

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

/opt/SUNWconn/bin/....
/opt/SUNWconn/bin/....
      . . .
      . . .
      . . .
```

22. The program lists the files being downloaded and prints an **`Installation of <SUNWxxxx> was successful`** message similar to the following:

```
      . . .
      . . .
      . . .
## Executing postinstall script.
Make sure to run the license insertion tool or the license configura
script on this machine.

Installation of <SUNWx25b> was successful.
```

The program continues:

```
The following packages are available:
  1   SUNWabx25    SunLink X.25 9.0 AnswerBook
                   (all) 20.2.7
  2   SUNWlicsw    FlexLM License System
                   (sparc) 4.1
  3   SUNWlit      STE License Installation Tool
                   (sparc) 2.0
  4   SUNWllc2a    LLC2 kernel modules and include files
                   for Solaris/SPARC (sparc) 1.23
  5   SUNW11c2b    LLC2 user programs and man pages
                   for Solaris/SPARC (sparc) 1.23 for
  6   SUNWx25a     X.25 kernel modules and include files
                   for Solaris/SPARC (sparc) 1.23
  7   SUNWx25b     X.25 user programs and libraries for
                   Solaris/SPARC (sparc) 1.23


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

23. Enter **q**. The programs returns to the system prompt.
24. Enter the following command to remove the CD-ROM from the drive:

```
# eject cdrom
```

25. Remove the CD-ROM from the disk tray, place the CD-ROM back in its case, and push the CD-ROM tray in until it closes.

    The installation of the *SunLink* X.25 software is complete; you must now install the X.25 license.

Install the *SunLink* X.25 License

Prerequisites: The *Solaris* 2.5.1 operating system should be installed, you should be logged in as root at the console terminal, and you must have the **`hostname`** and **`hostid`** (recorded during the booting of the system).

CAUTION:

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

To install the *SunLink* X.25 license, do the following steps:

1. Enter the following command to start the license package:

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

   The program responds by displaying the following screen:

```
SunLink X.25 9.0 for Solaris 2 SPARC
9.0

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

SERVER NAME                                    HOSTID
1:



Phone Number List [ ]   USA (+1) 800-USA-4786
Demo Exp Date:                  Data Checksum: 65
Rights to Use:                  Password Checksum: 77
Password:

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

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

2. Type an **x** within the brackets for the **Servers: [ ] 1** field. This represents the number of servers that this license supports. Press Enter.
3. Enter the SERVER NAME (hostname) of the server (see Table B-3 on page 50), and press Enter.
4. Enter the **HOSTID** of the server (see Table B-3 on page 50), and press Enter.

NOTE:

The **hostname** and **hostid** should have been recorded earlier when the **showrev** command was executed (see Table B-3 on page 50).

5. Position the cursor (by using the Enter key) on the **Rights to Use:** field, and type a **1**. Press Enter.
6. Position the cursor on the **Password:** field, type the password from your license information, and press Enter.

7. Type an **x** within the brackets for the **[ ] Done Setting Up This License** field. The program responds with a popup screen similar to the following:

```
License information successfully entered for
SunLink X.25 9.0 for Solaris 2 9.0
Type Any Key to Continue...
```

8. Press Enter. The cursor should be on the **[ ] Exit - Save Licenses** field. Type an **x** in that field.

   The program responds:

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

   When the license installation completes, the program displays:

```
License Successfully Installed for:
SunLink X.25 9.0 for Solaris 2 9.0
Now Execute the Script /etc/opt/licenses/lit_tty script
on the product server.
```

   Disregard the **Now Execute the Script** statement on the previous screen. This has already been done.

   The licensing of the *SunLink* X.25 software is now complete.

The X.25 installation is now complete; you may proceed with installing the *INFORMIX* software.

Installing the *INFORMIX* Software

Prerequisites: The *Solaris* 2.5.1 operating system should be installed, you should be logged in as root at the console terminal, and you must have the *INFORMIX* serial Number and Serial Number Key on the back of the *INFORMIX* CD-ROM.

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

- Set the environment.
- Install the *INFORMIX* Standard Engine (SE) 7.13 package.

You may have received an *INFORMIX* ESQL software package. This package is not used and does not need to be installed.

Set Up the *INFORMIX* Environment

Do these steps to set up the environment:

1. Enter the following commands:

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

2. Add a new group (for example, *informix*) to the system by entering the following command:

```
groupadd -g 100 informix
```

3. Add a new user (*informix*) to the system by entering the following command:

```
useradd -g informix -m -d /opt/informix informix
```

4. Set the environment variables by entering:

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

5. Change to the *informix* directory by entering:

```
cd $INFORMIXDIR
```

6. Make sure you are in the */opt/informix* directory by entering:

```
# pwd
# /opt/informix
```

The *INFORMIX* installation environment is now set.

Additional References

For additional information, refer to the following documentation:

INFORMIX UNIX* *Products Installation Guide Version 7.13*

* UNIX is a registered trademark in the United States and other countries, licensed exclusively through X/Open Company, Ltd.

Installing the *INFORMIX-SE* Package

To install the *INFORMIX* SE software, do the following:

1. Remove the *INFORMIX SE* CD from its case and write down the Serial Number and the Serial Number Key exactly as they appear on the CD.
2. Load the CD into the CD-ROM drive.
3. Enter the following command to copy the files from the CD to the current directory:

```
# tar xvf /cdrom/unnamed_cdrom*/se.tar
```

The program responds:

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

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

```
# ./installse
```

   The program responds with the following screen:

```
INFORMIX-SE Version 7.13.UC1
Copyright (C) 1984-1994 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.
```

5. Press Enter to continue with the installation. After a few minutes, your terminal displays the following message:

```
Enter your serial number (for example, INF#R999999) >
```

6. Enter the 11-character serial number you wrote down in Step 1. The program responds:

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

7. Enter the 6-character serial number key you wrote down in Step 1. The program responds:

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

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

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

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

9. Open the CD-ROM drive by entering an **`eject cdrom`** command. Remove the CD and return it to its case.

Additional References

For additional information, refer to the following documentation:

INFORMIX UNIX *Products Installation Guide Version 7.13*

Installing the *Solstice DiskSuite* Software

The *Solstice DiskSuite* software package allows the disks of a *Sun Enterprise* system to be managed as if they were a single file system. *Solstice DiskSuite* software is included in all new R3V5 installations.

Prerequisites: The *Solaris* 2.5.1 operating system should be installed, and you should be logged in as *root* at the console terminal. You will need both the *Solstice DiskSuite* CD and the CMS CD. In addition, you must have partitioned the internal and external hard disks for the *Solstice DiskSuite* system, as specified in the partitioning tables earlier in this appendix (see *Partitioning the Hard Disks* on page D-94).

Follow these steps to install the *Solstice DiskSuite* software:

1. Insert the "*Solstice DiskSuite* 4.0" CD into the CD-ROM drive.
2. Verify the CD-ROM name by entering the mount command. The system responds with a list of the currently mounted disk drives and file systems:

```
#  mount
     .
     .
/cdrom/disksuite_4_0 on /vol/dsk/c0t6d0/disksuite_4_0 read
only on Mon Jul 8 12:36:55 1996
```

3. Begin the installation by entering:

```
#  pkgadd  -d  /cdrom/disksuite_4_0
```

   The system responds by displaying a list of the packages available on the CD-ROM:

```
The following packages are available:
  1  SUNWabmd  DiskSuite 4.0 AnswerBook
       (all)68.1.5
  2  SUNWmd  Solstice DiskSuite
       (all)4.0,REV=1.0
  3  SUNWmdg  Solstice DiskSuite Tool
       (all)4.0,REV=1.0

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

4. Select SUNWabmd. The program responds by requesting an installation option:

```
Processing package instance SUNWabmd from </cdrom/disksuite_4_0>
    .
    .
    .
The installation options are as follows:
Option:   Description:
-----------------------------------------------------------
1.nil:   less than 1 Megabyte disk space required (slowest)
2.heavy: 14.21 Megabytes disk space required [best performance]
Note: If the install option which you choose below fails
due to lack of space, try another location, or
choose a lower install option number.

Enter the number of an installation option from the list above
(1 or 2).
```

5. Enter **1** to choose the nil option. The program responds:

```
Installation option: nil selected

The next request for input asks you to specify the parent
directory of AnswerBook. Make sure to choose a parent directory
on a file system big enough to accommodate all the files to be
moved for the INSTALL OPTION you selected.

Specify the parent directory of the AnswerBook home directory:
```

6. Enter **/opt** as the name of the directory. The program responds:

```
Processing package information.
Pocessing system information.
    .
    .
    .
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
```

7. Enter y. The program installs the software and then again lists the software packages available on the CD:

```
The following packages are available:
  1  SUNWabmd  DiskSuite 4.0 AnswerBook
        (all)68.1.5
  2  SUNWmd  Solstice DiskSuite
        (all)4.0,REV=1.0
  3  SUNWmdg  Solstice DiskSuite Tool
        (all)4.0,REV=1.0

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

8. Select the SUNWmd option. The program responds:

```
Processing package information.
Pocessing system information.
   .
   .
   .
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 <SUNWabmd>
```

9. Answer **y.**

   The program installs the *Solstice DiskSuite* software, displaying a series of messages as it does so. When the install menu reappears, the installation is complete:

```
The following packages are available:
  1  SUNWabmd  DiskSuite 4.0 AnswerBook
        (all)68.1.5
  2  SUNWmd  Solstice DiskSuite
        (all)4.0,REV=1.0
  3  SUNWmdg  Solstice DiskSuite Tool
        (all)4.0,REV=1.0

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

10. Enter **q.**

The program replies with a reboot notification, and then the system prompt reappears:

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

11. Unload the CD-ROM by entering the following command:

```
#  eject cdrom
```

Remove the CD from the drive. Shut the drive and return the CD to its case.

12. Reboot the system by entering the following command:

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

The system begins to reboot.

Note: Ignore any warning messages during the boot about “forceload of ... failed.”

13. Log in as *root*.

Installing the *Sun Solaris* Patches

Prerequisites: The *Solstice DiskSuite* software should be installed, you should be logged in as *root* at the console terminal, and you should have the *CentreVu* CMS CD-ROM.

To install the *Sun Solaris* patches, do the following:

1. Remove the *CentreVu* CMS CD-ROM from its case and load it into the CD-ROM drive.
2. Enter the following command to verify the name of the CD-ROM:

```
# mount
```

   The program responds with a list of the devices and file systems currently mounted.

3. In the device list, locate the device that corresponds to the CD-ROM drive, and use that path in a pkgadd command for the installation of the *Solaris* patches. For example:

```
  ...
  ...
/cdrom/cms on /vol/dev/dsk/....
# pkgadd  -d  /cdrom/cms
```

   The program responds by displaying the installation menu. For example:

```
The following packages are available:
  1 cms          Lucent CentreVu(TM) Call Management System
                   (sparc) r3v5xx.x
  2 preupgrade   CMS Supplied Upgrade checking tool
                   (sparc) r3v5xx.x
  3 patches        CMS Supplied Solaris Patches
                   (sparc) 1.0

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

4. Enter the number corresponding to the *Solaris* patches. The program responds:

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

CMS Supplied Solaris Patches
(sparc) 1.0
```

After a short period of time, the program continues:

```
## 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-u
permission during the process of installing this package.

Do you want to continue with the installation of this package [y,
```

5. Enter **y** to continue. The program responds:

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

## Installing part 1 of 1.
Spooling XXXXXX-XX
Spooling XXXXXX-XX
Spooling XXXXXX-XX
. . .
. . .
. . .
Solaris patches have been spooled into /tmp/patches.
To install the Solaris patches, run the following command:
     /tmp/patches/install_patches

Installation of <spatches> was successful.

The following packages are available:
 1 cms        Lucent CentreVu(TM) Call Management System
                (sparc) r3v5xx.x
 2 preupgrade CMS Supplied Upgrade checking tool
                (sparc) r3v5xx.x
 3 spatches     CMS Supplied Solaris Patches
                (sparc) 1.0

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

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

6. Enter q. The program returns to the system prompt.

7. Enter the following command to continue installing the patches:

```
# /tmp/patches/install_patches
```

   The program responds:

```
@(#) installpatch X.X XX/XX/XX


Generating list of files to be patched
/var/sadm/patch/xxxxxx-xx/...
/var/sadm/patch/xxxxxx-xx/...
/var/sadm/patch/xxxxxx-xx/...
101 blocks
Installing patch packages
. . .
. . .
```

   The program generates various lists of files to be patched, and takes about 30-45 minutes to process. When it finishes, it displays the system prompt.

8. Reboot the system by entering the following commands:

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

   The program begins the reboot process, eventually prompting you to log in:

```
Shutdown started. <date and time>
<Broadcast Message>
. . .
. . .
Login:
```

9. Log in as root.

   The *Sun Solaris* patches have been successfully installed and the system kernel has been rebuilt.

Run the *Solstice DiskSuite* Setup Scripts

Running the *Solstice DiskSuite* setup scripts consists of three general procedures: preparing the disk subsystem, running the setup scripts, and setting up the swap files.

Prepare the Disk Subsystem

Prerequisites: You must have installed the *Solstice DiskSuite* package and the *Solaris* patches, you should be logged in as root at the console terminal, and the CMS CD should be loaded in the CD-ROM drive.

1. Set the environment to the Korn Shell by entering these commands:

```
# stty  erase  <Ctrl-H>
# ksh  -o  vi
#
```

   (where *<ctrl-H>* indicates you should press and hold the Control key as you press the H key)

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

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

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

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

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

4. When the system prompt reappears, you need to check to make sure that all the disk drives on your system have been recognized. To do that, read the file */olds/md.tab.new* into an editor. Find the #/cms section; it should reflect the precise number of disk drives on your system. The example below, for instance, shows three disk drives on the system:

```
# vi /olds/md.tab.new

<contents of the file is displayed>

   .
   .
   .
#/cms
d19 3 1 /dev/dsk/c0t1d0s1 1 /dev/dsk/c0t3d0s3 1 /dev/dsk/c0t2d0s1
```

   If there is a discrepancy, complete the following steps; otherwise, go on to the next section.

   a. Reboot the system with an **`init 0`** command. The system reboots and displays the **`ok`** prompt:

```
# init 0
    .
    .
    .
ok
```

   b. Do the following in sequential order:

      1. Turn off the system unit.
      2. Turn off the system monitor.
      3. Turn off all external devices starting with the device closest to the system unit and working toward the farthest device.

   c. Check all disk drive connections to make certain they are secure. Also check the SCSI IDs on the disk drives to make sure no two drives on the same SCSI chain have the same IDs. (A normal external disk unit has a rotary switch on the rear of the unit that sets the SCSI ID.)

   d. Turn on the power to the system units in the opposite order in which you powered them off.

      Power on the SCSI devices first, beginning with the device at the end of the chain and working your way toward the system

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

When you power on the system unit, the system begins to boot. Interrupt the boot by entering Stop A. The system responds:

```
ok
```

e. To verify that the system sees all SCSI devices, including the new disk drive, enter the following command:

```
ok probe-scsi-all
```

NOTE:

If at this point you receive the following 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?**

See the section “Responding to a SCSI Probe “Hang” Warning” on page 4-16 for instructions on how to respond.

The program should respond as follows:

```
/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

ok
```

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

```
ok boot -r
```

The system responds:

```
Boot device ...
    .
    .
    .
Configuring the /dev directory
    .
    .
    .
/dev/rdsk/c0t1d0s1 mounted
    .
    .

hostname console login:
```

g. Log in as *root*. The system prompt displays:

```
Sun Microsystems Inc. SunOS 5.2 Generic November 1995
#
```

h. Repeat steps 3 and 4.

Run the Setup Scripts

1. Run the *Solstice DiskSuite* setup scripts by entering the commands depicted below. **Run the commands in the order shown, and be sure to enter both commands.** Otherwise, your system will not be set up to run the *Solstice DiskSuite* software.

```
# olds  -metadbs
# olds  -setup
```

$$$The **`-setup`** run may take some time. Plan on about 1 minute of run time for each gigabyte of hard disk space.$$$

If either command should fail, make a note of the error message and see “Troubleshooting a *Solstice DiskSuite* Software Installation” in Chapter 8 of this document.

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

```
    .
    ..
prtvtoc:  /dev/rdsk/c0t6d0s0: Device busy
device:  c0t6d0 will not be used
    ..
    ..
valid disks are c0t0d0 c0t1d0 c0t2d0 c0t3d0....
disk: c0t0d0 is partitioned ok
disk: c0t1d0 is partitioned okay
    ..
    ..
d19: Concat/Stripe is setup
    ..
    ..
```

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

```
/dev/md/rdsk/d19:  23017680 sectors in 22835 cylinders of 14 tracks
72 sectors

  11239.1MB in 1428 cyl groups (16 c/g, 7.88MB/g, 3776 i/g)

32,16240,32448,48656,64864,81072,97280,113488,129696,145904,
162112,178320,194528,210736,226944,243152,258080,274288,290496,
    ..
    ..
    ..
1436144,1452352,1468560,1484768,1500976,1517184,1533392,1548320
1564528,1580736,1596944,1613152,1629360,1645568,1661776,1677984
    ..
    ..
    ..
Success, activating or growing /cms metadevice
#
```

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

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

The system responds by displaying a file system table:

```
Filesystem          kbytes     used     avail    capacity  Mounted or
/dev/dsk/c0t0d0s0   772327   236870    458227    35%       /
/proc               0          0        0         0%       /proc
fd                  0          0        0         0%       /dev/fd
/dev/md/dsk/d19   xxxxxxxx   562168     14346985  0%       /cms
```

The /cms ‘kbytes’ figure (shown here as “xxxxxxxx”) is the critical number. Use it to verify that the *Solstice DiskSuite* software is administering all the available disks. Use this table to make the necessary calculations:

Table B-4: Disk Space Verification (4-GB Disks)

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

No. of 4-GB Disks	/cms Size (MB)
1	3104
2	7137
3	11170
4	15203
5	19236
6	23269
7	27302
8	31335
9	35368
10	39401

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

A major discrepancy between the two figures usually indicates a connectivity problem. You can check connectivity by entering a **metastat** command. For example:

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

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

```
     .
     .
     .
d19: Concat/Stripe
   Size: xxxxxxxx blocks
   Stripe 0:
      Device           Start Block  Dbase
      c0t0d0s3               0    No
   Stripe 1:
      Device           Start Block  Dbase
      c0t1d0s1               0    No
   Stripe 2:
      Device           Start Block  Dbase
      c0t2d0s1               0    No
   Stripe 3:
      Device           Start Block  Dbase
      c0t3d0s1               0    No

     .
     .
     .
```

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

Set up the Swap Files

Your system requires two swap files: one in the root and one in the /cms file system. You create the files with the olds script. The script determines how big the files need to be.

Create the files with the following steps.

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

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

2. Reboot the system by entering the command:

```
# init  6
```

3. When the reboot completes, verify that the space has been allocated by entering:

```
# swap  -l
```

   If you receive the message “No swap devices configured,” load the */etc/vfstab* file into an editor. Check to see that the */swap* and */cms/swap* entries are *not* commented out. If they are, uncomment them and execute the following commands:

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

   Finally, reenter the **`swap -l`** command to verify that the swap devices have been configured as they should have been.

Install the *CentreVu* CMS Software

Prerequisites: The *Solaris* 2.5.1 operating system should be installed, you should be logged in as *root* at the console terminal, and you should have the *CentreVu* CMS CD already loaded in the CD-ROM drive.

NOTE:

All the preceding factory software installation requirements in this appendix must be completed before you begin the *CentreVu* CMS download.

Do the following steps to download the *CentreVu* CMS software:

1. If the CMS CD is not already loaded in the CD-ROM drive, load it now.
2. Enter the following command to determine the computer's state:

   ```
   # who -r
   ```

   You should see a message similar to the following:

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

3. If the computer is **not** in run-level **3**, enter this command:

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

4. Enter the following command to verify the name of the CD-ROM:

   ```
   # mount
   ```

   The program responds with a list of devices and file systems currently mounted.

5. Locate the device that corresponds to the CD-ROM drive and use the path listed to install the *CentreVu* CMS package. For example:

   ```
         . . .
         . . .
         . . .
   /cdrom/cms on /vol/dev/dsk/.....
   # pkgadd -d /cdrom/cms
   ```

The program responds:

```
The following packages are available:
 1 cms        Lucent CentreVu(TM) Call Management System
              (sparc) r3v5xx.x
 2 preupgrade CMS Supplied Upgrade checking tool
              (sparc) r3v5xx.x
 3 spatches    CMS Supplied Solaris Patches
              (sparc) 1.0

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

6. Select the **cms** option to start the installation of the *CentreVu* CMS software. The program responds:

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

CentreVu(TM) Call Management System
(sparc) r3v5XX.X
```

The system takes a few minutes to search the CD and verify the software packages being installed.

The program continues:

```
Using </cms> as the package base directory

This is a new install

## Processing package information.
## Processing system information.
   xx package pathnames are already properly installed.
## 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:
                  /etc/init.d/sysetup

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

7. Enter y.

The program responds:

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

The following files are being installed with setuid and/or
setgid permissions or are overwriting files which are
currently setuid/setgid:
/cms/bin/mqpeek <setuid root>
/cms/bin/spi <setuid root>
/cms/toolsbin/cmsu <setuid root>
/cms/toolsbin/initSimConf <setuid root>
/cms/toolsbin/initSimConf <setuid root>
/cms/toolsbin/psx <setuid root>
/cms/toolsbin/psx <setuid root>
/cms/toolsbin/setSimLink <setuid root>
/cms/toolsbin/setSimLink <setuid root>
/cms/toolsbin/shmdump <setuid root>

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

8. Enter y.

   The program continues:

```
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 this
package [y,n,?]
```

9. Enter y. The program starts the preinstall script:

```
Installing CentreVu(TM) Call Management System as <cms>

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

10. Enter the password for the cms login. The program continues:

```
Re-enter new password
```

11. Reenter the password for cms. The program continues:

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

12. Enter the password for the cmssvc login. The program continues:

```
Re-enter new password
```

13. Reenter the password for *cmssvc*. The program continues:

```
Creating Pcms user id
Assigning a new password for Pcms.
New password:
```

14. Enter the password for Pcms. The program continues:

```
Re-enter new password
```

15. Reenter the password for *Pcms*.

    The program continues:

```
## Installing part 1 of 1.

/usr/elog <symbolic link>
[ verifying class <data> ]
[ verifying class <op_fix> ]
/cms/bin/Archiver
/cms/bin/Ed
. . . . . .
. . . . . .
. . . . . .
```

    The program takes approximately 5-10 minutes to download the *CentreVu* CMS R3V5 software from CD-ROM to hard disk. A list of files is displayed as the software is downloaded.

    When the download finishes, the installation menu redisplays:

```
Installation of <cms> was successful.

The following packages are available:
 1 cms        Lucent CentreVu(TM) Call Management System
               (sparc) r3v5xx.x
 2 preupgrade CMS Supplied Upgrade checking tool
               (sparc) r3v5xx.x
 3 spatches    CMS Supplied Solaris Patches
               (sparc) 1.0

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

16. Enter **q.**

    The program returns to the prompt.

```
#
```

17. Remove the CentreVu CMS CD-ROM by entering the following command:

```
# eject cdrom
```

18. Remove the CD from the CD-ROM drive.

19. Execute the following command to start the shutdown:

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

    The program starts the shutdown process.

```
Shutdown started. <date and time>
<Broadcast Message>
. . . . . .
. . . . . .
. . . . . .
```

20. Unlink **/var/crash/uname** from **/dump** by entering the following command:.

```
rm  -rf  /var/crash/uname
```

Installing CMS Patches

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

- Immediately after upgrading CMS
- As a bug fix

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

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

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

To install CMS patches, follow the steps in Table B-5.

NOTE:

We recommend that you always install all available patches. If you believe you should not be installing a particular patch, telephone the National Customer Care Center (1-800-242-2121), or consult with your Lucent distributor or representative, before deciding to skip it.

Table B-5: Installing Patches

<table>
<tr><th>Step</th><th>To install one patch:</th><th>To install all patches:</th></tr>
<tr><td>1.</td><td colspan="2">Load the CMS CD into the CD-ROM drive, and log in as root.</td></tr>
<tr><td>2.</td><td colspan="2">Enter the command: cmssvc
The system displays the CMS Services menu.</td></tr>
<tr><td>3.</td><td>Select the patch_inst option.
The system lists the patches on the CD and prompts for a number.</td><td>Select the load_all option.
The system lists the patches on the CD and asks if you really want to install all the patches.</td></tr>
<tr><td rowspan="2">4.</td><td>Enter the number of the patch you want to install.</td><td>Enter y.</td></tr>
<tr><td colspan="2">The system installs the patch or patches. As it does so, it displays—for each patch installed—messages similar to the following:
@(#) installpatch 1.0 96/04/01
cmsp<i>x</i>-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 cmsp<i>x</i>-s package:
Installation of <cmsp<i>x</i>-s> was successful.

Patch packages installed:
cmsp<i>x</i>-s

Patch installation completed.
See /cms/patch/cmspx-s/log for details.</td></tr>
<tr><td>5.</td><td colspan="2">When the system prompt reappears, unload the CD-ROM drive.</td></tr>
</table>

Set Up CMS

After the CMS patches have been installed, Technical Service Center (TSC) engineers set up the *CentreVu*™ Call Management System (CMS) application to work with the customer's configuration. If the customer has ordered additional *CentreVu* CMS feature packages, these need to be installed as well.

Chapter 2 of this publication contains detailed instructions.

Set up the Remote Console Software

This section describes how to set up the software for using the remote console.

Administer the Remote Console Port

To administer the A port on the back of your *Sun* system, do the following:

1. Enter the following command to remove the current A port administration:

```
# /cms/install/bin/abcadm -r ttya
```

The program responds:

```
ttya is currently set to incoming

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

2. Enter **y**.
3. Enter the following command to remove the current B port administration:

```
# /cms/install/bin/abcadm -r ttyb
```

The program responds:

```
ttyb is currently set to incoming

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

4. Enter **y**.
5. Enter the following commands to administer the A port, and set the baud rate to 2400 or 9600 baud:

```
# /cms/install/bin/abcadm -i -b <baud_rate> ttya
```

The program responds:

```
ttya set to incoming/console port <baud_rate> baud
#
```

The remote console port has been administered.

Test the Remote Console Port

Test the A port on the back of a *Sun* system by redirecting the console to the remote terminal and then redirecting the console back to the *Sun* monitor. To redirect the console, do the following:

1. Dial in (from the remote terminal) to the remote console modem (that is, access the A port on the computer), and log in as *root*.
2. Remove the port monitor by entering the following command:

```
# /cms/install/bin/abcadm -r ttya
```

The program responds:

```
ttya is currently set to incoming

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

3. Enter **y**. The program responds:

```
ttya administration removed
```

4. Redirect the console to the A port (remote console) by entering the following commands:

```
# /cms/install/bin/abcadm -c -b <baud_rate> ttya
```

The program responds:

```
This change requires a reboot to take affect

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

5. Enter **y**.

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

   As the system reboots, the shutting down messages will appear on the *Sun* monitor. When the system starts to come back up, the *Sun* monitor should go blank, and the system boot diagnostics should appear on the remote console terminal. After the system reboots, a login prompt should appear on the remote console terminal.

6. Log into the remote console as *root*.

   NOTE:

   At this time, an *OpenWindows* login window appears on the *Sun* monitor.

7. Redirect the console back to the local console by entering the following command:

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

   The program responds:

```
Console set to local

This change requires a reboot to take affect

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

8. Enter **y**. The system automatically reboots and the A port comes up as a regular dial-in port with the **`login:`** prompt displayed.

   As the system reboots, the shutting-down messages appears on the remote console monitor. When the system starts to come back up, the system boot diagnostics should appear on the *Sun* monitor. After the system reboots, a login prompt should appear on the *Sun* monitor.

9. Log into the local console (*Sun* system) as *root*.

   The console has been redirected to the remote terminal and redirected back to the system console.

Administer the Network Terminal Server

Each Network Terminal Server (NTS) needs to be administered so it will be recognized on the network. The following networking items need to be administered:

- Internet address
- Subnet mask
- Preferred load host internet address
- Broadcast address
- Type of IP packet encapsulation.

NOTE:

The administration process needs to be completed on each NTS being installed. If you administer more than one NTS for this system, the IP addresses must be unique (see Table B-6).

To administer the NTS network parameters, do the following:

1. Make sure you have the following information for each NTS you are administering:
   - *Sun Enterprise* 3000 System IP address (see Table B-6)
   - NTS IP address for each NTS (see Table B-6).

Table B-6: *CentreVu* CMS Standard Network IP Addresses

Device	Network Name	IP Address
Host Computer	*hostname*	129.200.9.1
First NTS	cmsterm1	129.200.9.11
Second NTS	cmsterm2	129.200.9.12
Third NTS	cmsterm3	129.200.9.13
Fourth NTS	cmsterm4	129.200.9.14
Fifth NTS	cmsterm5	129.200.9.15
Sixth NTS	cmsterm6	129.200.9.16
Seventh NTS	cmsterm7	129.200.9.17

2. Edit the */etc/hosts* file by entering:

```
# vi /etc/hosts
```

3. Add the address for the NTS (in the */etc/hosts* file) that corresponds to the new addresses in Table B-6.
4. Write and quit the file.
5. Connect the power cord to the NTS (see Figure B-1).

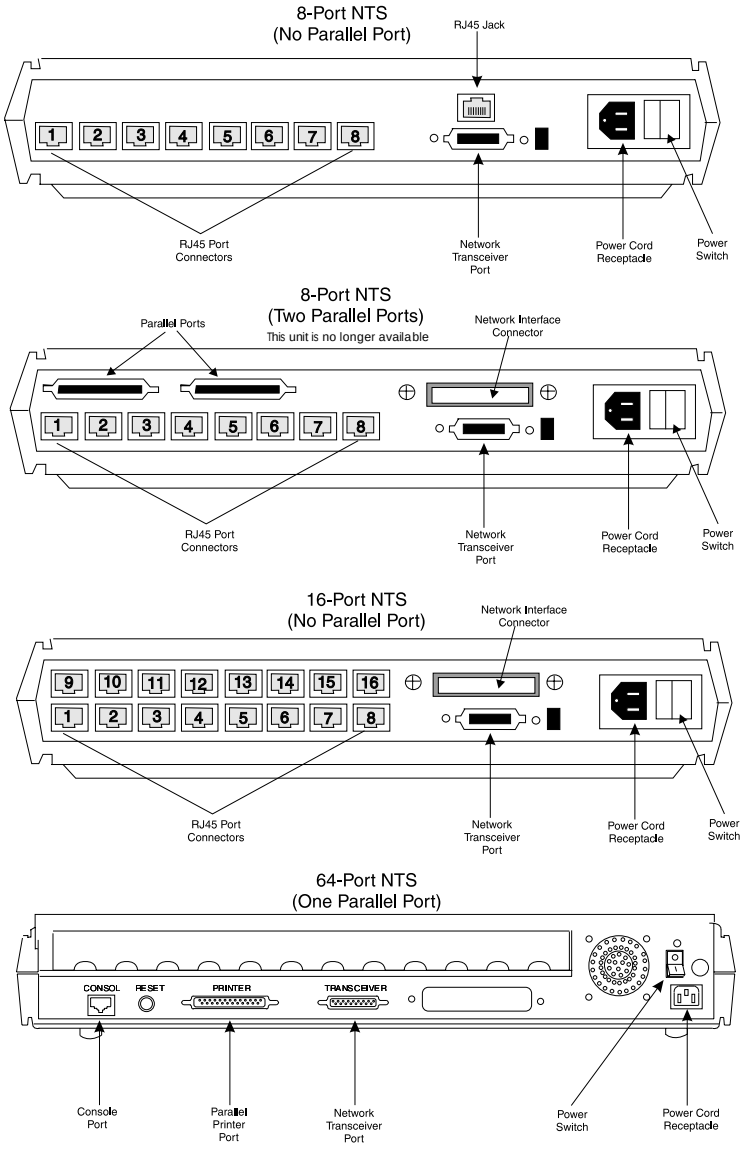

Figure B-1: *Network Terminal Server* — Back Panel

6. Connect the 10-T transceiver to the network transceiver port on the back panel of the NTS (see Figure B-1).
7. Connect the network hub unit to the NTS (10-T transceiver) using a UTP network cable.
8. Connect a dumb terminal to the **CONSOLE** port on the rear of the NTS using the console cable and adapter that came with the NTS. On the 8- and 16-port NTSs, the **CONSOLE** port is port **#1**.

   You will need the following for the 8- and 16-port NTSs:

   - Console Cable
   - Adapter - comcode 407361823
   - Null Modem - comcode 407122043.

   You will need the following for the 64-port NTS(s):

   - Console Cable
   - Adapter - part number 06-988-260-20.

NOTE:

The terminal options should be set to 9600 bps, 8 bits, no parity, and a stop bit.

9. Turn on the NTS, and within 15 seconds push the **TEST** button on the front of the NTS (see Figure B-2).

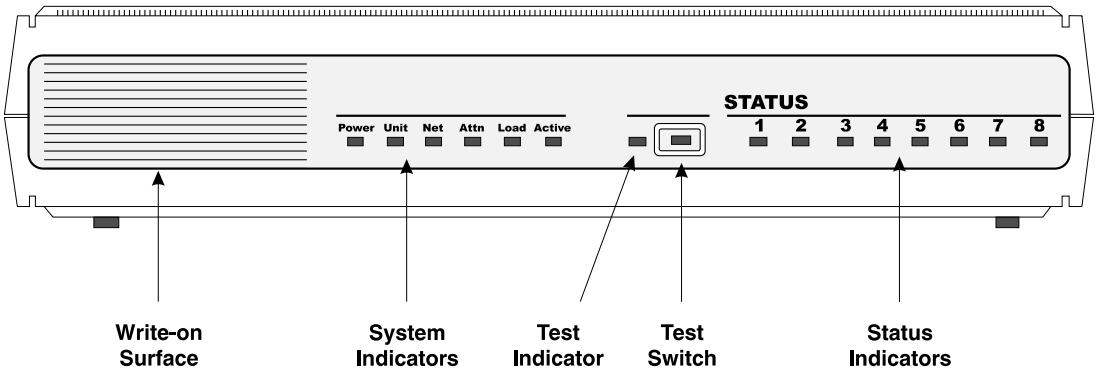

Figure B-2: Front Panel of the *Network Terminal Server*

10. The NTS goes through its hardware diagnostics, and the following prompt should appear:

```
Monitor::
```

11. Enter the following command at the **monitor:** prompt:

```
Monitor:: erase
```

NOTE:

There are two types of information that can be erased:

- EEPROM (configuration information)
- FLASH (self-boot image).

If only one type of information is present, the program begins to erase it. If there are two types of information, the program prompts you to select the information you want to erase. Erase both the EEPROM and the FLASH information.

12. The program responds:

```
Erase
   1) EEPROM (i.e., Configuration Information)
   2) FLASH (i.e., Self Boot Image)
Enter 1 or 2::
```

13. Enter **1** to erase EEPROM. The program responds:

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

14. Enter **y**. The program responds:

```
Erasing xxxx bytes of non-volatile memory. Please wait....
.............................
Erased xxxx bytes of non-volatile memory complete.
```

15. The program returns to the monitor:: prompt. Repeat steps 11-14 to erase the FLASH information.

16. After you have completed the erase command, enter the following command at the monitor prompt:

```
Monitor:: addr
```

17. The program responds:

```
Enter Internet address [<uninitialized>]::
```

18. Enter the IP address for this NTS. This should follow the IP address structure outlined in Table B-6 on page 91.

    The program responds:

```
     Internet address : XXX.XXX.XXX.XXX

Enter Subnet mask [255.255.25.0]::
```

19. Enter the appropriate netmask, or press Enter to accept the default. The program responds:

```
      Subnet mask: xxx.xxx.x.x

Enter preferred load host Internet address [<any host>]::
```

20. Enter the IP address of the *Sun Enterprise* 3000 system.

    The program responds:

```
      Preferred load host address XXX.XXX.XXX.XXX

Enter Broadcast address [0.0.0.0]::
```

21. Press Enter to accept the default broadcast message address. The program responds:

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

22. Enter the IP address of the *Sun Enterprise* 3000 system.
    The program responds:

```
      Preferred dump address: xxx.xx.x.x

  Select type of IP packet encapsulation (ieee802/ethernet)
  [<ethernet>] ::
```

23. Press Enter to accept the default IP packet encapsulation. The program responds with the following question if you have an 8- or 16-port NTS. The program returns to the **`monitor::`** prompt if you have a 64-port NTS.

```
      Type of IP packet encapsulation: <ethernet>

  Load Broadcast Y/N [Y]::
```

24. Enter **`N`**. The program returns to the **`monitor::`** prompt.
25. Enter the following command at the monitor prompt to reinitialize the NTS with the new parameters:

```
monitor:: boot
```

    The program responds:

```
  Enter boot file name [oper.42.enet]::
```

NOTE:

The boot file name differs depending on the type of NTS. For the 8- and 16-port NTS, the boot file name is **`[(ip) “oper.52.enet”, (mop) “OPER_52_ENET.SYS”]::.`** For the 64- port NTS, the boot file name is **`oper.42.enet`**.

26. Press Enter to accept the default boot file name. The program continues. For example:

```
     Requesting boot file “oper.42.enet”.
     Unanswered requests shown as ‘?’,
                              transmission errors as ‘*’.

     Booting file: oper.42.enet from 129.200.9.1

     Loading image from 129.200.9.1
.....................
```

The periods (dots) continue to appear as the NTS is initialized and set up.

NOTE:

If the program displays “SELF” instead of the IP address (129.200.9.1), it means that you did not erase EEPROM. Go back to step 11 to erase EEPROM.

When the initialization finishes, the following appears:

```
annex::
```

27. Disconnect the dumb terminal from the NTS.

The NTS has been administered.

Additional References

For additional information, refer to the following documentation:

Network Terminal Server Guide,
Quick Installation Guide for the Sun Network Terminal Server Leaflet.

Index

G

H

I

L

M

N

O

P

R

S

T

X