Solstice Site/SunNet/Domain Manager Installation Guide

for Solaris 2.4 or later/SPARC

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Preface

This manual explains how to install the Site/SunNet/Domain Manager 2.3, licensing, and AnswerBook™ software from the product CD-ROM on to your machine.

Who Should Use This Book

This book is written for users installing Site/SunNet/Domain Manager software. It assumes you are familiar with the Solaris™ 2.4 or later operating environment.

How This Book Is Organized

This book contains the following chapters and appendices:

- Chapter 1, “Pre-Installation Notes and Requirements,” provides information you should have before installing software, and information on getting help.
- Chapter 2, “Planning for Licensing and AnswerBook Installation,” provides information to help prepare you for installing the AnswerBook package.
- Chapter 3, “Installing the Software,” explains how to install software on the system from which you will manage the network—your manager station.
- Chapter 4, “Installing Agent Software on Remote Systems,” explains how to install agent software on remote systems.
- Chapter , “Installing SNMP Version 2, “ explains how to install and remove the software for SNMP Version 2 support.

- Appendix A, "Upgrading Site/SunNet/Domain Manager," provides guidelines to consider if you are upgrading from other releases in the 2.x series (such as 2.0 or 2.2).
- Appendix B, "Removing the Software," contains the procedure for removing the software from the machine upon which it was installed.

Conventions Used in This Manual

This section describes the conventions used in this manual.

Operating System Terminology

This manual contains references to the Solaris 2.4 and later operating environment and to the SunOS™ 4.x operating environment.

The Solaris 2.4 and later environment includes:

- SunOS 5.3 or later Operating System
- SPARC™ computer, either a server or a workstation
- OpenWindows™ 3.3 or later application development platform

The Solaris 1.1.1 environment includes:

- SunOS 4.1.3 U1 operating system
- SPARC computer, either a server or a workstation
- OpenWindows 3.0 application development platform

SunOS 4.x implies one of the following:

- SunOS 4.1.3 with optional patches
- SunOS 4.1.2 with optional patches
- SunOS 4.1.1 with optional patches

Command Line Examples

All command line examples in this manual use the C-shell environment. If you use either the Bourne or Korn shells, refer to `sh`(1) and `ksh`(1) man pages for information about the equivalent commands in these environments to the C-shell.

Typographic Conventions

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	These are called *class* options. You *must* be root to do this.
%	System prompt for an ordinary user account	`hostname%`
#	System prompt for the root (superuser) account	`hostname#`
The instruction, “Enter”	A combination of typing a value, then pressing the Return key	Enter the path name.

Mouse Conventions

This book assumes that you are using a standard Sun workstation three-button mouse. The mouse buttons are called SELECT (left), ADJUST (middle), and MENU (right).

Click means to press and quickly release a mouse button.

Press indicates you should hold the button down until an action is completed — such as a menu appearing.

Related Documents

The Site / SunNet / Domain Manager documentation set includes the following documents:

- *Site/SunNet/Domain Manager Installation Guide* (this document)
- *Site/SunNet/Domain Manager Release Notes*
- *Site/SunNet/Domain Manager Administration Guide*
- *Site/SunNet/Domain Manager Application and Agent Development Guide*
- *Site/SunNet/Domain Manager Cooperative Consoles Administration Guide*
- *Site/SunNet/Domain Manager Reference Manual* (hardcopy only)

You may want to have your Solaris 2.x or SunOS 4.x system documentation available as a reference if you need additional information on procedures in this manual.

Pre-Installation Notes and Requirements

1

This chapter provides a checklist of installation requirements and other information you may need for installing Site/SunNet/Domain Manager 2.3 software. It also provides information on getting help if you need it.

Installation Requirements

Note – See the *Release Notes* for definitive compatibility information, hardware and software requirements, and other important information that was not available when this book was published.

This checklist is provided to help you gather information you must have to complete the installation procedures. You must be able to answer yes or fill in the appropriate information on the lines provided. If you have problems with your installation, you will need this information when you call for help.

1. Is the machine that you are installing Site/SunNet/Domain Manager 2.3 software on a Sun SPARC™ machine? _____
2. Does your machine have at least 32 Mbytes of memory? _____
3. Is your machine running Solaris 2.4 or later system software? _____
4. Is your machine running OpenWindows 3.3 or later software? _____
5. The installation medium is a CD-ROM.

- Do you have access to a local or remote CD-ROM drive? (The remote drive can be attached to a SunOS 4.1.x machine.) _____
- If remote, what is the hostname of the machine to which the CD-ROM drive is attached? _____

6. In which directory will you install the software? (The default directory is `/opt`.) _____

Note – Throughout this book, `/opt` is referenced. `/opt` is the default installation directory for the product. If the product is going to be installed in a directory other than `/opt`, all references should be changed accordingly.

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7. Use the following command to check for disk space usage:

```
hostname% df -k /opt
```

Table 1-1 lists the amount of free disk space required to install the Site/SunNet/Domain Manager and AnswerBook packages:

Table 1-1 Required Free Space

Package Name	**Required Free Space (Mb)**
Site/SunNet/Domain Manager and Cooperative Consoles	26
AnswerBook (nil option)	less than 1
AnswerBook (heavy option)	27

Is enough free disk space available in your installation directory? _____

Following installation, you need 10-15 Mb of disk space for your runtime database. The size of this database depends on the number of elements you manage.

8. Do you have the superuser password for both the machine where the software is to be installed and the machine with the CD drive, if different? _____

9. Does superuser have read, write, and execute access to the installation directory (where the software is being installed)? _____

   Does the user have read and execute permission? _____

10. If you are going to install the Sun SNMP agent, have you determined what its read and write community names will be? _____

    The Simple Network Management Protocol (SNMP) agent allows your management system to communicate with other SNMP-based systems. If you install the Sun SNMP agent, you need to specify the read and write community names for the agent. The defaults are, respectively, "public" and "private." Community names are equivalent to passwords and are used to authorize read and write access. Although many sites use "public" for read access, you should choose the write community name with the same care as a system root password. The community names are stored in the `/etc/opt/SUNWconn/snm/snmpd.conf` file, which should be readable only by root.

1

Getting Help

If you have problems installing or using the software, call your authorized service provider and have the following information ready:

- Model number of the machine
- Serial number of the machine
- SunOS release number
- Release number of the product (2.3)

You can display information needed for help calls by entering the following command:

```
hostname% showrev
```

Your screen will show information similar to the following:

```
Hostname: casbah
Hostid: 5300a892
Release: 5.4 or higher
Kernel architecture: sun4c
Application architecture: sparc
Hardware provider: Sun_Microsystems
Domain: EBB.Eng.Sun.COM
Kernel version:SunOS 5.4 or higher Generic 101318-31 January 1996
```

Planning for Licensing and AnswerBook Installation 2

Both the license instsllation process and AnswerBook installation require some planning. This chapter provides the information you need to plan your installation.

Getting License Passwords

The license password is an alphanumeric code that you must obtain from the license distribution center and type in during installation. There are three ways to contact the license center:

- **Email** — You will need to compose an e-mail message with the information requested in the License Password Request Form (on page 2-4) and send it to one of the e-mail addresses listed inTable 2-1.

Table 2-1 License Center E-mail Addresses

Region/Country	E-mail address
USA, Canada	license@sun.com
Europe	eu-licensing@UK.sun.com
Japan	license@rrd.co.jp
All other countries	eu-license@UK.sun.com

- **Fax —** Fill out the License Password Request Form (on page 2-4) and fax it to appropriate number from Table 2-2.

Note – For Site/SunNet/Domain Manager, the “Server Hostname” is the name of the machine where you want to install product.

Table 2-2 License Center FAX Numbers

Region/Country	FAX Number
USA, Canada	317-364-7220
Europe	44-937-541194
Japan	03-3263-3844
All other countries	44-937-541194

- **Phone —** The Site/SunNet/Domain Manager `pkgadd` script provides phone numbers for most of the license distribution centers. To contact the license distribution center, please use the toll-free phone numbers listed inTable 2-3.

Table 2-3 International Phone List for Licenses

Country	Phone Number
Australia	1-317-364-7216
Belgium	078 11 21 03
Canada	1-800-872-4786
Finland	9800 14406
France	05 90 83 41
Germany	0130 81 47 33
Hong Kong	1-317-364-7216
Italy	1678 77252
Japan	03-3263-3821
Korea	1-317-364-7216
Netherlands	06 0224198
Puerto Rico	1-800-872-4786
Spain	900 97 4448
Sweden	020 793154

Table 2-3 International Phone List for Licenses

Country	**Phone Number**
Switzerland	155 8096
United Kingdom	0800 929 112
United States	1-800-872-4786
European countries not listed	+44 937 541511
All other countries	1-317-364-7216

You will be prompted for your license password during the installation of the Site/SunNet/Domain Manager packages. The operator at the license distribution center will ask you for the following information:

- Product name
- Version number
- "Server" name (the name of the host where the product is to be installed)
- Host ID

You will also need to provide the serial number from your license certificate.

License Password Request Form

To obtain a password, complete all sections and fax this form to one of the numbers provided below. Please type or print clearly. Use a separate form for each license server you will be using. Your password will be returned to you.

contact name	
company name	
job title	
mailing address	
city	**state**
country	**postal code**
telephone	
fax	
email	

FAX this form to:

In the U.S. and Canada:
(317) 364-7220

In Japan:
(+03) 3263-3844

In Europe and all other countries:
+44 937 541194

Return password via:

- ❑ Email
- ❑ Fax

License Server (Fill out for 1, 3, or 5 servers)
(3 or 5 = Redundant Server Set Only)

Server host name	Server hostid

Product Information (Complete an additional form for more products)

Product name & version	Proof of License Certificate	RTUs to Use (Default is All)

NOTE: You do not have to use all RTUs from a certificate. The unused portions can be redeemed at a later time.

FOR OFFICE USE ONLY	date/time request received	date/time password sent

Planning for AnswerBook Installation

The AnswerBook requires some planning and decision-making before you install it. This chapter provides the information you need to plan your AnswerBook installation. Please read it carefully before you begin the installation.

Installing the AnswerBook package is entirely optional. You may choose to install it at the same time you install the other Site/SunNet/Domain Manager software packages, or you may install it at a later time. You may also choose not to install the AnswerBook package.

If you choose to install the AnswerBook package, you must select one of two installation options. If you choose the *heavy* installation, you can merge the Site/SunNet/Domain Manager AnswerBook with the Solaris 2.4 or later AnswerBook and others already installed on your system. For information about merging AnswerBooks, see the Solaris 2.4 or later documentation.

Before you install your software determine whether you will install the AnswerBook package and which installation option you prefer. Table 2-4 describes the installation options available and lists the disk space and installation time required for each.

Table 2-4 Installation Options

Option	Description	Disk Space (Mbytes)	Installation Time
`nil`	Leave all files on CD-ROM. Performance is slow, but adequate for occasional use.	Less than 1	1 minute
`heavy`	Store all files on hard disk. Performance is optimized. This configuration is recommended if the AnswerBook package is to be shared by multiple systems.	27	2-3 minutes

Note – If you do not specify the *heavy* installation option, you *must* leave the CD-ROM in the CD-ROM drive so that the AnswerBook is available.

The installation procedure creates a configuration file that contains the installation locations of the AnswerBook product. If your machine is rebooted in the future and you have chosen the `nil` installation option, you must make sure the CD-ROM is remounted on the same mount point you used during the initial installation.

Note – Some of the files used by the AnswerBook product are of a special type that are not recognized by the packaging tools, including `pkgadd`. If you choose the *heavy* installation option, the packaging tools may report a partial failure as the final installation status. *A partial failure does not mean that the installation has failed.*

For more information about AnswerBook, refer to the *Solaris 2.4 System Administrator's Guide to AnswerBook.*

Installing the Software 3

This chapter provides instructions for installing Site/SunNet/Domain Manager software on the system from which you will manage the network—the machine on which you will run the Console.

Site/SunNet/Domain Manager software is provided on CD-ROM. The software consists of management tools and applications, agent software, agent and manager services and libraries, configuration files, and on-line help and man pages. In addition, the documentation is provided in AnswerBook form. The software is contained in *packages*, which you install from the CD-ROM by running the `/usr/sbin/pkgadd` program.

Note – If you are upgrading from an earlier release, refer to Appendix A, “Upgrading Site/SunNet/Domain Manager,” before starting the installation.

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Overview

The following is a summary of the steps to install the software. Complete procedures for these steps are given following this section.

Before starting installation, make sure that you have verified installation requirements as specified in “Installation Requirements” on page 1-1.

1. **Insert the product CD-ROM in a local or remote CD drive.**
2. **Install the software using** `/usr/sbin/pkgadd`**.**
3. **Finish installation.**
   Finishing installation includes:
   - Updating the Network Information Service (NIS / NIS+) maps / tables, if you are running NIS / NIS+;
   - Modifying your PATH to point to the executables;
   - Setting up access to on-line help and man pages;
   - Verifying installation.

Inserting and Accessing the CD-ROM

To install the software you must have either a local CD-ROM drive or a drive that is accessible over a network.

This section describes how to insert the CD-ROM in the drive and, if you are using a remote CD-ROM drive, how to export or share the CD-ROM file system.

Note – Your target machine for *installing* the software must always be a system running SunOS 5.4 (Solaris 2.4) or later. You can use a remote SunOS 4.1.x or 5.x system to provide the CD-ROM drive.

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our CD-ROM

In SunOS 5.*x*, to add a CD-ROM device, connect the device to the machine’s SCSI bus and to a power source. Power up the device, then halt your machine by entering `init 0`. At the ok prompt enter `boot -r`.

1. **Remove the CD-ROM from its plastic case and place the CD-ROM in its caddy.**
2. **Insert the caddy into the drive slot. (Make sure the CD drive is powered on.)**

Proceed to the following section if you are accessing a locally installed CD drive. Go to "Mounting the CD-ROM from a Remote CD Drive" if you are accessing a remotely installed CD drive.

Note – Unless noted otherwise, you must log in as or become root to perform all of the following procedures.

▼ Mounting the CD-ROM from a Local CD Drive

As a default, volume management is ***en***abled for Solaris 2.2 or later. A system administrator would have to kill the `vold` process or modify the `/etc/vold.conf` file to disable this feature.

There is no explicit mounting of the CD-ROM filesystem for a locally-attached CD drive under Solaris 2.2 or later. When you insert the CD into the drive, the CD-ROM filesystem is automatically mounted. In the unlikely event that volume management—the feature that provides this automatic mounting—is disabled, you must, as root, perform the following commands:

1. Make the directory to mount the CD-ROM if it does not already exist:

```
hostname# mkdir /cd
```

2. Mount the CD-ROM:

```
hostname# mount -r /dev/dsk/c0t6d0s0 /cd
```

Go to "Installing the Software" on page 3-8.

▼ Mounting the CD-ROM from a Remote CD Drive

To install the software on a machine that does not have its own CD-ROM drive, you must perform some activities on the remote machine (the machine with the CD-ROM device) and some on the local machine (the machine onto which you are installing the software). Be sure you follow the directions carefully. The instructions specify on which machine you must perform the steps.

▼ Exporting or Sharing from the Remote Machine

Because you are mounting the software from a remote CD-ROM, you must first export or share it from the remote machine. The methods are slightly different for remote SunOS 4.x, SunOS 5.1 (Solaris 5.1), and SunOS 5.2 or later (Solaris 5.2 or later) systems and are described in separate procedures.

Exporting from a Remote SunOS 4.x System

Perform the following steps on the *remote* machine:

1. **Make a directory on which to mount the CD-ROM if it does not already exist:**

```
hostname# mkdir /cd
```

2. **Mount the CD-ROM on the remote machine:**

```
hostname# mount -t hsfs -r /dev/sr0 /cd
```

3. **If the entry is not already present, edit the `/etc/exports` file by adding the following line:**

```
/cd -ro
```

4. **Export the directory from the remote machine:**

```
hostname# exportfs /cd
```

5. **If they are not already running, start the NFS mount daemons by entering the following commands:**

```
hostname# nfsd 8
hostname# rpc.mountd &
```

6. **Check to see that the machine is exporting the directory by entering the** `exportfs` **command. The screen should show the** `/cd` **directory:**

```
hostname# exportfs
. . .
/cd
```

Go to "Mounting the Remote CD-ROM on the Local Machine" on page 3-7.

Sharing from a Remote SunOS 5.1 System

Perform the following steps on the *remote* machine:

1. **On the remote machine, make a directory on which to mount the CD-ROM if it does not already exist:**

```
hostname# mkdir /cd
```

2. **Mount the CD-ROM on the remote machine:**

```
hostname# mount -r /dev/dsk/c0t6d0s0 /cd
```

3. **If they are not already running, start the NFS daemons by entering the following commands:**

```
hostname# /usr/lib/nfs/nfsd 8
hostname# /usr/lib/nfs/mountd
```

4. **Share the directory from the remote machine:**

```
hostname# share -F nfs -o ro /cd
```

5. **Check to see that the machine is exporting the directory by entering the** `share` **command. The screen should show the** `/cd` **directory:**

```
hostname# share
. . .
-       /cd      ro     " "
. . .
```

It takes a few minutes for this shared directory to become available over the network.

Sharing from a Remote SunOS 5.2 System

Perform the following steps on the *remote* machine:

1. **If they are not already running, start the NFS daemons by entering the following commands:**

```
hostname# /usr/lib/nfs/nfsd 8
hostname# /usr/lib/nfs/mountd
```

2. **Share the directory from the remote machine by entering the command:**

```
hostname# share -F nfs -o ro /cdrom/sunnet_manager_2_3
```

3. **Ensure that the machine is exporting the directory by entering the** `share` **command. The screen should show the** `/cdrom/sunnet_manager_2_3` **directory:**

```
hostname# share
. . .
-       /cdrom/sunnet_manager_2_3      ro     " "
. . .
```

It takes a few minutes for this shared directory to become available over the network.

▼ Mounting the Remote CD-ROM on the Local Machine

Having exported or shared the remote CD-ROM, you can now mount it on your local machine. Perform the following step on the local machine:

- **Use the automounter to automatically mount the exported or shared filesystem.**
  For remote SunOS 4.x and SunOS 5.1 systems enter:

```
hostname# cd /net/<remote_machine>/cd
```

For remote Solaris 2.2 or later systems enter:

```
hostname# cd /net/<remote_machine>/cdrom/sunnet_manager_2_3
```

- **If the automounter is not running on your machine, do the following on your local machine:**

1. **Make a directory on which to mount the CD-ROM if it does not already exist:**

```
hostname# mkdir /cd
```

2. **Mount the remote directory on** `/cd`**:**
   For remoteSunOS 4.1.x and SunOS 5.1 systems enter:

```
hostname# mount -r -F nfs <remote_machine>:/cd /cd
```

For SunOS 5.2 or later systems enter:

```
hostname# mount -r -F nfs <remote_machine>:/cdrom/sunnet_manager_2_3 /cd
```

3

Installing the Software

Whether you have a directly connected or remotely accessed CD-ROM player, you can now run the `pkgadd` command. The running of `pkgadd` for the product can take 15 minutes when installing from a directly connected CD-ROM player, or minutes longer for a remotely accessed CD-ROM player on a busy network.

1. **Invoke the `pkgadd` command.**

   a. **If you want to install the packages in the default directory, `/opt`, enter the following command:**

```
hostname# /usr/sbin/pkgadd -d <pathname>
```

   The replacement for <*pathname*> depends on you method of accessing your CD-ROM player. The possibilities are as follows:

- If you statically mount (using the `mount` command) your CD-ROM directory, whether it be local or remote, use `/cd`.
- If you are running Solaris 2.2 or later, have `vold` running (the default case), and have a local CD-ROM player, use `/cdrom/sunnetmanager_2_3`.
- If you use the automounter and are accessing a remote CD-ROM player connected to a remote SunOS 4.x machine or a Solaris 2.x machine that is not running `vold`, use `/net/`<*remote_hostname*>`/cd`.
- If you use the automounter and are accessing a remote CD-ROM player connected to a Solaris 2.2 or later machine that *is* running `vold`, use `/net/`<*remote_hostname*>`/cdrom/sunnetmanager_2_3`.

b. If you want to install the packages in a directory other than the default, enter the following command:

```
hostname# /usr/sbin/pkgadd -d <pathname> -a none
```

...where <*pathname*> is the pathname you would supply for the command shown in Step 1a.

With the latter command, pkgadd prompts you for the destination directory prior to installing each package. Be sure to enter the same base directory for each package you install. If you choose a heavy-option AnswerBook installation, you do not have use your base directory for AnswerBook.

If you install the software in other than the default directory, you must set the SNMHOME environment variable before starting SNM. See "If You Installed the Software in a Non-Default Directory..." on page 3-27 for instructions on setting this

After invoking either of the above commands, you receive a list of packages available for installation:

Note – Be sure to install the Site/SunNet/Domain Manager packages (SUNWsnm*) before the Cooperative Consoles packages (SUNWcc*). Failure to do so will result in error.

```
The following packages are available:
1  SUNWabsnm   Site/SunNet/Domain Manager 2.3 AnswerBook
2  SUNWsnmag   Site/SunNet/Domain Manager 2.3 Agents & Libraries
3  SUNWsnmct   Site/SunNet/Domain Manager 2.3 Core Tools
4  SUNWsnmpd   Site/SunNet/Domain Manager 2.3 SNMP daemon
5  SUNWsnmla   Site/SunNet/Domain Manager 2.3 Network Layout Asst
                 (Domain Manager sites only)
6  SUNWccfg    Cooperative Consoles 1.2 - Configuration Tool
                 (all Site/SunNet/Domain Manager sites)
7  SUNWccrcv   Cooperative Consoles 1.2 - Receiver Application
                 (all Site/SunNet/Domain Manager sites)
8  SUNWccsnd   Cooperative Consoles 1.2 - Sender Daemon
                 (Domain Manager sites only)

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

2. **Press Return to accept the default to install all packages.**
   You receive the following display:

```
Processing package instance <SUNWabsnm> from </cd>

Site/SunNet/Domain Manager  2.3 AnswerBook

<Copyright notice>

Using </opt or other directory> as the package base directory.

The installation options are as follows:
Option: Description:
-----------------------------------------
1. nil:    less than 1 Megabyte disk space required [slowest performance].
2. heavy:   34.26 Megabytes disk space required [best performance].
Enter the number of an installation option from the list above (1 or 2).


Select an installation option: 1
```

3. **Enter your choice for Answerbook, 1 or 2.**
   The following is the output if you select 1 for the nil option.

```
Installation option: nil selected.

The next request for input asks you to specify the parent directory of
AnswerBook
Make sure to choose a parent directory on a file system big enough to
accommodate all the files to be moved for the INSTALL OPTION you selected.


Specify the parent of the AnswerBook home directory: <your directory choice>
## Processing package information.
## Processing system information.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

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

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

Installing Site/SunNet/Domain Manager  2.3 AnswerBook as <SUNWabsnm>

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

Installation of <SUNWabsnm> was successful.
```

You then receive the display for the next package:

```
Processing package instance <SUNWsnmag> from </cd>

Site/SunNet/Domain Manager  Agents & Libraries
(sparc) 2.3

<Copyright notice>

You will now need to answer a few questions to configure
Site/SunNet/Domain Manager  for your workstation.


Some of the Site/SunNet/Domain Manager daemons create log files which
can grow to over 1 Meg
each in size (depending on the number of nodes being managed).  The
directory where they reside should allow for appropriate free space.


Please enter the location for the log files [/var/opt/SUNWconn/snm]:
```

4. **Press Return to accept the default location (`/var/opt/SUNWconn/snm`) for log files or enter an absolute pathname if you do not want the default.**
   The installation script responds:

```
You have entered the following values:

    Log File location: /var/opt/SUNWconn/snm (or your own choice)

Is this correct (y/n) [y]:
```

5. **Press Return to accept the log file location as displayed by the script or enter** n **and enter the log file location you want.**
   After you accept or enter a log file location, the script proceeds:

```
## Processing package information.
## Processing system information.
   3 package pathnames are already properly installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and are being
used by another package:
    /etc/inet/inetd.conf
    /etc/inet/services
    /etc/rpc

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

6. **Enter** y **to install the specified files.**
   To run correctly, the files specified by the script need to be modified.

   After you install the "conflicting" files, the script proceeds:

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

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

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

7. **Enter** y **to continue with installation.**
   The script responds:

```
Installing Site/SunNet/Domain Manager Agents & Libraries as
<SUNWsnmag>

## Installing part 1 of 1.

<List of files>

Modifying /etc/inet/inetd.conf
Modifying /etc/inet/services
Modifying /etc/rpc
[ verifying class <sed> ]
## Executing postinstall script.

updating /etc/opt/SUNWconn/snm/snm.conf


Updating /etc/inet/inetd.conf to reflect SNM's installation directory


/var/opt/SUNWconn/snm created

Instructing inetd to re-read config file

If you're running NIS/NIS+, you need to update the services map/table.
Installation of <SUNWsnmag> was successful.
```

Following installation of the SUNWsnmag package, the script continues:

```
Processing package instance <SUNWsnmct> from </cd>

Site/SunNet/Domain Manager  Core Tools
(sparc) 2.3

<Copyright notice>

You will now need to answer a few questions to configure
Site/SunNet/Domain Manager  for your workstation.


By default, database files are placed under the directory
/var/opt/SUNWconn/snm.  A minimum of 10Mb to 15Mb of free space is
recommended for this usage.


Please enter the location for the databases [/var/opt/SUNWconn/snm]:
```

8. The licensing installation begins by listing the phone numbers to call to obtain a license password. The script then displays:

```
The license distributor will ask you for the following
information:

    Server Name    : <server name>
    Host ID        : <host id name>

    You will also need to provide the Serial Number and
    the product name from the license certificate.

Please Hit Return to continue .....
```

After you press Return, you will be asked:

```
You can install the license now or after the installation or the
product. If you choose to install the license later, you'll need
to run the script install_snm_license.

Do you want to install the license now (y/n) [y]:
```

Press return to continue with the license installation.

```
Please enter the License Password for this node:
```

When you call the license distribution center, you must do the following:

a. **The operator will provide you with a license password which you must type in at the prompt shown above.**

b. **Give the operator your serial number from your license certificate, product name and version, host name, and host ID.**

c. **The operator will ask you for your company address, phone number, and e-mail address.**
After you type in the license password that the operator gives you, you will receive the following prompt:

```
Is this a demo license (y/n) [n]:
```

If you enter y, then you will be prompted to enter the expiration date of the demo license. For example:

```
Please enter the expiration date (dd-mmm-yyyy): 01-jan-1995
```

The following product selection is displayed:

```
Please choose the name of the product from the following list.
The name of the product s available with the license certificate
that you received along with the serial number.

    Type 1 for Site Manager
    Type 2 for SunNet Manager
    Type 3 for Domain Manager
    Type 4 for University Wide Domain Manager

Please enter the number corresponding to the product.
```

Currently the University Wide Domain Manager is only available for Universities. It is a special licensing variety of the Site/SunNet/Domain Manager product. If you are installing University Wide Domain Manager licensing, you need the network domain name in order to complete the licensing procedure.

```
Please enter your network domain(eg,. leland.stanford.edu):
```

After selecting a products, you are prompted for the database location. By default, databases are placed under the /var/opt/SunWconn/snm directory. A minimum of 10Mb of free space is recommended:

```
Please enter the location for the SNM databases
[/var/opt/SUNWconn/snm]:
```

9. **Press Return to accept the database location as displayed by the script or enter** n **and enter the location you want.**
   After you accept or enter a database location, the script proceeds:

```
You have entered the following values:

    Database location: /var/opt/SUNWconn/snm (or your own choice)

Is this correct (y/n) [y]:
```

10. **Press Return to accept the database location as displayed by the script or enter** `n` **and enter the database location you want.**
    After you accept or enter a database location, the script proceeds:

```
## Processing package information.
## Processing system information.
   10 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## 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:
    /opt/SUNWconn/snm/bin/snm_ip_discover <setuid root>
    /opt/SUNWconn/snm/bin/snm_ipx_discover <setuid root>

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

11. **Enter** `y` **to install the specified file.**
    The `snm_ip_discover` and `snm_ipx_discover` programs are an important part of the product.

    Following this, you receive:

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

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

12. **Enter** y **to continue with installation.**
    Following your y input, the script proceeds:

```
Installing Site/SunNet/Domain Manager  Core Tools as <SUNWsnmct>

<List of files>

Installation of <SUNWsnmct> was successful.

Processing package instance <SUNWsnmpd> from </cd>

Site/SunNet/Domain Manager  SNMP daemon
(sparc) 2.3

<Copyright notice>

You will now need to answer a few questions to configure
the SNMP agent for your workstation.


Access to SNMP devices is controlled via community names.
The default community names for this SNMP agent installation will be:
     read: public
    write: private

You should change the write community name to a site specific
name to control access to this system via the SNMP agent.
You may also modify the read community name if desired.

New read community name? [public]:
```

13. **Press Return to accept the default read community name (public), or enter a new read community name.**
    The script proceeds:

```
New write community name? [private]:
```

14. **Press Return to accept the default write community name (private), or enter a new write community name.**
    After accepting read/write community name defaults or entering names that you want, you receive:

```
You should also change the system specific information.
The discover tool uses the description information when
creating icons. (ex. sparcstation 10, ipx, sun3, sc2000)

New system description? [Sun SNMP Agent, SPARCStation 10]:
```

    The pkgadd script attempts to find out your machine architecture. Most customers, particularly those running Sun machines, will be able to press Return to accept the default.

    The script proceeds:

```
New system contact? [System administrator]:

New system location? [System administrator's office]:
```

15. **Enter a name and location for the preceding two prompts.**
    The values you specify here are for your own use and for the use of other network administrators. Enter names and locations according to the conventions followed in your network. If you have no conventions, enter information that will be meaningful on your network.

    After entering a contact and location, you receive:

```
You have entered the following values:

    SNMP read community name: public
    SNMP write community name: private
    SNMP system description: Sun SNMP Agent, SPARCStation 10
    SNMP system contact: System administrator
    SNMP system location: System administrator's office

Is this correct (y/n) [y]:
```

16. **Press Return to accept the SNMP information as displayed by the script or enter** n **and enter the values you want**.
    After you confirm the SNMP information, the script proceeds:

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

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

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

17. **Enter** y **to continue with installation.**
    Following your y input, the script proceeds:

```
Installing Site/SunNet/Domain Manager  SNMP daemon as <SUNWsnmpd>

## Installing part 1 of 1.
/etc/init.d/init.snmpd
/etc/opt/SUNWconn/snm/snmpd.conf
/opt/SUNWconn/snm/agents/snmpd
/opt/SUNWconn/snm/agents/snmpd.conf
/opt/SUNWconn/snm/agents/snmpv2d
/opt/SUNWconn/snm/agents/snmpv2d.conf.t
/opt/SUNWconn/snm/agents/sun.mib
[ verifying class <none> ]
/etc/rc2.d/K25snmpd <linked pathname>
/etc/rc3.d/S25snmpd <linked pathname>
## Executing postinstall script.

Updating /etc/opt/SUNWconn/snm/snmpd.conf with community name
information...

Updating /etc/init.d/init.snmpd with snmpd agent location...

Starting snmpd.
```

18. **A final prompt is displayed associated with the licensing. Enter** `y` **to continue with installation.**

```
I am installing licensing for <product name> Now. ok?
```

```
licensing for <product name> 2.3 is completed successfully
....
Installation of <SUNWsnmpd> was successful.
```

Many customers are puzzled when `pkgadd` returns to its initial display upon completion: "Am I really finished?" The answer is "Yes." When you see the list of packages that you saw when you first invoked `pkgadd`, enter `q` to quit the command.

When `pkgadd` is finished, it returns to its initial display of packages. You Enter `q` to exit the command. (Pressing Return to re-run `pkgadd` does no harm, but is a waste of your time.)

19. **When you finish running** `pkgadd`**, eject the CD-ROM, using one of the following sets of commands:**

    a. For Solaris 2.2 or later systems, enter:

```
hostname# cd /
hostname# eject
```

Upon completion of `pkgadd`, you can use `pkgchk (1M)` to confirm the correct installation of your packages. The `pkgchk` command takes one or more package names as an argument.

    b. For SunOS 4.x and SunOS 5.1 systems, enter:

```
hostname# cd /
hostname# umount /cdrom
hostname# eject cdrom
```

Finishing Installation

Finishing installation includes these tasks:

- Updating NIS/NIS+ maps/tables, if you are running NIS/NIS+
- Setting up access to on-line help and man pages
- Defining the `SNMHOME` variable, if you installed in a non-default directory

Note – If you installed the software on a server, you can run the Console from a client. To do so, run the `getagents` or `pkgadd` program as described in the next chapter, and specify that you are using an NFS mount. Because of local site variations, you may need to modify environment variables on the client before all the resources are available to the various Site/SunNet/Domain Manager applications.

Updating NIS Maps or NIS+ Tables

If you are running NIS/NIS+, you must manually update the NIS `services` and `rpc.bynumber` maps or the equivalent tables in NIS+.

To update the NIS/NIS+ maps/tables:

1. On the master NIS/NIS+ server, log in as or become superuser:

```
hostname% su
Password: enter your superuser password
```

2. Edit the file `/etc/services` by adding the following lines:

```
snmp       161/udp                # Simple Network Mgmt Protocol
snmp-trap  162/udp  snmptrap      # SNMP trap (event) messages
```

3. **Edit the file** `/etc/rpc` **by adding the following lines, if they do not already exist in the file:**

```
event       100101    na.event
logger      100102    na.logger
sync        100104    na.sync
diskinfo    100105    na.diskinfo
iostat      100106    na.iostat
hostperf    100107    na.hostperf
activity    100109    na.activity
lpstat      100111    na.lpstat
hostmem     100112    na.hostmem
sample      100113    na.sample
ping        100115    na.ping
rpcnfs      100116    na.rpcnfs
hostif      100117    na.hostif
etherif     100118    na.etherif
ippath      100119    na.ippath
iproutes    100120    na.iproutes
layers      100121    na.layers
snmp        100122    na.snmp
traffic     100123    na.traffic
layers2     100131    na.layers2
etherif2    100135    na.etherif2
hostmem2    100136    na.hostmem2
iostat2     100137    na.iostat2
snmpv2      100138    na.snmpv2
sender      100139    cc_sender
```

4. **Make the changes effective:**

   a. **If you are running NIS, update the maps using the** `ypmake` **command, then push the maps out to the slave NIS servers using the** `yppush` **command.**

   b. **If you are running NIS+, update the tables using the** `nisaddent` **command.**

Note – Refer to your system administration documentation if you need additional information on these commands.

If you executed `su -` or logged in to the console as root, use this command to look for the `inetd` process:
`ps -af | grep inetd`

5. Look for and kill the `inetd` process by entering the following commands:

```
hostname# ps -ef | grep inetd
hostname# kill -HUP <processnumber>
```

where <*processnumber*> is the `inetd` process number returned.

Setting up Access to Executables, On-line Help, and man Pages

To allow access to executables, append the path of those executables—the default is `/opt/SUNWconn/bin`—to your `PATH` variable in your shell startup file.

For a C-shell, in your `$HOME/.cshrc` file enter:

```
setenv PATH ${PATH}:/opt/SUNWconn/snm/bin
```

For a Bourne or Korn shell, in your `$HOME/.profile` file enter:

```
set PATH=${PATH}:/opt/SUNWconn/snm/bin
export PATH
```

Context-sensitive help is available for the Console and tools. In order to use the on-line help, you need to put the help directory in a `HELPPATH` environment variable in your shell startup file. If you installed the software in `/opt/SUNWconn/snm`, use one of the following commands.

For a C-shell, in your `$HOME/.cshrc` file enter:

```
setenv HELPPATH ${HELPPATH}:/opt/SUNWconn/snm/help
```

For a Bourne or Korn shell, in your `$HOME/.profile` file enter:

```
set HELPPATH=${HELPPATH}:/opt/SUNWconn/snm/help
export HELPPATH
```

To get on-line help on windows, menus, fields, and buttons, point the cursor to the appropriate item on the screen and press the F1 or Help key on the keyboard (see the following Note). A pop-up Help window is displayed that contains information about the item. You can then move the pointer to another screen item in a screen and press the Help key again. When you are done with the Help window, click SELECT on the Help window pushpin to dismiss the window.

Note – To invoke on-line help, you must use the key that is mapped as the Help key. The `xmodmap` command in the `.xinitrc` file in your home directory is used to modify keyboard mappings. If the line `xmod -e 'keysym F1 = Help'` is not commented out in the `.xinitrc` file, you should use the F1 key to display the pop-up Help window. If the line `xmodmap $HOME/.xmodmap` exists in the `.xinitrc` file, you should check the `.xmodmap` file in your home directory for any lines that remap the Help key.

To use the man pages, you need to put the man page directory in a `MANPATH` environment variable in your shell startup file. If you installed the software in `/opt/SUNWconn/snm`, use one of the following commands.

For a C-shell, in your `$HOME/.cshrc` file enter:

```
setenv MANPATH ${MANPATH}:/opt/SUNWconn/snm/man
```

For a Bourne or Korn shell, in your `$HOME/.profile` file enter:

```
set MANPATH=${MANPATH}:/opt/SUNWconn/snm/man
export MANPATH
```

The preceding examples assumed you installed the software in its default location. If you installed the product in a directory other than `/opt`, specify the non-default directory when you assign a value to `PATH` or `MANPATH`.

If You Installed the Software in a Non-Default Directory...

If you installed the software in a directory other than `/opt`, you must set the `SNMHOME` environment variable to the directory where the software is stored. For example, if you installed the software in `/usr2`, enter assign a value to `SNMHOME` as follows:

For a C-shell, in your `$HOME/.cshrc` file enter:

```
setenv SNMHOME /usr2/SUNWconn/snm
```

Then, as the `.cshrc` owner, enter:

```
hostname# source $HOME/.cshrc
```

For a Bourne or Korn shell, in your `$HOME/.profile` file enter:

```
set SNMHOME=/usr2/SUNWconn/snm
export SNMHOME
```

Then, as the .`profile` owner, enter:

```
hostname# . $HOME/.profile
```

Remember that, for all shell types, for root, `$HOME` is your root (`/`) directory.

If you have a `$HOME/.SNMdefaults` file left over from a previous version of Site/SunNet/Domain Manager and have installed version 2.3 in a different directory from the one used for the previous version, change the values of the `snm.console.schemaPath_2.x` and `snm.console.iconPath_2.x` parameters to reflect the non-default directory.

The Next Step...

Proceed to Chapter 4, “Installing Agent Software on Remote Systems,” for instructions on installing agents (the remote data collection programs) on remote systems.

3

After you have installed the agents, the next step is start the Console and create a management database of network elements that you intend to manage.

Installing Agent Software on Remote Systems

4

This chapter provides instructions for installing Site/SunNet/Domain Manager agent software on remote systems.

Do You Need to Install Agents?

Depending on your network management needs, you do not have to install agents on machines in order to make effective use of Site/SunNet/Domain Manager. All Sun machines and most other machines that run on TCP/IP networks support protocols that enable the Console machine to obtain useful data from machines without agents.

The Console has the capability to manage agent-less machines through its proxy feature, working in conjunction with the `ping` and `hostperf` agents running on the Console machine. The proxy feature allows agents running on one machine—the Console machine or any machine running agents—to respond as if they were running on another machine.

Through use of the `hostperf` and `ping` proxy agents you can obtain the following information from a remote machine:

From the `hostperf` agent:

- number of CPU interrupts
- disk usage
- number of input and output packets
- percentage of CPU usage

All of the above items are expressed per unit of time.

From the `ping` agent:

- the reachability of a remote host
- round-trip time for a packet sent to a remote host

The information returned by the `ping` agent is analogous to that returned by the `ping -s` command.

You can use the `hostperf` and `ping` agents to send both data and event requests. You can save, browse, graph, and strip-chart data from a machine without agents in the same way that you manipulate data returned from a machine with host-resident agents.

Good reasons to install agents, rather than relying on the `hostperf` and `ping` proxies, are:

- You can obtain a far greater breadth and depth of information on each machine.
- You do not have a single point-of-failure (that is, the machine running the proxy agents).

If you install the SNMP agents, you gain the ability to set, as well as obtain, the values of parameters on a remote machine.

Proxy agents have uses other than obtaining data from machines that are not running agents. For example, they allow you to use the software to manage networks that use protocols other than TCP/IP or let you manage remote networks. Their ability to allow you to obtain data from agent-less machines is offered here as a consideration for your decision as to whether to install agents.

Overview of Agent Installation

The workstation running the Console (the “manager station”) is the focal point for collecting and analyzing information. It gets the information from data collection programs (*agents*) usually running on remote machines.

Site / SunNet / Domain Manager software provides agents that run on Solaris 2.x systems and on SunOS 4.x systems. You install agents on remote Solaris 2.x systems by running the `/usr/sbin/pkgadd` program or the `getagents` script. You install agents on remote SunOS 4.x systems by running `getagents`.

Using the `pkgadd` *Program to Install Agents*

The following is the recommended procedure (rather than use of `getagents`) for installing agents on a Solaris 2.x machine.

Note – Use this procedure if you are installing agents only and are not installing the software on a system that will be used as a SunNet Manger Console.

When you run the `/usr/sbin/pkgadd` program to install agents, you follow the same instructions as you did to install the software, except that you only add the Agents & Libraries (`SUNWsnmag`) and SNMP daemon (`SUNWsnmpd`) packages, if you want to install the SNMP agent.

To install agents using the `pkgadd` program:

1. **Go to the machine you want to install the agents on.**
2. **Obtain access to the CD-ROM, as described in the section, “Inserting and Accessing the CD-ROM” on page 3-2.**
3. **Invoke the `pkgadd` command.**
   a. **If you want to install the packages in the default directory, `/opt`, enter the following command:**

```
hostname# /usr/sbin/pkgadd -d /cd/cdrom/sunnetmanager_2_2_3
```

b. If you want to install the packages in a directory other than the default, enter the following command:

```
hostname# /usr/sbin/pkgadd -d /cdrom -a none
```

With the latter command, pkgadd prompts you for the destination directory prior to installing each package. Be sure to enter the same base directory for both of the packages you will install. If you install in other than /opt, see "If You Installed the Software in a Non-Default Directory..." on page 3-27 for instructions on what to do following package installation.

After invoking either of the above commands, you receive a list of packages available for installation:

```
The following packages are available:
1  SUNWabsnm   Site/SunNet/Domain Manager 2.3 AnswerBook
2  SUNWsnmag   Site/SunNet/Domain Manager 2.3 Agents & Libraries
3  SUNWsnmct   Site/SunNet/Domain Manager 2.3 Core Tools
4  SUNWsnmpd   Site/SunNet/Domain Manager 2.3 SNMP daemon
5  SUNWsnmla   Site/SunNet/Domain Manager 2.3 Network Layout Asst
                 (Domain Manager sites only)
6  SUNWccfg    Cooperative Consoles 1.2 - Configuration Tool
                 (all Site/SunNet/Domain Manager sites)
7  SUNWccrcv   Cooperative Consoles 1.2 - Receiver Application
                 (all Site/SunNet/Domain Manager sites)
8  SUNWccsnd   Cooperative Consoles 1.2 - Sender Daemon
                 (Domain Manager sites only)

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

4. **Enter** 2 **and** 4**, as shown above, to install the agents and the SNMP daemon. (Enter** 2 **only if you do not want to install the SNMP daemon.)**
   You then receive the following display:

```
Processing package instance <SUNWsnmag> from </cd>

Site/SunNet/Domain Manager Agents & Libraries
(sparc) 2.3

<Copyright notice>

You will now need to answer a few questions to configure
Site/SunNet/Domain Manager for your workstation.


Some of the daemons create log files which can grow to over 1 Meg
each in size (depending on the number of nodes being managed).  The
directory where they reside should allow for appropriate free space.


Please enter the location for the log files [/var/opt/SUNWconn/snm]:
```

5. **Press Return to accept the default location (**`/var/opt/SUNWconn/snm`**) for log files or enter an absolute pathname if you do not want the default.**
   The installation script responds:

```
You have entered the following values:

    Log File location: /var/opt/SUNWconn/snm (or your own choice)

Is this correct (y/n) [y]:
```

6. **Press Return to accept the log file location as displayed by the script or enter** n **and enter the log file location you want.**
   After you accept or enter a log file location, the script proceeds:

```
## Processing package information.
## Processing system information.
   3 package pathnames are already properly installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and are being
used by another package:
    /etc/inet/inetd.conf
    /etc/inet/services
    /etc/rpc

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

7. **Enter** y **to install the specified files.**
   To run correctly, the files specified by the script need to be modified.

   After you install the "conflicting" files, the script proceeds:

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

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

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

8. **Enter** y **to continue with installation.**
   The script responds:

```
Installing Site/SunNet/Domain Manager Agents & Libraries as
<SUNWsnmag>

## Installing part 1 of 1.

<List of files>

Modifying /etc/inet/inetd.conf
Modifying /etc/inet/services
Modifying /etc/rpc
[ verifying class <sed> ]
## Executing postinstall script.

updating /etc/opt/SUNWconn/snm/snm.conf


Updating /etc/inet/inetd.conf to reflect SNM's installation directory


/var/opt/SUNWconn/snm created

Instructing inetd to re-read config file

If you're running NIS/NIS+, you need to update the services map/table.
Installation of <SUNWsnmag> was successful.
```

If you specified the installation of packages 2 and 4 at the first pkgadd prompt (in Step 3), following installation of the SUNWsnmag package, the script continues as shown below. If you entered only 2, to install only the SUNWsnmag package, skip to Step 13:

```
Processing package instance <SUNWsnmpd> from </cd>

Site/SunNet/Domain Manager SNMP daemon
(sparc) 2.3

<Copyright notice>

You will now need to answer a few questions to configure
the SNMP agent for your workstation.


Access to SNMP devices is controlled via community names.
The default community names for this SNMP agent installation will be:
     read: public
    write: private

You should change the write community name to a site specific
name to control access to this system via the SNMP agent.
You may also modify the read community name if desired.

New read community name? [public]:
```

9. **Press Return to accept the default read community name (public), or enter a new read community name.**
   The script proceeds:

```
New write community name? [private]:
```

10. **Press Return to accept the default write community name (private), or enter a new write community name.**
    After accepting read/write community name defaults or entering names that you want, you receive:

```
You should also change the system specific information.
The discover tool uses the description information when
creating icons. (ex. sparcstation 10, ipx, sun3, sc2000)

New system description? [Sun SNMP Agent, SPARCStation 10]:
```

    The pkgadd script attempts to find out your machine architecture. Most customers, particularly those running Sun machines, will be able to press Return to accept the default.

    The script proceeds:

```
New system contact? [System administrator]:

New system location? [System administrator's office]:
```

11. **Enter a name and location for the preceding two prompts.**
    The values you specify here are for your own use and for the use of other network administrators. Enter names and locations according to the conventions followed in your network. If you have no conventions, enter information that will be meaningful on your network.

    After entering a contact and location, you receive:

```
You have entered the following values:

    SNMP read community name: public
    SNMP write community name: private
    SNMP system description: Sun SNMP Agent, SPARCStation 10
    SNMP system contact: System administrator
    SNMP system location: System administrator's office

Is this correct (y/n) [y]:
```

12. **Enter** `y` **to continue with installation.**
    Following your `y` input, the script proceeds:

```
Installing Site/SunNet/Domain Manager SNMP daemon as <SUNWsnmpd>

## Installing part 1 of 1.
/etc/init.d/init.snmpd
/etc/opt/SUNWconn/snm/snmpd.conf
/opt/SUNWconn/snm/agents/snmpd
/opt/SUNWconn/snm/agents/snmpd.conf
/opt/SUNWconn/snm/agents/snmpv2d
/opt/SUNWconn/snm/agents/snmpv2d.conf.t
/opt/SUNWconn/snm/agents/sun.mib
[ verifying class <none> ]
/etc/rc2.d/K25snmpd <linked pathname>
/etc/rc3.d/S25snmpd <linked pathname>
## Executing postinstall script.

Updating /etc/opt/SUNWconn/snm/snmpd.conf with community name
information...


Updating /etc/init.d/init.snmpd with snmpd agent location...

Starting snmpd.

Installation of <SUNWsnmpd> was successful.
```

13. **Exit the** `pkgadd` **program.**
    When `pkgadd` is finished, it returns to its initial display of packages. You Enter `q` to exit the command.

    If you are running NIS/NIS+, you must manually add the agent entries to `/etc/rpc` and `/etc/services` on the NIS/NIS+ master. To update the `rpc.bynumber` and `services` maps on both the master and the server, see the “Updating NIS Maps or NIS+ Tables” on page 3-23 for instructions.

    You have installed the agents, and they are ready to be run and managed on this system.

Using the `getagents` *Script to Install Agents*

This section contains an overview of the `getagents` script, information on copying scenarios, and the following procedures:

- Running the `getagents` script using an NFS mount on Solaris 2.x systems (page 4-13)
- Running the `getagents` script using an NFS mount on SunOS 4.x systems (page 4-18)
- Running the `getagents` script using `rcp` on Solaris 2.x systems (page 4-22)
- Running the `getagents` script using `rcp` on SunOS 4.x systems (page 4-27)

Note – Use of `pkgadd`, as described in "Using the pkgadd Program to Install Agents" on page 4-3, is the recommended way of installing agents on Solaris 2.x machines, rather than the use of `getagents`, as described here.

Overview of the `getagents` *Script*

The `getagents` script allows a Sun workstation to run the agents and proxy agents by editing system files (similar to what the installation script does) and copying agents, libraries, and the SNMP proxy agent schema from the manager station to another machine. The script makes backups of all system files that are modified.

Specifically, the `getagents` script:

- Copies the agents, schema files, libraries, and native SNMP agent files from the manager station.
- On a machine running Solaris 2.x, creates the `/var/opt/SUNWconn/snm` directory for log files. On a machine running SunOS 4.x, creates the `/var/adm/snm` directory for log files. (For a description of these log files, see the `snm.conf(5)` man page.)
- Under SunOS 4.x only, creates symbolic links from the `libnetmgt.sa.2.0` and `libnetmgt.so.2.0` shared library files to `/usr/lib`. These files are used by the agent and manager applications.

  If the link creation fails, an error message is printed, and you'll need to make the links yourself.

Note – Shared library files (or links to them) should be placed in `/usr/lib`. If you put them somewhere else, run `ldconfig(8)` with the library path names.

- On a machine running Solaris 2.x, creates a `/etc/opt/SUNWconn/snm/snm.conf` file if none exists, or updates the old one. On a machine running SunOS 4.x, creates a `/etc/snm.conf` file if none exists, or updates the old one. For a description of the `snm.conf` file, see `snm.conf(5)`.
- Adds agent entries to `/etc/rpc`—see `rpc(5)`.
- Adds SNMP definitions to the `/etc/inet/services` file for Solaris 2.x systems, or to the `/etc/services` file for SunOS 4.x systems.

  If you are running NIS/NIS+, you must manually add the agent entries to `/etc/rpc` and `/etc/services` on the NIS/NIS+ master. To update the `rpc.bynumber` and `services` maps on both the master and the server, see the "Updating NIS Maps or NIS+ Tables" on page 3-23 for instructions.
- Updates `/etc/inet/inetd.conf` under Solaris 2.x, or `/etc/inetd.conf` under SunOS 4.x and asks `inetd(8C)` to re-read its configuration file. See the `inetd.conf(5)` man page.
- Creates a sample database file you can add to your management database on the manager station.
- On a machine running Solaris 2.x, creates the `/var/opt/SUNWconn/snm/snmp.hosts` and `/var/opt/SUNWconn/snm/snmp.traps` files for use by the SNMP proxy agent. On a machine running SunOS 4.x, creates the `/var/adm/snm/snmp.hosts` and the `/var/adm/snm/snmp.traps` files for use by the SNMP proxy agent.

Copying Scenarios

There are various ways the manager station can make files available to other machines. Two common approaches are NFS and `rcp(1)`. NFS is the recommended method, but not an option at every site. If `rcp` is used, the `/.rhosts` file on the manager station must contain the name of the remote (agent) machine, allowing the agent machine root access to the manager machine. Once you have installed the agents, you may remove the agent machine name from the manager's `/.rhosts` file to restore security.

Since the `getagents` script copies files across the network, it needs to know what access method is going to be used for the copy. The three basic scenarios are:

- The system has the product distribution NFS mounted from the manager station. You don't want to copy the agents because you're going to run the agents over the mount.
- The system has the product distribution NFS mounted from the manager station. You *want* to copy the agents because you're going to run the agents from a different file system.
- The product distribution is not NFS mounted, so `rcp` is needed to copy the agents.

The programs do not use copy methods such as `tftp(1)`.

Running the `getagents` *Script Using an NFS Mount for Solaris 2.x Systems*

In the following procedure, the local machine (`agenthost`) has the product distribution files NFS mounted from the manager (`mgrhost`) station.

To run the `getagents` script using an NFS mount:

1. **Log in as root on the manager station. Enter the following commands to export the filesystem and start the NFS daemons, if they are not already running:**

```
mgrhost# share -F nfs -o ro /opt/SUNWconn/snm
mgrhost# /usr/lib/nfs/nfsd 8
mgrhost# /usr/lib/nfs/mountd
```

2. **Log in as root to the machine that will run the agents (this machine will be referred to as the "local machine").**
3. **Create a mountpoint on the local machine.**

4. **Mount the software on your local machine from the manager station (by default, in** `/opt/SUNWconn/snm`**):**

```
agenthost# mount <mgrhost>:/opt/SUNWconn/snm <mountpoint>
```

5. **Run the** `getagents` **script from the** `bin` **directory under the mountpoint you created on the local machine.**
   The `getagents` script starts and asks for the name of the directory where the agents will be installed.

```
# <mountpoint>/bin/getagents

-- Site/SunNet/Domain Manager 2.3 agent installation --
Copyright (c) 1990-1995 by Sun Microsystems, Inc.

What is the name of the root directory where agents will be installed?
Agents will be installed into the 'agents' subdirectory of the directory
you specify. Type 'NFS' if you intend to run the agents via an NFS
mount. [/opt/SUNWconn/snm]
```

6. **To run the agents over an NFS mount, enter** `NFS`**; to install the agents on the local system, press Return to accept the default,** `/opt/SUNWconn/snm`**, or enter another path name.**

Note – If you enter `NFS`, the `getagents` script asks for the name of the root directory under which the agents and libraries are located. Go to Step 9.

The `getagents` script asks if you want to create the `agents` directory.

```
/opt/SUNWconn/snm/agents doesn't exist, should I create it? [y]
```

7. **Press Return to accept the default,** y**.**
   The `getagents` script asks for the name of the host where the agents are located.

```
OK, /opt/SUNWconn/snm/agents was made.

What is the name of the host where the agents are? Type Return if you
have the directory NFS mounted: [localhost]
```

8. **Press Return to accept the default, localhost.**
   The `getagents` script asks for the name of the root directory under which the agents and libraries are located.

```
What is the name of the root directory under which the Site/SunNet/Domain Manager
agents and libraries are located? []
```

9. **Enter the name of the mountpoint you created in Step 3.**
   The `getagents` script creates library links, then asks if you want to install the Sun SNMP agent.

If the Sun SNMP agent is not installed on your manager station, SNMP questions are not asked.

```
Would you like to install the Sun SNMP agent? [y]
```

10. **Press Return to accept the default, y, to install the Sun SNMP agent, or enter n for no, if you do not want to install the Sun SNMP agent.**

Note – If you enter n, the `getagents` script creates the `/etc/opt/SUNWconn/snm/snm.conf` file, then asks for the location of the database files. Go to Step 13.

The `getagents` script displays several messages and information about community names, and then asks for the read community name.

```
Access to SNMP devices is controlled via community names.
The default community names for this SNMP agent installation will be:
     read: public
    write: private

You should change the write community name to a site specific
name to control access to this system via the SNMP agent.
You may also modify the read community name if desired.

New read community name? [public]
```

11. **Press Return to accept the default read community name, public, or enter a new read community name.**
The `getagents` script asks if you want to change the default write community name.

```
New write community name? [private]
```

12. **Press Return to accept the default, y, or enter n for no. If you enter n, be sure to manually add the script after the installation; see the snmpd man page for instructions on how to add the script.**
The getagents script creates the /etc/opt/SUNWconn/snm/snm.conf file, then asks for the location of the database files.

```
Creating /etc/opt/SUNWconn/snm/snm.conf ... done.

By default, Site/SunNet/Domain Manager database and log files are placed under the
directory /var/opt/SUNWconn/snm which will be created during this installation.
A minimum of 10Mb to 15Mb of free space in the default database
location is recommended. If you would like to put the databases in an
alternate directory by default, a link will be created from /var/opt/SUNWconn/snm
to the new location. The current usage for /var/opt/SUNWconn/snm is:
Filesystem            kbytes      used    avail   capacity   Mounted on
/dev/dsk/c0t3d0s0      20570      1139    17373    6%         /var

Would you like the databases to be written to a new default directory? [n]
```

13. **Press Return to accept the default location for the database files, /var/opt/SUNWconn/snm, or enter y to specify a different location. If you enter y, you will be prompted for the location for the database files.**
The getagents script asks for the location of the log files.

```
Some of the Site/SunNet/Domain Manager daemons create log files that can grow over
1 Mb each in size, depending on the number of nodes you are managing.
The default directory for these log files is /var/opt/snm. Here is the
current usage for /var/opt/SUNWconn/snm:
Filesystem            kbytes      used    avail   capacity   Mounted on
/dev/dsk/c0t3d0s0      20570      1139    17373    6%         /var

Would you like the log files to be written somewhere else (like
/usr/snm/logs)? [n]
```

14. **Press Return to accept the default location for the log files, /var/opt/SUNWconn/snm, or enter y to specify a different location. If you enter y, you will be prompted for the location for the log files.**
The getagents script creates snmp files, updates other files, and displays a message that it has finished.

You have installed the agents, and they are ready to be run and managed on this system.

Running the `getagents` *Script Using an NFS Mount for SunOS 4.x Systems*

In the following procedure, the local machine (`agenthost`) has the product distribution files NFS mounted from the manager (`mgrhost`) station.

To run the `getagents` script using an NFS mount:

1. **Log in as root on the manager station. Enter the following commands to export the filesystem and start the NFS daemons, if they are not already running:**

```
mgrhost# share -F nfs -o ro /opt/SUNWconn/snm
mgrhost# /usr/lib/nfs/nfsd 8
mgrhost# /usr/lib/nfs/mountd
```

2. **Log in as root to the machine that will run the agents (this machine will be referred to as the "local machine").**
3. **Create a mountpoint on the local machine.**
4. **Mount the software on your local machine from the manager station (by default, in** `/opt/SUNWconn/snm`**):**

```
agenthost# mount mgrhost:/opt/SUNWconn/snm/4.x mountpoint
```

5. **Run the** `getagents` **script from the** `bin` **directory under the mountpoint you created on the local machine.**
   The `getagents` script starts and asks for the name of the directory where the agents will be installed.

```
# mountpoint/bin/getagents

-- Site/SunNet/Domain Manager 2.3 agent installation --
Copyright (c) 1990-1995 by Sun Microsystems, Inc.

What is the name of the root directory where agents will be installed?
Agents will be installed into the 'agents' subdirectory of the directory
you specify. Type 'NFS' if you intend to run the agents via an NFS
mount. [/usr/snm]
```

6. **To run the agents over an NFS mount, enter** `NFS`**; to install the agents on the local system, press Return to accept the default,** `/usr/snm`**, or enter another path name.**

Note – If you enter `NFS`, the `getagents` script asks for the name of the root directory under which the agents and libraries are located. Go to Step 9.

The `getagents` script asks if you want to create the `agents` directory.

```
/usr/snm/agents doesn't exist, should I create it? [y]
```

7. **Press Return to accept the default,** `y`**.**
   The `getagents` script asks for the name of the host where the agents are located.

```
OK, /usr/snm/agents was made.

What is the name of the host where the agents are? Type Return if you
have the directory NFS mounted: [localhost]
```

8. **Press Return to accept the default, localhost.**
   The `getagents` script asks for the name of the root directory under which the agents and libraries are located.

```
What is the name of the root directory under which the Site/SunNet/Domain Manager
agents and libraries are located? []
```

9. **Enter the name of the mountpoint you created in Step 3.**
   The `getagents` script creates library links, then asks if you want to install the Sun SNMP agent.

```
Backing up old library links in /usr/lib ... done.
Creating library links into /usr/lib ... done.
Would you like to install the Sun SNMP agent? [y]
```

10. **Press Return to accept the default, `y`, to install the Sun SNMP agent, or enter `n` for no, if you do not want to install the Sun SNMP agent.**

Note – If you enter `n`, the `getagents` script creates the `/etc/snm.conf` file, then asks for the location of the database files. Go to Step 14.

The `getagents` script displays several messages and information about community names, and then asks for the read community name.

```
Access to SNMP devices is controlled via community names.
The default community names for this SNMP agent installation will be:
     read: public
    write: private

You should change the write community name to a site specific
name to control access to this system via the SNMP agent.
You may also modify the read community name if desired.

New read community name? [public]
```

11. **Press Return to accept the default read community name, public, or enter a new read community name.**
    The `getagents` script asks if you want to change the default write community name.

```
New write community name? [private]
```

12. **Press Return to accept the default write community name, private, or enter a new write community name.**
    The `getagents` script displays lines that must be added to the `/etc/rc.local` file, and asks if you want them to be added now.

```
To run the Sun SNMP agent at each reboot, the following lines
need to be added to the end of /etc/rc.local:

  if [ -f /etc/snmpd.conf -a -x /usr/etc/snmpd ]; then
          /usr/etc/snmpd -c /etc/snmpd.conf && echo 'Starting snmpd.'
  fi

Would you like me to do this? [y]
```

13. **Press Return to accept the default, `y`, or enter `n` for no. If you enter `n`, be sure to manually update the file after the installation.**
    The `getagents` script creates the `/etc/snm.conf` file, then asks for the location of the database files.

```
Creating /etc/snm.conf ... done.

By default, Site/SunNet/Domain Manager database and log files are placed under the
directory /var/adm/snm which will be created during this installation.
A minimum of 10Mb to 15Mb of free space in the default database
location is recommended. If you would like to put the databases in an
alternate directory by default, a link will be created from /var/adm/snm
to the new location. The current usage for /var/adm/snm is:
Filesystem            kbytes      used    avail   capacity   Mounted on
/dev/dsk/c0t3d0s0      20570      1139    17373       6%         /var

Would you like the databases to be written to a new default directory? [n]
```

14. **Press Return to accept the default location for the database files, `/var/adm/snm`, or enter `y` to specify a different location. If you enter `y`, you will be prompted for the location for the database files.**
    The `getagents` script asks for the location of the log files.

```
Some of the Site/SunNet/Domain Manager daemons create log files that can grow over
1 Mb each in size, depending on the number of nodes you are managing.
The default directory for these log files is /var/adm/snm. Here is the
current usage for /var/adm/snm:
Filesystem            kbytes      used    avail   capacity   Mounted on
/dev/dsk/c0t3d0s0      20570      1139    17373       6%         /var

Would you like the log files to be written somewhere else (like
/usr/snm/logs)? [n]
```

15. **Press Return to accept the default location for the log files, `/var/adm/snm`, or enter `y` to specify a different location. If you enter `y`, you will be prompted for the location for the log files.**
    The `getagents` script creates `snmp` files, updates other files, and displays a message that it has finished.

You have installed the agents, and they are ready to be run and managed on this system.

Running the `getagents` *Script using* `rcp` *for Solaris 2.x Systems*

The following procedure uses `rcp` to copy agents from `mgrhost` (the manager station) to `agenthost` (the "local host").

To run the `getagents` script using `rcp`:

1. **Set up the manager station to allow root access across the network for the host(s) that will be running `getagents` (add "`agenthost`" to list of trusted hosts).**

```
mgrhost# cat >>/.rhosts
agenthost
^D
```

2. **Copy** `getagents` **from the manager station to the local machine.**

```
mgrhost# rlogin agenthost
Password:
SunOS Release 5.1 (AGENTHOST): December 1992

agenthost# rcp mgrhost:/opt/SUNWconn/snm/bin/getagents /tmp
```

3. **Run the** `getagents` **script. (The following instructions assume that you have copied** `getagents` **to** `/tmp` **on the local host, although you may copy it to any directory.)**
   The `getagents` script starts and asks for the name of the directory where the agents will be installed.

```
agenthost# /tmp/getagents

-- Site/SunNet/Domain Manager 2.3 agent installation --
Copyright (c) 1990-1995 by Sun Microsystems, Inc.

What is the name of the root directory where agents will be installed?
Agents will be installed into the 'agents' subdirectory of the directory
you specify. Type 'NFS' if you intend to run the agents via an NFS
mount. [/opt/SUNWconn/snm]
```

4. **Press Return to accept the default,** `/opt/SUNWconn/snm`**.**
   The `getagents` script asks if you want to create this directory.

5. **Press Return to accept the default,** `y` **(for yes, create the directory).**
   The `getagents` script asks for the name of the host where the agents are located.

```
OK, /opt/SUNWconn/snm/agents was made.

What is the name of the host where the agents are? Type Return if you
have the directory NFS mounted: [localhost]
```

6. **Enter the name of the manager station.**
   The `getagents` script asks for the name of the root directory on the manager station under which the agents and libraries are located.

```
What is the name of the root directory on mgrhost under which the
Site/SunNet/Domain Manager agents and libraries are located? [opt/SUNWconn/snm]
```

If the Sun SNMP agent is not installed on your manager station, SNMP questions are not asked.

7. **Press Return to accept the default,** `/opt/SUNWconn/snm`**.**
   The `getagents` script continues and installs the agents. The `getagents` script then asks if you want to install the Sun SNMP agent.

```
Getting the agents ... done.

Here are the agents now in agenthost:/opt/SUNWconn/snm/agents -
na.activity   na.hostif    na.ippath   na.lpstat   na.snmp-trap
na.diskinfo   na.hostmem2  na.iproutes na.ping     na.sync
na.etherif2   na.hostperf  na.layers2  na.rpcnfs   na.traffic
na.event      na.iostat2   na.logger   na.snmp

Getting the libraries.

Would you like to install the Sun SNMP agent? [y]
```

8. **Press Return to accept the default, y, to install the Sun SNMP agent, or enter n for no, if you do not want to install the Sun SNMP agent.**

Note – If you enter n, the `getagents` script creates the `/etc/opt/SUNWconn/snm/snm.conf` file, then asks for the location of the database files. Go to Step 12.

The `getagents` script displays several messages and information about community names, and then asks for the read community name.

```
Access to SNMP devices is controlled via community names.
The default community names for this SNMP agent installation will be:
     read: public
    write: private

You should change the write community name to a site specific
name to control access to this system via the SNMP agent.
You may also modify the read community name if desired.

New read community name? [public]
```

9. **Press Return to accept the default read community name, public, or enter a new read community name.**
   The `getagents` script asks if you want to change the default write community name.

```
New write community name? [private]
```

10. **Press Return to accept the default write community name, private, or enter a new write community name.**
    The `getagents` script displays information about the `init.snmpd` script, and asks if you want the script to be added to the `/etc/init.d` directory now.

```
To run the Sun SNMP agent at each reboot, the init.snmpd
startup/shutdown script needs to be added to the
/etc/init.d directory.

Would you like to add this script? [y]?
```

11. **Press Return to accept the default, `y`, or enter `n` for no. If you enter `n`, be sure to manually add the script after the installation; see the `snmpd` man page for instructions on how to add the script.**
    The `getagents` script creates the `/etc/opt/SUNWconn/snm/snm.conf` file, then asks for the location of the database files.

```
Creating /etc/opt/SUNWconn/snm/snm.conf ... done.

By default, Site/SunNet/Domain Manager database and log files are placed under the
directory /var/opt/SUNWconn/snm which will be created during this installation.
A minimum of 10Mb to 15Mb of free space in the default database
location is recommended. If you would like to put the databases in an
alternate directory by default, a link will be created from /var/opt/SUNWconn/snm
to the new location. The current usage for /var/opt/SUNWconn/snm is:
Filesystem            kbytes      used    avail   capacity   Mounted on
/dev/dsk/c0t3d0s0      20570      1139    17373       6%         /var

Would you like the databases to be written to a new default directory? [n]
```

12. **Press Return to accept the default location for the database files, `/var/opt/SUNWconn/snm`, or enter `y` to specify a different location. If you enter `y`, you will be prompted for the location for the database files.**
    The `getagents` script asks for the location of the log files.

```
Creating /var/opt/SUNWconn/snm ... done.

Some of the Site/SunNet/Domain Manager daemons create log files that can grow over
1 Mb each in size, depending on the number of nodes you are managing.
The default directory for these log files is /var/opt/SUNWconn/snm. Here is the
current usage for /var/opt/SUNWconn/snm:
Filesystem           kbytes      used    avail   capacity   Mounted on
/dev/dsk/c0t3d0s0     20570      1139    17373       6%         /var

Would you like the log files to be written somewhere else (like
/usr/snm/logs)? [n]
```

13. **Press Return to accept the default location for the log files, `/var/opt/SUNWconn/snm`, or enter `y` to specify a different location. If you enter `y`, you will be prompted for the location for the log files.**
    The `getagents` script creates `snmp` files, updates other files, and displays a message that it has finished.

You have installed the agents, and they are ready to be run and managed on this system.

Note – If you previously modified the `/.rhosts` file on the manager station to temporarily allow root access to other hosts, you should now remove the entries to prevent future security breaches.

Running the `getagents` *Script using* `rcp` *for SunOS 4.x Systems*

The following procedure uses `rcp` to copy agents from `mgrhost` (the manager station) to `agenthost` (the “local host”).

To run the getagents script using rcp:

1. **Set up the manager station to allow root access across the network for the host(s) that will be running getagents (add "agenthost" to list of trusted hosts).**

```
mgrhost# cat >>/.rhosts
agenthost
^D
```

If /.rhosts does not exist, enter touch /.rhosts prior to the preceding command.

2. **Copy getagents from the manager station to the local machine.**

```
mgrhost# rlogin agenthost
Password:
SunOS Release 4.1.1 (AGENTHOST) #1: Wed May 6 12:30:46 PDT 1992

agenthost# rcp mgrhost:/opt/SUNWconn/snm/bin/getagents /tmp
```

3. **Run the getagents script. (The following instructions assume that you have copied getagents to /tmp on the local host, although you may copy it to any directory.)**
   The getagents script starts and asks for the name of the directory where the agents will be installed.

```
agenthost# /tmp/getagents

-- Site/SunNet/Domain Manager 2.3 agent installation --
Copyright (c) 1990-1995 by Sun Microsystems, Inc.

What is the name of the root directory where agents will be installed?
Agents will be installed into the 'agents' subdirectory of the directory
you specify. Type 'NFS' if you intend to run the agents via an NFS
mount. [/usr/snm]
```

4. **Press Return to accept the default,** `/usr/snm`**.**
   The `getagents` script asks if you want to create this directory.

5. **Press Return to accept the default,** `y` **(for yes, create the directory).**
   The `getagents` script asks for the name of the host where the agents are located.

```
OK, /usr/snm/agents was made.

What is the name of the host where the agents are? Type Return if you
have the directory NFS mounted: [localhost]
```

6. **Enter the name of the manager station.**
   The `getagents` script asks for the name of the root directory on the manager station under which the agents and libraries are located.

```
What is the name of the root directory on mgrhost under which the
Site/SunNet/Domain Manager agents and libraries are located? [opt/SUNWconn/snm]
```

7. **Press Return to accept the default,** `/opt/SUNWconn/snm`**.**
   The `getagents` script continues and installs the agents. The `getagents` script then asks if you want to install the Sun SNMP agent.

```
Getting the agents ... done.

Here are the agents now in agenthost:/usr/snm/agents -
na.activity   na.hostif    na.ippath   na.lpstat   na.snmp
na.diskinfo   na.hostmem   na.iproutes na.ping     na.snmp-trap
na.etherif    na.hostperf  na.layers   na.rpcnfs   na.sync
na.event      na.iostat    na.logger   na.sample   na.traffic

Getting the libraries ... done.

Creating library links into /usr/lib ... done.

Would you like to install the Sun SNMP agent? [y]
```

8. **Press Return to accept the default, y, to install the Sun SNMP agent, or enter n for no, if you do not want to install the Sun SNMP agent.**

Note – If you enter n, the `getagents` script creates the `/etc/snm.conf` file, then asks for the location of the database files. Go to Step 12.

The `getagents` script displays several messages and information about community names, and then asks for the read community name.

```
Access to SNMP devices is controlled via community names.
The default community names for this SNMP agent installation will be:
     read: public
    write: private

You should change the write community name to a site specific
name to control access to this system via the SNMP agent.
You may also modify the read community name if desired.

New read community name? [public]
```

9. **Press Return to accept the default read community name, public, or enter a new read community name.**
   The `getagents` script asks if you want to change the default write community name.

```
New write community name? [private]
```

10. **Press Return to accept the default write community name, private, or enter a new write community name.**
    The `getagents` script displays lines that must be added to the `/etc/rc.local` file, and asks if you want them to be added now.

```
To run the Sun SNMP agent at each reboot, the following lines
need to be added to the end of /etc/rc.local:

  if [ -f /etc/snmpd.conf -a -x /usr/etc/snmpd ]; then
          /usr/etc/snmpd -c /etc/snmpd.conf && echo 'Starting snmpd.'
  fi

Would you like me to do this? [y]
```

11. **Press Return to accept the default, `y`, or enter `n` for no. If you enter `n`, be sure to manually update the file after the installation.**
    The `getagents` script creates the `/etc/snm.conf` file, then asks for the location of the database files.

```
Creating /etc/snm.conf ... done.

By default, Site/SunNet/Domain Manager database and log files are placed under the
directory /var/adm/snm which will be created during this installation.
A minimum of 10Mb to 15Mb of free space in the default database
location is recommended. If you would like to put the databases in an
alternate directory by default, a link will be created from /var/adm/snm
to the new location. The current usage for /var/adm/snm is:
Filesystem           kbytes      used    avail   capacity   Mounted on
/dev/dsk/c0t3d0s0     20570      1139    17373       6%         /var

Would you like the databases to be written to a new default directory? [n]
```

12. **Press Return to accept the default location for the database files, `/var/adm/snm`, or enter `y` to specify a different location. If you enter `y`, you will be prompted for the location for the database files.**
    The `getagents` script asks for the location of the log files.

```
Creating /var/adm/snm ... done.

Some of the Site/SunNet/Domain Manager daemons create log files that can grow over
1 Mb each in size, depending on the number of nodes you are managing.
The default directory for these log files is /var/adm/snm. Here is the
current usage for /var/adm/snm:
Filesystem            kbytes      used    avail   capacity   Mounted on
/dev/dsk/c0t3d0s0      20570      1139    17373       6%         /var

Would you like the log files to be written somewhere else (like
/usr/snm/logs)? [n]
```

13. **Press Return to accept the default location for the log files, `/var/adm/snm`, or enter `y` to specify a different location. If you enter `y`, you will be prompted for the location for the log files.**
    The `getagents` script creates `snmp` files, updates other files, and displays a message that it has finished.

You have installed the agents, and they are ready to be run and managed on this system.

Note – If you previously modified the `/.rhosts` file on the manager station to temporarily allow root access to other hosts, you should now remove the entries to prevent future security breaches.

The Next Step...

After you have installed the agents, the next step is to start the Console and create a management database of network elements that you intend to manage.

Installing SNMP Version 2 5

SNMP Version 2 Support

Site / SunNet / Domain Manager provides a proxy agent that supports Simple Network Management Protocol Version 2 (SNMPv2). The SNMPv2 proxy agent allows you to get data and event information from and set attribute values for devices that are managed via SNMPv2.

Site / SunNet / Domain Manager also provides an SNMP agent for Sun workstations called the `snmpv2d` daemon. The Console communicates with the `snmpv2d` daemon through the SNMP proxy agent. The `snmpv2d` daemon also allows Sun workstations to be managed by other SNMPv2 and SNMP stations. For more information about the `snmpv2d` daemon, see the `snmpv2d` (8) manual page.

5

Note – The support for SNMPv2 functionality is discussed in the *Administration Guide*. This chapter describes installation and removal of SNMPv2 software.

Installing SNMPv2

SNMPv2 can be installed as an agent (`snmpv2d`), a manager (`na.snmpv2`), or both. The files necessary for SNMPv2 installation are installed as part of the packages, `SUNWsnmag` and `SUNWsnmpd`, respectively. The installation steps are the same for both agents and managers. Before installing SNMPv2, you must first install the above packages (see Chapter 3, "Installing the Software," for details). After the packages have been succesfully installed, you must create the three configuration files needed by the `v2install` script. These configuration files include:

- `agents` — contains the names of the hosts on which the `snmpv2d` agent will be installed.
- `mgrs.v1` — contains the names of the hosts that will be running SNMPv1 managers (`na.snmp`).
- `mgrs.v2` — contains the names of the hosts that will be running SNMPv2 managers (`na.snmpv2`).

See the `v2install`(1) manual page for detailed information about these files.

As root, create the configuration files in the `agents` directory where the product was installed. By default, this is the `/opt/SUNWconn/snm/agents` directory. Following is an example of how to create the configuration files:

```
hostname# cd /opt/SUNWconn/snm/agents
hostname# vi agents mgrs.v1 mgrs.v2
```

Run the `v2install` script as shown below, where <*hostname*> refers to the name of the machine where the SNMPv2 manager resides.

```
hostname# v2install <hostname>
```

Invoking the v2install script creates the configuration files needed by snmpv2d and na.snmpv2 for authentication. The files will be created in the ./configs/<*nodename*>/agent and ./configs/<*nodename*>/manager directories, where <*nodename*> refers to the name of the machine where the v2install script is invoked. The v2install script copies the current hosts configuration files into the /etc/opt/SUNWconn/snm/agent and /etc/opt/SUNWconn/snm/manager directories, and then, if the current host is in the agents configuration file, starts up snmpv2d. You then need to copy the configuration files to all machines that will be using SNMPv2. The following example assumes that /etc has been exported on all of the necessary machines.

```
hostname# ls configs
augusta  poppyhills  pebblebeach  spyglass
hostname# ls configs/poppyhills
agent  manager
hostname# cp -r configs/augusta/* /net/augusta/etc/opt/SUNWconn/snm
hostname# cp -r configs/pebblebeach/* /net/pebblebeach/etc/opt/SUNWconnsnm
hostname# cp -r configs/spyglass/* /net/spyglass/etc/opt/SUNWconn/snm
```

You should now install the corresponding package on each of the machines. You should *not* run the v2install script again, as it creates a random string which is used between machines for authentication. Make sure you use the configuration files created by one execution of v2install.

On the machines on which the SUNWsnmpd package was installed, as root, run the following commands to start snmpv2d:

```
hostname# /etc/init.d/init.snmpd stop
hostname# /etc/init.d/init.snmpd start
Starting snmpv2d ...
```

5

Deinstalling SNMPv2

After SNMPv2 has been installed on a system, the v2 daemon will be run each time the system is restarted. If you wish to run the SNMPv1 daemon, there are two ways this can be accomplished. If you just want to temporarily disable SNMPv2, but want to keep the configuration, then all you need to do is rename the `snmpv2d.conf` file, and start `snmpd` as follows:

```
hostname# cd /etc/opt/SUNWconn/snm/agent
hostname# mv snmpv2d.conf <snmpv2d.conf.temp>
hostname# /etc/init.d/init.snmpd stop
hostname# /etc/init.d/init.snmpd start
```

When the `snmp` startup script is run, it checks for the existence of the `snmpv2d.conf` file. If it finds it, then it runs `snmpv2d`, otherwise it will run `snmpd`. If you want to completely remove SNMPv2 support, a script (`v2deinstall`) has been included to deinstall SNMPv2. The `v2deinstall` script will remove all SNMPv2 configuration files, and restart `snmpd`. To run the script, type the following:

```
hostname# cd /opt/SUNWconn/snm/agents
hostname# v2deinstall
```

Adding SNMPv2 to the NIS/NIS+ Maps

In order for the product to use SNMPv2, the `rpc.bynumber` NIS/NIS+ maps/tables must be updated to include the following entry for SNMPv2:

```
snmpv2      100138     na.snmpv2
```

Refer to Chapter 3, “Installing the Software,” for information on how to update the NIS/NIS+ maps/tables.

SNMPv2 Community Strings

The SNMP read and write community strings are used to distinguish between SNMPv1 and SNMPv2 requests. When the `v2install` script is run, its configuration file `mgrs.v1` is used to determine the v1 community strings. These by default were read: public/group, and write: private/secret/TopSecret.

When these strings are setup in a components properties sheet, SNMPv1 requests will be sent and received.

To use SNMPv2 requests, the properties sheet needs to specify the v2 clustername to be used for the request. By default with the `v2install` script, the clustername will be the hostname of the machine that is responding to the request. The cluster records can be found in the file `/etc/opt/SUNWconn/snm/manager/mgr.cnf`.

Upgrading Site/SunNet/Domain Manager

A

- *Saving Your Database for Upgrading*
- *Upgrade Procedures*
- *Upgrading your Management Station*
- *Changes in Configuration from SunNet Manager 2.0 to Site/SunNet/Domain Manager 2.3*
- *Differences in Agents Between SunOS 4.x and Solaris 2.x*
- *Differences in APIs from SunNet Manager 2.0 to Site/SunNet/Domain Manager 2.3*

A.1 Saving Your Database for Upgrading

Caution – The following information is *extremely* important! Failure to read it could lead to the loss of your current management database.

Basically, the data records are compatible with earlier releases. When upgrading from one of these versions to Site/SunNet/Domain Manager 2.3, you *must* first save your own database records into an ASCII data file. It is *very* important to save your original runtime database prior to installation, or it will be overwritten.

When you have reloaded the ASCII data file containing your original database successfully, all of the element glyphs will be redisplayed and any requests started again.

To save your current 2.x runtime database into an ASCII data file:

1. **From the Console, select the File➤Save option.**
2. **Specify the path and name of the file where you want to save your 2.x database in the Name: field.**
   For example, you could save it to the `/var/opt/SUNWconn/snm/db.mydata` file.
3. **Be sure to save the file to a directory with adequate space available.**

A.2 Upgrade Procedures

After saving your database, you can install the software and start the Console. After the Console window appears, you have the option of reloading the ASCII data file in which you saved your original database back into the Console.

1. **Install the product using the `/usr/sbin/pkgadd` utility.**
   Refer to Chapter 3, "Installing the Software," for information about installing the software and Chapter 4, "Installing Agent Software on Remote Systems," for information about installing agent software on remote systems.
2. **Start the product by invoking `snm -i&` or `snm -i` <*database filename*>`&`.**
3. **SELECT the BasicStart icon from the QuickStart window to bring up the Console.**
4. **Only follow this step if you started the product without specifying the database file to use.**
   Reload your original 2.x database file that you saved in Step 1 by using the File➤Load➤Management Database option. Specify the file you saved your original database to in the Name: field.
5. **If the original database file loads successfully, the element glyphs will be displayed in the Console and, if there are any requests to be sent, they will be restarted.**

A.3 Upgrading your Management Station

If you plan to upgrade your management station, you may want to preserve some of your current management capabilities. To upgrade your management station:

1. Make sure that any Site/SunNet/Domain Manager partner or other third-party Site/SunNet/Domain Manager application is available for Solaris 2.4 .

2. When you upgrade your operating system, you overwrite your system disk. There may be files that you want to save to either tape or another disk which won't be affected by the operating system upgrade. After you install Solaris 2.4 or later and then the product, you can copy these files back onto your system. The following table lists some of the files that are candidates for backup.

Table A-1 Files to Check before Upgrading

File	Description
`$HOME/.SNMdefaults` `$HOME/.Xdefaults`	These files contain information relating to your user environment. They may contain path names (such as `/usr/snm` or `/var/adm/snm`) which must be changed for Site/SunNet/Domain Manager (such as `/opt/SUNWconn/snm` or /var/opt/SUNWconn/snm).

`/etc/snm.conf`
`/var/adm/snm/snmp.hosts`
`/var/adm/snm/snmp.traps`
	These files may contain configuration changes you want to retain.

Your Site/SunNet/Domain Manager database	Save the existing MDB to ASCII using the Console Save option. After you install and start the product with the BasicStart option in the QuickStart window, reload the database from the Console Load option or restart the Console from the command line with the file name (for example, enter **`snm`** <*filename*>).
Any additions to the product hierarchy, such as: •third-party mibs and schemas •third-party applications •schema files •customized scripts •customized agents	Contact your supplier to be sure the third-party application is available for Solaris 2.4 . The command and programmatic interface is the same under 2.3 as under 2.0, 2.1, and 2.2. However, the new operating system may require changes to scripts and to existing agents in order for them to compile and run correctly.

3. If you have already installed a 2.1 or 2.2 version of the product on the machine you wish to install the product on, you must first do the following:

a. Before removing the software from disk, be sure to quit Site/SunNet/Domain Manager, if it is running on the systen where the new version is to be installed, and kill the agent processes. The `na.<`***agent-name***`>` process numbers can be displayed by entering the following command at a shell prompt:

```
hostname% ps -ef | grep na\.
```

b. After stopping SNM-related processes, the previously installed software is removed from disk by executing the `pkgrm` command. Refer to Appendix B, "Removing the Software," for information about removing software packages.

A.4 Changes in Configuration from SunNet Manager 2.0 to Site/SunNet/Domain Manager 2.3

Site/SunNet/Domain Manager 2.3 contains the following configuration changes as distinguished from the 2.0 release:

- The default installation is to the `/opt/SUNWconn/snm` directory.
- If you install the product in a non-default location (that is, anywhere other than `/opt/SUNWconn/snm`), you must do the following:
  - Set the `SNMHOME` environment variable to the installation directory.
  - Set the `LD_LIBRARY_PATH` environment variable to `$SNMHOME/lib`, or append `$SNMHOME/lib` to the `LD_LIBRARY_PATH` variable if it already exists.
- In Site/SunNet/Domain Manager 2.3 for Solaris 2.4 , the `.defaults` file contains two attributes: `iconPath_2.x` and `schemaPath_2.x`, that are used to search for icons and schemas. Using attribute names different from the 2.0 release allows a user to run multiple Consoles without having path name problems.

A.5 Differences in Agents Between SunOS 4.x and Solaris 2.x

A Console can manage both Solaris 2.x clients and SunOS 4.x clients. A number of agents were designed specifically to run on Solaris 2.x machines. These agents are based on agents that were designed to run on the SunOS 4.x

operating system. To help you identify the Solaris 2.x agent, the number “2” has been appended to the original agent name. The table below shows the agents affected.

Table A-2 Solaris 2.x Agents and Their SunOS 4.x Equivalents

SunOS 4.x Agent	Solaris 2.x Agent
`etherif`	`etherif2`
`hostmem`	`hostmem2`
`iostat`	`iostat2`
`layers`	`layers2`

A.6 *Differences in APIs from SunNet Manager 2.0 to Site/SunNet/Domain Manager 2.3*

Site / SunNet / Domain Manager 2.3 contains minor Application Programming Interface (API) differences compared to the 2.0 release. See the Administration Guide for information on manager and agent writer.

When you are ready to upgrade from earlier releases to Site / SunNet / Domain Manager 2.3, see Chapter 3, “Installing the Software,” for instructions.

A

Removing the Software *B*

This appendix provides the procedure for removing Site/SunNet/Domain Manager software from a local machine. If you have mounted the product via NFS, follow this same procedure, however, you will need access to the NFS server to remove some of the files.

You might remove the product software if you need to free up some disk space on a particular system, or if you want to reinstall the product.

You remove the product software by running the `pkgrm` program to remove the packages you installed.

To remove the product software:

1. **Enter `su` and the password to become root.**
2. **Start the `pkgrm` removal program:**
   a. **If you installed all the packages, enter this command:**

```
hostname# /usr/sbin/pkgrm SUNWsnmag SUNWsnmag SUNWsnmct
SUNWsnmpd SUNWsnmla SUNWccfg SUNWccrcv SUNWccsnd
```

Note – When removing multiple packages it is important to remove the Core Tools package (`SUNWsnmct`) first. If it is not, a dependency failure message is generated. This is a non-fatal error, but can lead to confusion.

b. If you did not install the SNMP agent, enter this command:

```
hostname# pkgrm SUNWsnmct SUNWsnmag
```

The pkgrm removal program starts the removal script and asks if you want to remove the SUNWsnmct package.

3. **Enter** y **to remove the** SUNWsnmct **package.**
   The pkgrm removal program begins removing the SUNWsnmct package and asks if you want to continue with the removal.

```
## Removing installed package instance <SUNWsnmct>.

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]
```

4. **Enter** y **to continue removing the** SUNWsnmct **package.**
   The pkgrm removal program asks if you want to remove the database files.

```
## Verifying package dependencies.
## Processing package information.
## Executing preremove script.
Do you want to remove the database files in /var/opt/SUNWconn/snm (y/n) [n]:
```

5. **Press Return to accept the default,** n**, so that your database files will not be removed, or enter** y **if you want to remove the database files.**
   The pkgrm removal program removes the SUNWsnmct package, and asks if you want to remove the SUNWsnmag package.

6. **Enter** y **to remove the** SUNWsnmag **package.**
   The pkgrm removal program begins removing the SUNWsnmag package and asks if you want to continue with the removal.

```
## Removing installed package instance <SUNWsnmag>.

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]
```

7. **Enter** y **to continue removing the** SUNWsnmag **package.**
   The pkgrm removal program asks if you want to remove the log files.

```
## Verifying package dependencies.
## Processing package information.
## Executing preremove script.
Do you want to remove the log files in /var/opt/SUNWconn/snm (y/n) [y]:
```

8. **Press Return to accept the default, y, so that your log files will be removed, or enter** n **if you do not want to remove the log files.**
   The pkgrm removal program removes the SUNWsnmag package, and asks if you want to remove the SUNWsnmpd package.

Note – If you did not choose to remove the SUNWsnmpd package when you started pkgrm, the pkgrm removal program returns your system prompt. Go to Step 11.

9. **Enter** y **to remove the** SUNWsnmpd **package.**
   The pkgrm removal program begins removing the SUNWsnmpd package and asks if you want to continue with the removal.

```
## Removing installed package instance <SUNWsnmpd>.

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]
```

10. **Enter** `y` **to continue removing the SUNWsnmpd package.**
    The `pkgrm` removal program removes the `SUNWsnmag` package, and returns your system prompt.

11. **If you have removed the product software from every system on your network, and you are running NIS/NIS+, edit the** `/etc/rpc` **and** `/etc/services` **files on the master NIS/NIS+ server and make the changes effective, as follows:**

    a. **Edit the** `/etc/rpc` **file to remove the section "Site/SunNet/Domain Manager agents."**

    b. **Edit the** `/etc/services` **file to remove the following lines:**

```
snmp       161/udp            # Simple Network Mgmt Protocol
snmp-trap  162/udp  snmptrap  # SNMP trap (event) messages
```

    c. **If you are running NIS, update the maps using the** `ypmake` **command, then push the maps out to the slave NIS servers using the** `yppush` **command.**

    d. **If you are running NIS+, use the** `nisaddent` **command.**

Note – Refer to your system administration documentation if you need additional information on these commands.

You have removed the the product software from your system. If you want to remove the AnswerBook, enter a `pkgrm` command with `SUNWabsnm` as its argument.

Installing a License

C

Site/SunNet/Domain Manager is a licensed product. You need a license for each host that the product mounted on it. The license password is an alphanumeric code that you must obtain from the license distribution center and type in during installation. You can either install the license at the same time you install the software or else you can install the license at a later time.

This chapter describes the installation procedure for the license if you choose to do this installation after installing the Site/SunNet/Domain Manager software packages.

Licensing allows you to use different software packages and to manage a variable number of nodes:

Site Manager License

A Site Manager license allows you to:

- manage a maximum of 100 nodes
- use the Cooperative Consoles Sender daemon

SunNet Manager License

A SunNet Manager license allows you to:

- manage an unlimited number of nodes
- use the Cooperative Consoles Sender daemon

C

Domain Manager License

A Domain Manager license allows you to:

- manage an unlimited number of nodes
- use the Cooperative Consoles Sender daemon
- use the Cooperative Consoles Receiver daemon
- use the Network Layout Assistant tool

Installation Script

To begin the installation of your license, you need to become (or login as) superuser:

```
hostname% su
Password: enter your superuser password
```

To install the license, run the `install_snm_license` script. Assuming you have installed the product in the default location, enter the following command:

```
hostname# /opt/SUNWconn/snm/bin/install_snm_license
```

The licensing installation begins by listing the phone numbers to call to obtain a license password. The script then displays:

```
The license distributor will ask you for the following
information:

    Server Name    : <server name>
    Host ID        : <host id name>

    You will also need to provide the Serial Number and
    the product name from the license certificate.

Please Hit Return to continue .....
```

After you press Return, you will be asked:

```
Do you want to install the license now (y/n) [y]:
```

Press return to continue with the license installation.

```
Please enter the License Password for this node:
```

When you call the license distribution center, you must do the following:

a. **The operator will provide you with a license password which you must type in at the prompt shown above.**

b. **Give the operator your serial number from your license certificate, product name and version, host name, and host ID.**

c. **The operator will ask you for your company address, phone number, and e-mail address.**
After you type in the license password that the operator gives you, you will receive the following prompt:

```
Is this a demo license (y/n) [n]:
```

If you enter y, then you will be prompted to enter the expiration date of the demo license. For example:

```
Please enter the expiration date (dd-mmm-yyyy): 01-jan-1995
```

The following product selection is displayed:

```
Please choose the name of the product from the following list.
The name of the product s available with the license certificate
that you received along with the serial number.

    Type 1 for Site Manager
    Type 2 for SunNet Manager
    Type 3 for Domain Manager
    Type 4 for University Wide Domain Manager

Please enter the number corresponding to the product.
```

Currently the University Wide Domain Manager is only available for Universities. It is a special licensing variety of the Site/SunNet/Domain Manager product. If you are installing University Wide Domain Manager licensing, you need the network domain name in order to complete the licensing procedure.

```
Please enter your network domain(eg,. leland.stanford.edu):
```

After selecting a products, you are prompted for the database location. By default, databases are placed under the /var/opt/SunWconn/snm directory. A minimum of 10Mb of free space is recommended:

```
Please enter the loction for the SNM databases
[/var/opt/SUNWconn/snm]:
```

Type in the location that you specified while installing the product using (pkgadd) If a value is entered that is different from the location entered while installing, license information will be installed in the wrong place.

You will receive confirmation for the database location, some processing is done, and then the following prompts are displayed:

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

Do you want to continue with the installation of this package
[y,n,?]
.
.
I am installing licensing for <product name> now. ok? (y/n) [y]
```

If license installation is successful, the following is displayed::

```
Licensing for <product name> 2.300 is completed successfully
```

The license password is stored in the file `/var/opt/SUNWconn/snm/snm_license.dat`.

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