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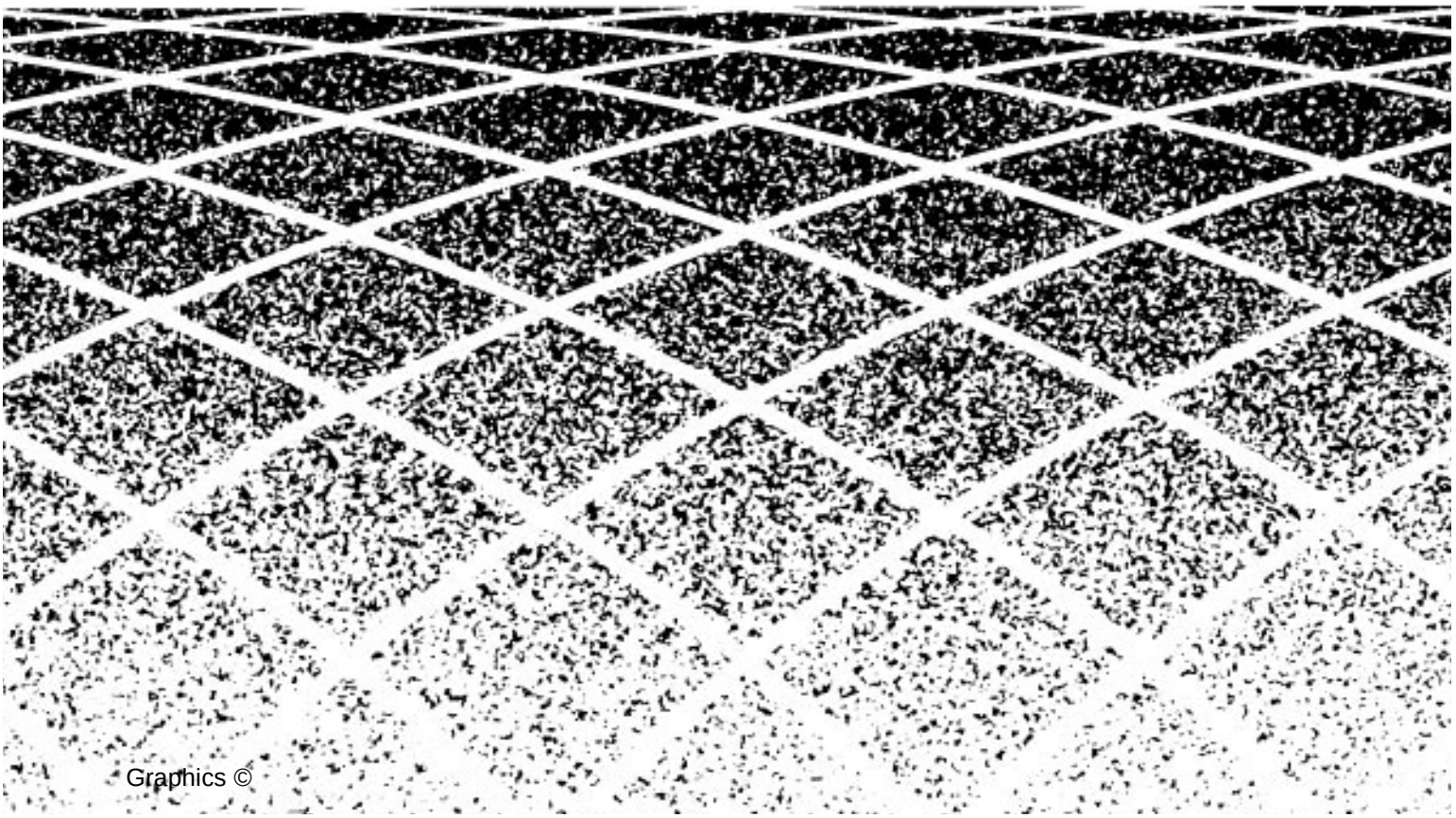
Call Management System Release 3 Version 2

Upgrading to *Solaris*™ 2.4 for *Sun*® *SPARCserver*™ Computers



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Call Management System
Release 3 Version 2
Upgrading to *Solaris*™ 2.4 for
Sun® *SPARCserver*™ Computers

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Introduction

This document describes how to upgrade the *Solaris* operating system to version 2.4 from either version 2.2 or version 2.3. Any differences when upgrading from 2.2 or 2.3 are noted in the procedures.

Note Not including system backups, this upgrade takes about 4 hours to complete (that is, 4 hours of system down-time). The backups themselves can take anywhere from 1 to 7 hours depending on the type of tape drive available on the workstation, but these can be done while the system is still in normal operating mode.

Intended Audience

These upgrade procedures are written for technicians that support the Call Management System (CMS) product line. For this particular upgrade, this may include both the technicians at the AT&T Technical Service Center (TSC) and the technicians from *SUN* corporation. Depending on the upgrade, the *SUN* technicians will upgrade the *SUN*-related software and the AT&T technicians will do the rest of the upgrade procedures.

Personnel that do this upgrade should be familiar with *X Windows*-based software programs used for the installation of the *Solaris* operating system. This includes knowledge of using a workstation and selecting objects using a mouse.

Trouble Escalation

Should troubles occur during this upgrade, report the trouble using the normal escalation procedures.

The *Solaris* 2.4 Upgrade

The *Solaris* 2.4 upgrade procedure can be done either remotely or locally, and in most cases, a combination of the two. When done remotely, there must be a technician on-site to change out the tapes and CD-ROMs as instructed by the TSC personnel. Except for loading the new *Solaris* 2.4 software, the procedures are identical whether you are doing them locally or remotely.

Note

Since this upgrade requires about 4 hours of down time, make sure that your customer is willing to have the system down before you begin the procedure.

This upgrade procedure cannot be used to upgrade a system that is already at release 2.4.

Overview

The steps required for the *Solaris* 2.4 upgrade are summarized in the following table. Also included is how long it will take and the page number where you can find the procedure.

Step	Procedure	Length	Page
1	Do a CMSADM backup the day before the upgrade	1 to 7 hrs.	4
2	Dial up the system (if needed)	1 min.	8
3	Set up the remote console (only if upgrading *Solaris* remotely)	10 min.	8
4	Verify your system path	2 min.	9
5	Do a maintenance backup	Up to 2 hrs.	10
6	Remove CMS	7 min.	14
7	Back out the X.25 patch	4 min.	19
8	Display the X.25 license password	1 min.	20
9	Remove the X.25 packages	10 min.	21
10	Remove *INFORMIX*	1 min.	22
11	Upgrade to *Solaris* 2.4 - Locally - Remotely	 1 hr. 35 min. 1 hr. 35 min.	 23 39

Step	Procedure	Length	Page
12	Merge files	5 min.	59
13	Install *Solaris* 2.4 System *Answer-book*	10 min.	59
14	Install *Sunlink* X.25 8.0.2	25 min.	66
15	Install the *Sunlink* X.25 software patch	1 min.	77
16	Install *INFORMIX*	15 min.	77
17	Install the *Solaris* 2.4 patches	35 min.	83
18	Install CMS	10 min.	87
19	Verify the upgrade	10 min.	91
20	Return control of the console to the local workstation (only if upgrading *Solaris* remotely)	10 min.	91

Required Materials

Gather the following materials and information before you begin the upgrade:

- Root password
- Backup tapes for the maintenance backup and the CMSADM backup
- Host name (also known as system name or machine name)
- IP address
- *Solaris* 2.4 Hardware: 3/95 CD-ROM
- *Solaris* 2.4 *Answerbook* CD-ROM
- *SunLink* X.25 8.0.2 CD-ROM and *SunLink* X.25 license password from the original installation (the license is needed only if the license is accidentally deleted during the upgrade procedure)
- *INFORMIX* SE tape, serial number, and key number
- *INFORMIX* SQL tape, serial number, and key number (optional, only required if the customer currently uses this package)
- R3V2 or R3V4 CMS CD-ROM

In most cases, the *Solaris* 2.4 upgrade applies to systems currently with R3V2 CMS. If the system you are upgrading is also being upgraded to R3V4 CMS at the same time, you will need that CD-ROM

- CMS R3V2 *Sun SPARCserver* Computers Installation and Maintenance document (AT&T 585-215-129).

CMSADM Backup

The day before the upgrade, have the customer do a CMSADM backup in preparation for the upgrade. The backup procedures are included here in case the TSC has to do the backup.

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.

Do the following to create a CMSADM backup:

1. Make sure you are logged in with the *root* login and password.
2. Print the *vfstab* file:

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

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

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

3. To check if you are in the multi-user state, execute this command:

```
# who -r
```

   The following display shows you are in run-level 3:

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

4. Execute the following command to access the CMS Administration menu:

```
# cmsadm
```

   The CMS Administration menu displays:

```
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 CMS on or off
```

5. Enter 3 to select the `backup` option.

   If you have more than one type of tape drive, the system responds:

```
Select tape drive to use:
   1) /dev/rmt/0
   2) /dev/rmt/1
   3) /dev/rmt/1c
Enter choice (1-3):
```

Note All systems are shipped with the QIC-150 (150-MB), 5.0-GB, or 14.0-GB tape drives. For quicker backups (1 hour versus 7 hours), we recommend using the 14.0-GB tape drive in compressed mode.

If your system has only one tape drive, the selection process in Step 6 is skipped.

6. Select the tape drive to use (for example: 1, 2, or 3). For a QIC-150 cartridge tape (`/dev/rmt/0`) enter 1. For a 5.0-GB or 14.0-GB cartridge tape in uncompressed mode (`/dev/rmt/1`) enter `2.` For a 14.0-GB cartridge tape in compressed mode (`/dev/rmt/1c`) enter `3.`

   Note The system calculates the approximate number of tapes required based on using the correct size tapes. If you use a tape with less capacity than expected, the backup will require additional tapes.

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

```
The backup will need approximately 1 tape.

Please insert the first cartridge tape into
</dev/rmt/1>.

Press ENTER when ready:
```

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

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

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

Please insert the first cartridge tape into
</dev/rmt/1>.

Press ENTER when ready:
```

7. To begin the backup, insert a cartridge tape and press **Return**.

   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.
```

8. To continue the backup, press **Return**.

If you are using one tape, the system responds:

```
Backing up files...
.................
.................
XXXXXX Blocks

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

Note The system continues to display dots (...) as the system backs up the data.

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

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

9. If you are using more than one tape, press **Return** to continue (repeat this step for every tape installed for backup).

   The system responds:

```
.................
.................
.................
XXXXXX Blocks


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

   When the backup is finished, the system prompt displays.

10. Label the CMSADM backup tape(s) with the date and CMS version.

For more information about CMSADM Backups, see Chapter 12 of the CMS R3V2 Administration document (AT&T 585-215-521).

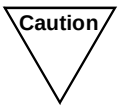
Dialing In for a Remote Upgrade

If you are doing the upgrade remotely, use the following instructions to dial in to a system remotely:

1. Dial up the local system.
2. Enter the terminal type for the remote terminal. You will be prompted for this information when you dial up the system.
3. Log in with the *root* login and password.

Giving Control to the Remote Console

If you are doing the *Solaris* part of the upgrade remotely, use the following instructions to transfer control of the console from the local system to the remote system. If you are doing this upgrade locally, skip this section.



If you control the console remotely and the phone line is interrupted during the *Solaris* upgrade, you cannot dial back in to the system, and the upgrade must be completed locally. This means that the upgrade will take longer and cause more down time for the customer.

Do the following (this procedure takes about 10 minutes):

1. Enter the following command to turn off the administration at serial port A:

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

   The system responds:

```
ttya is currently turned off

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

2. Answer y.

The system responds:

```
ttya administration removed
#
```

3. Enter the following command to enable the console for remote operation on serial port A:

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

The system responds:

```
Console set to remote

This change requires a reboot to take affect

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

4. Answer y.

The shutdown begins:

```
Starting port monitor
Setting console parameters
Proceeding to reboot
    .
    .
    .
system console login:
```

5. Log in with the *root* login and password.

The local console screen blanks out and displays a console login and password prompt. Nothing should be done at the local console while the upgrade is being done remotely.

Verifying Your System Path

Before you begin the upgrade, verify that your operating system path is correct so you can access the necessary commands.

1. Log in with the *root* login and password.

2. Enter the following command to check your path:

```
# echo $PATH
```

   The path displayed should look something like the following:

```
/usr/openwin/bin:/usr/sbin:/usr/bin
#
```

3. If either `/usr/bin` or `/usr/sbin` are not in the path, enter these commands to reset the path:

```
# PATH=/usr/openwin/bin:/usr/sbin:/usr/bin
# export PATH
# echo $PATH
```

   The path is now set correctly and should look like the following:

```
/usr/openwin/bin:/usr/sbin:/usr/bin
#
```

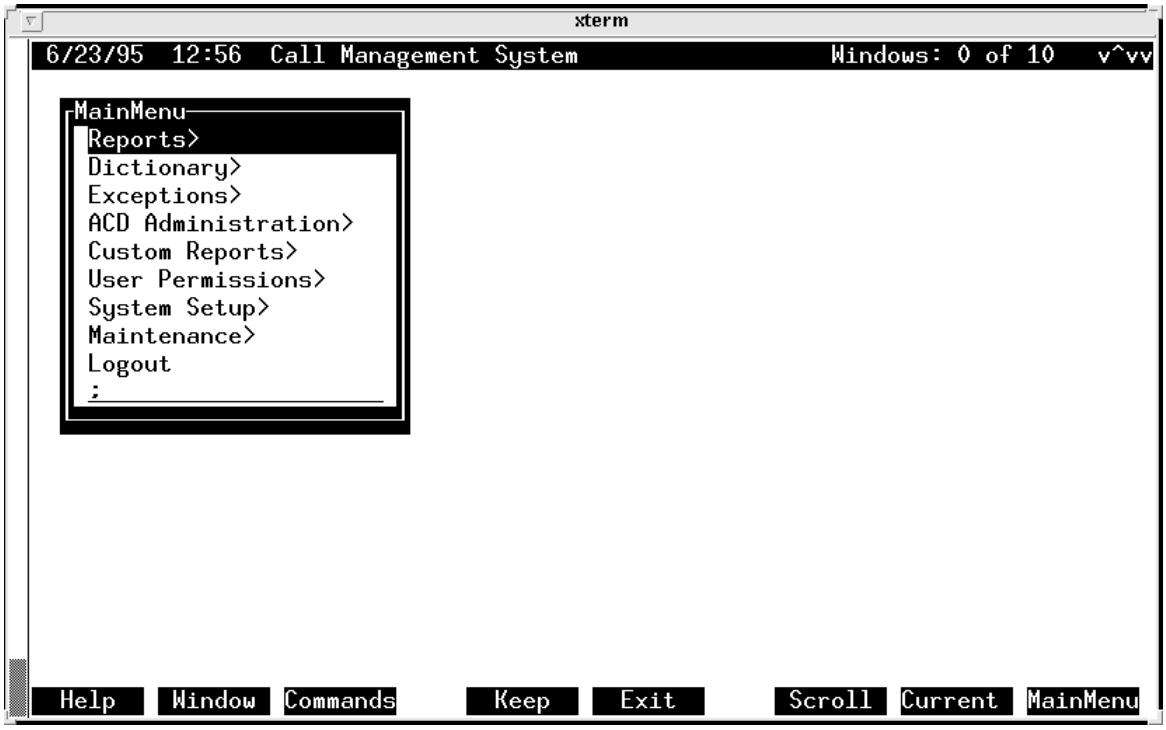
Doing a Maintenance Backup

The maintenance backup can take up to 2 hours, and CMS must be running in single-user mode to guarantee that no one is using CMS.

Do the following to create a maintenance backup:

1. Log in using the *root* login and password (if not already logged in).
2. When queried to run *OpenWindows*, answer `y` (only for local upgrades).
3. When queried to enter a terminal type, use the `xterm` terminal type (only for local upgrades).
4. Enter the `cms` command.

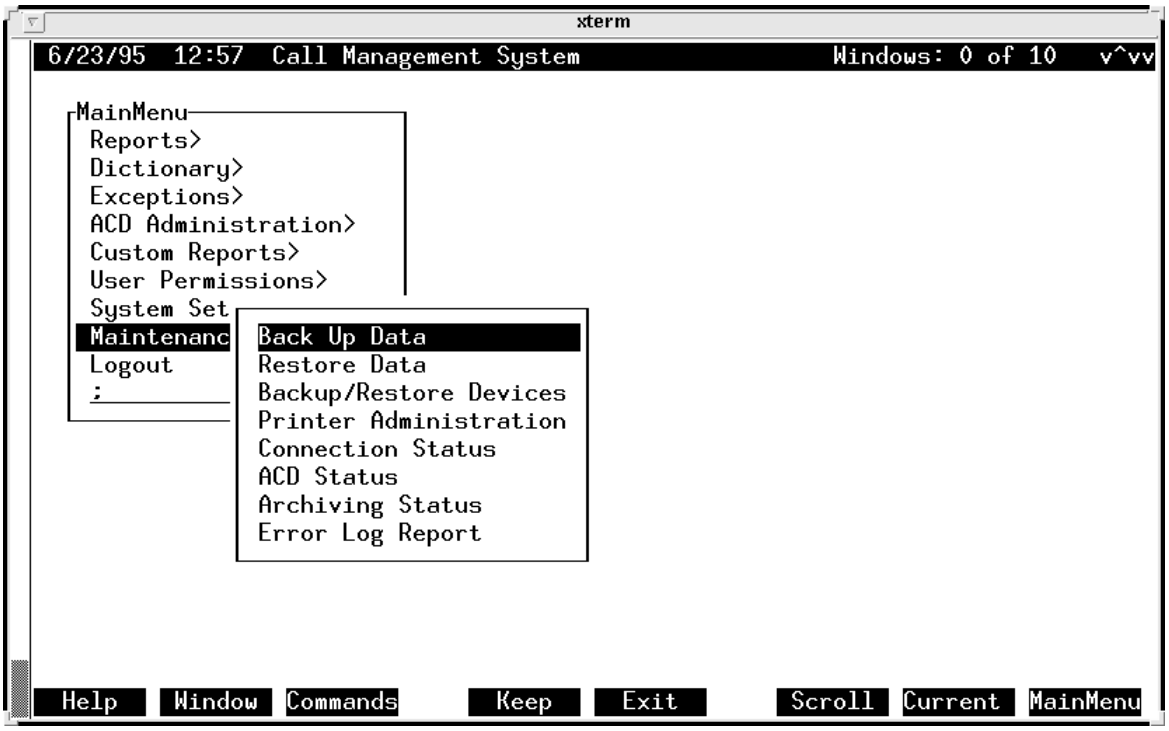
The following screen displays:



Note When accessing these screens remotely, they look different from those shown here, but you select the menu items in the same way.

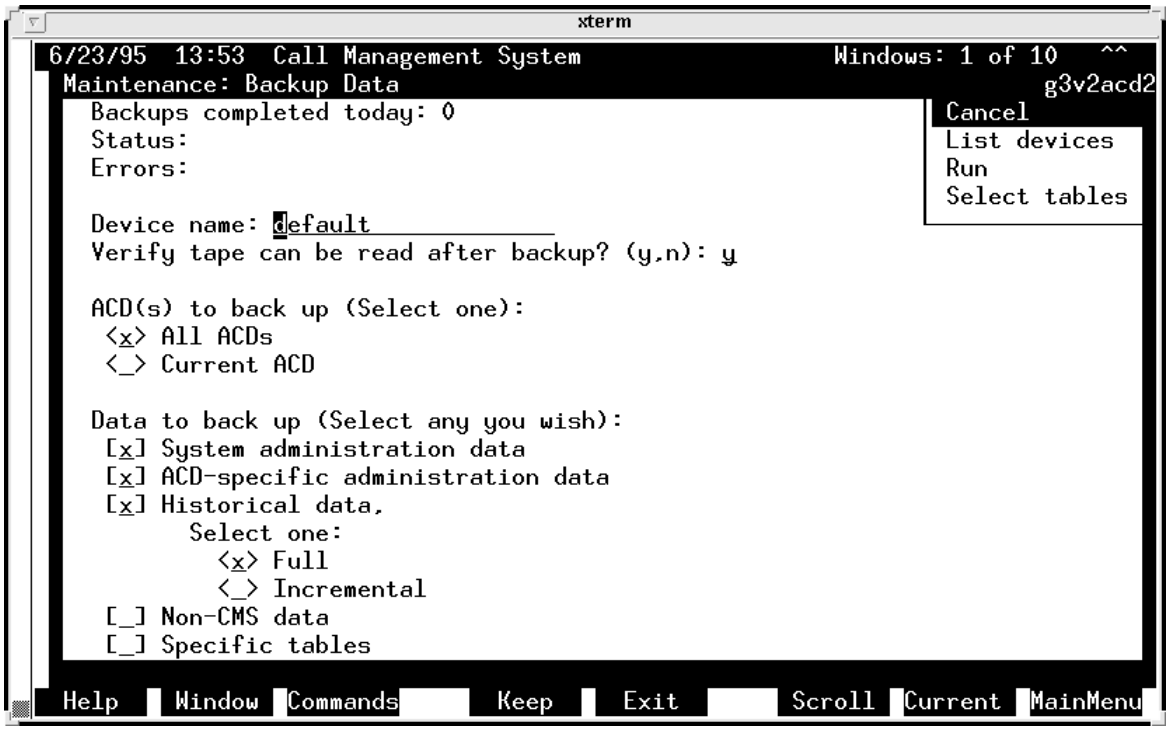
5. Use the arrow keys to select the `Maintenance` option; then press **Return**.

A pop-up window displays:



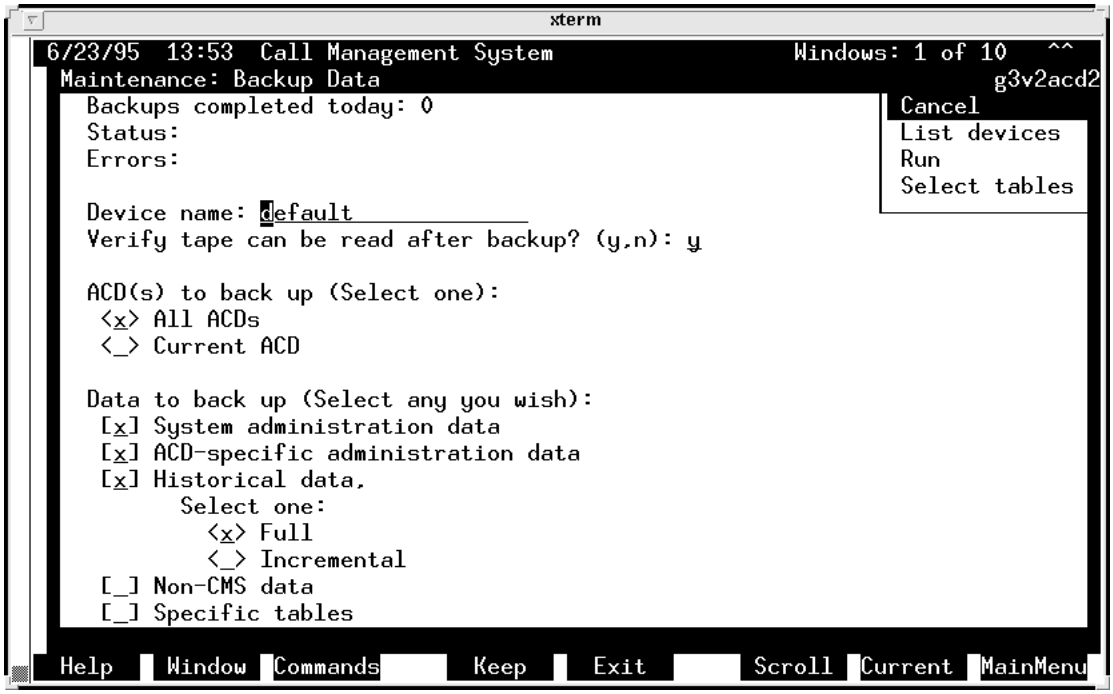
6. From the pop-up window, use the arrow keys to select the `Back Up Data` option; then press **Return**.

7. Fill in the blanks as shown on the example below:



8. After you fill in the screen (as shown above), press Return.

   The cursor moves to the upper right-hand list of actions (`Cancel`, `List devices`, `Run`, `Select tables`).



9. Using the arrow keys, select the Run option; then press Return.

   The number of volumes (tapes) required is calculated and displayed.

10. Insert the tape in the drive and press Return.

    As the backup progresses, the different areas being backed up are displayed.

11. When the backup is completed, label the tape(s) as instructed by the backup program.

12. Exit from the Maintenance backup screen.

For more information about Maintenance Backups, see Chapter 12 of the CMS R3V2 Administration document (AT&T 585-215-521).

Removing CMS

There are three steps involved in removing the CMS software:

- Turning off CMS
- Removing any field updates
- Removing the base CMS software.

These procedures take about 7 minutes.

Turning Off CMS

1. Enter the following command to access the CMS Services menu:

```
# cmssvc
```

   The cmssvc menu displays:

```
 Commands for CMS Services Personnel

Select a command from the list below.
   1) auth_display Display feature
authorizations
   2) auth_set     Authorize CMS
capabilities/capacities
   3) backup       Filesystem backup
   4) run_CMS      Turn CMS on or off
   5) setup        Set up the initial CMS
configuration
   6) swinfo       Display switch
information
   7) swsetup      Change switch information
   8) upd_install  Install update from disk
```

2. Select menu item 4, `run_cms`.

   The following menu displays:

```
Select one of the following:
  1) Turn on CMS
  2) Turn off CMS
Enter choice (1-2):
```

3. Select menu item 2, `Turn off CMS`.

   The system responds:

```
*** Turning off CMS. Please wait ***
. . .

*** Turning off X25. Please wait ***
. . . . . .

*** CMS is now off ***

#
```

Removing Field Updates

Do these steps to determine if a field update is installed:

1. Display the installed CMS packages by entering:

```
# pkginfo -x cms.*
```

   The program responds with information similar to this:

```
application cms            Call Management
System
application cms.2          Call Management
System
                            (sparc) r3v2xxx
```

Note If more than one package is displayed (for example, `application cms.2`), this means that there is a field update installed. Keep track of the CMS load number for later use.

If there are no field updates (as denoted with `cms.2`), continue with “Removing the Base CMS Software” on page -17.

2. Enter the following command to remove the field update:

```
# pkgrm cms.2
```

The program responds:

```
The following package is currently installed:
    cms.2          Call Management System
                     (sparc) 3rxxx

Do you want to remove this package [y,n,?,q]
```

3. Answer y.

The program responds with a list of files that will be changed due to the removal of the update:

```
## Verifying package dependencies.
## Processing package information.
    .
    .
    .
## Executing postremove script.
```

If the removal is successful, this message displays:

```
Restoring old CMS software
/cms/install/auditmap
/cms/install/autoconfig
/cms/install/bin/turn_off_cms
/cms/install/bin/turn_on_cms

Updating installation software database.

Removal of Call Management System (3rxxx) is
complete
## Updating system information.

Removal of <cms.2> was successful.
```

The installed field updates (if present) are removed from the CMS software. You can now remove the current CMS base package.

Removing the Base CMS Software

Do these steps to remove the current CMS base package:

1. Enter the following command to remove the CMS package:

```
# pkgrm cms
```

   The program responds:

```
The following package is currently installed:
   cms             Call Management System
                    (sparc) 3rxxx

Do you want to remove this package [y,n,q,?]
```

2. Answer y.

   The system responds:

```
## Removing installed package instance <cms>

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

Do you want to continue with the removal of
this package [y,n,q,?]
```

3. Answer y. The system responds:

```
## Verifying package dependencies.
## Processing package information.
## Executing preremove script.

Do you want to preserve CMS data? [y,n,?]
```

4. Answer `y`. The system responds:

```
CMS will be removed from this machine; the
data will be preserved.

Are you sure this is correct? [y,n,?]
```

5. Answer `y`. The system responds:

```
All file systems should be backed up before
continuing.
See the Maintenance chapter in the Sun CMS
Installation
and Maintenance Manual for instructions.
```

6. Answer `y`. The system responds:

```
## Removing pathnames in class <ind>
/usr/spool/lp/cmstermintf
/usr/spool/lp/cmstermDSR
   .
   .
   .
Removal of <cms> was successful.
#
```

Removing the X.25 Patch

Solaris 2.2 and *Solaris* 2.3 have an X.25 patch that must be removed before you remove the standard X.25 packages. These patches can only be removed using this procedure, which takes about 5 minutes. Only do the procedure that applies to your current operating system.

Removing the *Solaris* 2.2 Patch

1. Before you remove the *Solaris* 2.2 X.25 patch, execute the following command to make sure the patch is installed:

```
# showrev -p | grep 101524
```

   The command displays information similar to the following:

```
Patch: 101524-01 Obsoletes: Packages:
SUNWllc2a.2 PATCH
#
```

2. Execute the following commands to remove the X.25 patch:

```
# cd /var/sadm/patch
# 101524-01/backoutpatch 101524-01
@(#) backoutpatch 3.5 93/08/11
Doing pkgrm of SUNWllc2a.2 package:
backoutpatch finished.
#
```

Removing the *Solaris* 2.3 Patch

1. Before you remove the *Solaris* 2.3 X.25 patch, execute the following command to make sure the patch is installed:

```
# showrev -p | grep 101884
```

The command displays information similar to the following:

```
Patch: 101884-01 Obsoletes: Packages:
SUNWllc2a.2 PATCH
#
```

2. Execute the following commands to remove the X.25 patch:

```
# cd /var/sadm/patch
# 101884-01/backoutpatch 101884-01
@(#) backoutpatch 3.5 93/08/11
Doing pkgrm of SUNWllc2a.2 package:
backoutpatch finished.
#
```

Displaying the X.25 License Password

In case the X.25 password is not saved when the X.25 packages are removed, use the following command to display the X.25 license password:

```
#cat/etc/opt/licenses/licenses_combined
```

The system responds:

```
SERVER r3cqpcp 72324e6d 1726
DAEMON lic.SUNW /etc/opt/licenses/lic.SUNW
/etc/opt/licenses/daemon_options INCREMENT
sunlink_x.25         lic.SUNW 8.000 01-jan-0
1 5BEAB0A16F3EAAC5DF1D "0”
#
```

The long string of characters on the last line is the X.25 license password. Write your license password here in case you need it:

_____

Removing the X.25 Packages

The X.25 packages are removed here and replaced later with a new *SunLink* X.25 Version 8.0.2. In some installations, auxiliary versions of these packages exist. These auxiliary packages are identified when you try to remove the base version of the package and you get a message saying, for example, that package SUNWabx25.2 also exists. If this does happen, quit removing the base package and remove the auxiliary package first (for example, `pkgrm SUNWabx25.2`).

Depending on the number of packages installed on your system, this will take about 10 minutes.

Note As these are removed, answer all questions concerning dependencies, conflicting files, license files, and permissions in the affirmative. You will know the remove was successful when you see the message:

```
Removal of <package> was successful.
```

Note All the packages being removed should currently be installed on your system, but if you try to remove a package and you get the message `package not found`, simply skip that package.

1. To remove the *Answerbook* package, enter the following command:

```
# pkgrm SUNWabx25
```

2. To remove the X.25 user programs and libraries for *Solaris/SPARC*, enter the following command:

```
# pkgrm SUNWx25b
```

   You may be asked if you want to save the current license. Answer y, since it will be incorporated into the new version.

3. To remove the X.25 kernel modules and include files, enter the following command:

```
# pkgrm SUNWx25a
```

4. To remove the LLC2 user programs and manual pages, enter the following command:

```
# pkgrm SUNWllc2b
```

5. To remove the LLC2 kernel modules and include files, enter the following command:

```
# pkgrm SUNWllc2a
```

6. To remove the FLEX LM license system, enter the following command:

```
# pkgrm SUNWlicsw
```

   You may be asked if you want to save the current license. Answer `s,` since it will be incorporated into the new version.

7. To remove the STE license installation tool, enter the following command:

```
# pkgrm SUNWlit
```

Removing *INFORMIX*

A new version of *INFORMIX* is required for *Solaris* 2.4. Enter the following command to remove *INFORMIX*:

```
# rm -rf /opt/informix/*
#
```

Upgrading to *Solaris* 2.4

Installing the *Solaris* 2.4 operating system on the *Sun SPARCserver* computer consists of the following tasks:

- Booting the system from the *Solaris* 2.4 CD-ROM.
- Identifying the system.
- Setting the system date and time.
- Installing the *Solaris* 2.4 system files.

The screens used for the local upgrade are slightly different from the remote upgrade, so there are two different sections that show the local and the remote upgrade.

This procedure takes about 1 hour and 35 minutes.

References

For additional information, refer to the following documentation:

Solaris 2.4 SPARC: Installing Solaris Software

Upgrading *Solaris* Locally

If you are doing the *Solaris* upgrade locally, follow the procedures shown in the following sections. If you are doing the *Solaris* upgrade remotely, see the "Upgrading Solaris Remotely" section.

Pre-Upgrade Procedures

You need the following information to install the *Solaris* 2.4 operating system:

1. The host name _____. Enter the following command to find the host name (also called the system name):

```
# uname -n
cms5
#
```

   In this example, the host name is `cms5`.

2. The system's IP address _____. Enter the following command to get the IP address (in this example, `cms5` is the host name; use your host name to find your IP address):

```
# grep cms5 /etc/hosts
145.3.24.85
#
```

   In this example, the IP address is `145.3.24.85`.

3. Shut down the system to run-level 0:

```
# cd /
# shutdown -y -g0 -i0
Shutdown started. Fri Jun 9 08:54;21 MDT 1995
   .
   .
   .
Program terminated
Type help for more information
ok
```

Booting from the *Solaris* 2.4 CD-ROM

To boot the *Sun SPARCserver* computer from the CD-ROM, do the following:

1. Remove the *Solaris 2.4 Hardware: 3/95* CD-ROM from its case. If you have an external CD-ROM drive, follow the steps below, otherwise, go to step 2:
   a. Place the CD-ROM in the CD-ROM caddy. When the CD-ROM is properly inserted in the caddy, the CD-ROM label is visible.
   b. Insert the CD-ROM caddy into the CD-ROM drive slot.
   c. Go to step 5.
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. Boot the system from the CD-ROM by entering:

```
ok boot cdrom
```

The boot process takes approximately 5-10 minutes. After the boot process, the system displays the following screen:

Note If you need help during the installation, click **Help** to get more information about the current procedure.

6. Click **Continue**.

Identifying the System

The following screen displays:

1. Click **Continue**.

   The following screen displays:

2. Click the **Host name** box, type the host name for the workstation (also known as the system name); then click **Continue**.

The following screen displays:

3. Click **Yes**; then click **Continue**.

Note — If the system is equipped with more than one network board, the **Primary Network Interface** screen displays. You should click option **le0**; then click **Continue**.

The following screen displays:

4. Click the **IP address** box, type the IP address; then click **Continue**.

The following screen displays:

5. Click **Continue** if the displayed information is correct. If you click **Change**, the program returns to the **Host Name** screen.

   The following screen displays:

6. Click **None**; then click **Continue**.

The following screen displays:

7. Click **No**; then click **Continue**.

   The following screen displays:

8. 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 following screen displays:

1. Click **Geographic region**; then click **Set**.

   The following screen displays:

2. Click to highlight the region and time zone where this system is located; then click **Continue**.

   The following screen displays:

3. 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 following screen displays:

4. Click **Continue** if the displayed information is correct. If you click **Change**, the program returns to the **Time Zone** screen.

   The system date and time are now set. After a brief pause, the program continues with the installation of *Solaris* 2.4 system files.

Installing the *Solaris* 2.4 System Files

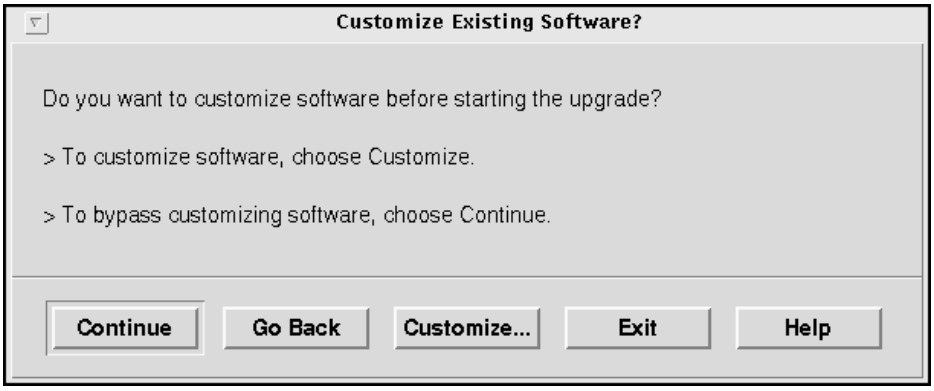
The following screen displays:

1. Click **Continue**.

The following screen displays:

2. Click **Upgrade**.

   The following screen displays:



3. Click **Customize**.

The following screen displays:

4. Activate the following packages by clicking the mouse on the square icon next to each package listed. Use the scroll bar as necessary to move up and down the list of packages. If the box is already filled in, the package is already selected.
    - *Basic Networking*
    - *Framed Access Command Environment*
    - *On-Line Manual Pages*
    - *On-Line Diagnostics Tool*
    - *SX API Support*
    - *Solaris 2.4 User AnswerBook*
    - *System Accounting*.
5. Scroll up; then click the triangular icon next to the *OpenWindows Version 3* package. This expands this package to show other software options.

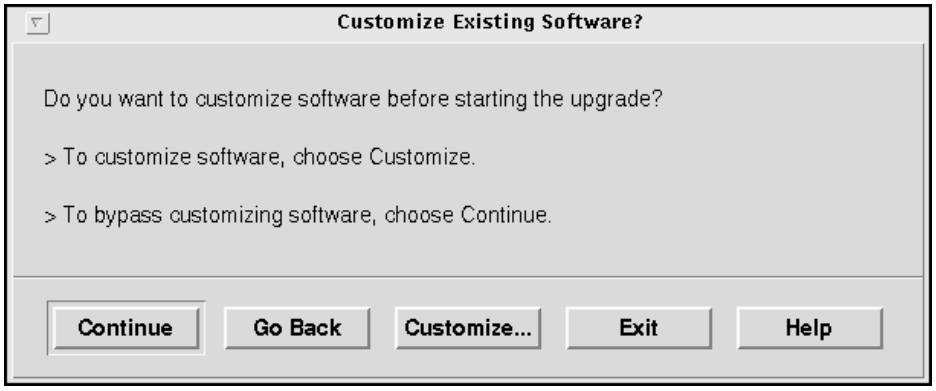
The program responds:

6. Scroll down; then click the square box next to the following packages:
   - *X Windows online user man pages*
   - *X Windows optional fonts*.
7. Scroll up; then click the triangular icon to collapse the *OpenWindows Version 3* package.
8. Click the triangular icon to expand the *Programming tools and libraries* package. This expands the package to show other software options.

The program responds:

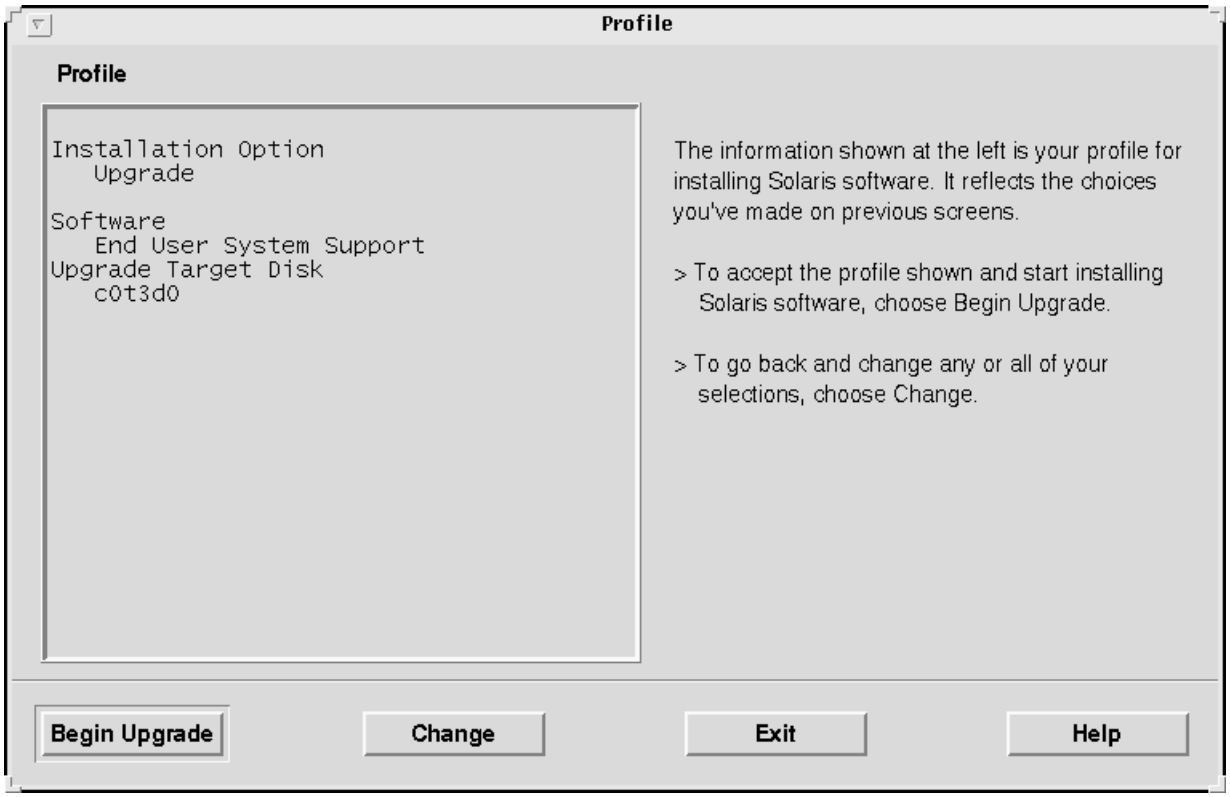
9. Click the square box next to the *CCS tools bundled with SunOS* package.
10. Click the triangular icon to collapse the *Programming tools and libraries* cluster.
11. Click **OK**.

    The following screen displays:



12. Click **Continue**.

The following screen displays:



13. Click **Begin Upgrade.**

The upgrade begins showing the following messages:

```
Finding modified files. This may take several
minutes.
Calculating space requirements.
Space check complete.
Starting upgrade:
Removing obsolete packages and saving modified
files:
    .
```

This part of the upgrade takes about 1 hour and does the following:

- Finds modified files
- Calculates space requirements
- Starts the upgrade
- Removes obsolete packages and saves modified files
- Removes patches
- Installs new packages.

14. The upgrade ends by displaying the log files used:

```
The messages printed to the screen by this
upgrade have
been saved to:

         /a/var/sadm/install_data/upgrade_log

After this system is rebooted, the upgrade log
can be
found in the file:

         /var/sadm/install_data/upgrade_log

Please examine the file:

         /a/var/sadm/install_data/upgrade_log

It contains a list of actions that may need to
be performed to
complete the upgrade. After this system is
rebooted, this file
can be found at:

         /var/sadm/install_data/upgrade_log
```

15. Reboot the system:

```
# shutdown -y -g0 -i6
Shutdown started
     .
     .
     .
system console login:
```

16. When the shutdown is completed, log in using the *root* login and password.
17. Remove the CD-ROM from the drive by entering:

```
# eject cdrom
#
```

If you have an internal CD-ROM drive, 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.

If you have an external CD-ROM drive, remove the CD-ROM caddy from the CD-ROM drive, remove the CD-ROM from the caddy, and place the CD-ROM back in its case.

18. Execute the *OpenWindows* software.

```
# /usr/openwin/bin/openwin
```

    OpenWindows executes and operates in the standard SUN environment, including File Manager and Help Viewer. Close those two windows.

19. Open an Xterm window by positioning the mouse pointer outside of any window, and click the Right mouse button.
20. Click and hold the Left mouse button on the Programs icon, move outside of that box until a new menu is displayed, and select Xterm from that menu.

    A new Xterm window is started.

21. Click anywhere inside the Xterm window to make it active.

The installation of *Solaris* 2.4 is now complete. Continue with the "Merging Files" section.

Upgrading *Solaris* Remotely

If you are doing the *Solaris* upgrade remotely, follow the procedures shown in the following sections. If you are doing the *Solaris* upgrade locally, see the "Upgrading Solaris Locally"section.

Pre-Upgrade Procedures

You need the following information to install the *Solaris* 2.4 operating system:

1. The host name _____. Enter the following command to find the host name (also called the system name):

```
# uname -n
cms5
#
```

    In this example, the host name is `cms5`.

2. The system's IP address _____. Enter the following command to get the IP address (in this example, `cms5` is the host name; use your host name to find your IP address):

```
# grep cms5 /etc/hosts
145.3.24.85
#
```

   In this example, the IP address is `145.3.24.85`.

3. Shut down the system to run-level 0:

```
# cd /
# shutdown -y -g0 -i0
Shutdown started. Fri Jun 9 08:54;21 MDT 1995
   .
   .
   .
Program terminated
Type help for more information
ok
```

When doing a remote upgrade, the local console blanks out and the remote console has the `ok` prompt.

Booting from the *Solaris* 2.4 CD-ROM

To boot the *Sun SPARCserver* computer from the CD-ROM, do the following:

1. Remove the *Solaris 2.4 Hardware: 3/95* CD-ROM from its case. If you have an external CD-ROM drive, follow the steps below, otherwise, go to step 2:
   a. Place the CD-ROM in the CD-ROM caddy. When the CD-ROM is properly inserted in the caddy, the CD-ROM label is visible.
   b. Insert the CD-ROM caddy into the CD-ROM drive slot.
   c. Go to step 5.
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. Boot the system from the CD-ROM by entering:

```
ok boot cdrom
```

   The boot process takes approximately 5-10 minutes. You are prompted to enter the terminal type of the remote console:

```
What type of terminal are you using?
 1) ANSI Standard CRT
 2) DEC VT52
 3) DEC VT100
 4) Heathkit 19
 5) Lear Siegler ADM31
 6) PC Console
 7) Sun Command Tool
 8) Sun Workstation
 9) Televideo 910
 10) Televideo 925
 11) Wyse Model 50
 12) X Terminal Emulator (xterms)
 13) Other
Type the number of your choice and press Return:
```

6. Enter the number that corresponds to your terminal type.

   If you select `13) Other`, you are prompted to enter your terminal type (for example, tty5425).

After identifying your terminal type, the system displays the following screen:

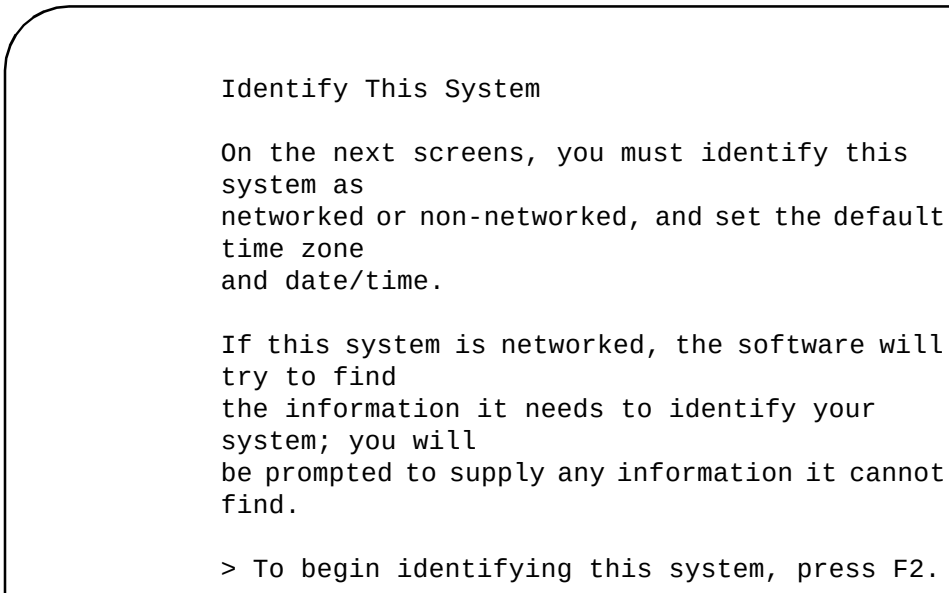
```
The Solaris Installation Program

You are now interacting with the Solaris
installation
program. The program is divided into a series
of short
sections. At the end of each section, you will
see a summary
of the choices you've made, and be given the
opportunity to
make changes.

As you work with the program, you will complete
one or more
of the following tasks:

  1 - Identify peripheral devices
  2 - Identify your system
  3 - Install Solaris software

About navigation...

  - The mouse cannot be used.

  - If your keyboard does not have function
```

Note If you need help during the installation, press F6 to get more information about the current procedure.

7. To continue, press F2.

Identifying the System

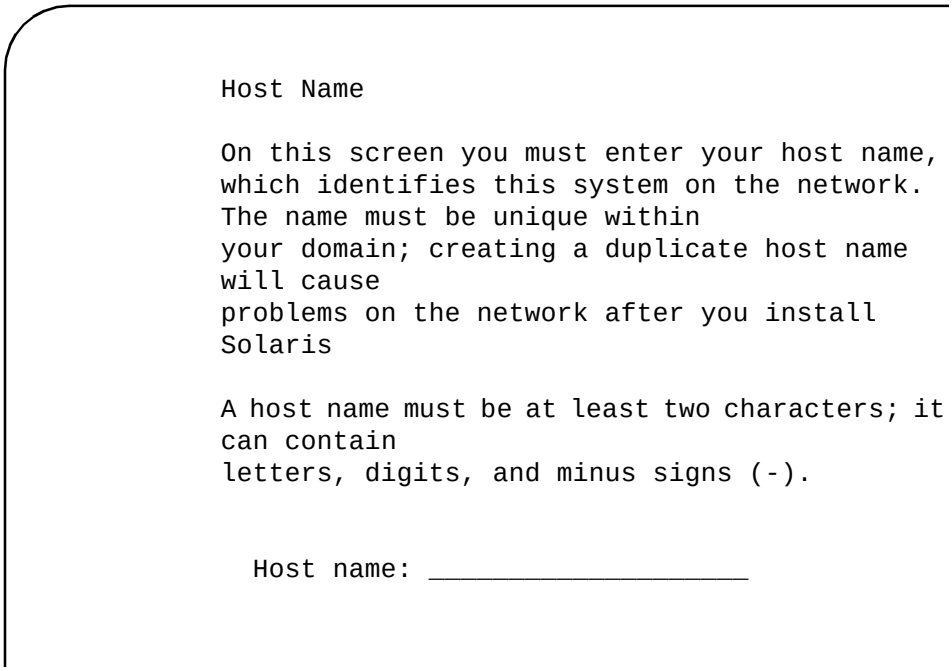
The following screen displays:



```
Identify This System

On the next screens, you must identify this
system as
networked or non-networked, and set the default
time zone
and date/time.

If this system is networked, the software will
try to find
the information it needs to identify your
system; you will
be prompted to supply any information it cannot
find.

> To begin identifying this system, press F2.
```

1. To continue, press F2.

   The following screen displays:



```
Host Name

On this screen you must enter your host name,
which identifies this system on the network.
The name must be unique within
your domain; creating a duplicate host name
will cause
problems on the network after you install
Solaris

A host name must be at least two characters; it
can contain
letters, digits, and minus signs (-).


  Host name: _____________________
```

2. Type the host name for the workstation (also known as the system name); then press F2.

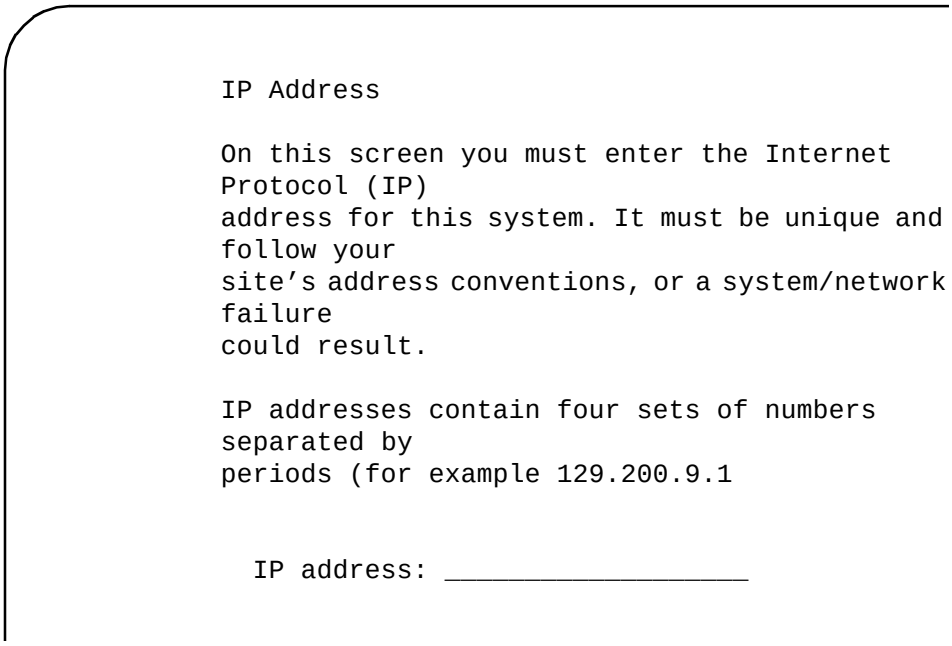
The following screen displays:

```
Network Connectivity

On this screen you must specify whether this
system is
connected to a network. If you specify Yes, the
system
should be connected to the network by an
Ethernet or
similar network adapter.

> To make a selection, use the arrow keys to
highlight the
  option and press Return to mark it [X].


     Networked

     [X] Yes
     [ ] No
```

3. Use the arrow keys to select the `Yes` box; then press **Return** to mark it. Press F2.

Note If the system is equipped with more than one network board, the `Primary Network Interface` screen displays. You should select the `le0` option, press **Return**; then press F2.

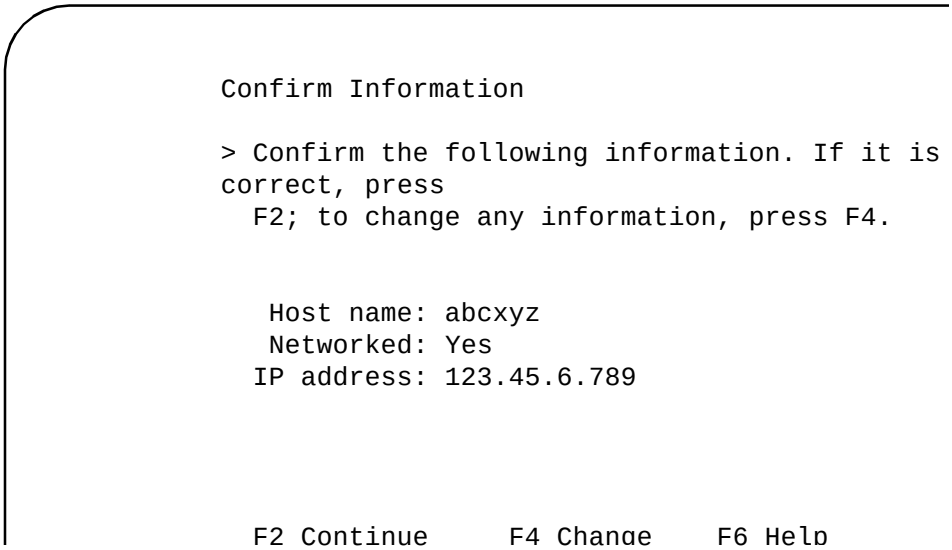
The following screen displays:



```
IP Address

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

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


  IP address: _____________________
```

4. Type the IP address for the workstation; then press F2.

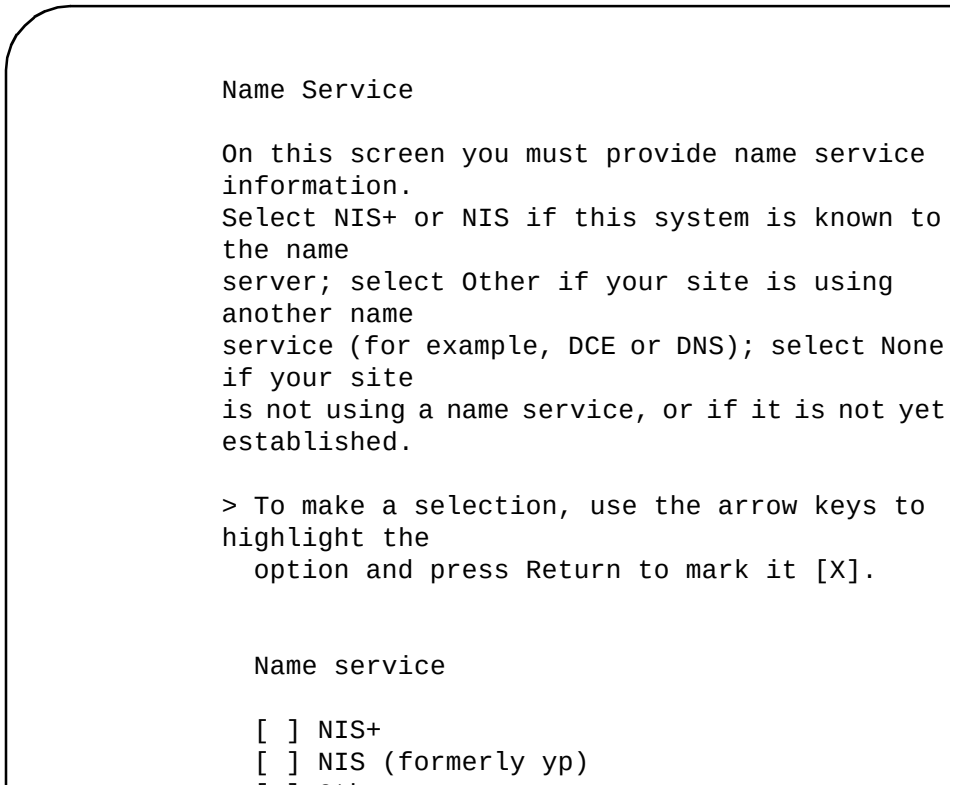
   The following screen displays:



```
Confirm Information

> Confirm the following information. If it is
correct, press
  F2; to change any information, press F4.


   Host name: abcxyz
   Networked: Yes
  IP address: 123.45.6.789




  F2 Continue     F4 Change     F6 Help
```

5. Press F2 if the displayed information is correct. If you press F4, the program returns to the `Host Name` screen.

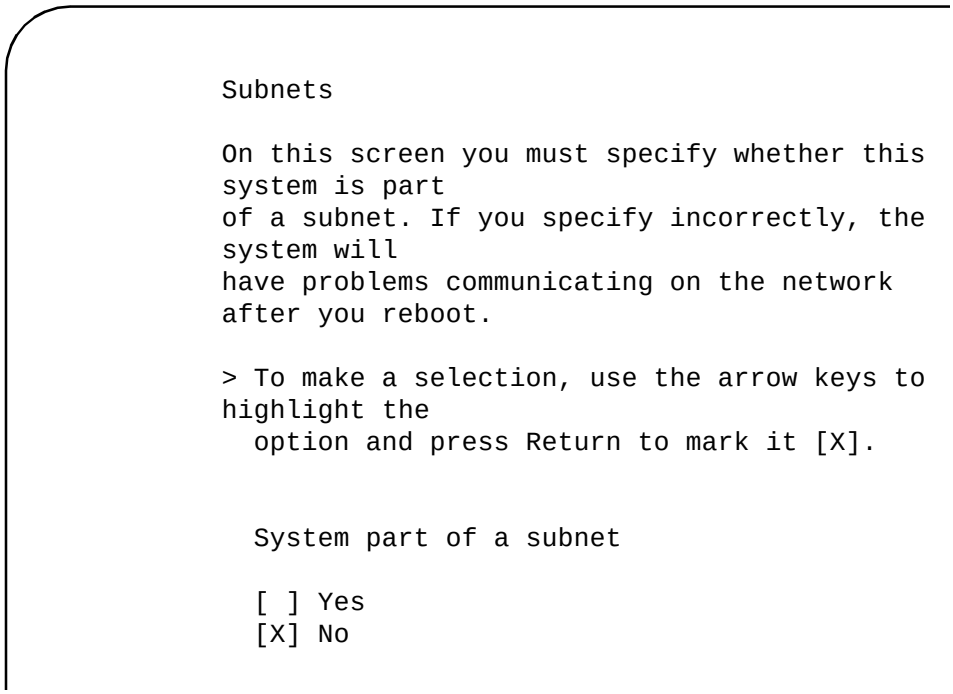
The following screen displays:



```
Name Service

On this screen you must provide name service
information.
Select NIS+ or NIS if this system is known to
the name
server; select Other if your site is using
another name
service (for example, DCE or DNS); select None
if your site
is not using a name service, or if it is not yet
established.

> To make a selection, use the arrow keys to
highlight the
  option and press Return to mark it [X].


  Name service

  [ ] NIS+
  [ ] NIS (formerly yp)
```

6. Use the arrow keys to select the None box; then press Return to mark it. Press F2.

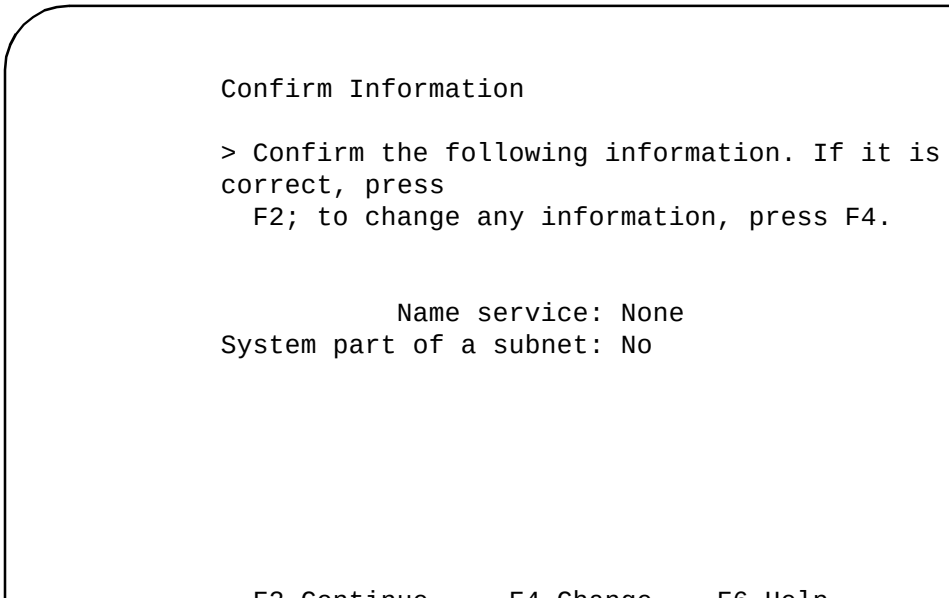
   The following screen displays:



```
Subnets

On this screen you must specify whether this
system is part
of a subnet. If you specify incorrectly, the
system will
have problems communicating on the network
after you reboot.

> To make a selection, use the arrow keys to
highlight the
  option and press Return to mark it [X].


  System part of a subnet

  [ ] Yes
  [X] No
```

7. Use the arrow keys to select the No box; then press Return to mark it. Press F2.

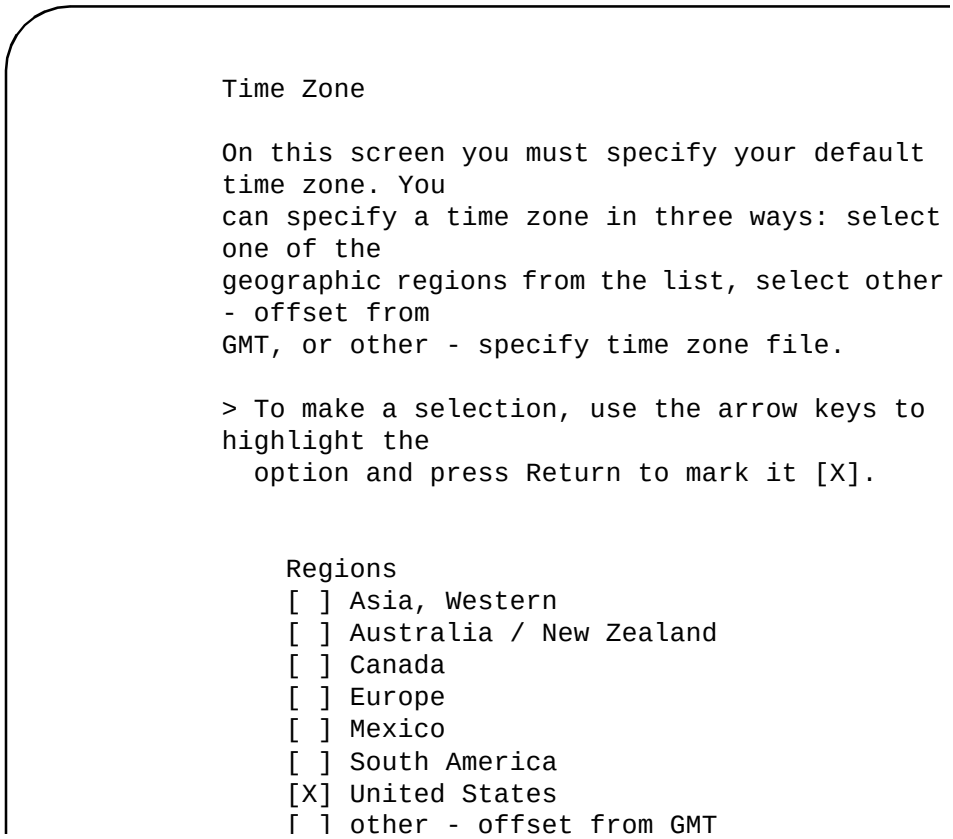
   The following screen displays:



8. Press F2 if the displayed information is correct. If you press F4, the program returns to the Name Service screen.

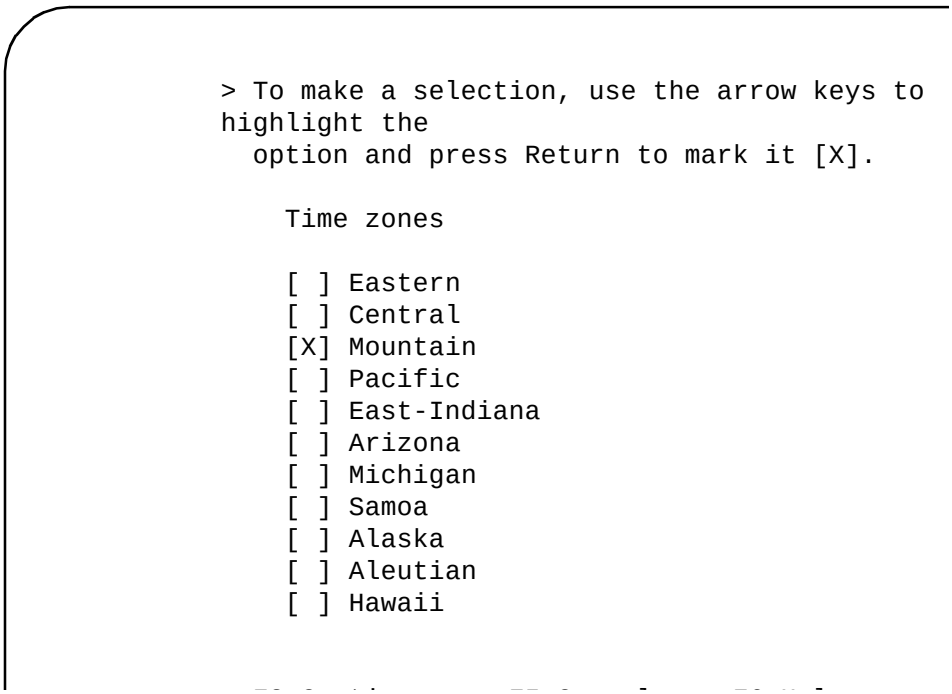
Setting the Date and Time

The following screen displays:



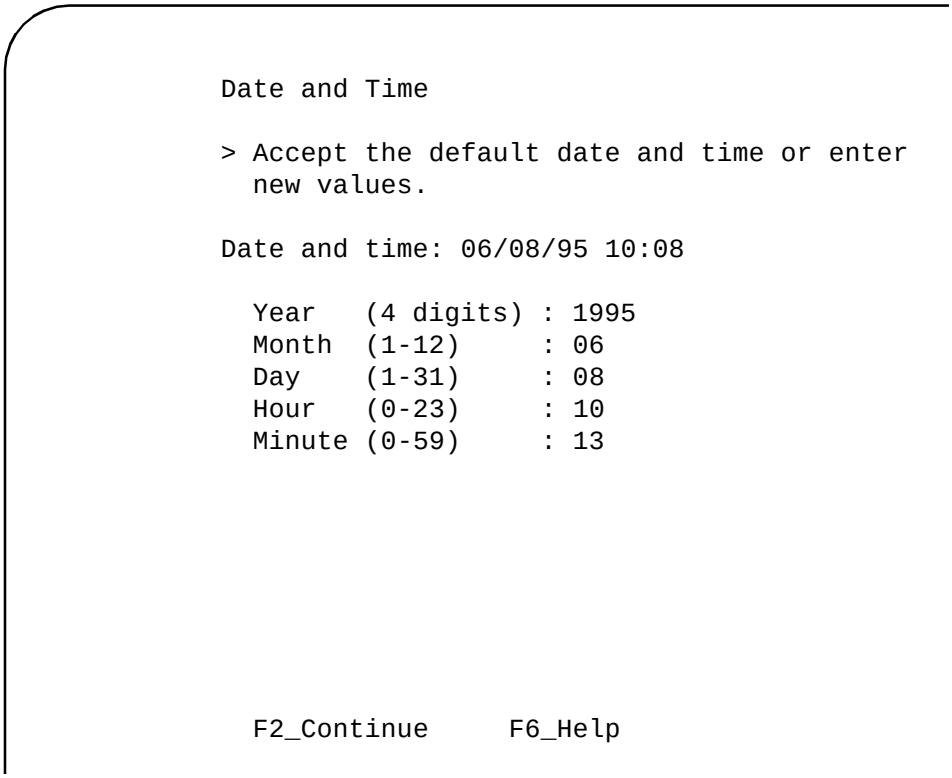
1. Use the arrow keys to select your default time zone; then press Return to mark it. Press F2.

The following screen displays:



2. Use the arrow keys to select your regional time zone; then press Return to mark it. Press F2.

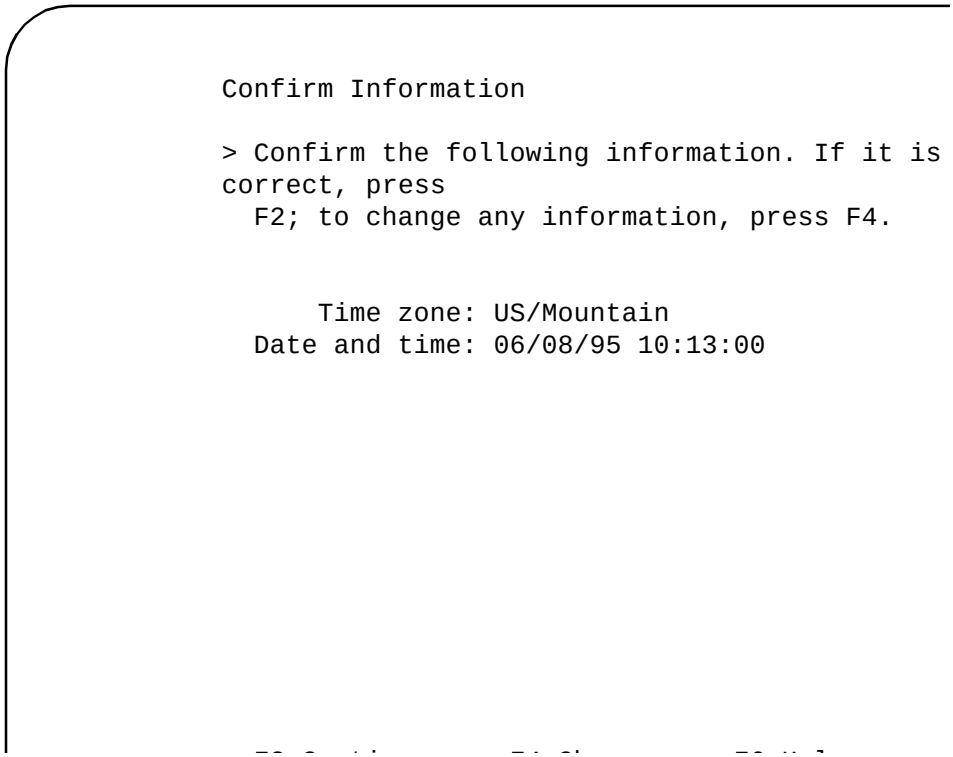
   The following screen displays:



3. Press F2 to accept the default data and time, or use the arrow keys to select the fields that need

correction and enter the correct information. Press F2 when all the information is correct.

The following screen displays:



4. Press F2 if the displayed information is correct. If you press F4, the program returns to the `Time Zone` screen.

   The system date and time are now set. After a brief pause, the program continues with the installation of *Solaris* 2.4 system files.

Installing the *Solaris* 2.4 System Files

The following screen displays:

```
Upgrade System?

This system is upgradable. Choosing the upgrade
option means
any bundled Solaris software will be updated to
the new
release, and as many local modifications as
possible will be
saved.

While your system is upgradable, you can choose
the initial
option; however, files on your disk will be
overwritten and
data will be lost.

CAUTION: If you choose the upgrade option, it is
especially important to back up your system.
However,
backing up is also recommended for the initial
option if
there is any data on the disk that you want to
save.
```

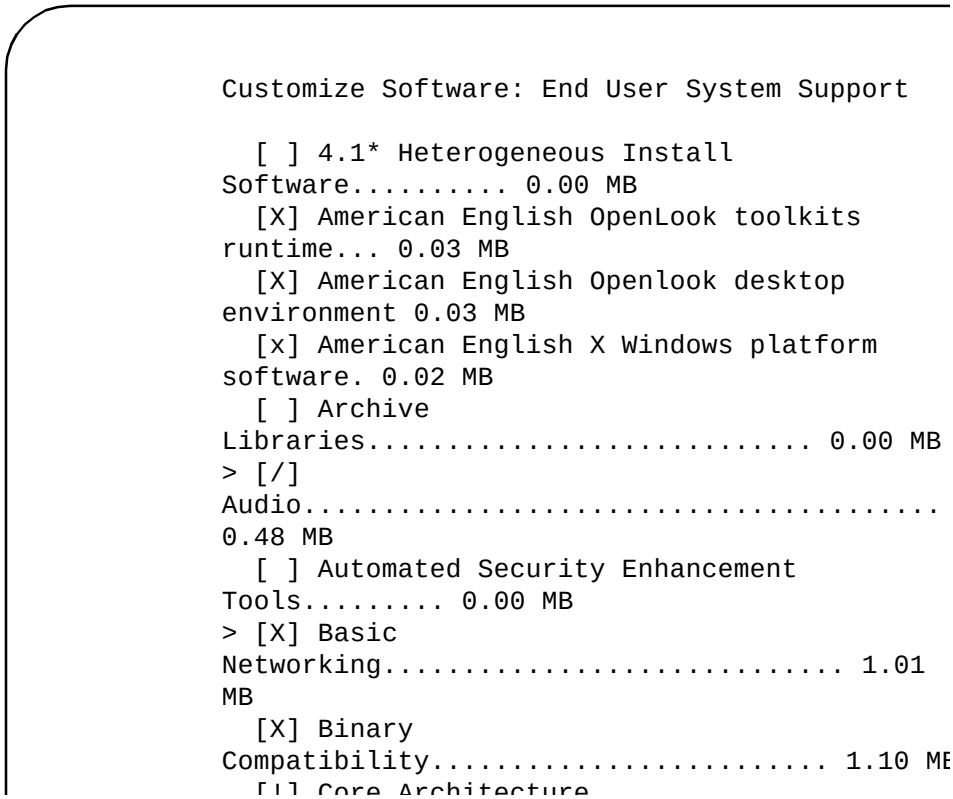
1. To continue, press F2.

   The following screen displays:

```
Customize Software?

Do you want to customize software before
starting the
upgrade? Choosing to customize will take you to
the
Customize Software screen where you can add or
remove
software.

> To Customize software, press F4.

> To continue, press F2.
```

2. To continue, press F4.

   The following screen displays:



3. The listings on these screens are the software packages available with *Solaris*. Only certain packages will be activated in support of CMS.

   To activate a package, use the up-arrow and down-arrow keys to move through the list until you arrive at the correct package. Next, use the left-arrow and right-arrow keys to position the cursor within the brackets next to the package name. Activate the package by pressing Return. This places an X within the brackets. If the brackets already have an X, the package is already activated.

   The following are the first packages you must activate:

   - *Basic Networking*
   - *Framed Access Command Environment*.

4. After activating these packages, use the arrow keys to move down the screen until it looks like this:

```
Customize Software: End User System Support

  [ ] Motif RunTime
Kit........................... 0.00 MB
> [!] Network Information System
(NIS)............. 1.13 MB
  [X] On-Line Manual
Pages.......................14.43 MB
  [X] Online Diagnostics
Tool.....................15.98 MB
> [/] OpenWindows Version
3.......................55.54 MB
> [ ] Point-to-Point
Protocol..................... 0.00 MB
  [X] Programming
Tools.......................... 0.41 MB
> [/] Programming tools and
libraries.............. 2.56 MB
  [X] SPARCompilers Bundled
libC.................. 0.25 MB
  [X] SPARCompilers Bundled libC (cfront
version).. 0.15 MB
  [ ] SPARCstorage Array Support SW
```

5. Activate the following packages:
   - *On-Line Manual Pages*
   - *Online Diagnostics Tool*
   - *SX API Support*
   - *Solaris 2.4 User AnswerBook*
   - *System Accounting*.
6. Use the arrow keys to select the right arrow icon next to the *OpenWindows Version 3* package. Press **Return** to expand the listings for that package.

The program responds:

```
Customize Software: End User System Support

  [X]    OpenLook document and help
viewer......... 3.93 MB
  [X]    OpenLook
imagetool....................... 1.35 MB
  [ ]    OpenLook include
files.................... 0.00 MB
  [ ]    OpenLook sample
source..................... 0.00 MB
  [ ]    OpenLook toolkit/desktop static/lint
lib.. 0.00 MB
  [X]    OpenLook toolkit/desktop users man
pages.. 0.63 MB
  [X]    OpenLook toolkits runtime
environment..... 6.28 MB
  [X]    OpenWindows binary
compatibility.......... 5.25 MB
  [!]    OpenWindows kernel
modules................ 0.04 MB
  [X]    OpenWindows online
handbooks.............. 2.39 MB
```

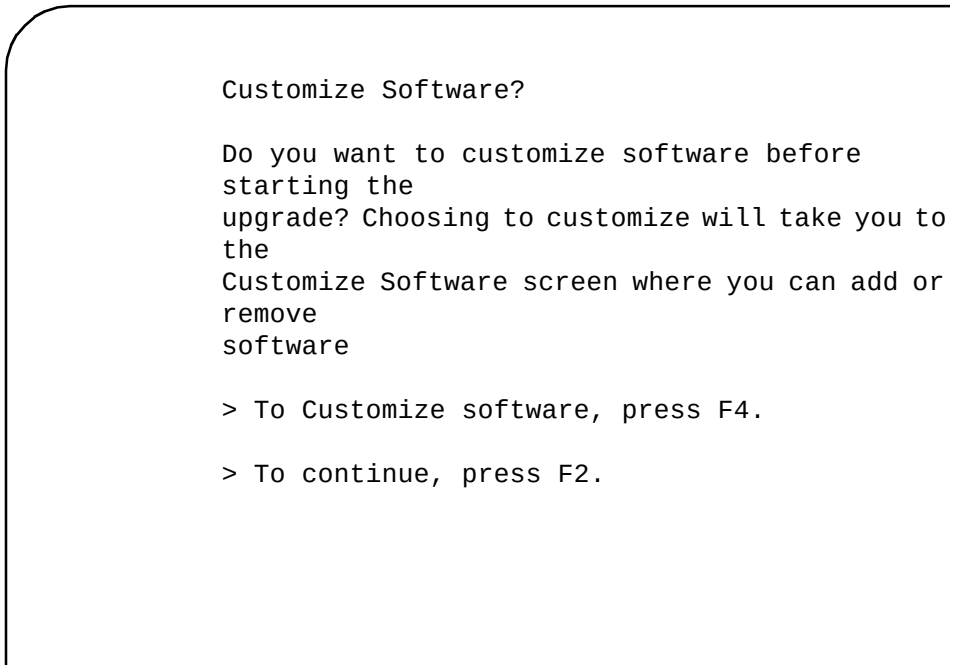
7. Activate the following packages:
   - *X Windows online user man pages*
   - *X Windows optional fonts*.
8. Use the arrow keys to move up and select the down arrow icon next to the *OpenWindows Version 3* package. Press Return to collapse the listings for that package.
9. Use the arrow keys to select the right arrow icon next to the *Programming tools and libraries* package. Press Return to expand the listings for that package.

The program responds:

```
Customize Software: End User System Support

> [/] OpenWindows Version
3.....................55.54 MB
> [ ] Point-to-Point
Protocol..................... 0.00 MB
  [X] Programming
Tools........................... 0.41 MB
V [/] Programming tools and
libraries.............. 2.56 MB
  [X]     CCS tools bundled with Sun
OS............ 0.84 MB
  [X]     SPARCompilers Binary Compatibility
Lib... 1.55 MB
  [ }     SPARCompilers Bundled
libm............... 0.00 MB
  [X]     SPARCompilers Bundled shared
libm........ 0.17 MB
  [ ]     SPARCompilers Bundled
tools.............. 0.00 MB
  [X] SPARCompilers Bundled
libC.................. 0.25 MB
  [X] SPARCompilers Bundled libC (cfront
version).. 0.15 MB
```

10. Activate the *CCS tools bundled with SunOS* package.
11. Use the arrow keys to move up and select the down arrow icon next to the *Programming tools and libraries* package. Press Return to collapse the listings for that package.
12. Press F2 to continue with the upgrade.

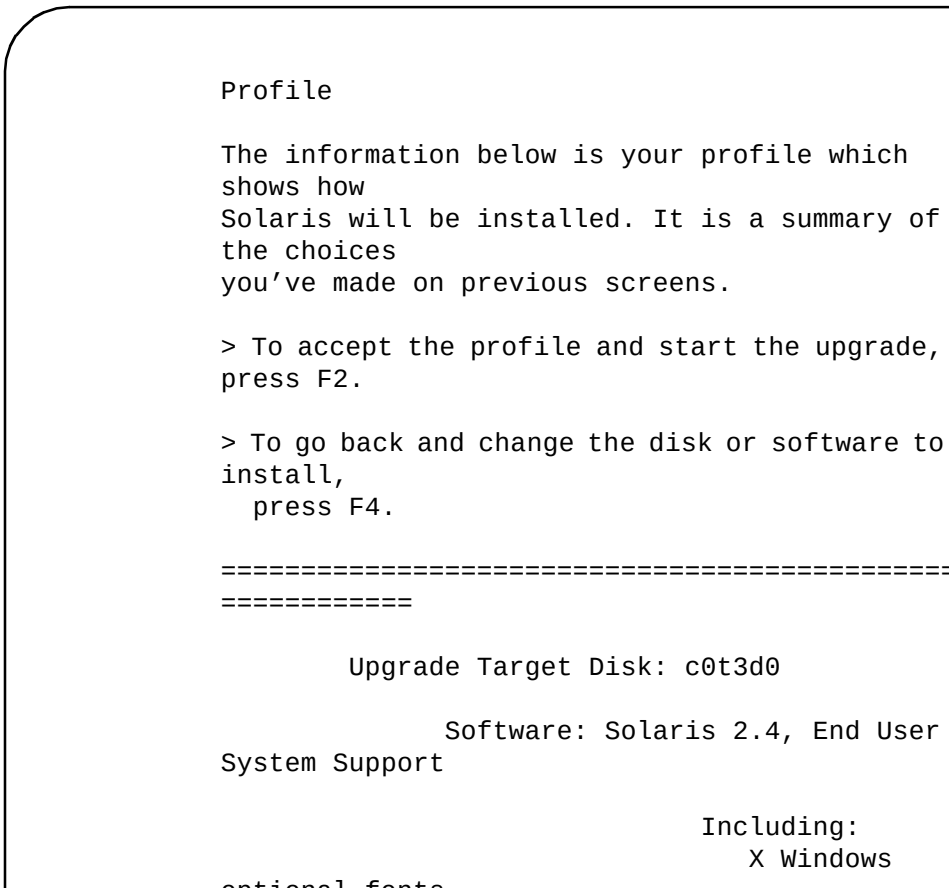
The following screen displays:



```
Customize Software?

Do you want to customize software before
starting the
upgrade? Choosing to customize will take you to
the
Customize Software screen where you can add or
remove
software

> To Customize software, press F4.

> To continue, press F2.
```

13. Press F2 to continue with the upgrade.

The following screen displays:



```
Profile

The information below is your profile which
shows how
Solaris will be installed. It is a summary of
the choices
you've made on previous screens.

> To accept the profile and start the upgrade,
press F2.

> To go back and change the disk or software to
install,
  press F4.

================================================
============

        Upgrade Target Disk: c0t3d0

              Software: Solaris 2.4, End User
System Support

                                  Including:
                                     X Windows
optional fonts
```

14. Press F2 to start the upgrade.

    The upgrade begins showing the following messages:

```
Finding modified files. This may take several
minutes.
Calculating space requirements.
Space check complete.
Starting upgrade:
Removing obsolete packages and saving modified
files:
   .
```

This part of the upgrade takes about one hour, and does the following:

- Finds modified files
- Calculates space requirements
- Starts the upgrade
- Removes obsolete packages and saves modified files

- Removes patches
- Installs new packages.

15. The upgrade ends by displaying the log files used:

```
   .
   .
The messages printed to the screen by this
upgrade have
been saved to:

         /a/var/sadm/install_data/upgrade_log

After this system is rebooted, the upgrade log
can be
found in the file:

         /var/sadm/install_data/upgrade_log

Please examine the file:

         /a/var/sadm/install_data/upgrade_log

It contains a list of actions that may need to
be performed to
complete the upgrade. After this system is
rebooted, this file
can be found at:

         /var/sadm/install_data/upgrade_log
```

16. Use the following command to reboot the system:

```
# shutdown -y -g0 -i6
```

The system responds:

```
Shutdown started
     .
     .
     .
system console login:
```

17. When the shutdown is completed, log in using the *root* login and password.

18. Remove the CD-ROM from the drive by entering:

```
# eject cdrom
#
```

    If you have an internal CD-ROM drive, 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.

    If you have an external CD-ROM drive, remove the CD-ROM caddy from the CD-ROM drive, remove the CD-ROM from the caddy, and place the CD-ROM back in its case.

The installation of *Solaris* 2.4 is now complete. Continue with the "Merging Files" section.

Merging Files

After you have installed *Solaris* 2.4, any changes made to your system files will be found in the file */var/sadm/install_data/upgrade_cleanup*. Use *vi* or some browser to look at this file. It begins with explanations of the possible changes that could be made to the system files. At the end of the file are the files that were modified and how they were changed.

Note If this file does not have the correct permissions, you cannot edit the file. To set the permissions, enter the command `chmod 644 /etc/inet/services` before you edit the file.

You need to edit the */etc/inet/services* file and add this line to the bottom of the file:

```
erpc          121/udp
```

The upgrade may change other files. Look for differences between the old files and the new files and make the appropriate changes. The entire *Solaris* upgrade is logged to the */var/sadm/install_data/upgrade_log* file.

Installing *Solaris* 2.4 System *Answerbook*

To install the *Solaris* 2.4 *AnswerBook* software, do the following steps (this procedure takes about 10 minutes):

1. Remove the *Solaris* 2.4 System *AnswerBook* CD-ROM from its case. If you have an external CD-ROM drive, follow the steps below, otherwise, go to step 2:

a. Place the CD-ROM in the CD-ROM caddy. When the CD-ROM is properly inserted in the caddy, the CD-ROM label is visible.

b. Insert the CD-ROM caddy into the CD-ROM drive slot.

c. Go to step 5.

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
```

   The program responds with a list of devices/filesystems currently mounted. Locate the device which corresponds to the CD-ROM drive:

```
.
.
.
/cdrom/solaris_2_4_ab on
/vol/dev/dsk/c0t6/solaris_2_4_ab
```

6. Enter the following command to start the installation of the *AnswerBook* software:

```
# pkgadd -d /cdrom/solaris_2_4_ab
```

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   SUNWaadm     Solaris 2.4 System
Administrator AnswerBook
                 (all) 47.2.19
2   SUNWaman     Solaris 2.4 Reference Manual
AnswerBook
                 (all) 40.2.14

Select package(s) you wish to process (or 'all'
```

7. Enter `all`.

   The program responds by displaying the *Sun* licensing information:

```
Processing package instance <SUNWaadm> from
</cdrom/solaris_2_4_ab>

Solaris 2.4 System Administration AnswerBook

  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.

This product and related documentation is
protected by
copyright and distributed under licenses
restricting its
use, copying, distribution and decompilation.
No part of this product or related
documentation may be reproduced in any form by
any means without prior written authorization
```

The licensing information finishes and the program responds:

```
.
.
.

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 installation
directory.

The installation options are as follows:
Option:     Description:
_____________

1.nil:    less that 1 Megabyte disk space
required (slowest)
2.heavy:  42.78 Megabytes disk space required
(best performance)
Enter the number of an installation option from
the list above (1 or 2).
```

8. 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.
```

9. 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.
```

10. Enter y.

    The program responds by displaying the *Sun* licensing information:

```
 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.

This product and related documentation is
protected by
copyright and distributed under licenses
restricting its
use, copying, distribution and decompilation.
No part of this product or related
documentation may be reproduced in any form by
```

The licensing information finishes and the program responds:

```
.
.
.

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 installation
directory.

The installation options are as follows:
Option:     Description:
_____________

1.nil:    less that 1 Megabyte disk space
required (slowest)
2.heavy:  76.69 Megabytes disk space required
(best performance)
Enter the number of an installation option from
```

11. 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.
```

12. 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.
```

13. Enter y.

    The program responds:

```
Installing Solaris 2.4 AnswerBook as <SUNWaman>

## Installation of part 1 of 1 is complete.
## Executing postinstall script


Installation of <SUNWaman> was successful.
```

    The program continues:

```
The following packages are available:
1   SUNWaadm     Solaris 2.4 System
Administrator AnswerBook
                 (all) 47.2.19
2   SUNWaman     Solaris 2.4 Reference Manual
AnswerBook
                 (all) 40.2.14

Select package(s) you wish to process (or 'all'
```

14. Enter q.

    The program returns to the system prompt.

15. Remove the CD-ROM from the drive by entering:

```
# eject cdrom
```

    If you have an internal CD-ROM drive, 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.

    If you have an external CD-ROM drive, remove the CD-ROM caddy from the CD-ROM drive, remove the CD-ROM from the caddy, and place the CD-ROM back in its case.

The installation of the *Solaris* 2.4 System *AnswerBook* software is now complete.

References

For additional information, refer to the following documentation:

Solaris 2.4 System AnswerBook Installation Guide.

Installing *SunLink* X.25 Version 8.0.2

To install the *SunLink* X.25 software, do the following steps (this procedure takes about 25 minutes):

1. Remove the *SunLink X.25 8.02* CD-ROM from its case. If you have an external CD-ROM drive, follow the steps below. Otherwise, go to step 2.
    a. Place the CD-ROM in the CD-ROM caddy. When the CD-ROM is properly inserted in the caddy, the CD-ROM label is visible.
    b. Insert the CD-ROM caddy into the CD-ROM drive slot.
    c. Go to step 5.
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
```

   The program responds with a list of devices/filesystems currently mounted. Locate the device which corresponds to the CD-ROM drive:

```
   .
   .
   .
/cdrom/x25_8_0_2 on /vol/dev/dsk.....
#
```

6. Enter the following command to start the installation of the X.25 software:

```
# pkgadd -d /cdrom/x25_8_0_2/sparc
```

   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 8.0.2 AnswerBo
                   (all) 20.1.6
  2  SUNWlicsw     FlexLM License System
                   (sparc) 2.0
  3  SUNWlit       STE License Installation To
                   (sparc) 2.0
  4  SUNWllc2a     LLC2 kernel modules and
include files for
                   Solaris/SPARC (sparc) 1.20
  5  SUNW11c2b     LLC2 user programs and man
pages for
                   Solaris/SPARC (sparc) 1.20
  6  SUNWx25a      X.25 kernel modules and
include files for
                   Solaris/SPARC (sparc) 1.20
  7  SUNWx25b      X.25 user programs and
libraries for                Solaris/SPAR
(sparc) 1.20
```

7. Enter `all`.

The program responds:

```
Processing package instance <SUNWabx25> from
</cdrom/x25_8_0_2/sparc>

SunLink X.25 8.0.2 AnswerBook
(all) 20.1.6
    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.

This product and related documentation is
protected by
copyright and distributed under licenses
restricting its
use, copying, distribution and decompilation.
No part of this product or related
documentation may be reproduced in any form by
```

The licensing information finishes and the program responds:

```
   .
   .
   .

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 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).
```

8. 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.
```

9. Enter `/opt`.

   The program responds:

```
  For the heavy option all files will be placed
under
                                                /o
pt/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
```

10. Enter y.

    The program responds:

```
Installing SunLink X.25 AnswerBook as
<SUNWax25x>

## Installing part 1 of 1.
/opt/SUNWabx25/index
/opt/SUNWabx25/index/Keys
   .
   .
   .
```

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.

The program continues:

```
   .
   .
   .
## 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
```

11. Enter y.

The program responds:

```
Installing FlexLM License System as <SUNWlicsw>

## Installing part 1 of 1.
/etc/opt/licenses/....
/etc/opt/licenses/....
   .
   .
   .
```

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.

Note If you did not save the X.25 license password when the X.25 packages were removed earlier, you will be prompted for the password while this package is installed. Obtain the license from the procedure done on page -20 or from the TSC.

The program continues:

```
   .
   .
   .
## 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
```

12. Enter y.

    The program responds:

```
Installing STE License Installation Tool as
<SUNWlit>
   .
   .
## Installing part 1 of 1.
/opt/SUNWste/....
/opt/SUNWste/....
   .
   .
```

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.

The program continues:

```
   .
   .
   .
## 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
```

13. 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....
   .
   .
   .
```

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.

The program continues:

```
   .
   .
   .
## 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>
```

14. 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/....
   .
   .
   .
```

    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.

The program continues:

```
   .
   .
   .
## 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.
```

15. 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/....
   .
   .
   .
```

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.

The program continues:

```
   .
   .
   .
## 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
```

16. Enter y.

    The program responds:

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

/opt/SUNWconn/bin/....
/opt/SUNWconn/bin/....
   .
   .
   .
```

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 configuration script on this
machine.

Installation of <SUNWx25b> was successful.
```

The program continues:

```
The following packages are available:
  1  SUNWabx25     SunLink X.25 8.0.2 AnswerBo
                   (all) 20.1.6
  2  SUNWlicsw     FlexLM License System
                   (sparc) 2.0
  3  SUNWlit       STE License Installation To
                   (sparc) 2.0
  4  SUNWllc2a     LLC2 kernel modules and
include files for
                   Solaris/SPARC (sparc) 1.20
  5  SUNW11c2b     LLC2 user programs and man
pages for
                   Solaris/SPARC (sparc) 1.20
  6  SUNWx25a      X.25 kernel modules and
include files for
                   Solaris/SPARC (sparc) 1.20
  7  SUNWx25b      X.25 user programs and
libraries for                Solaris/SPAR
(sparc) 1.20
```

17. Enter q.

    The program returns to the system prompt.

18. Remove the CD-ROM from the drive by entering:

```
# eject cdrom
```

    If you have an internal CD-ROM drive, 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.

    If you have an external CD-ROM drive, remove the CD-ROM caddy from the CD-ROM drive, remove the CD-ROM from the caddy, and place the CD-ROM back in its case.

The installation of the *SunLink* X.25 software is now complete.

Installing the *SunLink* X.25 Software Patch

To complete the installation of the *SunLink* X.25 software, you need to install a software patch by executing the following commands:

```
# installf SUNWx25a /etc/ttysrch
# installf -f SUNWx25a
```

Installing *INFORMIX*

Solaris 2.4 uses a new version of *INFORMIX*. Most customers only need the *INFORMIX*-SE package, but some may also have *INFORMIX*-SQL installed. If you do not need to reinstall *INFORMIX*-SQL, do the *INFORMIX* setup (page -77) and then continue with the *INFORMIX*-SE installation (page -81).

It takes about 15 minutes to install each version of *INFORMIX*.

References

For additional information, refer to the following documentation:

INFORMIX UNIX Products Installation Guide Version 4.13

INFORMIX UNIX Products Installation Guide Version 5.04.

Setting Up the *INFORMIX* Environment

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

1. If you are doing the upgrade remotely, enter the following commands, otherwise, go to Step 2:

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

2. If you are doing the upgrade locally, enter the following commands:

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

3. Enter the following command to change to the *INFORMIX* directory:

```
# cd $INFORMIXDIR
#
```

4. Enter the following command to verify that you are in the */opt/informix* directory:

```
# pwd
/opt/informix
#
```

The *INFORMIX* installation environment is now set up.

Installing the *INFORMIX*-SQL Package

After you have set the environment, you install the *INFORMIX*-SQL package. The *INFORMIX*-SQL software package should consist of one tape.

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

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

1. Set up the *INFORMIX* environment (see "Setting Up the INFORMIX Environment" above).
2. Write down the serial number and key from the *INFORMIX* tape. These numbers may be located on a label on the tape:

   Serial Number _____

   Key Number _____.
3. Insert the *INFORMIX*-SQL tape into the tape drive.

4. Enter the following command to copy the *INFORMIX*-SQL files from the tape to the current directory:

```
# tar xvf /dev/rmt/0
```

   The program responds:

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

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

```
# ./installsql
```

   The program responds:

```
INFORMIX-SQL Version X.XX.XXX
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.
```

6. Press the Return key to continue with the installation procedure.

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

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

7. Enter the 11-character serial number located on the *INFORMIX*-SQL customer license.

   The program responds:

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

8. Enter the 6-character serial number key located on your customer registration form.

   The program 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
```

9. Press the Return key to continue with the installation procedure.

   The program responds:

```
Installing directory.
   .
   .
   .
Installation complete.
#
```

10. Remove the *INFORMIX*-SQL tape from the tape drive.

The *INFORMIX*-SQL software is now installed.

Installing the *INFORMIX*-SE Package

After you have installed the *INFORMIX*-SQL package (optional), you should install the *INFORMIX*-SE package. To install the *INFORMIX*-SE software, do the following:

1. Set up the *INFORMIX* environment (see "Setting Up the INFORMIX Environment").
2. Write down the serial number and key from the *INFORMIX* tape. These numbers may be located on a label on the tape:

   Serial Number _____

   Key Number _____.
3. Insert the *INFORMIX*-SE tape into the tape drive.
4. Enter the following command to copy the *INFORMIX*-SE files from the tape to the current directory:

```
# tar xvf /dev/rmt/0
```

   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
#
```

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

```
# ./installse
```

The program responds:

```
INFORMIX-SE Version X.XX.XXX
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.
```

6. Press the Return key to continue with the installation procedure.

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

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

7. Enter the 11-character serial number located on the *INFORMIX*-SE customer license.

   The program responds:

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

8. Enter the 6-character serial number key located on your customer registration form.

   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 MANY SUBJECT YOU AND YOUR COMPANY
TO SEVERE CIVIL AND CRIMINAL LIABILITIES.
```

9. Press the Return key to continue with the installation procedure.

The program responds:

```
Installing directory.
   .
   .
   .

Installation of INFORMIX-SE complete.
#
```

10. Remove the *INFORMIX*-SE tape from the tape drive.

The *INFORMIX*-SE software is now installed.

Installing the Sun *Solaris* 2.4 Patches

To install the Sun *Solaris* 2.4 patches, do the following steps (this procedure takes about 35 minutes):

1. Remove the R3V2 or R3V4 CMS CD-ROM from its case. If you have an external CD-ROM drive, follow the steps below, otherwise, go to step 2:
   a. Place the CD-ROM in the CD-ROM caddy. When the CD-ROM is properly inserted in the caddy, the CD-ROM label is visible.
   b. Insert the CD-ROM caddy into the CD-ROM drive slot.
   c. Go to step 5.
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. Start the installation by entering:

```
# pkgadd -d /cdrom/cms
```

   The program responds:

```
The following packages are available:
  1) CMS         Call Management System
                 (sparc) 3xxxx
  2) Spatches    CMS Supplied Solaris Patches
                 (sparc) 1.0
Select package(s) you wish to process (or 'all'
to process all packages). (default: all) [?,
??, q]:
```

7. Enter 2 to start the installation of *Solaris* patches.

   The program responds:

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

CMS Supplied Solaris Patches
(sparc) 1.0

AT&T

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

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

Do you want to continue with the installation
```

8. 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
   .
   .
   .
```

The program continues:

```
   .
   .
Spooling XXXXXX-XX
Spooling XXXXXX-XX
Patches successfully saved

[ verifying class <SUN_fix> ]
## Executing postinstall script.

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         Call Management System
                 (sparc) 3xxxx
  2) Spatches    CMS Supplied Solaris Patches
                 (sparc) 1.0
Select package(s) you wish to process (or 'all'
```

9. Enter q.

   The program returns to the system prompt.

10. 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. This takes about 30 minutes to process.

The program continues:

```
   .
   .
@(#) 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/...
43 blocks
Installing patch packages
Doing pkgadd of SUNWxxx package:

Installation of <SUNWxxx.x> was successful.
Patch installation finished
To complete the solaris patch installation, one
should reboot
with the following command: shutdown -y -i6 -g0
#
```

11. Execute the following commands to start the shutdown:

```
# cd /
# shutdown -y -i6 -g0
```

The program starts the shutdown process:

```
Shutdown started. <date and time>
<Broadcast Message>
   .
   .
system console login:
```

12. After the system reboots, log in using the *root* login and password.
13. If doing the upgrade locally, execute the following command to start *OpenWindows*:

```
# /usr/openwin/bin/openwin
```

14. If doing the upgrade locally, open an Xterm window to verify that the *Sun* tools work successfully.

Installing the CMS Software

This section describes how to download the R3V2 or R3V4 CMS software from the CD-ROM used in the previous section. This procedure takes about 10 minutes.

1. Start the installation by entering:

```
# pkgadd -d /cdrom/cms
```

The program responds:

```
The following packages are available:
  1) CMS         Call Management System
                 (sparc) 3xxxx
  2) Spatches    CMS Supplied Solaris Patches
                 (sparc) 1.0
Select package(s) you wish to process (or 'all'
to process all packages). (default: all) [?,
??, q]:
```

2. Enter `1` to start the installation of the CMS software.

The program responds:

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

Call Management System
(sparc) XXXXX
```

The system takes a few minutes to search and verify the software packages being installed.

The program continues:

```
AT&T
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
```

3. 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>
   .
   .
/usr/spool/lp/cmstermDSR <setgid lp>

Do you want to install these setuid/setgid
```

4. 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
```

5. Enter y.

   The program starts the preinstall script:

```
Installing Call Management System as <cms>

## Executing preinstall script.
Creating cms group id
Creating cms user id
## 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 a few minutes to download the CMS software from CD-ROM to hard disk. A list of files is displayed as the software is downloaded.

When the download finishes, this message appears:

```
## Upgrading Customer CMS data  . . .
. . . . . . . . . . . . . . . . . . . . .
. . . . . . . . . . . . . . . . . . . . .
Customer CMS data successfully upgraded.

Setting UNIX system tunable parameters for CMS.

Installation of <cms> was successful.

The following packages are available:
  1) CMS         Call Management System
                 (sparc) 3xxxx
  2) 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. Enter q.
7. Remove the CD-ROM from the drive by entering:

```
# eject cdrom
```

If you have an internal CD-ROM drive, 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.

If you have an external CD-ROM drive, remove the CD-ROM caddy from the CD-ROM drive, remove the CD-ROM from the caddy, and place the CD-ROM back in its case.

8. Execute the following command to reboot the system:

```
# shutdown -y -g0 -i6
```

The program starts the shutdown process:

```
Shutdown started. <date and time>
<Broadcast Message>
   .
   .
   .
system console login:
```

9. After the system reboots, log in using the *root* login and password.
10. If doing the upgrade locally, answer y to the *OpenWindows* question.
11. Run the `cmssvc` command and turn on CMS.

Verifying the Upgrade

If the upgrade procedure completes without error, the upgrade was successful. You can, however, run some tests to see if the system is operating correctly.

Turn to Chapter 7 in the *CMS R3V2 Installation and Maintenance* document (AT&T 585-215-129) and follow the procedures given in the section *Testing the R3V2 CMS Software*. These tests will also show if your switch links are up. If not, you must bring the switch links up to service.

Returning Control to the Local Console

If you have done the entire upgrade remotely, you must return control to the local console.

1. Enter the following command to turn off the administration at serial port A:

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

The system responds:

```
ttya is currently set to be incoming

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

2. Answer y.

The system responds:

```
ttya administration removed
#
```

3. Enter the following command to enable the console for local operation on serial port A:

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

The system responds:

```
Console set to local

This change requires a reboot to take affect

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

4. Answer y.

The shutdown begins:

```
Starting port monitor
Setting console parameters
Proceeding to reboot
    .
    .
    .
system console login:
```

5. Log in with the *root* login and password. The local console is now in operation.