Platform Notes: SPARCstation™ Voyager™ Software Guide

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Preface

This book, *Platform Notes: SPARCstation Voyager Software Guide*, explains how to use the SPARCstation™ Voyager™ computer with software provided with the Solaris 2.4 release that is specific to this computer. This book is intended for the user of a SPARCstation Voyager and for a system and network administrator supporting users of that workstation.

Who Should Use This Book

If you are a SPARCstation Voyager user, the manuals provided with your workstation contain comparable information about using software with your system. Refer to this manual to find how to use your system with the latest release of Solaris software.

If you are an administrator supporting users of the SPARCstation Voyager, this manual provides you with software information you may need, even if you do not have a SPARCstation Voyager and its documentation set at hand.

Before You Read This Book

To install and use a SPARCstation Voyager hardware, you will need the documentation set provided with that system. These manuals include:

- *SPARCstation Voyager User's Guide*
- *SPARCstation Voyager Technical Manual*

If you have those manuals, you may not need this present manual unless you are using a different Solaris release than was covered in the workstation's original documentation set.

To use Power Management, read *Installing and Using Power Management* in the Solaris AnswerBook.

How This Book Is Organized

Chapter 1, "Software Installation," is an overview of how to install Solaris software on a SPARCstation Voyager system.

Chapter 2, "Turning the System Power On and Off," describes how to start up the system and how to halt or suspend use of the machine in a ways that makes it easy to resume your work later.

Chapter 3, "Using a Networked SPARCstation Voyager Disconnected From the Network," describes how a SPARCstation Voyager user can operate nomadically.

Chapter 4, "Configuring for Disconnected Operation," describes how an administrator can prepare a network for remote use of a SPARCstation Voyager system.

Chapter 5, "Configuring for Point-to-Point Protocol Connections," describes how to set up a PPP connection to link a SPARCstation Voyager system to a network.

What Typographic Changes and Symbols Mean

The following table describes the type changes and symbols used in this book.

Table P-1   Typographic Conventions

Typeface or Symbol	Meaning	Example
AaBbCc123	The names of commands, files, and directories; on-screen computer output	Edit your `.login` file. Use `ls -a` to list all files. `system% You have mail.`
AaBbCc123	What you type, contrasted with on-screen computer output	`system%` **`su`** `Password:`
AaBbCc123	Command-line placeholder: replace with a real name or value	To delete a file, type `rm` *filename.*
AaBbCc123	Book titles, new words or terms, or words to be emphasized	Read Chapter 6 in *User's Guide.* These are called *class* options. You *must* be root to do this.

Code samples are included in boxes and may display the following:

%	UNIX C shell prompt	`system%`
$	UNIX Bourne and Korn shell prompt	`system$`
#	Superuser prompt, all shells	`system#`

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Software Installation 1 ≡

Preparing the System for Use

Before you turn the system on for the first time, prepare to install Solaris®, the software that ships with the system. Use only the Solaris version that comes with your machine. Other versions are not meant for the SPARCstation Voyager.

A new mode of operation is possible on the SPARCstation Voyager. You can configure it to run alternately connected to and disconnected from the network in *nomadic* mode. If you want to use this mode, read Chapter 3, "Using a Networked SPARCstation Voyager Disconnected From the Network" and Chapter 4, "Configuring for Disconnected Operation" in this book.The two chapters describe additional steps to take after you install Solaris that will enable nomadic operation.

After you decide whether you want to enhance your machine with the nomadic configuration, you need to decide what configuration to select when the Solaris installation program prompts you.

Deciding What Configuration You Need

- Standalone networked preinstalled system.
  Standalone means you have an internal disk with software. Networked means you can communicate with other machines over a LAN.
  Choose this Solaris option if you want to configure for the nomadic mode.

- Single system — a standalone non-networked preinstalled system.

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Deciding on the Installation Method

- Automatic Installation.
  It is recommended that you use Automatic Installation. This method ensures that all the files you will need for networked or nomadic operation are copied to your system.

- Interactive Installation.
  If, for any reason, the Auto Install failed or you want to custom install the operating system, use Interactive Installation.

Arrange for Software Installation

Provide your system administrator with the installation instructions and compact disc or discs that come with your software. Your system administrator will normally perform the rest of the procedures in this chapter.

Software Installation

Software installation consists of the following steps:

- Power on
- Automatic or Interactive Solaris installation
- Installation of SPARCstation Voyager Software Packages

How to Turn the Power On

Turning on your system for the first time is different from what will probably become your normal procedure. You must be ready to install software and configure your machine.

1. **Plug the power cord into the AC input connector in the power supply and to the wall socket.**
   See the *SPARCstation Voyager User's Guide* for information on the different ways to configure your SPARCstation Voyager's power source.

2. **Connect a CD player to your system.**
   See *SPARCstation Voyager User's Guide* for details.

3. **Insert the Solaris CD-ROM into the CD-ROM caddy and insert the caddy into the CD player.**

4. Turn on the power to any external devices (for example, the Desktop Storage Module).
Refer to the documentation that comes with your drive(s); for example, the *Desktop Storage Module Installation Guide.*
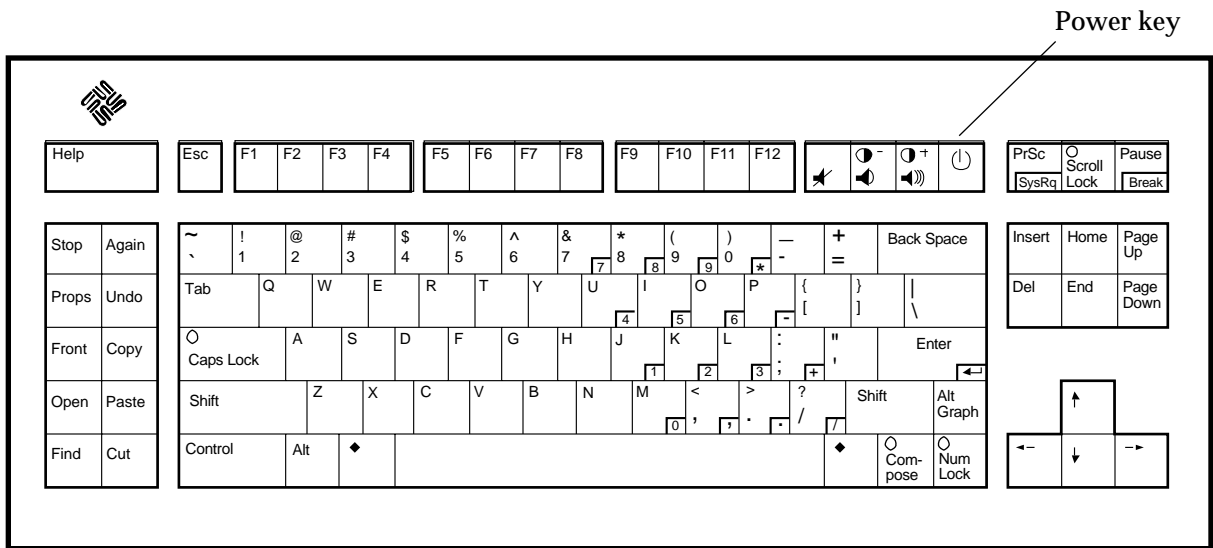
Power key

Figure 1-1   Power Key Location: Sun Compact 1 Keyboard
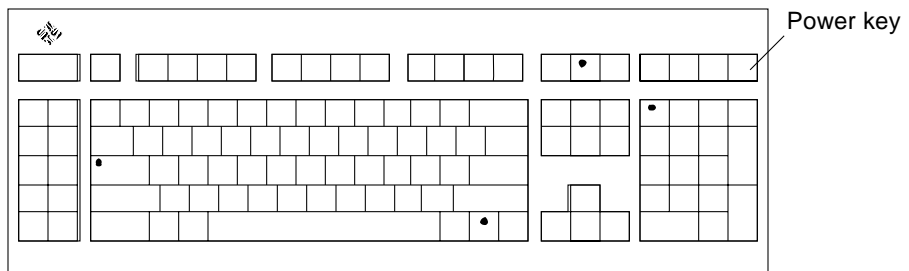
Power key

Figure 1-2   Power Key Location: Sun Type 5 Keyboard

5. **Turn on the power to the system unit.**
   Press the power key on the keyboard. For the power key location, see Figure 1-1 on page 3 or Figure 1-2.

   If your SPARCstation Voyager system is operating properly, your monitor displays a banner screen within 15 seconds after the system is turned on.

SPARCstation Voyager X 390Z50), Keyboard Present
ROM Rev. *X.XY*, *XX* MB memory installed, Serial #*XXX*
Ethernet address *X*:*X*:*YY*:*Z*:*A*:*BB,* Host ID: 72*XXXXXX*
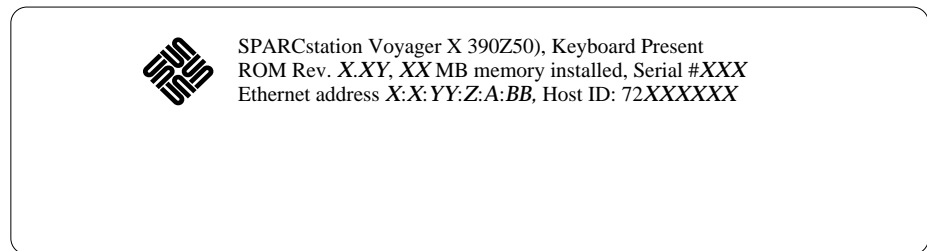
If you are doing an interactive installation, press Stop-a and follow the instructions under "Interactive Installation" on page 6.

If you are doing an automatic installation, you don't have to do anything else now. At this point, the installation process begins.

Automatic Installation

All the files you will need for networked or nomadic operation are copied to your system. Table 1-1 lists the packages that are installed. This procedure assumes that your network has been set up as described on the *JumpStart for SPARC Systems* card. The automatic installation procedure is described in detail in the *SPARC: Installing Solaris Software* manual.

After the software is installed, you will be prompted to create a root password. After creating the root password, start OpenWindows. To start OpenWindows, enter the following command:

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

Table 1-1   Packages Installed with Auto Install

Package or Cluster	Description
SUNWCreq	Solaris required packages
SUNWaudio	Audio Applications
SUNWbnur	Networking UUCP Utilities (Root)—support needed for PPP
SUNWbnuu	Networking UUCP Utilities (Usr)—support needed for PPP
SUNWlpr	LP Print Service (Root)
SUNWlpu	LP Print Service (Usr)
SUNWtltk	Tooltalk
SUNWxilrt	XIL Runtime Environment
SUNWxildg	XIL Loadable Pipeline Libraries
SUNWxiler	XIL English Localization
SUNWxilow	XIL Deskset Loadable Pipeline Drivers
SUNWxwcft	XWindows Common Fonts
SUNWxwoft	XWindows Optional Fonts
SUNWxwplt	XWindows Platform Software
SUNWlibms	SPARCompilers Bundled libms
SUNWowrqd	OpenWindows Required Core Package
SUNWowoft	OpenWindows Optional Fonts
SUNWowbcp	OpenWindows Binary Compatibility
SUNWolaud	Open Windows Audio Tool
SUNWoldcv	Open Windows Document Viewer
SUNWoldst	Open WindowsDesktop Tools
SUNWoldte	Open WindowsDesktop Environment
SUNWolimt	Open Windows Imagetool
SUNWolrte	Open Windows Run Time Environment
SUNWinst	Install Software
SUNWadmap	System & Network Admin Applications
SUNadmfw	System & Network Admin Framework

Table 1-1   Packages Installed with Auto Install   *(Continued)*

Package or Cluster	Description
SUNWloc	System Localization
SUNWdoc	Documentation Tools
SUNWapppr	PPP/IP Asynchronous PPP daemon configuration files
SUNWapppu	PPP/IP Asynchronous PPP daemon and PPP login Service
SUNWpppk	PPP/IP and IP dialup Device Drivers
SUNWmfrun	Motif Run Time package
SUNWbcp	Binary Compatibility
SUNWscpr	Source Compatibility (Root)
SUNWscpu	Source Compatibility (Usr)
SUNWlibC	Shared C++ library
SUNWlibCf	C++ library required for Roam

Interactive Installation

Use this method of installation if Automatic Installation failed or if you want to use Interactive Installation. We recommend that you use the following procedure:

1. **Use the Custom Install method.**
   See the *SPARC: Installing Solaris Software* manual for details. Quick install may be the easiest option, but the system requires some custom handling to use the SPARCstation Voyager Support Software.

2. **Use the following disk partitioning.**

Mount Point	Size (MBytes)
/	292
swap	32

Note – If you choose not to follow these partitioning guide lines, then please make sure to add an extra 10 MBytes to the required size for your / partition. This is required for the SPARCstation Voyager Suspend-Resume Software.

3. **Install the packages you desire.**
   Make sure you install all the packages listed in Table 1-1 for full
   functionality of your machine.

Installing Software Packages

After installing Solaris, you will be logged in as root and OpenWindows will
be running. Now you can install the SPARCstation Voyager packages that are
on the SPARC Vendors' Additions CD using the following procedure.

1. **Make sure that File Manager is running.**

2. **Insert the SPARC Vendors' Solaris Additions CD into the CD caddy.**

3. **Insert the caddy into the compact disc player.**
   If there is a CD in the player, type `eject` in a shell window to remove the
   CD. The File Manager CD Window is displayed in less than a minute. The
   content of the CD is displayed in the window.

4. **In the File Manager window, double-click on the SMCC folder.**
   This folder opens showing you the contents of the SMCC directory.

5. **Open a command window and (if you are not already superuser) become
   superuser using the `su` command.**

```
example% su
Password: enter superuser password
example#
```

6. **Enter the following commands at the # prompt:**

```
example# cd /cdrom/sol_2_4_hw1194_smcc
example# swmtool -d `pwd` -c .swm
```

The Software Manager window is displayed. The display shows `Voyager
Software 1.0`.

7. **Double click on the icon for the `Voyager Software 1.0` cluster.**
   The SPARCstation Voyager clusters and packages are listed.

8. **Click once on the icon for the** `Voyager Software User Cluster`**.**
This highlights the item indicating that it is selected.

9. **Click the Begin Installation button.**
A pop-up window titled "Software Manager: Command Input/Output" is displayed that shows all package installation messages. If anything goes wrong, it will ask you a question in this window. The installation process should take about 4 to 5 minutes. You will hear some disk and speaker noise. When the installation is complete, the message "Re-initialize list of install software" is displayed at the bottom of the window. It then displays "Click select on software to mark for installation."

10. **Quit Software Manager.**

11. **Exit OpenWindows.**
When you start Openwindows again, the special keys daemon will automatically start. This daemon recognizes the power key and the brightness keys on the keyboard.

Note – If you do not exit OpenWindows, you can start the daemon with the command `/usr/openwin/bin/speckeysd`.

Package Descriptions

Table 1-2 lists the packages that support SPARCstation Voyager. All of the packages exceptt for `SUNWdiagv` are included in the Voyager Software User Cluster. If you have a problem with your workstation, you can use the `SUNWdiagv` package to isolate the problem. This package is not automatically installed on your workstation.

Table 1-2   SPARCstation Voyager Packages

Package Name	Size (blocks)	Name	Description
SUNWbtryh	2	Battery Module Header File	This package contains the battery module header file.
SUNWbttry	15	Battery Streams Module	This package contains the interface software for the battery.
SUNWcpr	562	Suspend, Resume Package	This package contains the software that suspends operation of the workstation by saving the system state to nonvolatile storage. This software also resumes operation of the workstation by restoring the previous system state.
SUNWdiagv	200	SPARCstation Voyager Online Diagnostic Test	This package contains the SPARCstation Voyager-specific SunDiag tests.
SUNWird	31	Infrared Device Driver	This package contains the driver for the infrared communications devices that allows the workstation to interface with other infrared devices.
SUNWirdh	2	Infrared Device Header File	This package contains the infrared device header files.
SUNWpmc	14	Power Management Chip Driver	This package contains the interface software for the power management chip that handles power management for internal devices.
SUNWpmch	2	Power Management Chip Driver Header Files	This package contains the header files for the Power Management Chip Driver.
SUNWpcmci	346	PCMCIA Kernel Software	This package contains the PCMCIA kernel nexus and adapter driver.
SUNWpcmcu	34	PCMCIAPCMCIA User Software	This package contains the PCMCIA user daemon.
SUNWpcmmn	36	PCMCIA Man Pages	This package contains the PCMCIA man pages.

Table 1-2   SPARCstation Voyager Packages *(Continued)*

Package Name	Size (blocks)	Name	Description
SUNWpcmem	128	PCMCIA Memory Card Driver	PCMCIA memory card driver support.
SUNWpcser	132	PCMCIA Serial Card Driver	PCMCIA Serial Card Driver support.
SUNWpmow	234	Power Management GUI	This package contains the Graphical User Interface software tool for Power Management.
SUNWpmr	3	Power Management config File and rc Script	This package contains the configuration files and run control script for power management.
SUNWpmu	68	Power Management Binaries	This package contains the Power Management system daemon.
SUNWpmman	52	Power Management Man Pages	This package contains the Man Pages for the Power Management software.
SUNWvygmn	6	SPARCstation Voyager Man Pages	This package contains the Man Pages for operating the SPARCstation Voyager system.

Software Reinstallation

You can reinstall with either automatic or interactive installation.

For Automatic Installation

1. **Get your machine ready by inserting the Solaris CD-ROM into the CD-ROM caddy and insert the caddy into the CD player.**

2. **As superuser, in a shell, enter the following commands.**

```
# touch /autoinstall
# sync
# reboot
```

3. **Follow the instruction under "Automatic Installation" on page 4.**

For Interactive Installation

Follow the instructions under "Interactive Installation" on page 6.

Serial Port Configuration

External devices must be connected to serial port A on the back panel of the SPARCstation Voyager system unit. Although the SPARCstation Voyager unit contains a serial port B, the port is a dedicated battery communications channel, *not* available for other configuration purposes.

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*Turning the System Power
On and Off* 2

Your SPARCstation Voyager has a new timesaving feature for turning the power off and on. The new feature, Suspend-Resume, is provided with your system.

Without Suspend-Resume, you must exit your applications, halt your operating system, and turn off the power. When you turn the power on again, the system must go through the normal boot sequence, taking at least a few minutes, before you can restart your applications and bring up your files.

With the SPARCstation Voyager, when you *Suspend*, you save all the activities current on your workstation and turn the power off in one command. When you *Resume*, the power comes on and the system displays your work at exactly the point where you left it, in a very short time.

Suspend-Resume works with Power Manager to suspend your system automatically. For information on how to set Power Manager for your individual needs, refer to *Installing and Using Power Management*, shipped with your system.

Unlike other systems, SPARCstation Voyager consumes no power during suspension. You can leave the system suspended for an indefinite length of time without fearing that your data will be lost.

Note – If you are turning your system on for the first time, be sure to read "Preparing the System for Use" on page 1 in Chapter 1, "Software Installation."

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This chapter tells you:
* When and how to use suspend and resume to turn the power off
* When and how to halt the operating system and turn the power off
* How to turn the power back on
* Troubleshooting

Suspending Your System

Usually Suspend is the best way to shut the power off. SPARCstation Voyager's Suspend and Resume feature is perfect for when you want to:

* Transport the system
* Change the power source to a battery or power supply
* Unplug the system unit power cord
* Shut the system off to conserve energy

If you need to shut the power off for other reasons, see "Halting the Operating System" on page 17.

What to Consider Before Suspending

A few considerations apply to Suspending the system. You must wait for the following operations to complete before you initiate Suspend:

* Audio activity
* Floppy disk activity
* Print jobs
* Tape activity

As always, saving everything before you Suspend is a good practice.

How to Suspend

Suspend and a subsequent Resume typically require less than a minute.

Note – When you Resume, the Lockscreen utility is in effect for security. You need to type your password to gain access to the system.

You can perform Suspend from several methods.
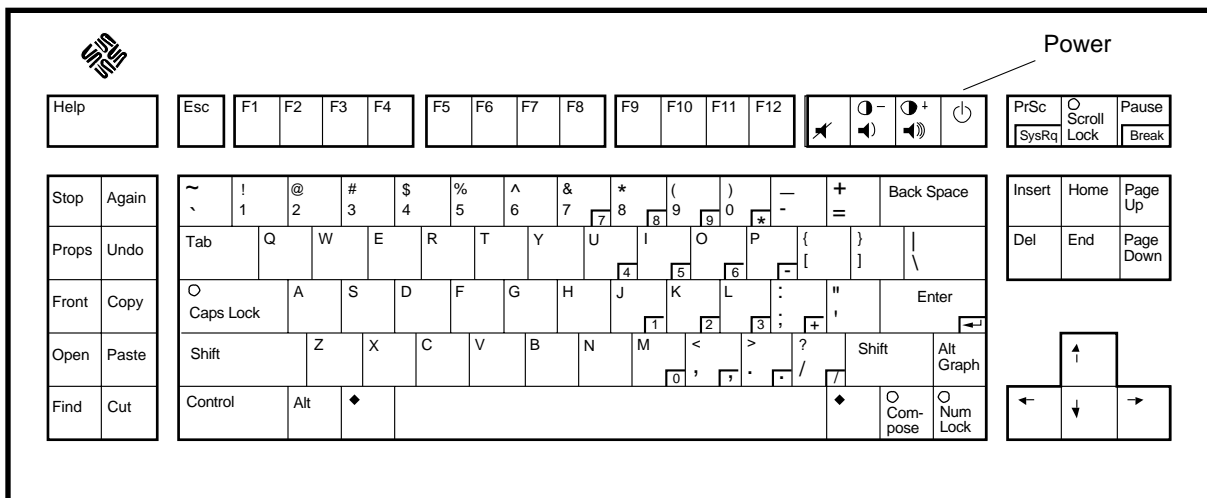
Figure 2-1   Power Key Location —— Sun Compact 1 Keyboard

Suspend Method 1 — Keyboard

1. Press the power key on the keyboard.
The pop-up confirmation window appears. See Figure 2-2.

Please confirm suspension of system state.

(**Suspend**)   (**Cancel**)
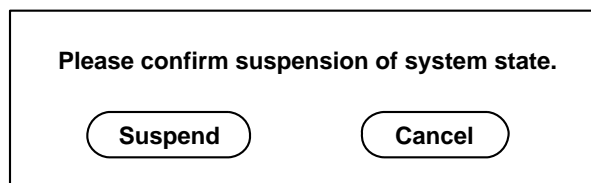
Figure 2-2   Suspend Confirmation

2. Select Suspend.
Selecting Suspend will cause your computer to save your session to disk so that when you Resume, the system displays your work as you left it.

3. **Turn off the power to all external units.**
   External units may include external drive units, printers, or other serial or parallel devices. See the manual supplied with the external device for instructions.

Suspend Method 2 — Keyboard

1. **Press shift and the power key on the keyboard.**
   See Figure 2-1 for the location of the power key.
   A sequence begins (Suspend) in which the system state is saved to disk before the power goes off. When you press the power key again (Resume), the resulting display will be as you left it when you turned the power off.

2. **Turn off the power to all external units.**
   External units may include external drive units, printers, or other serial or parallel devices. See the manual supplied with the external device for instructions.

Workspace Utilities Suspend

You can Suspend your system using the Workspace Utilities menu. To pull up the Workspace Utilities menu:

1. **Place your cursor in the workspace and hold down the menu button.**
   The Workspace menu will appear.

2. **Select Utilities with the menu button.**

3. **Select the Suspend menu option.**
   The Suspend confirmation window will pop up. See Figure 2-2.

4. **Select Suspend.**
   The system state is saved to disk. It will resume as you left it when you press the power key again.

5. **Turn off the power to all external units.**
   External units may include external drive units, printers, or other serial or parallel devices. See the manual supplied with the external device for instructions.

Shell Command Suspend

You can use a shell command to Suspend. The window system does not have to be running for the shell command Suspend to work.

1. At the prompt, type:

```
tempest% /usr/openwin/bin/sys-suspend
```

The Suspend confirmation window will appear. See Figure 2-2.
If the window system is not running, the command will execute without the confirmation window.

2. Select Suspend.
The computer will save your activities to disk. When you press the power key again, the display will appear just as you left it.

3. Turn off the power to all external units.
External units may include external drive units, printers, or other serial or parallel devices. See the manual supplied with the external device for instructions.

Halting the Operating System

⚠️ **Caution** – You must halt the operating system in an orderly manner. Do not turn off the system by disconnecting the AC plug or pulling the battery out. Doing so can cause damage to your operating system. *Any data you have not saved will be lost.*

Sometimes you must halt the operating system and turn the system off.

You *must* halt the operating system and turn off the power to:

- Change the system configuration
  - Remove or install a part, such as a memory card, *inside* the system unit
  - Remove or install an *external* drive unit or monitor
  - Install a PCMCIA card in a slot previously occupied by a PCMCIA card of a different type
- Install, reinstall, or upgrade the operating system

- When your system is hung (frozen), you will not be able to halt the operating system. You must turn the power off.

Changing the System Configuration

When you change the system configuration, for example, to add or remove an internal part such as a memory card or an external part such as a CD ROM or replace a PCMCIA card with one of a different type, you must halt the operating system and turn the power off. A configuration change requires you to reboot the system after adding or removing items. You will need to use the `boot -r` command to reconfigure the system.

Shutting the System Down

To halt the system, you must first become superuser.

1. Type `su.`

```
tempest% su
```

The system will ask you for a password.

2. Type your superuser password.
A screen will appear with a # sign.

3. Type `init 0.`

```
# init 0
screen messages
ok
```

After the ok prompt appears, you can turn the system off. Press Shift and the power key to turn the system off.

Rebooting after a Configuration Change

After you add a device to your SPARCstation Voyager, you must reboot in a particular way. After the system comes up, type `boot -r` to reconfigure the system.

How To Turn the Power Back On

> **Note** – If you are powering on your system for the first time, follow the instructions in How to Turn the Power On on page 2.

1. **Turn on the power for any external devices.**

2. **Press the power key on the keyboard.**
   If you used any of the Suspend methods to turn the system off, your system will Resume with the Lockscreen utility. After you type your password, the system will Resume at the point that you left it.

   If you halted the system, it will boot.

Troubleshooting

What To Do if Power-On Does Not Succeed

If you do not see the banner screen within 10 to 15 seconds after you turn on the power:

1. **Check the power LED at the front of the system to see if it is lit.**

2. **Make sure the AC power cord is securely attached to both the power supply and the AC wall outlet.**

3. **Be sure the AC wall outlet has power.**

4. **Check to see that the keyboard cables are firmly connected.**

5. **Try pressing the power key again.**
   You should hear a beep as the machine comes on.

6. **If the machine does not come on, try pressing the power switch on the system's rear panel.**
   See Figure 2-3 on page 20
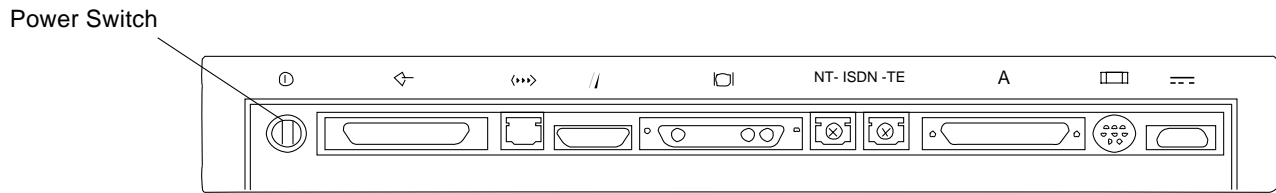
Power Switch

Figure 2-3   Power Switch Location

If the power still does not come on, call your Sun sales office for a service provider.

If the Power Key Does Not Suspend the System

Use a shell to check that the key processing daemon is present.

Type:

```
% ps -eaf | grep speckeysd
```

If the resulting output does not list /usr/openwin/bin/speckeysd, you should start it.

In a shell, type:

```
% /usr/openwin/bin/speckeysd
```

Recovering from a Hung System

If your system does not respond to the mouse or keyboard, perform the following steps:

1. **If your system is on a network, wait a few minutes before taking any action.**
   A slow response may be due to network problems or delays. Check with the person in charge of your network. If the response is not due to the network, go to the next step.

2. Press Stop-a.
Hold both keys down at the same time.

Note – If you use a Wyse® WY-50™, DEC VT100™, or compatible terminal as the console with your SPARCstation Voyager system unit, press Break instead of Stop-a.

Pressing Stop-a (or Break) puts the system into the monitor command mode (indicated by the `ok` prompt).

3. Type `sync`.
Your file system will be saved.

```
ok sync
```

4. When Stop-a (or Break) is not effective, turn the power off using the power switch on the back panel of the system.
See Figure 2-3. The system power will turn off without the Suspend sequence. When you turn the system on again, the boot sequence will begin. Your work will not be saved.

What To Do If Suspend Does Not Succeed

If Suspend does not succeed, an alert window will pop up and more information about the failure will be displayed in the console window.

Suspend failed!
Device error during suspend.
For a more detailed error message, look in the console.

Do you wish to power off?

Cancel   Power Off

Figure 2-4   Suspend Failed Example

1. **Select Cancel.**

   If you have not already saved your work, do so now.

2. **Look in the Console window in the Workspace for more information.**
   You may be able to take corrective action.

3. **Try Suspend again.**
   - If Suspend succeeds, the system will save your activities and the system will power off.
   - If Suspend does not succeed, the alert will pop up again.

! **Caution** – Save your work if you have not already done so.

4. **Select Power Off.**
   Your work will *not* be saved. When you power on again, the system will reboot.

If, when you select a menu Power Off option, it fails, an alert appears with information about the power-off failure.

Power off failed!
This system cannot be powered off by software.
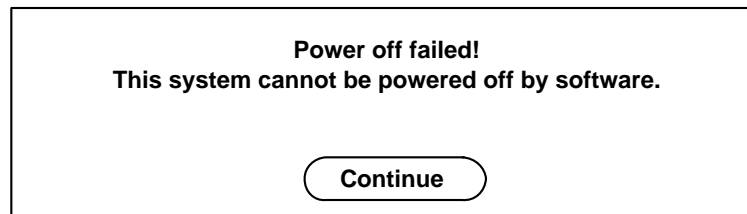
(**Continue**)

Figure 2-5   Power Off Failure Window

1. **Select Continue.**

2. **Save your work if you haven't already done so.**

3. **Turn the power off after halting the system.**
   See Changing the System Configuration on page 18 and steps 2-4 of Recovering from a Hung System on page 20.

Using a Networked SPARCstation Voyager Disconnected From the Network 3≡

Your SPARCstation Voyager is designed to be easily transportable. Unlike a deskbound machine, the SPARCstation Voyager can be Suspended and disconnected from the network, to Resume and operate as a single system without rebooting. It can be Suspended again, transported, and Resumed back on the network.

To use your SPARCstation Voyager in nomadic mode, you must first perform a few procedures to configure the system.

Preparing the System

- For configuration instructions, see Chapter 4, "Configuring for Disconnected Operation."
- For disconnected operation instructions, see Basic Considerations for Disconnected Operation on page 24.

- For PPP configuration instructions, see Point-to-Point Protocol (PPP) on page 26 and see Chapter 5, "Configuring for Point-to-Point Protocol Connections."

- For other modem instructions, see Terminal Emulators on page 27.

≡ *3*

Using the SPARCstation Voyager in Nomadic Mode

Once you have configured it, you can disconnect your SPARCstation Voyager by simply unplugging the Ethernet cable. You can avoid reconfiguring and rebooting, as you would in a deskbound system, by configuring the Solaris 2, Edition II (or later) operating system environment in nomadic mode. Refer to Chapter 5, "Configuring for Point-to-Point Protocol Connections" for a detailed discussion of the procedures you need to perform after you install the operating system.

The nomadic operating mode allows SPARCstation Voyager to be connected to an IP network that provides ONC+ (NFS, NIS, NIS+, etc.) and Internet services (`mail`, `ftp`, `rlogin`, etc.), and also to be disconnected from the network and operated for extended periods of time with no network connection.

It is not possible to achieve this kind of connection flexibility without some constraints, but they are minimal.

- The system will not be able to access all the data kept in distributed NIS/NIS+ databases
- The system will not be able to provide ONC+ or Internet services to other machines, *even when connected to a network.*

Basic Considerations for Disconnected Operation

After you have made your SPARCstation Voyager disconnectable, you have to use it a little differently.

Creating and using a local home directory on your SPARCstation Voyager can make using your system in nomadic mode easier. Refer to "Creating a Local Home Environment" on page 36 of Chapter 4, "Configuring for Disconnected Operation for instructions.

Always start OpenWindows from a shell whose current working directory is contained on the local SPARCstation Voyager file system, such as your local home directory. Otherwise, when SPARCstation Voyager is disconnected, OpenWindows stops functioning.

When you operate a SPARCstation Voyager disconnected from the network, remote services are not available. NIS and NIS+ databases, such as `hosts`, and NFS mounted directories cannot be accessed. Refer to the `/etc/nsswitch.conf` figure in "Name Service Configuration" in Chapter 4, "Configuring for Disconnected Operation" for a complete list.

Before you disconnect the system from the network:

1. `cd` out of all NFS mounted directories.

2. Terminate any remote login sessions such as `rlogin`, `telnet`, or `ftp`.

3. Terminate any remote clients that display windows on the *local* Xsun (X11) server.

4. Wait about five minutes for the automounter to unmount all directories you `cd`'d out of in step 1. Or, as root, type `unmountall -F nfs`.

If you cannot follow the above disconnection guidelines (you are late for a meeting and you want to pull the plug, for example), the system will continue to operate. Minor inconveniences may occur.

For example, it is possible to be in a working directory that is contained on a remote file system or to execute a command, such as `ls` or `cd`, that accesses a remote file system. If this happens, the command you executed will appear to stop and not return, and probably the shell that you executed it in will not process further commands.

If you do not want to wait for the system to notice the error and recover by itself (it could take a long time), you can terminate the command (by typing Control-c, for example) or change the working directory back to the home directory. If necessary, quit the window in which the command or shell is running.

Any client/server application with a remote component will not continue to work when the network is disconnected. Those that are stopped may fail when the network is reconnected, or if they are "touched," although it is usually safe to iconize them.

Any remote login sessions in effect at the time of disconnection will stop processing commands. You can leave them alone or terminate them. Few sessions will persist over long periods of disconnection.

≡ *3*

While all OpenWindows deskset applications will survive across network transitions from connected to disconnected states, some of them may not operate as well while disconnected.

Occasionally, other problems occur if the Ethernet interface (le0) is not left UP at disconnection. If the interface is DOWN, you cannot open calendar manager, nor can you invoke `admintool`. The solution to these problems is to bring the interface UP, using `ifconfig`. See the man page for information on how to manipulate the state of the interface.

Modem Connections

You can attach a PCMCIA or an external modem to SPARCstation Voyager and use it to create a data connection to another computer that can be accessed through a terminal emulator program such as `tip` or `cu`, or by using the PPP serial line networking facility.

Point-to-Point Protocol (PPP)

The Point-to-Point Protocol (PPP) provides IP networking capability over serial line interfaces like those provided by modems.

You can think of PPP as a slow speed analog of Ethernet. Just as two computers can be "networked" by an Ethernet cable, they can be "networked" by modems and PPP.

In both cases the machines communicate with each other using peer-to-peer or client/server applications that run over high level protocols such as TCP/IP. PPP and high speed, full duplex modems allow sophisticated services and applications, such as NFS, `rlogin`, `ftp`, and remote X11 clients, to run over public switched telephone networks(PSTN).

You activate a PPP connection when you execute any command that causes a message to be put onto the network. Typically this happens when you `cd` to a remote directory in an NFS file system, `rlogin` to a remote machine, copy a remote file (either by `rcp` or `ftp`), or do any other operation that involves a remote system.

Refer to Chapter 5, "Configuring for Point-to-Point Protocol Connections" for more information about PPP configuration.

Terminal Emulators

A terminal emulator is a software representation of a physical terminal, such as a Wyse or Televideo terminal, that allows the SPARCstation Voyager to connect to a remote machine in the same way as a real terminal connects. As with a real terminal, you will only be able to log in to a remote computer and interact with it through a (typically) 25 line by 80 character interface, and you won't be able to display graphics or use any of the OpenWindows graphical user interface tools. Solaris 2 includes two terminal emulators, `tip` and `cu`. See the respective man pages for further information on how to use these emulators. There are also public domain and third party terminal emulators that will work on Solaris. Some of these have more features than `tip` and `cu` and may be easier for novice Solaris users to operate.

Tip and the Sun PCMCIA Fax/Data Modem

`tip` has been configured to work with the optional Sun PCMCIA modem. To use `tip` with your Sun PCMCIA modem, you can connect to the modem by typing the device name.

For a modem in Slot 1:

```
% tip pm1
```

For a modem in Slot 2:

```
% tip pm2
```

After you type one of these commands, you are connected to your modem.

After you connect, you can type "`at`" commands. Refer to *PCMCIA 2.0 Fax/Data Modem User's Manual* for detailed "`at`" commands.

≡ 3

Configuring for
Disconnected Operation 4≡

The following chapter describes the installation and configuration procedures that allow your SPARCstation Voyager to operate in nomadic mode. The procedures assume a reasonably high level of Solaris system administration familiarity. If you do not feel comfortable with the commands and procedures, consider seeking the help or advice of a Solaris system administrator.

Installation

When you install the Solaris software, be sure to specify that your system is a *standalone networked* system. This installation configuration allows you maximum flexibility, providing the capability to operate your system connected to a network or disconnected as a standalone single system.

During the install process, select "Yes" when asked "Will this system be connected to a network?" Later in the install process, if the Custom Install Configuration screen is displayed, be sure that the system type is "Standalone." If the Custom Install Configuration screen does not appear, your system will be configured as standalone.

Name Service Configuration

A name service fulfills requests for global objects such as `name` to IP address mappings, mail aliases, and password entries. NIS, NIS+, and DNS are the most common name services for standalone networked systems. For a *non-networked* standalone single system, a set of files in the `/etc` directory

constitute the *files* name service. Solaris 2 provides a configuration file, `/etc/nsswitch.conf`, that directs name service accesses to the desired target name service.

Default

The install process determines the appropriate name service configuration and generates a corresponding `/etc/nsswitch.conf` file. For a standalone networked system, `/etc/nsswitch.conf` is a copy of `/etc/nsswitch.nis` for an NIS environment or `/etc/nsswitch.nisplus` for an NIS+ environment.

This default configuration will work satisfactorily as long as your SPARCstation Voyager is connected to a network. However, when it is disconnected, access to a name service will cause requesting processes to wait for a predetermined timeout period (30 seconds for NIS and 10 seconds for NIS+) while the name service client component tries to connect to the remote and inaccessible server. Since some processes generate several accesses to a name service, the aggregate wait time can be significant.

For example, if you use `ls` to display a long list of the contents of a local directory that contains four files owned by someone else (whose user name is not in your local `/etc/passwd` file), you will wait two minutes (4 files * 1 non-local name per file * 30 seconds per NIS lookup of a non-local name) for the command to finish.

Configuring `/etc/nsswitch`

By editing the `/etc/nsswitch.conf` file, you can avoid or minimize the occurrence of timeout delays.

If your facility does *not* make extensive use of the networked name services, configure your system to use the files name service by copying `/etc/nsswitch.files` to `/etc/nsswitch.conf`.

If your facility makes use of the networked name service, create a hybrid configuration file, such as the following one:

```
#
# /etc/nsswitch.conf
#
# An example file that could be copied to /etc/nsswitch.conf
# This file configures the system to use the NIS name service
# sparingly, and thus allows the system to operate even when
# NIS isn't available.

passwd:       files
group:        files
hosts:        files   nis
networks:     files
protocols:    files
rpc:          files
ethers:       files
netmasks:     files
bootparams:   files
publickey:    files
netgroup:     files
automount:    files   nis
aliases:      files
services:     files
sendmailvars: files
```

This configuration instructs the system to use the NIS name service only when a host name is not found in `/etc/inet/hosts` or when the automounter cannot find an automount map file in the `/etc` directory. All other name service lookups are satisfied by the files name service, as defined by the corresponding files in the `/etc` directory.

You may find that you can configure `/etc/nsswitch.conf` in a better way for your specific site's network configuration. Feel free to experiment with the contents of `/etc/nsswitch.conf` or add entries to the specific service files on your system until it meets your needs.

> **Note** – If you are running NIS, you can prevent timeouts from occurring by stopping and starting NIS binding services (i.e. `ypbind`) when you disconnect and reconnect the SPARCstation Voyager from and to the network. However, the user is the one who must stop and start the binding services at *each* disconnection and reconnection. The process may not be worth the trouble.

Network Configuration

Installing your system as a standalone networked system assures that most network configuration has been done by the install process. You can improve the ability of the SPARCstation Voyager to operate in nomadic mode by adding frequently accessed remote host names to the local hosts database and by preventing your machine from acting as a router.

Hostname to IP Address Mapping

Because the system won't always have access to the NIS/NIS+/DNS databases, hostname to IP address mapping, requested by programs such as `sendmail` and PPP (`aspppd`), may fail when the system is disconnected, if the local `/etc/inet/hosts` file does not contain a requested entry. Adding frequently accessed remote host names to the `/etc/inet/hosts` file will minimize such failures.

```
#
# Internet host table
#
127.0.0.1      localhost loghost
224.0.0.0      multicast-ip
#
# This machine
#
192.9.10.5     voyager
#
# Frequently accessed hosts
#
192.9.11.113   sparctreker
192.9.11.126   parhelion
192.9.20.30    datehost
192.9.60.81    applserver
192.9.7.81     cosmos mailhost
```

Figure 4-1   Internet Host Table

You may prefer to use `admintool` to edit the `/etc/inet/hosts` file.

Generally you won't have to put more than a dozen or so map entries in the `/etc/inet/hosts` file. After initially populating the file with entries that you think you'll need, you can then add entries as you discover them (usually because a command fails, producing a message such as `"unknown host zargon"`).

IP Forwarding and Network Routing

If you plan to use PPP to create a wide area network connection over telephone lines, it may be necessary to disable *IP forwarding*. IP forwarding is enabled at boot time when the system detects more than one interface (i.e. Ethernet and PPP). In this case, the system will also be configured as a *router*. This is undesirable because other routers on the network will attempt to route network traffic through your system. In addition to the performance impact on your system and the network, it is possible to cause network routing failures that are difficult to detect and correct.

To avoid this, establish an `/etc/defaultrouter` file that contains the name of one of the routers serving your network or subnetwork. You can determine a candidate router by inspecting the route table with the `netstat` command while your system is connected to the network.

```
# netstat -r
Routing Table:
 Destination        Gateway           Flags Ref   Use   Interface
---------------- ----------------- ----- ---- ------ ---------
 -
localhost          localhost          UH    0     20    lo0
slivan             ethr17a-11         UGH   0      0
single             ethr17a-11         UGH   0      0
mtnview            ethr17a-11         UG    0      9
net-eng-bb         fddi17b-11         UG    0    3961
net15-067-n        ethr17a-11         UG    0      0
net17-007-n        goldigger-eng      UG    0    1291
net19-174-n        fddi17b-11         UG    0      0
net17-083-n        shunt-116          UG    0      0
net21-244-n        ethr17a-11         UG    0      0
net18-148-n        ethr17a-11         UG    0      0
milpitas           ethr17a-11         UG    0     42
net11-144-n        voyager            U     2    3788    le0
224.0.0.0          voyager            U     4      0     le0
```

Since most routes in the above example are directed through gateway ethr17a-11, choose ethr17a-11 as your default router by creating an `/etc/defaultrouter` file with that name in it. The file should contain only the name of the selected default router, as in:

```
ethr17a-11
```

Note that when you configure your system to use a default router, you sacrifice the dynamic routing capability that Solaris provides. If you don't want to do this, edit the `/etc/init.d/inetinit` file. Change the test for "routerhood" to always fail: in `/etc/init.d/inetinit`, change

```
if [ $numifs -gt 2 -o $numptptifs -gt 0 -o -f /etc/gateways ];
then
```

to:

```
if [ `/bin/false` ]; then # Never be a router
```

Note – The disadvantage of this method is that your system can receive Routing Information Packets (RIP) across a PPP connection, which limits the available bandwidth.

NFS Mount Configuration

The NFS and mount protocols allow your machine to access remote networked file systems in the same way that you access local file systems. If you attempt to access a remote file when your SPARCstation Voyager is not connected to a network, however, your machine may appear to stop.

Using the Automounter

To minimize remote access attempts, always use the automounter (`automountd`). Mounting NFS files exclusively with the automounter insures that remote files are mounted properly and that they are *unmounted when not in use* (typically five minutes after the last access).

Do not mount file systems with the `mount` command or by including a mount request in the `/etc/vfstab` file.

Using the Soft Mount Option

NFS mounts are hard by default, which means that if the file system server fails to respond, the client (i.e. the SPARCstation Voyager) continues to retry the request until it receives a response or until the retry limit (10,000 is the default) is exceeded. If your system is disconnected, then a process that is

using a remote file system will appear to stop until the retry limit is reached. You can avoid this problem by declaring that file systems are to be soft mounted. Specify the soft option in the `/etc/auto_master` file, as follows:

```
# master map for automounter
#
+auto_master
/net    -hosts     -nosuid,soft
/home   auto_home  -soft
```

If you experience reliability problems traceable to *soft* mounts, you can consider not specifying the soft option. However you may become more prone to system stoppages if you accidently access a remote file while disconnected. To minimize this problem, be sure you specify the `mount` option `intr` so that you can interrupt mount operations. Refer to the `mount_nfs` man page for more information about NFS mount options.

Note – Even if you specify soft mounts, when you are disconnected, an NFS mount request may still take a very long time to fail if you have specified replicated mount paths in the automounter configuration file. If the hosts associated with those mount paths are not defined in the `/etc/inet/hosts` file, even more time elapses. To avoid this problem do not specify replicated mount paths.

User Configuration

While disconnected, do not access remote file systems: they are not available. This means that you should have a local home directory. You also need a local `/etc/passwd` entry so you can log in to the machine when disconnected.

Creating a Local Home Environment

To create a local home environment, use either `admintool` or `useradd` to specify a local `/etc/passwd` entry and a local home directory (`/export/home/`*username* is recommended).

If your site does not export a network `/etc/passwd` map through one of the name services, the `/etc/passwd` entry and home directory will be the only one associated with your username. This is the simplest user configuration.

However, if there is a entry for you in a network `/etc/passwd` database (i.e. one managed by NIS or NIS+), specify the same user and group id numbers (UID and GID respectively) for the local `/etc/passwd` entry as are specified in the network database, but *specify a different path name for the home directory.*

Specify the same UID and GID so that your files are accessible to you whether or not you are logged into the SPARCstation Voyager or another machine and whether or not you are working in a local or remote directory.

Do *not* specify the same path for the *local* home directory as for the home directory in the *network version* of `/etc/passwd` because the network path is not accessible when the machine is disconnected.

Managing Two Home Directories

When there are two home directories, always work in the local home directory on the SPARCstation Voyager. You may use the network home directory as a backup location. If that is not possible or desirable, you will have to take precautions to insure that the two copies of the home directory do not get out of synchronization.

Define the PATH Environment

Define the PATH environment variable so that it does not contain references to non-local (i.e. NFS mounted) directories.

To assure that commonly accessed application programs and tools are always available, install them in local directories designated by the PATH variable.

You can initiate *infrequently* referenced remote programs by specifying the full path name for the command.

You can access remote programs you use more frequently by creating symbolic links to them in local directories specified in the PATH variable, or by creating shell aliases for them.

Define the MANPATH Environment

A MANPATH environment variable, if present, should avoid references to non-local directories.

Sendmail Configuration

Edit the `sendmail` files if you use more than one kind of mail user interface: only if you are not *exclusively* using a nomadic mail tool.

`Sendmail` is the back end to most of the mail user interface programs such as `mailtool` and `mailx` and is responsible for sending mail to remote hosts using the Simple Mail Transport Protocol (SMTP).

`Sendmail` is not affected when the network is disconnected. Most local mail processing can still be accomplished. The front end mail user interface programs will still operate and can still read, delete, copy and move mail messages in the system's inbox (`/var/mail/`*username*) as well as in any local mail folders. You cannot, of course, send mail or receive it from remote systems.

With minor changes to a few files, outgoing mail can be composed and sent from a user interface program, and `sendmail` will queue the mail until the network connection is established or until a queue timeout period (the default is three days) is exceeded, but only if the full address of the recipient can be determined (either because the original mail contains the full address or because it contains a mail alias that can be expanded to the full address).

Remote Mail Host

A remote mail host is another host through which `sendmail` routes all outgoing mail. When your system is connected to the network, mail will take an extra hop to the mail host before it is delivered. When your system is disconnected, a remote mail host provides automatic queueing of new mail messages until the network is reconnected. This means you can still compose and "send" mail messages when disconnected. The messages will be delivered to the remote mail host shortly after reconnection.

Configuring the Remote Mail Host

To configure a remote mail host, in `/etc/inet/hosts,` append the word *mailhost* to an entry that specifies a permanently networked host. The mail host can be any host that is always available to the core network that the SPARCstation Voyager is usually connected to. See the last line in Figure 4-1 on page 33 for an example specification of a mail host.

Mail Aliases

Sendmail uses the name service aliases map to expand a mail alias into a fully specified address. If mail is sent to a *username*, but that name cannot be found in the aliases database, the mail is delivered to the local machine if *username* can be found in the `/etc/passwd` file, or it is returned to the sender with a "`User Unknown`" error message.

When disconnected from the network, or when the alias map is only present in the files name service (as recommended earlier), you must specify mail recipient names to assure delivery. For convenience, you may enter aliases for the people or mail lists you frequently send mail to in the `/etc/mail/aliases` file.

```
amy: amy@travails
andrew: andrew@telco.com
bob: bob.roberts@therally
clark: clark@phonebooth
deskset: deskset@thehouse
jim: jim@cosmos
lyn: lynda@flanders
melissa: mfields@home
nomadics: nomadics@server.Corp
our-staff: myboss@hismachine
susan: susan@ct.amber.com
trish: trussell@bambus.COM
```

It is not necessary to remember, or otherwise determine, the fully specified name for people (or mail lists) who are not listed in the `/etc/mail/aliases` file. You can send mail to them by addressing it to *user@mailhost* where mailhost is the name of the mail host you defined earlier (e.g. *user@cosmos*).

> **Note** – Do not use the actual word *mailhost* in the host part of the address since that can cause your mail to be misdirected.

You may address your mail to *user@domain* if your site uses DNS (e.g. jsmith@eng or jsmith@some.com).

Sometimes when an alias cannot be expanded, the mail is delivered to the local machine. This usually occurs because the cache in sendmail becomes unsynchronized with the actual configuration of the system. It may not happen very often or even at all, but occasionally it is a good idea to inspect the `/var/mail` directory for lost mail.

Queue Limits

As stated earlier, the default maximum time that an undelivered mail message is queued is three days. If your system is disconnected for longer than three days, mail will be returned to the sender. You can change the maximum queue time by changing the following lines in the `/etc/mail/sendmail.cf` file from:

```
# return queued mail after this long
OT3d
```

to:

```
# return queued mail after this long
OT999d
```

In this example, mail will be queued for 999 days before being returned to the sender. See the `sendmail` man page for a more complete explanation of the values for the queued mail timeout parameter.

Configuring for Point-to-Point
Protocol Connections   5 ≡

The following sections provide the information you need to set up your
SPARCstation Voyager so that you can use PPP to create a network connection
when you are not able to connect it to an Ethernet. It is assumed that you are
familiar with basic system adminstration procedures and that you can use an
editor to modify the configuration files. If you feel uncomfortable doing this,
contact a system administrator for advice.

Configuring PPP

The Solaris PPP daemon, `aspppd`, is started automatically at boot time if the
`/etc/asppp.cf` is present. The file contains the configuration parameters
for the PPP system. You will need to edit or create this file before you can use
PPP.

The following procedure, with minor changes, will create a configuration file
that should work in most cases.

1. Obtain the following information:

   a. An IP address/name that can be used for PPP. If your SPARCstation
      Voyager is connected to the Ethernet, then this will be a second, and
      different, IP address from the Ethernet IP address.

      In the following example we use "voyager."

    b. The IP address/name for the remote PPP server you will be connecting
to.

In the following example, we use "PPPserver."

2. Add lines similar to the following to the `/etc/inet/hosts` **file:**

```
192.11.117.26     voyager
192.26.32.114     PPPserver
```

Be sure you use the actual names and addresses you obtained in step 1.

3. Add lines similar to the following lines to the `/etc/asppp.cf` **file:**

```
ifconfig ipdptp0 plumb voyager PPPserver private up
path
    interface ipdptp0
    peer_system_name PPPserver
    inactivity_timeout 300
    debug_level 5
```

Again, use the actual names you obtained in step 1.

You can leave out the *inactivity_timeout* line if you want to use the default
timeout of 120 seconds. The above specifies a timeout of 300 seconds. You can
also leave out the *debug_level* line, or change its value depending on the how
much information you want reported in the `/var/adm/log/asppp.log` file.

See the PPP man page, `aspppd`, the `ifconfig` man page, and the relevant
chapters in *SunOS 5.3 Administering TCP/IP and PPP* for a more thorough
discussion of the contents of the `/etc/asppp.cf` file.

Configuring the UUCP Dialing Facility

Solaris PPP uses the UUCP dialing facility to create a connection with the
remote dial-in PPP server. Parameters specific to the modem and the remote
server are defined in the UUCP configuration files, `/etc/uucp/System`,
`/etc/uucp/Devices,` and `/etc/uucp/Dialers`. You will have to add

entries to these files to describe the Sun PCMCIA modem, to specify the phone number for the PPP server, and to specify the login name and password that your SPARCstation Voyager will use to connect to the server.

It is not possible to provide a detailed procedure for editing the UUCP configuration files that will work in all cases. However, the following procedure is similar to what you need to do if you are using the Sun PCMCIA modem and connecting to a PPP server that is running the Solaris 2 PPP software.

1. **Obtain the following information:**

   a. The peer system name for the remote PPP server.
      In the following example we use "PPPserver."

   b. The phone number for the PPP server.
      In the following example, we use "5551212."

   c. The login name that you can use.
      In the following example, we use "voyager."

   d. The password associated with the above login name.
      In the following example, we use "Secret!"

2. **Add a line similar to the following to the** `/etc/uucp/Systems` **file:**

```
PPPserver Any PCMCIA 38400 5551212 "" P_ZERO "" \r\n\c ogin: voyager ssword: Secret!
```

Be sure you enter the line as one line (i.e., the above line contains 83? 84? characters).

Table 5-1 Systems File Elements

Element	Definition
PPPserver	This is the peer system name. It is the same name you assigned to the peer_system_name keyword when you created the /etc/asppp.cf file.
Any	The number can be dialed at any time.
PCMCIA	Use the PCMCIA device.
38400	The modem/computer speed.
5551212	The phone number for the PPP server.
P_ZERO	No parity.
\r\n\c	Send a carriage return and line feed character to the remote system.
ogin:	Expect to see a string ending in "ogin:" sent by the remote system.
voyager	The login name you use to log into the remote server. It is sent to the remote server.
ssword:	Expect to receive a string ending in "ssword:".
Secret!	The password associated with the login name. It is sent to the remote system.

3. Add the following line to the /etc/uucp/Devices **file:**

```
PCMCIA cua/0 - 38400 sun-pcmcia
```

The line specifies that the PCMCIA device is plugged into socket 1, runs at 38400 bps between the computer and the modem, and is a Sun PCMCIA modem. If you want to plug the Sun modem into socket 2, change "cua/0" to "cua/1."

4. Add the following line to the `/etc/uucp/Dialers` **file:**

```
sun-pcmcia =,-, "" \dA\pT&F2\r\c OK\r \EATDT\T\r\c CONNECT\s14400/ARQ STTY=crtscts
```

Be sure the line is entered as a single line consisted of 82 characters. This line describes the "AT" commands that are sent to the Sun PCMCIA modem to initialize it for PPP operation and to dial the phone number for the remote PPP server.

For a more detailed explanation of the contents of the UUCP configuration files, see Appendix A of *SunOS 5.3 Administering TCP/IP and PPP.*

Initiating a Connection to the Remote PPP Server

Before a connection can be established, you must bring up the PPP interface specified in the `/etc/asppp.cf` file (`ipdptp0`) and establish a default route to the remote server. The default route allows you to communicate with other hosts on the network connected to the remote PPP server.

1. Bring up the interface with the `ifconfig` **command.**

```
ifconfig ipdptp0 up
```

2. Establish a default route with the route command:

```
route add default PPPserver 1
```

In the command, *PPPserver* should be replaced by the actual name of the remote PPP server you are connecting to. This is the same name that was used as the second address in the `ifconfig` command added to the `/etc/asppp.cf` file.

3. Initiate a connection with the `ping` **command:**

```
ping PPPserver 120
```

Again, *PPPserver* is an example name and should be replaced with the actual name of your PPP server. The above command specifies a timeout limit of 120 seconds.

If the `ping` command succeeds, it will return the result:

```
PPPserver is alive
```

If the `ping` command fails, it will return the result:

```
no answer from PPPserver
```

To determine how the connection is working, watch the log file with the command `tail -f /var/adm/log/asppp.log`.

If the `ping` command failed, it means that the `ipdptp0` interface is not configured properly or is not up, the route table is not configured properly, or that the UUCP files are not configured properly. If, after checking the status of the interface with the `ifconfig` command and checking the route table with the `netstat` command, you believe your UUCP files may be configured incorrectly, inspect the `/var/adm/log/asppp.log` file for clues. You may also find it beneficial to seek the advice of a system administrator familiar with the Solaris 2 PPP system.

Terminating the Connection

Normally the PPP connection will terminate automatically when the PPP daemon notices the line has been idle for a period longer than the period specified by the *inactivity_timeout* keyword in the `/etc/asppp.cf` file. If you want to terminate the connection earlier, you must send the SIGHUP signal to the `aspppd` daemon.

1. **Find the process id for** `aspppd` **with the** `ps` **and** `grep` **commands.**

```
ps -e | grep aspppd
```

A result similar to the following will appear:

```
73?        0:02 aspppd
```

The 73 is the process id number of `aspppd`.

2. **Send the SIGHUP signal with the** `kill` **command.**

```
kill -HUP 73
```

The PPP connection is terminated.

Automatic Connections

Solaris 2 PPP will automatically connect to the PPP server whenever a process on the SPARCstation Voyager generates an IP datagram for delivery to a host on the remote network. The first access can take several minutes to complete because PPP dials the remote system, logs in, and sets up the correct routing configuration. To avoid additional delays due to a command "backing off" because it does not receive an immediate reply from the remote end of the connection, establish the connection first by executing a simple command such as `ping`.

If you do not want connections to occur spontaneously, you must turn off the PPP interface by marking it down with the `ifconfig` command.

```
ifconfig ipdptp down
```

Remember to turn on the interface when you want connections to start again.

```
ifconfig ipdptp up
```

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Boot Issues

After configuration, PPP will be enabled automatically when the system boots. If you use the NIS name service, PPP will attempt to dial the remote PPP server when the NIS daemon, `ypbind`, is started. If you do not want PPP to allow automatic connections, change the `ifconfig` line in the `/etc/asppp.cf` file so the interface is marked down. In the earlier example, the line would appear as:

```
ifconfig ipdptp0 plumb Gypsy PPPserver private down
```

After boot, it is necessary to reestablish the default route, using the `route` command.

```
route add default PPPserver 1
```

Other Issues

If you want to connect your SPARCstation Voyager to Ethernet, mark the PPP interface down and remove the default route before you plug in the Ethernet cable. Otherwise, your SPARCstation Voyager may act as a router.

```
ifconfig ipdptp down

route delete default PPPserver
```

Remember to replace the name "PPPserver" with the name of your PPP server.

Additional Information

For more detailed information about PPP, refer to *SunOS 5.3 Administering TCP/IP and PPP* and the `aspppd` man page. Refer to the relevant man pages for more information on the commands used to administer the PPP interface and the system routing table.

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