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## Installation Guide

# **Solstice Enterprise Manager™ 4.1**

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Part No. 806-7965-10  
October 2001, Revision A

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# Preface

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This manual explains how to install the Solstice Enterprise Manager (Solstice EM) software from the product CD-ROM to your machine.

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## Who Should Use This Book

This book is written for users installing Solstice EM software. It assumes you are familiar with the Solaris™ 8 and compatible operating environments.

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## Before You Read This Book

If you have just acquired the Solstice EM software, you should read *Managing Your Network* for an overview of the product's functions, features, and components. You should also read the *Release Notes* for information on compatibility and minimum machine and software requirements, known problems, an inventory of the product components, and late-breaking information about the Solstice EM product.

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## How This Book is Organized

This book contains the following chapters and appendixes:

- **Chapter 1 “Overview”** describes Solstice EM and the installation process.
- **Chapter 2 “Preparing for Installation”** describes the installation requirements and other information you need before installing Solstice EM software.

- **Chapter 3 “Installing Solstice Enterprise Manager”** explains how to install Solstice EM software.
- **Chapter 4 “Setting up Solstice Enterprise Manager”** provides instructions for post-installation tasks.
- **Chapter 5 “Administering Licenses”** describes the licensing mechanism and discusses how to acquire, assign, and manage licenses.
- **Chapter 6 “Installing SNM Agents”** provides instructions for installing SunNet Manager 2.2 Agents on remote machines.
- **Chapter 7 “Removing Solstice Enterprise Manager Software”** explains how to remove pre-existing Solstice EM software using either the `pkgrm` command or the Uninstall program.
- **Appendix A “Components and Packages Installed”** lists the Solstice EM components installed for each setup type and the Solaris packages installed for each selected component.
- **Appendix B “Sample Installation Using the em\_install Script”** contains the actual output of a sample installation.
- **Appendix C “Data Definition Files”** describes the files used to build the MIS database.

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## Related Books

The complete Solstice EM documentation set includes the following books:

- *Installation Guide* (this document)
- *Release Notes*
- *Troubleshooting Guide*
- *Developing C++ Applications*
- *C++ API Reference*
- *Developing Java Applications*
- *Java API Reference*
- *Customizing Guide*
- *Management Information Server (MIS) Guide*
- *Managing Your Network*
- *HA Installation Guide*
- *CORBA Gateway Administration Guide*
- *Developing CORBA Applications*
- *Glossary*

Also, the following documents are included in the Solstice EM packaging:

- *Cooperative Console Administration Guide*
- *Site/SunNet/Domain Manager Application and Agent Development Guide*

Have your Solaris 2.8 system documentation available as a reference if you need additional information on procedures in this manual.

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## Conventions Used in This Book

This section describes the conventions used in this book.

### What Typographic Changes and Symbols Mean

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

TABLE P-1 Typographic Conventions

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

# Shell Prompts in Command Examples

All command-line examples in this guide use the C-shell environment. If you use either the Bourne or Korn shells, refer to `sh(1)` and `ksh(1)` man pages for command equivalents to the C shell. The following table shows the default system prompt and superuser prompt for the C shell, Bourne shell, and Korn shell.

**TABLE P-2** Shell Prompts

Shell	Prompt
C shell prompt	hostname%
C shell superuser prompt	#
Bourne shell and Korn shell prompt	hostname\$
Bourne shell and Korn shell superuser prompt	#

## Operating System Terminology

This book contains references to the Solaris 2.8 operating environment.

The Solaris 2.8 environment includes:

- Solaris version 2.8
- SPARC<sup>™</sup> computer, either a server or a workstation
- Common Desktop Environment CDE<sup>™</sup> application development platform

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Also, you can view the online documentation by pointing your browser to the following URL, `file:/opt/SUNWconn/em/docs/SEMDOCHP/index.html`



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Please include the part number of your document in the subject line of your email.



# Overview

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This chapter describes how to install Solstice EM packages using the `setup` program and `em_install` script. Other installation methods for specialized needs are also described.

This chapter describes the following topics:

- Section 1.1 “Installation Overview” on page 1-1
- Section 1.2 “Sharing Solstice EM on a Network” on page 1-4
- Section 1.3 “Installing Only Selected Packages” on page 1-4
- Section 1.4 “Installing Agents” on page 1-5
- Section 1.5 “Getting Help” on page 1-5

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## 1.1 Installation Overview

Installing the Solstice EM software on a Solaris machine includes the following tasks:

- Preparing for Installation – Chapter 2 provides system requirements and the information you need before installing Solstice EM software.
- Installing Solstice EM software from CD-ROM – Chapter 3 describes how to install Solstice EM software.
- Setting up Solstice EM software – Chapter 4 describes setting up environment variables, internationalization and localization. The chapter also covers starting the MIS and other tools after installation. Chapter 6 describes setting up the Network Information Service (NIS/NIS+).

If you encounter any problems relating to installation and startup, or if installation is unsuccessful, refer to Chapter 2 in *Troubleshooting Guide*.

## 1.1.1 Installation Choices

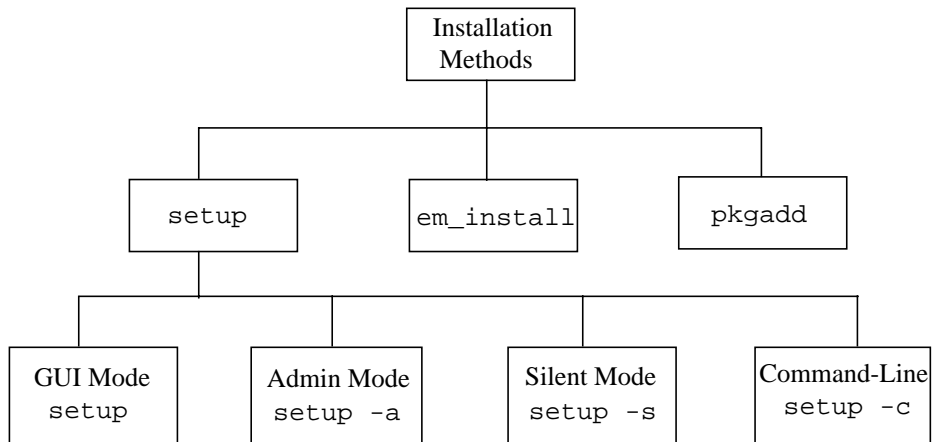
Depending upon your use of Solstice EM and your installation needs, choose the installation method that best suits your needs.

The three methods are as follows:

- `setup` (with four optional parameters)
- `em_install`
- `pkgadd`

The procedures in this guide are primarily directed at using the `setup` program method.

The following figure gives an overview of different installation methods involved during the installation process of Solstice EM.



**FIGURE 1-1** Installation Methods

The following table describes each of the installation methods, provides guidelines for when to choose each method, and provides the command to run the installation.

**TABLE 1-1** Choosing an Installation Method

Installation Method	Description	When to Use	Command to Run
The <code>setup</code> program in GUI mode	Screen-based Java program provides an interface to the <code>pkgadd</code> utility.	This is the recommended and easiest installation method. It installs the packages as components, based on function. Use <code>setup</code> when you have access to a system running CDE or OpenWindows.	<code>setup</code>
The <code>setup</code> program in command-line interface mode (CLI)	Text-only mode.	Ideal for installing from a remote terminal window or console.	<code>setup -c</code>
The <code>setup</code> program in administrative mode	Records installation and configuration information, so that a user can install the product without entering all the information.	Useful for creating an installation that can be run by less experienced personnel.	<code>setup -a</code>
The <code>setup</code> program in silent mode	Runs the installation using settings recorded from an administrative mode session.	Less experienced personnel can run the installation without entering all the information.	<code>setup -s filename</code>
The <code>em_install</code> script	A front-end to <code>pkgadd</code> utility.	For Solstice EM users who have written programs using the <code>em_install</code> script.	<code>em_install</code>
The <code>pkgadd</code> utility	Solaris installation utility.	For experienced Solaris users who need to install one or more specific packages, rather than a complete installation or upgrade.	<code>pkgadd</code>

## 1.1.2 Upgrade Choices

If the `setup` program or `em_install` script detects a version of Solstice EM that is 2.0.1, 2.1, 3.0, or 4.0 you are presented with the following options:

- Continue the installation without preserving the existing data
- Continue the installation and preserve the existing data
- End the installation

If you continue the installation, the existing data is either backed up or removed, depending on your selection, and you are asked if you want to remove the existing packages. If you choose to remove the existing packages, the installation continues. If not, the installation ends.

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**Note** – You cannot install and run different versions of Solstice EM on the same machine.

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## 1.2 Sharing Solstice EM on a Network

If you want to share Solstice EM software among multiple machines on a network, you can install the software on a file server. This allows access to the software by all hosts on the network, depending on their access rights. To allow access to the software you need to mount the filesystem where the Solstice EM software is installed (usually `/opt/SUNWconn`) from the file server.

---

**Note** – If the superuser has a non-standard `umask` set, make sure the public has read and execute privileges; otherwise, users might not be able to run Solstice EM. For additional information, see the `umask(1)` man pages.

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## 1.3 Installing Only Selected Packages

You can install selected Solstice EM packages using the `em_install` script or `pkgadd` command. These commands are best suited for experienced users who wish to install a small number of individual packages, rather than doing a complete Solstice EM installation.

The `em_install` script is an optional front end to the `pkgadd` command. This script provides the option of performing either a default or non-default installation. Additionally, if the `em_install` script detects a previous version of Solstice EM on your machine, it will backup the existing data (if possible) and remove the existing packages before installing the new packages. For more information on using the `em_install` script to install Solstice EM, see Section 3.5 “Installing Solstice EM Using the `em_install` Script” on page 3-17.”

Note that the recommended method is to install Solstice EM using the `setup` command, which installs all of the packages as components, based on function. To do a complete installation, use the `setup` command. See Section 3.3 “Installing Solstice EM Software Using setup Program” on page 3-3.”

The `setup` command and `em_install` script performs these additional installation tasks that the `pkgadd` command does not:

- Preserves existing runtime data
- Takes care of package dependencies
- Sets up the database user account
- Installs Solstice EM licenses

---

## 1.4 Installing Agents

The Solaris 8 operating environment installs the Solstice Enterprise Agents™ and hence it is not shipped with Solstice EM.

---

## 1.5 Getting Help

If you have problems installing or using the Solstice EM software, refer to the *Release Notes*, or the *Troubleshooting Guide*. If you cannot find a solution in the documentation, call your authorized service provider with the following information ready:

- Model number of the machine
- Serial number of the machine
- SunOS release number
- Release number of the Solstice EM product

You can display information needed for help calls by entering the **showrev** command. The following information is displayed on the screen.

```
saturn# showrev
Hostname: saturn
Hostid: 80f2614b
Release: 5.8
Kernel architecture: sun4u
Application architecture: sparc
Hardware provider: Sun_Microsystems
Domain: blr03-01.India.sun.com
Kernel version: SunOS 5.8 Generic February 2000
saturn#
```



# Preparing for Installation

---

This chapter describes the installation requirements and other information you need before you install Solstice Enterprise Manager (Solstice EM) software. It also contains a checklist to use if you have a problem installing the software. This checklist outlines the information you need to provide if you call customer support.

This chapter describes the following topics:

- Section 2.1 “System Requirements” on page 2-1
- Section 2.2 “General Questions Asked During Installation” on page 2-8
- Section 2.3 “Information You Provide” on page 2-10

---

## 2.1 System Requirements

Your system must meet the following requirements for installing the Solstice EM software. Disk and memory requirements differ according to the components you install:

- Solaris operating environment version 2.8.
- Sun Ultra™ 2, 450, 3000, 4000, 5000, 6000 or 10000.
- Minimum of 192 Megabyte of RAM.
- Minimum 1 Gigabyte hard disk.
- Local or remote CD-ROM drive on a machine running either Solaris or SunOS™ software. If the CD-ROM drive is on a remote machine, you must have the superuser password for that machine as well.
- The superuser must have read, write, and execute permissions for the directory where the Solstice EM software is installed.
- Web browser capable of reading HTML files that contain tables for viewing the Solstice EM documentation.
- If you are using the NFS™ file system, then root NFS access must be granted. For more information, see the `sharetab(4)` and `share(1M)` man pages.

- If you are installing on a remote system, you must set the `DISPLAY` environment variable in order to start the Solstice EM window applications.

For a C shell, enter:

```
setenv DISPLAY hostname:0.0
```

For a Bourne or Korn shell, enter the following commands:

```
DISPLAY=hostname:0.0  
export DISPLAY
```

- If you install the MIS-related packages on a server-type machine, then install the applications on client machines that can communicate with the MIS machine. All runtime data must be local.
- You will need either the Common Desktop Environment (CDE) or OpenWindows window system for running applications.
- Motif Runtime Kit (SUNWmfrun package)

This is available on the Solaris CD-ROM in the `/cdrom/solaris_version/s0/Solaris_version` directory, where *version* is the Solaris version number. You must install the SUNWmfrun package from the appropriate directory, then using the `pkgadd` command as shown below.

```
cd /cdrom/solaris_version/s0/Solaris_version  
pkgadd -d . SUNWmfrun
```

To see if the Motif Runtime Kit is on your system, type:

```
pkginfo -l SUNWmfrun
```

## 2.1.1 Shared Memory and Semaphores

Before installing Solstice EM software, shared memory and semaphores (signals used to govern access to shared resources) must be enabled with appropriate settings for running the Solstice EM product. If shared memory and semaphore are not properly

enabled for Solstice EM, the `setup` program enables these features and sets parameters for running Solstice EM software. The `setup` program then reboots your system. After the system reboots, you can restart the installation.

## 2.1.2 Configuring Shared Memory and Semaphores

The following table lists the shared memory and semaphore parameters required for your system in order to run the Solstice EM software.

**TABLE 2-1** Shared Memory and Semaphore Parameters

Parameter	Minimum Value	Description
<code>shmsys:shminfo_shmmax</code>	268435456	Maximum size, in bytes, of a single shared memory segment.
<code>shmsys:shminfo_shmmin</code>	100	Minimum size, in bytes, of a single shared memory segment.
<code>shmsys:shminfo_shmmni</code>	100	Number of shared memory identifiers.
<code>shmsys:shminfo_shmseg</code>	100	Maximum number of shared memory segments that can be attached by a process.
<code>semsys:seminfo_semmns</code>	4096	Number of semaphores in the system.
<code>semsys:seminfo_semmni</code>	4096	Number of semaphore set identifiers in the system. This value determines the number of semaphore sets that can be created at any one time.
<code>semsys:seminfo_semmsl</code>	100	Maximum number of semaphores per Id.
<code>semsys:seminfo_semume</code>	64	Maximum number of undo entries per process.
<code>semsys:seminfo_semmnu</code>	4096	Number of undo structures in system.
<code>semsys:seminfo_semmap</code>	64	Number of entries in the semaphore map.

To manually configure shared memory and semaphores on your system, edit the `/etc/system` file and append the following lines at the end of the file:

```
set shmsys:shminfo_shmmax=268435456
set shmsys:shminfo_shmmin=100
set shmsys:shminfo_shmmni=100
set shmsys:shminfo_shmseg=100
set semsys:seminfo_semmns=4096
set semsys:seminfo_semmni=4096
set semsys:seminfo_semmsl=100
set semsys:seminfo_semume=64
set semsys:seminfo_semmnu=4096
set semsys:seminfo_semmap=64
```

---

**Note** – After setting the shared memory and semaphore parameters, you must reboot your system before starting the MIS.

---

## 2.1.3 Optional Software Requirements

The following are software requirements for optional product compatibility features of the Solstice EM software:

- If you are going to create your own applications using the Solstice EM libraries, then use a DevPro™ (SPARCworks) C++ 5.3 compiler to compile programs that use Solstice EM Portable Management Interface (PMI) or the Nerve Center Interface Library.
- If you plan to develop Motif applications, you must first install Motif 1.2.3, which is part of the Solaris System Developer's Kit.
- If you plan to use Solstice EM to manage with Common Management Information Protocol (CMIP) agents, CMIP 9.0 is automatically installed if you use the `setup` program or `em_install` script. Additionally, you can also use the following SunLink products in conjunction with CMIP 9.0:
  - SunLink OSI 9.0 (CLNP/LLC)
  - SunLink OSI 9.0 (CONS/X.25) and X.25 9.0

---

**Note** – Solstice EM 4.1 software also supports CMIP 8.2.1 and CMIP 8.2.2.

---

## 2.1.4 Space Requirements

The following subsections provide information about the space you will need for packages, the runtime environment, and the Management Information Server (MIS).

### 2.1.4.1 Essential Space for Packages

You must have 620 MB in the partition where you install all Solstice EM packages. The Solstice EM product is installed under `/opt` directory by default. You must determine where you want to install the product before you begin the installation.

---

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

---

The following table lists the packages and their individual disk space requirements.

**TABLE 2-2** Required Disk Space for Solstice EM Packages

Package	Description	Size in Mbytes
SUNWcccfg	Cooperative Consoles Configuration Tool	0.4
SUNWccrcv	Cooperative Consoles Receiver Application	0.2
SUNWemalb	Solstice EM Common Libraries	41.4
SUNWemapp	Client Applications	51.2
SUNWembc	Solstice EM SNM Compatibility	3.2
SUNWemcpa	Solstice EM CMIP Management Protocol Adapter	1.2
SUNWemdev	Solstice EM Development Environment	2.2
SUNWemdmn	Solstice EM Daemons	0.7
SUNWemhtd	Solstice EM Documentation in HTML Format	9.0
SUNWemipa	Solstice EM IP Management Protocol Adapters	3.0
SUNWemjme	Java™ Management Environment	5.0
SUNWemjmk	Java™ Dynamic Management™ Protocol Adapter (JDMK), JDMK CMIS Event Listener, and the JavaBean™-to- GDMO Converter	1.8
SUNWemlog	Solstice EM Export Log Data to Relational Database	1.2
SUNWemap	Geographical Map Data package	273

**TABLE 2-2** Required Disk Space for Solstice EM Packages *(Continued)*

<b>Package</b>	<b>Description</b>	<b>Size in Mbytes</b>
SUNWemmis	Solstice EM Management Information Server	44.5
SUNWemobj	Solstice Object Development Tools	1.3
SUNWemrdb	Solstice EM Relational Database	60.0
SUNWemha	Solstice EM High Availability	0.024
SUNWj2dem	JDK 1.2 Demo Programs	4.390
SUNWj2dev	JDK 1.2 Development Tools	6.875
SUNWj2man	JDK 1.2 Man Pages	0.305
SUNWj2rt	JDK 1.2 Runtime Environment	27.099
SUNWlicsw	FlexLM License System	2.6
SUNWlit	STE License Installation Tool	0.5
SUNWmibii	Solstice Enterprise Agents 1.0.3 SNMP daemon	0.19
SUNWomgta	CMIP Network Management Configuration Files	0.04
SUNWomgtb	CMIP Network Management Programs	0.5
SUNWomgte	CMIP Network Management Libraries	0.5
SUNWmgtdbx	CMIP Network Management Executables	1.69
SUNWrk6	Solstice RFC1006/TLI Module	0.3
SUNWsnmag	Site/SunNet/Domain Manager Agents and Libraries	15.2
SUNWsnmct	Solstice SunNet Core Tools to Enterprise Manager	0.01
SUNWemrwd	Solstice EM RW DB Libraries	0.45
SUNWemrwt	Solstice EM RW Tool Libraries	0.23
SUNWgdmod	Solstice GDMO/ASN.1 Documents	3.04
SUNWrk6x	64 bits Solstice RFC1006/TLI Module	0.62
SUNW2jddc	JDKM Online Documentation	2.27
SUNW2jdex	JDKM Examples	0.37
SUNW2jdrt	JDKM Runtime	0.73

**TABLE 2-2** Required Disk Space for Solstice EM Packages *(Continued)*

Package	Description	Size in Mbytes
SUNW2jdk	JDK Tool	1.0
SUNWemcgs	Solstice EM CORBA Gateway ToolKit Supplement	2.97
SUNWemcgd	Solstice EM CORBA Gateway Developer Supplement	0.19

### 2.1.4.2 Space for Runtime Environment

A disk space of 200 MB are recommended in the partition where you choose to install the runtime environment. The default location is `/var`. This figure will vary, depending upon the number of objects you store in the MIS.

To check disk space, use the `df -k /var` command.

In the following example, the output from the `df -k` command on the `/var` file system shows that 542,143 kilobytes (542 MB) are available.

```
kailee% df -k /var
Filesystem            kbytes    used   avail capacity  Mounted on
/dev/dsk/c0t0d0s0    1693838 1100880  542143     68%      /
```

### 2.1.4.3 Swap Space for MIS

At least 200 MB of swap space are recommended on the machine where the MIS is running.

To check for swap space, use the `swap -l` command.

In the following example, the output from the `swap -l` command shows that 426,192 blocks (218 MB) are available.

```
kailee% swap -l
swapfile              dev  swaplo blocks   free
/dev/dsk/c0t0d0s1    32,1      16 656624 426192
```

---

## 2.2 General Questions Asked During Installation

You are asked to provide information used by the installation program to set up and configure your Solstice EM software.

Some configuration screens appear only if you have chosen to install using the Custom setup type.

During installation, you are asked to provide the following general information:

- Destination directory (default is `/opt`)
- Type of setup (Typical, Client, Server, Custom)
- License
- Whether or not you want to enable security access control

### 2.2.1 Destination Directory

The `/opt` is the default directory where all Solstice EM components are installed. You can also specify an alternate directory. The runtime components are installed in the directory `/var/opt`.

### 2.2.2 Setup Types and Components

You can choose the setup type: Typical, Client, Server, or Custom. The setup type determines which components are installed.

- Typical – Installs the client and server components. This setup type is recommended for most users.
- Client – Installs the client applications, including network tools for tracking, reporting, and correcting network errors.
- Server – Installs the Management Information Server (MIS) and other components necessary for creating and storing object data and serving clients.
- Custom – Allows you to choose which components to install. If you choose Custom, you can select whichever component you want to install. The full complement of components includes:
  - Management Services
  - IP Protocol Adapters (SNMP/RPC)
  - CMIP Protocol Adapter (TMNQ3)
  - Java Management Services



- Java DMK Protocol Adapter
- Client Applications
- Development Environment
- CORBA Gateway Runtime Supplement
- CORBA Gateway Developer Supplement
- Documentation
- License
- Geographical Map Images
- Cooperative Consoles

The installation program installs the components required for each type of installation. The installation program also takes care of all package dependencies. For more information on Solstice EM components and packages installed, see Appendix A.

### 2.2.3 License

Some Solstice EM components require licenses to use them. You can obtain and install licenses for these components either before or after installing the Solstice EM software. However, you must install the licenses before you use any of the components that require licenses.

You must contact the license distribution center to obtain your license. But before you do, gather the following information:

- Host ID of the license server (three host IDs if you are using redundant servers). To get the host ID of your system, execute `hostid` at the prompt.
- Host name of the license server (three host names if you are using redundant servers). To get the name of your server, execute `uname -n` or `hostname` at the prompt.
- Serial number from the license certificate. Your Solstice EM product package includes a license certificate with the following information:
  - Serial Number
  - Product
  - Version
  - Rights to Use

Once you have contacted the license distribution center, you will receive one of the following:

- E-mail – You will receive a license file for the licensed features. The entire file can be read into the license database using the License Installation Tool (`lit`).
- Fax or phone – You will receive the following information that you can enter into the database using the `lit` program:
  - Rights To Use (RTU)
  - Password

- Data checksum that will be verified
- Password checksum that will be verified

During installation, you can install licences only from a file. After installation, you can use the `lit` program to install licenses by typing the license number or specifying a license file.

For detailed information on licensing, see Chapter 5.

## 2.2.4 Security Preferences

Solstice EM provides security features that restrict access to the management data based on user ID or group ID. You can allow full, limited, or read-only access to data. By default, security is disabled. You have the option of enabling security features during the installation. The default security configuration only allows a user logged in as root to perform the following:

- Start Solstice EM tools and connect to the MIS
- Use all network tools
- Access all the objects in the database

All non-root users must be granted permissions by using the Security tool. Turning off security means that any user can use the Solstice EM tools and their features, as well as access the objects in the database. You can also turn off security at any time after installation.

## 2.3 Information You Provide

The following table lists information you need before installing Solstice EM software.

**TABLE 2-3** Installation Information Checklist

EM Component	Default Value	Your Entry
<b>Management Services</b>		
Name of the MIS host	<i>localhost</i>	_____
Database Administrator Password	<i>Null</i>	_____
Port number on which the CMIP MPA listens for incoming messages from the MIS	5557	_____

**TABLE 2-3** Installation Information Checklist (*Continued*)

<b>EM Component</b>	<b>Default Value</b>	<b>Your Entry</b>
Location of runtime environment (topology and log files)	<code>/var/opt/SUNWconn/em</code>	_____
Location of the SNM log files	<code>/var/opt/SUNWconn/snm</code>	_____
<b>Java Management Services</b>		
Path to the root directory of an HTTP server	<code>/var/http/demo/public</code>	_____
<b>CMIP Protocol Adapter and Utilities</b>		
Name of the host where the CMIP MPA is installed	<code>localhost</code>	_____
Port number on which the MIS sends messages to the CMIP MPA	5555	_____
<b>IP Protocol Adapters (SNMP/RPC)</b>		
Name of the MIS host for the RPC MPA	<code>localhost</code>	_____
Port number on which the RPC MPA listens for incoming messages from the MIS	5577	_____
Number of seconds for the RPC MPA request time-out value	15 seconds	_____
Number of retries for the RPC MPA	0 retries	_____
Name of the MIS host for the SNMP MPA	<code>localhost</code>	_____
Port number on which the MIS sends messages to the SNMP MPA	5555	_____
Port number on which the SNMP MPA listens for incoming messages from the MIS	5575	_____
Number of seconds for the SNMP MPA request time-out value	20 seconds	_____
Number of retries for the SNMP MPA	3 retries	_____

**TABLE 2-3** Installation Information Checklist (*Continued*)

EM Component	Default Value	Your Entry
Name of the MIS host(s) to receive notifications from SNMP traps	<i>localhost</i>	_____
Additional MIS hosts to receive notifications from SNMP traps	None	_____
Name of the SNMP Management host(s) to which SNMP traps are forwarded	No forwarding	_____
Port number of the SNMP Management host to which SNMP traps are forwarded	162	_____

You must be able to answer yes or have the appropriate information for the following questions asked during the installation. If you have problems with your installation, you will need this information when you call customer support.

**TABLE 2-4** Installation Questions Checklist

Question	Answer
Do you have access to a local or remote CD-ROM drive?	_____
If remote, what is the host name of the machine to which the CD-ROM drive is attached?	_____
Is your installation machine running Solaris 8?	_____
Is your installation machine a Sun SPARC machine?	_____
Do you have a browser to read the documentation set?	_____
Does your machine have the Motif Runtime Kit?	_____
Is your machine running either the CDE or OpenWindows window system?	_____
Is the installation medium a CD-ROM?	_____
In which directory are you installing the Solstice EM software? (The default directory is /opt.)	_____
Is enough free disk space available in your installation directory or directories?	_____

**TABLE 2-4**    Installation Questions Checklist *(Continued)*

Question	Answer
Do you have the superuser password for both the machines where the Solstice EM software is to be installed and the machine with the CD drive, if different?	_____
Does the superuser have read, write, and execute access to the installation directory where the Solstice EM software is being installed?	_____
Do you have your license password from the License Distribution Center?	_____



# Installing Solstice Enterprise Manager

---

This chapter describes how to install Solstice Enterprise Manager (Solstice EM) software, including the following topics:

- Section 3.1 “Installation Methods” on page 3-1
- Section 3.2 “Upgrading From Previous Versions” on page 3-2
- Section 3.3 “Installing Solstice EM Software Using setup Program” on page 3-3
- Section 3.4 “Post-Installation Activities Done by setup Program” on page 3-16
- Section 3.5 “Installing Solstice EM Using the em\_install Script” on page 3-17
- Section 3.6 “Installing Solstice EM Using pkgadd Utility” on page 3-21
- Section 3.7 “Installing from a Remote CD-ROM Drive” on page 3-25
- Section 3.8 “Adding a Component After Installation” on page 3-27
- Section 3.9 “Example Command-Line Mode Installation” on page 3-27

---

## 3.1 Installation Methods

There are three methods for installing Solstice EM software:

- The `setup` program - The recommended installation method. Use `setup` when you have access to a system running CDE or OpenWindows. For more information, see Section 3.3 “Installing Solstice EM Software Using setup Program” on page 3-3.
- The `em_install` script - For the Solstice EM users who have written programs using the `em_install` script. For more information, see Section 3.5 “Installing Solstice EM Using the em\_install Script” on page 3-17.
- The `pkgadd` utility - For experienced Solaris users who want to install one or more packages rather than the entire Solstice EM software. For more information, see Section 3.6 “Installing Solstice EM Using pkgadd Utility” on page 3-21.

The recommended method is the `setup` program, which installs all the packages as components, based on function. To do a complete installation, use the `setup` program. The `setup` program performs these additional tasks that the `pkgadd` and `em_install` methods do not:

- Preserves existing runtime data
- Takes care of package dependencies
- Sets up the database user account
- Installs Solstice EM licenses

---

**Caution** – Do not attempt to install the Solstice EM software on a machine by copying it over the network from a machine where it has already been installed. Copying files without installing them will not properly configure the Solstice EM software.

---

## 3.2 Upgrading From Previous Versions

The `setup` program checks to see if any previous version of Solstice EM software exists on your machine. Follow the instructions in Section 3.3 “Installing Solstice EM Software Using `setup` Program” on page 3-3.”

Depending upon your installed version, you may need to perform additional steps. See the following subsections for upgrade requirements.

### 3.2.1 Installing Solstice EM 4.1 Over Versions 1.0 and 2.0

If the installation program detects version 1.0 or 2.0, it prompts that you cannot upgrade from the existing version. The installation program then terminates.

If you have previously installed version 1.0 or 2.0, and you want to install version 4.1, use the `pkgrm` utility to remove the existing packages. Then, start the installation program again. For information on removing Solstice EM software, see Chapter 7.



## 3.2.2 Upgrading From Versions 2.0.1, 2.1, 3.0, and 4.0

### ▼ To Preserve Existing Data and Upgrade to 4.1

1. Save all the existing data manually using `em_topoimex` and `em_imex`
2. Manually remove existing Solstice EM installation using `em_uninstall` program of the existing Solstice EM version.
3. If the Operating System (OS) is 5.6 or 5.7, upgrade to 5.8.
4. Install Solstice EM 4.1.
5. Import the saved MIS data from Step 1 manually.

---

## 3.3 Installing Solstice EM Software Using setup Program

The `setup` program installs and configures Solstice EM software. It is the recommended method for installing Solstice EM. If you have a previous version of Solstice EM, the program prompts you to select options for upgrading.

The following options are available for invoking the `setup` command to install Solstice EM.

**TABLE 3-1** Options for the `setup` Command

Installation Mode	Command
GUI mode	<code>setup</code>
Administrative mode	<code>setup -a</code>
Silent mode	<code>setup -s <i>filename</i></code>
Command-line interface (CLI) mode	<code>setup -c</code>

The `setup` installation process includes the following phases:

- **Pre-installation** – The `setup` program gathers information about the user, the target directory in which to install Solstice EM software, licenses, and which components to install.
- **Configuration** – By default, `setup` configures selected protocols, such as IP and Common Management Information Protocol (CMIP). You can choose to view and change default values for the selected protocols. If you selected the MIS and installed a license for it, `setup` can start the MIS after installing components.
- **Installation** – During this phase, the `setup` program copies the appropriate Solaris packages for each selected component from the CD-ROM to the disk.
- **Post-Installation** – The `setup` program conducts a number of post-installation activities, depending upon the type of system on which you install Solstice EM, the components you selected, and the automatic startup options you selected. If you chose to start the MIS, you can also choose to start the following post-installation activities:
  - Discovery
  - Automatic Device Management
  - Security
  - Import Data Definitions

### 3.3.1 Installing Solstice EM in GUI Mode

Use this method to install all the Solstice EM software from a graphical user interface (GUI). By default, the installation program configures the Solstice EM software, but, you can view and change the default configuration. After installing the Solstice EM software, the installation program can start the MIS and other tools automatically, if you choose.

The following procedures include steps for upgrading from previous versions. For other considerations about upgrading, see Section 3.2 “Upgrading From Previous Versions” on page 3-2.”

#### ▼ To Install Solstice EM in GUI Mode

The installation procedure takes about 45 minutes for installing all the packages from a local CD-ROM drive. It may take longer if you are installing it from a remote CD-ROM drive over a busy network.

- 1. Make sure your system meets the requirements for installing Solstice EM software and that you have the information you will be asked to provide.**

For detailed information, see Chapter 2.

**2. Log in as root or change to superuser.**

For example, to change to superuser, enter the following command:

```
% su
Password:*****
```

**3. If installing from a remote machine's CD drive, perform the steps in Section 3.7 "Installing from a Remote CD-ROM Drive" on page 3-25" then resume from Step 4 .**

**4. Insert the Solstice EM CD-ROM into the CD-ROM drive, or perform the installation over a mounted network drive.**

The CD-ROM Autoplay displays a banner window with two options:

- Install Solstice Enterprise Manager – Starts the installation program
- Information – Starts the browser

---

**Note** – If you are installing on a system that does not have the Autoplay function, type the `setup` command in a command window to start the installation program.

---

**5. Click Install Enterprise Manager.**

If the installation program detects a previous version of Solstice EM software, it displays a warning message and upgrade options.

If there are no previous versions of Solstice EM, the installation program begins with a Welcome Screen.

**6. If you are upgrading, choose one of the following options:**

- Click Yes to install Solstice EM software and preserve existing data.
- Click No to install Solstice EM software without preserving existing data.

The installation program begins with a Welcome Screen.

**7. Click Next to step through the installation screens, answering the questions.**

The installation program asks for general user information, license information, and the components to be installed.

**8. On the Configure – Log Export screen, choose whether to export log files:**

- To export a log file, click Yes, type the name of the log file to export, and click Add.
  - To remove a log file from the list, select the file and click Remove.
  - When you have finished adding log files, click Next to continue the installation.
- If you do not want to export a log file, click No.

If you are upgrading from a previous version, the installation program will export user-defined logs to `/var/tmp/misc_data.exp`. After installation, you must use the Log Event tool to create a log for each exported log, then import the logs in `/var/tmp/misc_data.exp` to Solstice EM. For detailed instructions on importing logs, refer to Chapter 5 in *Customizing Guide*. On the Configuration screen, click Yes to configure Enterprise Manager. Otherwise, click Next to continue.

By default, the installation program configures the protocols you chose to install. You can view and change these default values.

If you selected the MIS and installed a license for it, the installation program starts the MIS after installing components. If you choose to start the MIS, you can also choose to start the following post-installation activities:

- Security
- Import Data Definitions
- HTML browser
- Discovery
- Automatic Device Management

**9. SEM-HA Option - If Sun Cluster 3.0 is installed on your system you will be prompted to install EM for High Availability, choose Yes.**

To install High Availability Option for Solstice EM (SEM-HA) refer to Chapter 2 in *HA Installation Guide*. Otherwise choose No.

**10. On the Configure - Security screen, click Yes to enable Security, or click Next to continue.**

Security gives you control over who can access the tools and objects within the product. You can enable security now or after installation. If you do not enable security, all users will have full access to everything. If you choose to enable security, you can add one or more users to the pre-defined privileges list during installation. Those users can then log in immediately after the installation ends and begin work. For more information, refer to Chapter 6 in *Managing Your Network*.

**11. On the Configuration - ORB Information screen, select the ORB and specify the path for the ORB.**

Panel will only appear if you have selected the CORBA supplement from the CORBA supplement panel.

**12. On the Configure - Data Definitions screen, choose whether to load additional data definitions into the MIS.**

You can load additional MIB, GDMO, and SNM Schema files now or after installation, as shown in the figure below. For more information, refer to Chapter 8 in *Management Information Server (MIS) Guide*.

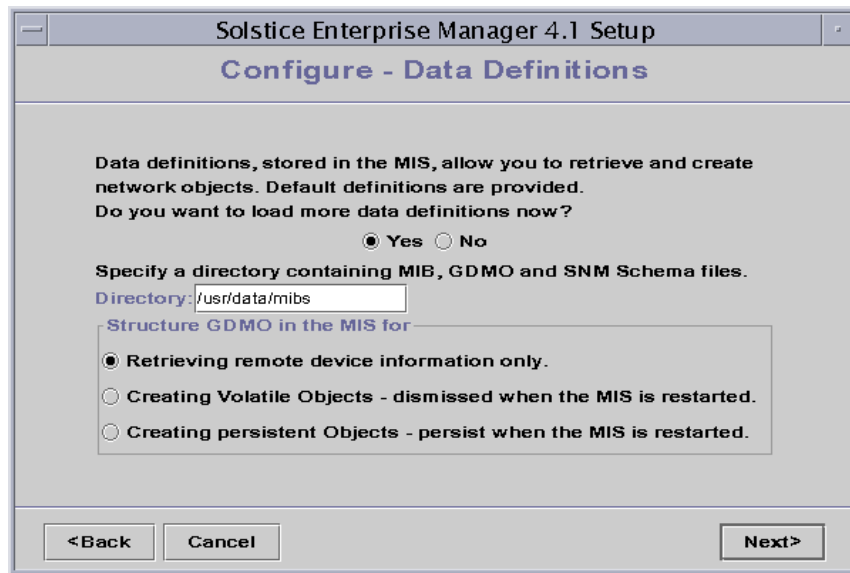


FIGURE 3-1 Configure - Data Definitions Screen

- a. Click **Yes** to load more data definitions into the MIS.
- b. In the **Directory** text box, enter the name of a directory containing the MIB, GDMO, or SNM Schema files.

All files within the directory will be processed. Acceptable file types include the following:

- GDMO, having a `.gdm` extension
- ASN.1, having a `.asn1` extension
- SNM schema, having a `.schema` extension
- SNMP MIB, having a `.mib` extension

---

**Note** – When you load a GDMO document, you must also load its associated ASN.1 document, if there is one.

---

- c. If the specified directory contains GDMO data definitions, select one of the following options under **Structure GDMO in the MIS**.
  - Select “Retrieving remote device information only” if you will not need to create object instances using this data definition. For example, if you are loading a MIB for a new device, you do not need to create objects based on this definition.

- Select “Creating Volatile Objects–dismissed when MIS is restarted” if you want to be able to create objects based on this definition, but the objects need not be persistent—for example, if you are creating a new event type, it need not be persistent because events can be logged, and the event notification itself need not be permanent.
- Select “Creating Persistent Objects–persist when MIS is restarted” if you want objects created based on this definition to remain after the MIS is restarted—for example, if you are adding a new user class, you would want objects based on this class to be persistent.

**13. On the Configure - Browser as Network Tool, specify an HTML browser.**

You can configure an HTML browser now or after installation. Specify the path to the browser in the Browser text box. If you do not know where the browser is located, click Browse to display a dialog box in which you can navigate the file system and select the browser you want.

**14. On the Configure - Network Discovery screen, choose to automatically start discovery when installation completes.**

Network Discovery finds and adds network objects, such as hosts, routers, networks, subnets, links, and SNMP devices to the MIS. If you choose not to automatically start discovery when installation completes, you can start discovery at any time after installation.

**a. Click Yes to automatically start discovery after installation.**

**b. Select one of the following Network Discovery Options:**

- Select “Discover the Local Subnet” to search only the local network for network objects.
- Select “Let Me Configure Discovery in the Network Discovery Tool” to configure the discovery options. The installation program opens the Network Discovery tool after installation, so that you can configure network discovery.

**15. On the Configure - Automatic Management screen, choose to automatically launch a request against router interfaces, or all hosts.**

For more information, refer to Chapter 7 in *Managing Your Network*.

**16. On the Configure - Database Password screen, enter an administrator’s password for the Solstice EM database, then enter the password again in the Confirm Password text box.**

When you have finished configuring the components you selected, your choices are displayed on the Configuration Complete screen.

Review your selections and click Back to make any needed changes.

**17. Click Install when you are ready to install.**

Once the installation begins, it cannot be interrupted.

The installation program copies Solstice EM files to the installation directory, and then conducts post-installation activities, such as starting any services (MIS and applications) you selected to start. As installation proceeds, the installation program shows the progress of installation and post-installation activities.

**18. When installation is complete, click Finish to end the installation program.**

The installation program saves a record of the installation in the `/var/tmp/emsetup.log` file.

If you installed the MIS and the Solstice EM tools, the final screen presents the option of running the Solstice EM Panel. If you select Run Solstice EM Panel, the installation program opens the Network Tools window.

The installation program copies Solstice EM files to the installation directory, then conducts post-installation activities, such as starting any services (MIS and applications) you selected to start.

The `setup` program shows the progress of installation and any post-installation activities.

**19. If you upgraded from a previous version, use the Log Event tool to create a log for each exported log, then import the logs in `/var/tmp/misc_data.exp` to Solstice EM.**

For detailed instructions on importing logs, refer to Chapter 5 in *Managing Your Network*.

**20. If Solstice EM did not install successfully, look at the `/var/tmp/emsetup.log` file and refer to Chapter 2 in *Troubleshooting Guide*.**

## 3.3.2 Installing on a Remote Host

When installing on a remote host perform the following procedures to avoid the `setup` command running in command line mode.

**1. Check that the `DISPLAY` environment variable has been set correctly by typing:**

```
echo $DISPLAY
```

**2. Grant permission for remote applications to be displayed on your console by typing:**

```
xhost +
```

### 3.3.3 Installing Solstice EM in Administrative and Silent Modes

If you need to install Solstice EM on multiple machines at the same site, either yourself or with the help of other administrators, you can simplify the process by using two setup program options, administrative mode and silent mode.

First, use the administrative option to produce an install file that contains all the site and installation information you need for installation on each machine.

Next, install Solstice EM on each machine by invoking the silent option at the command line of each machine. The silent option uses the setup file created in administrative mode to provide installation and configuration information.

The installation proceeds as specified by the setup file and can be completed without user interaction. The exception is that the user will see any screen that contains a field with no value assigned to it in the setup file. In this way, you can enter values that need to be customized for each machine.

#### ▼ To Create an Administrative Installation File

To create an administrative installation file for use during silent installations, run the installation program in administration mode.

---

**Note** – Create the administrative installation file on a machine that uses the same language as the machine where you or others will run the silent installation.

---

Because you must supply an argument to the `setup` command, you must start this program from a command window.

1. **Make sure your system meets the requirements for installing Solstice EM software and that you have the information you will be asked to provide.**

For detailed information see Chapter 2.

2. **Log in as root or change to superuser.**

For example, to change to superuser, enter the following command:

```
% su
Password: *****
```



3. If you are installing from a remote machine's CD drive, perform the steps in Section 3.7 "Installing from a Remote CD-ROM Drive" on page 3-25," then resume from Step 4.
4. Insert the Solstice EM CD-ROM into the CD-ROM drive, or perform the installation over a mounted network drive.
5. In a command tool, change to the directory where the CD-ROM is mounted.  
For example, if the CD-ROM is mounted at /cdrom/solstice\_em\_4.1 enter the command:

```
cd /cdrom/solstice_em_4.1/
```

6. In the same command tool, execute `/setup -a` to start the installation program in administrative mode.

The installation program starts in administration mode, displaying the following Admin Installation screen.

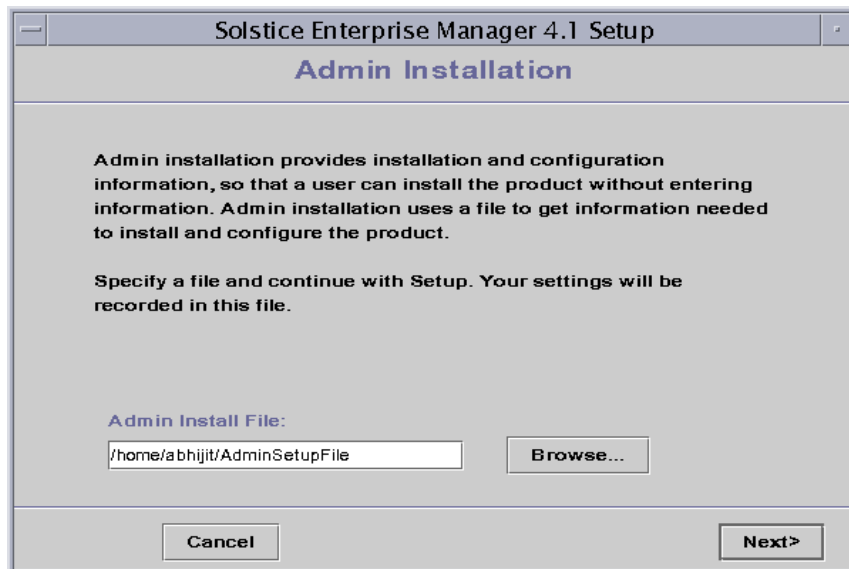


FIGURE 3-2 Admin Installation Screen

7. **Enter the directory path and name of the file where you want to store installation information.**

If you do not enter full path name, the installation program will place the file in your current directory. The `setup` program's default feature that normally specifies a standard installation directory is disabled in the administrative mode.

8. **Progress through the installation screens, entering information as requested.**

9. **Complete all fields that contain information common to the type of installation you are designing.**

If any field is left blank on a screen, the screen that contains the blank field will be displayed to the user during installation.

The installation program saves a record of the installation in the `/var/tmp/emsetup.log` file.

10. **If the administrative mode is unsuccessful, look at `/var/tmp/emsetup.log` file and refer to Chapter 2 in *Troubleshooting Guide*.**

## ▼ To Install Solstice EM in Silent Mode

After you create an installation file using the administrative option of the `setup` program, install the software on each machine. For procedures, see information at the beginning of this section.

1. **Make sure your system meets the requirements for installing Solstice EM software.**

See Chapter 2 for detailed information.

2. **Log in as root or change to superuser.**

For example, to change to superuser, enter the following command:

```
% su
Password:*****
```

3. **If installing from a remote machine's CD-ROM drive, perform the steps in Section 3.7 "Installing from a Remote CD-ROM Drive" on page 3-25," then resume from Step 4.**
4. **Insert the Solstice EM CD-ROM into the CD-ROM drive, or perform the installation over a mounted network drive.**

5. **In a command tool, change to the directory where the CD-ROM is mounted.**

For example, if the CD-ROM is mounted at `/cdrom/solstice_em_4.1` enter the command:

```
cd /cdrom/solstice_em_4.1/
```

6. **In the same command tool, type `setup -s` followed by the full path name of the setup file.**

For example, enter the command:

```
./setup -s /files/em/silent.log
```

The Solstice EM installation proceeds according to the contents of the setup file.

If any field was left blank on a screen when the `setup` file was created, the screen that contains the blank field will be displayed to you during installation.

7. **If any screens display, enter the requested data or choose the appropriate option.**

### 3.3.4 Installing Solstice EM in Command-Line Mode

You can run the `setup` installation program in command-line mode. In this mode, you can install Solstice EM software from a command window; no screens are displayed. Running the installation in command-line mode is useful when you are installing Solstice EM in a terminal window from a remote system, for example, in a Telnet session.

#### ▼ To Install Solstice EM in Command-Line Mode

1. **Make sure your system meets the requirements for installing Solstice EM software and that you have the information you will be asked to provide.**

For detailed information, see Chapter 2.

2. **Log in as root or change to superuser.**

For example, to change to superuser, enter the following command:

```
% su
Password:*****
```

**3. If installing from a remote machine's CD drive, perform the steps in Section 3.7 "Installing from a Remote CD-ROM Drive" on page 3-25," then resume from Step 4.**

**4. Insert the Solstice EM CD-ROM into the CD-ROM drive, or perform the installation over a mounted network drive.**

**5. In a command tool, change to the directory where the CD-ROM is mounted.**

For example, if the CD-ROM is mounted at `/cdrom/solstice_em_4.1`, enter the command:

```
cd /cdrom/solstice_em_4.1/
```

**6. In the same command tool, type `setup -c` to start the installation program in command-line mode.**

For example, enter the command:

```
./setup -c
```

The installation program displays the Welcome screen.

**7. Click Next to step through the installation screens, answering the questions.**

The installation program asks for general user information, license information, and the components to be installed.

**8. On the Configuration screen, choose whether to configure Solstice Enterprise Manager.**

- Choose Yes to view and change default values for the selected protocols.

Also, you can choose whether to have the MIS started after installation. If you choose to start the MIS, you can configure:

- Discovery
- Automatic Device Management
- Security
- Data Definitions to import
- Choose No to use default values for the selected protocols.

You must start the MIS and configure applications after installation. See Chapter 4.

When you have finished configuring the components you selected, your choices are displayed on the Confirmation screen.

**9. Review your selections.**

**10. If you need to make any changes, press `Quit` to end the installation, then restart the installation, making any desired changes.**

**11. If you are satisfied with your selections, press `Return` to begin the installation.**

Once the installation begins, it cannot be interrupted.

**12. Installation begins.**

The installation program copies Solstice EM files to the installation directory, and then starts any services (MIS and applications) you selected to start.

The installation program saves a record of the installation in `/var/tmp/emsetup.log` file. If Solstice EM did not install successfully, look at this log file and refer to Chapter 2 in *Troubleshooting Guide*.

### 3.3.5 Installing Java APIs, Java Dynamic Management Kit, and the Java Development Environment

The *Typical* installation option of `setup` does not install the Java APIs, the Java Dynamic Management Kit (JDMK), or the Java Development Environment. To install these components:

- Select the *Custom* installation option of `setup` and select the components for installation.

### 3.3.6 Installing Correct Version of JDK

The Java APIs and JDMK in Solstice EM 4.1 have been ensured to work with JDK version `Solaris_JDK_1.2`. If you already have a version of JDK installed on your machine, perform the following procedures before running `setup`.

**1. Determine which version of JDK is already installed by typing:**

```
java -fullversion
```

**2. If the version is anything other than `Solaris_JDK_1.2`, make sure you install `JDK_1.2` and remove the earlier version.**

**3. Install the correct version of JDK from the CD-ROM by typing:**

```
pkgadd -d /cdrom/solstice_em_4.1/products/  
Java_Development_Kit_1.2/Solaris_2.8+/sparc/Product SUNWj2dem  
SUNWj2dev SUNWj2man SUNWj2rt
```

### 3.3.7 Installing to a Non-Default Location

Before using `setup` to install to a non-default location as root,

1. Create the directory to which you will install Solstice EM 4.1.

```
mkdir install directory
```

2. Give the installation directory permissions of 755.

```
chmod 755 install directory
```

---

**Caution** – If these procedures are not followed, `setup` will create the directory with incorrect permissions, and the MIS will fail to start.

---

---

## 3.4 Post-Installation Activities Done by `setup` Program

The `setup` installation program installs the components you selected, then automatically conducts post-installation activities, which depend on the following variables:

- Solaris version you are installing on
- Patches you have installed
- Components you installed
- Whether you chose to have the installation program start the MIS and any applications for you after installation

The `setup` installation program performs the following post-installation activities:

- If you installed IP, `setup` installs the SNMP Patch 104018-08, if needed.
- If you installed only the CMIP protocol (not IP), `setup` creates symbolic links from the configuration files for Alarm Manager, Log Manager, and Log Viewer to CMIP versions of those files. If you install both CMIP and IP protocols, these configuration files are linked to IP versions of the files.
- If you did not install Solstice EM software in the default location (`/opt`), `setup` creates symbolic links from the directory where you installed Solstice EM software to the default installation directory, so that Discover will work correctly.

- The `setup` program installs the Java Runtime Environment.
- The `setup` program installs the `em_uninstall` files in `/install directory/SUNWconn`
- If you chose to install licenses during installation, `setup` installs those licenses now.
- If you successfully installed a license for the Management Information Server (MIS) and you chose to have it automatically started after installation, `setup` starts the MIS.
- If you are upgrading from Solstice 2.0.1, 2.1, 3.0 or 4.0 and you chose to preserve your existing data, `setup` imports topographical and alarm data.
- If you configured Automatic Management and chose to launch a request against all router interfaces in the topology, `setup` launches this request. This request checks “up” and “operational” status whenever a router is discovered and every 20 seconds thereafter. If there is a problem, status is posted and an alarm is generated.

If you chose to launch a request against all hosts in the topology, `setup` launches this request, which tests for reachability using the `ping` utility whenever a host is discovered and every five minutes thereafter.

- The `setup` program sets up access control.
- If you installed the HTML documentation, `setup` adds an icon to the Network Tools window for the HTML browser and configures the Network Tools window to start the browser when you click the icon.
- If you chose to automatically run Network Discovery after installation, `setup` runs Discovery.

---

## 3.5 Installing Solstice EM Using the `em_install` Script

The `em_install` script is an optional front-end to the `pkgadd` command. The `em_install` script provides the option of performing either a default or non-default installation. Additionally, if the `em_install` script detects a previous version on your machine, it will back up the existing data (if possible) and remove the existing packages before installing the new packages. For more information on using the `em_install` script to install Solstice EM, see Appendix B.

## ▼ To Install Solstice EM Using `em_install` Script

1. **Make sure your system meets the requirements for installing Solstice EM software and that you have the information you will be asked to provide.**

For detailed information, see Chapter 2.

2. **Log in as root or change to superuser.**

3. **Insert the Solstice EM CD-ROM into the CD-ROM drive, or perform the installation over a mounted network drive.**

4. **In a command tool, change to the directory where the CD-ROM is mounted.**

For example, if the CD-ROM is mounted at `/cdrom/solstice_em_4.1` enter the command:

```
cd /cdrom/solstice_em_4.1/
```

5. **In the same command tool, type `/em_install` to start the installation script.**

The installation menu is displayed.

6. **If Sun Cluster 3.0 is installed on your system you will be prompted to install SEM-HA, choose Yes.**

To install SEM-HA (High Availability option for Solstice EM) refer to Chapter 2 in *HA Installation Guide*. Otherwise, choose No.

7. **Select one of the first three options, then press Return.**

- Select option 1 to install for IP and CMIP management.

The Solstice EM common libraries, daemons, CMIP MPA, and Solstice Enterprise Agents are installed. Additionally, CMIP 9.0 is installed, if necessary. You also have the option of installing the MIS component, the Cooperative Consoles component, the applications, and the online documentation.

- Select option 2 to install for IP management only.

The Solstice EM common libraries, daemons, and Solstice Enterprise Agents are installed. In addition, you also have the option of installing the MIS component, the Cooperative Consoles component, the applications, and the online documentation.



- Select option 3 to install for CMIP management only.

The Solstice EM common libraries and CMIP MPA are installed. Additionally, CMIP 9.0 is installed, if necessary. You also have the option of installing the MIS component, the applications, and the online documentation.

If shared memory and semaphores have not been enabled on your system, you will see the following information on the screen.

Important Notice: The system does not appear to have shared memory and semaphores enabled. Shared memory and semaphores are required for the Solstice Enterprise Manager platform.

After shared memory and semaphores have been enabled a system reboot will be required. You may select one of these options for enabling shared memory and semaphores and continuing the installation.

1. Install shared memory and semaphores, reboot the system to enable them, and then resume the installation by invoking 'em\_install' again.
2. Install shared memory and semaphores, and continue installation of Solstice Enterprise Manager. Product will not be started until after the system is reboot.
3. Abort the installation without installing Solstice Enterprise Manager or shared memory and semaphores.

Please enter one of the above or '?' for help:

#### **8. Select one of the first two options, then press Return:**

- If you select option 1, your system is reconfigured and you are asked to confirm that you want to reboot the system.  
If you reboot the system, you must run the `em_install` command again and start over. If you do not reboot the system, the installation continues.
- If you select option 2, you receive a message stating that the appropriate system files have been updated, but that you must reboot the system at the conclusion of the installation before any applications can be started.

---

**Note** – If you select option 2, do not forget to reboot your system after the installation is complete. The MIS will not start unless the system is rebooted.

---

- 9. Enter the location of the Solstice EM media. Press Return if the default path is correct, or type the location of the Solstice EM software.**

For example:

```
cdrom/solstice_em_4.1
```

- 10. Choose where to install Solstice EM software. Press Return to accept the default location, or type the name of the directory where you want to install the Solstice EM software.**

---

**Note** – /opt/SUNWconn/em is the default location. If you specify a different location, for example, /software, then the packages are installed in the /software/SUNWconn/em directory. This is the only structure available.

---

- 11. Choose a default or non-default installation. Press Return to accept the default installation, or type n to customize your installation.**

- 12. By default, Access Control is active. Press Return to leave Access Control turned on, or enter n to turn it off.**

The default access control configuration will only allow a user logged in as `root` to start Solstice EM applications and connect with the MIS, have access to the applications' features, and have access to all the objects in the database. All non-root users must be granted permissions by using the Access Manager application. Turning Access Control off means that any user can use the Solstice EM applications and their features, as well as access the objects in the database. Answer either `y` or `n`, then press Return.

---

**Note** – It is possible to turn Access Control on or off at any time following installation. For more information, refer to Chapter 6 in *Managing Your Network*.

---

At this point, what you see on your screen will vary depending upon whether you are performing a default or non-default installation, and whether you are installing for both IP and CMIP management, IP management only, or CMIP management only.

If you are performing a non-default installation, you are asked a series of package-specific questions after you have answered the Access Control question. For information on the questions asked during installation, see Section 2.3 “Information You Provide” on page 2-10.

When the installation is complete, the `em_install` script saves a record of the installation in `/var/tmp/em_install.log` file and displays the following message:

```
A log of the installation has been saved as /var/tmp/
em_install.log
Installation is now complete.
cleaning up...
```

13. If Solstice EM is not installed successfully, look at the log file and refer to Chapter 2 in *Troubleshooting Guide*.

---

## 3.6 Installing Solstice EM Using `pkgadd` Utility

The `pkgadd` utility installs the contents of a software package from the distribution medium or directory to your system.

The `pkgadd` utility is best suited for experienced users who want to install a small number of individual packages, rather than doing a complete Solstice EM installation.

To do a complete installation, use either the `setup` command or the `em_install` script. See Section 3.1 “Installation Methods” on page 3-1. The `setup` command performs these additional installation tasks that the `pkgadd` utility does not:

- Preserves existing runtime data
- Takes care of package dependencies
- Sets up the database user account
- Installs licenses

The `setup` command also performs post-installation tasks, such as starting the Solstice EM MIS and tools. (For more information, see Section 3.4 “Post-Installation Activities Done by setup Program” on page 3-16.) If you use the `pkgadd` utility to install Solstice EM software, you must perform these tasks manually after installation. See Chapter 4.

## 3.6.1 Upgrading from Versions 2.0.1, 2.1, 3.0, and 4.0

Unlike the `setup` program, the `pkgadd` utility does not give you the option of preserving existing runtime data. If you have version 2.0.1, 2.1, 3.0, or 4.0 installed, you must manually preserve your existing runtime data before installing a new version of the software. Preservation of the runtime data for versions prior to 2.0 is not supported if you are installing version 4.1.

## 3.6.2 Package Dependencies

Several Solstice EM software packages require the existence of other packages. The `pkgadd` utility requires that you add packages in order of dependency—for example, if you want to add the Java Management Environment (`SUNWemjme`), you must first add the packages it depends on: `SUNWemalb`, `SUNWjvjit`, `SUNWjvdev`, and `SUNWjvjrt`.

The `setup` command automatically takes care of all such package dependencies. However, if you install the Solstice EM software using the `pkgadd` utility, you must be familiar with package dependencies. TABLE A-3 lists the Solstice EM packages in alphabetical order, along with their dependencies.

### ▼ To Install a Package Using `pkgadd`

1. **Make sure your system has the disk space requirements for installing each package.**

For detailed information see Chapter 2 .

2. **Log in as root or change to superuser.**
3. **Insert the Solstice EM CD-ROM into the CD-ROM drive, or perform the installation over a mounted network drive.**
4. **In a command tool, change to the directory where the CD-ROM is mounted.**

For example, if the CD-ROM is mounted at `/cdrom/solstice_em_4.1`, enter the command:

```
cd /cdrom/solstice_em_4.1/
```

**5. In the same command tool, type one of the following `pkgadd` commands:**

- To install the software in the default directory `/opt/SUNWconn/em`

```
pkgadd -d .
```

- To install the Solstice EM software in a different directory,

```
pkgadd -d . -a none
```

The `pkgadd` utility prompts you to enter the path of the directory to install the software—for example, Solstice EM is installed in the path `/emsetup/products/Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product`

CMIP 9.0 is installed in the path `/emsetup/products/Common_Management_Information_Protocol_9.0/Solaris_2.8+/sparc/Product`

JDMK is installed in the path `/emsetup/Java_Dynamic_Management_Kit_4.2/Solaris_2.8+/common/Product`

CCON is installed in the path `/emsetup/products/Cooperative_Console_1.2/Solaris_2.8+/sparc/Product`

License is installed in the path `/emsetup/products/License`

GDMO is installed in the path `/emsetup/products/GDMO/Solaris_2.8+/sparc/Product`

JDK is installed in the path `/emsetup/products/Java_Development_Kit_1.2/Solaris_2.8/sparc/Product`

SNM is installed in the path `/emsetup/products/Sun_Net_Manager_2.3/Solaris_2.8+/sparc/Product`

Patches are installed in the path `/emsetup/products/patches`

The `pkgadd` utility displays a numbered list of Solstice EM packages in screens of ten packages at a time.

For example,

The following packages are available:

```
1  SUNWcccfg      Cooperative Consoles Configuration Tool
                        (sparc) 1.2
2  SUNWccrcv      Cooperative Consoles Receiver Application
                        (sparc) 1.2
3  SUNWemalb      Solstice Enterprise Manager Common Libraries
                        (sparc) 4.1
4  SUNWemapp      Solstice Enterprise Manager Core Applications
                        (sparc) 4.1
5  SUNWembc       Solstice Enterprise Manager SNM Compatibility
                        (sparc) 4.1
6  SUNWemcpa      Solstice Enterprise Manager CMIP Management
                        Protocol Adapter (sparc) 4.1
7  SUNWemdev      Solstice Enterprise Manager Development
                        Environment (sparc) 4.1
8  SUNWemdmn      Solstice Enterprise Manager Daemons
                        (sparc) 4.1
9  SUNWemhtd      Solstice Enterprise Manager Documentation in HTML
                        format. (all) 4.1
10 SUNWemipa      Solstice Enterprise Manager IP Management
                        Protocol Adapter (sparc) 4.1
```

... 31 more menu choices to follow;

<RETURN> for more choices, <CTRL-D> to stop display:

**6. Press Return after each screen to list the next packages.**

**7. When you know which package(s) to install, press CTRL-D to stop the display of packages.**

**8. Enter the number of the package to install, or to install multiple packages, type each package number, separated by a comma.**

---

**Note** – The `pkgadd` utility installs packages one at a time, and only performs disk space verification prior to the installation of each package. This means that the installation will stop if the package that does not fit is about to be installed. If you choose to continue with the installation, there is a good chance it will fail.

---

After you have specified the packages you want to install, `pkgadd` adds the packages one by one, in alphabetical order.

For most of the packages, you receive questions regarding the following during installation:

- Executing scripts with superuser permissions
- Installing files with `setuid` and/or `setgid` permissions
- For each of these questions, type `y` if you want to continue, or `n` if you do not.

Several packages also ask questions pertaining to the installation of the specific package. For help in answering these questions, refer to Chapter 2.

**9. When the installation completes, use the `em_services` command to start the MIS.**

See Section 4.4 “Starting the Solstice EM MIS and Tools” on page 4-5.

**10. Install licenses for any EM software that requires a license.**

See Chapter 5.

---

## 3.7 Installing from a Remote CD-ROM 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). The instructions specify on which machine you must perform the steps.

As you mount the software from a remote CD-ROM, you must export or share the CD-ROM from the remote machine. This section explains how to share and to mount a CD-ROM from a Solaris 2.8 system.

### ▼ To Set Up a Remote CD-ROM Machine

Perform the following steps on the remote machine so you can use its CD-ROM to install Solstice EM.

**1. Type the following commands to find out if the NFS daemons are running:**

```
# ps -ef | grep mountd
root 179    1 0   Jul 06 ?      0:37 /usr/lib/autofs/automountd
root 625    1 0   Jul 06 ?      0:00 /usr/lib/nfs/mountd
root 6882 6873 0 11:23:48 pts/5    0:00 grep mountd

# ps -ef | grep nfsd
root 627    1 0   Jul 06 ?      0:00 /usr/lib/nfs/nfsd -a 16
root 6892 6873 0 11:24:04 pts/5    0:00 grep nfsd
```

2. If the NFS daemon is not already running, start the NFS daemon by typing the following commands:

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

3. Share the directory from the remote machine by typing the command:

```
# share -F nfs -o ro /cdrom/solstice_em_4.1
```

4. Make sure that the machine is exporting the directory by entering the `share` command. The screen should show the `/cdrom/product_name_dir` directory:

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

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

## ▼ To Mount a Remote CD-ROM From a Local Machine

To mount the remote CD-ROM on the local machine, follow these steps:

1. Use the automounter to automatically mount the exported or shared file system by executing the following command:

```
cd /net/remote_machine/cdrom/solstice_em_4.1
```

2. If the automounter is not running on your machine, do the following on your local machine:

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

```
mkdir /cd
```



b. Mount the remote directory on `/cd` by executing the following command:

```
mount -r -F nfs remote_machine:/cdrom/solstice_em_4.1 /cd
```

---

## 3.8 Adding a Component After Installation

If the most current version of Solstice EM has been installed, and you want to add a component that was omitted during installation, use the `setup` or `pkgadd` command.

---

**Caution** – You must select all the components already installed plus the component you want to add. If you do not select the same components that were selected during the previous installation, those components are removed.

---

For example, if you used the `setup` program to perform a typical installation, the Geographic Maps are not installed. If you then start a new `setup` installation and select *only* the Geographic Map component, all components are removed. To add the Geographic Map component, select Custom installation and select all components originally installed and the Geographic Map component.

---

## 3.9 Example Command-Line Mode Installation

The following code example shows a sample custom installation run in command-line mode.

**CODE EXAMPLE 3-1** Setup Installation in Command-Line Mode

```
# ./setup -c
Launching Setup...

WELCOME!

Setup will install and configure Solstice Enterprise Manager
4.1 on your computer.
```

### CODE EXAMPLE 3-1 Setup Installation in Command-Line Mode (Continued)

WARNING: This program is protected by copyright law and international treaties.

Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties and will be prosecuted to the maximum extent possible under law.

Press Enter to continue. **[Return]**

#### TARGET DIRECTORY

Enter the directory where you want to install.

Target Directory: [/opt] **[Return]**

#### SETUP TYPE

- 1) Typical - Installs the client and server components. Recommended for most users.
  - 2) Client - Installs components necessary for tracking, correcting, and reporting network errors.
  - 3) Server - Installs the Management Information Server (MIS), and other components necessary for running the product, storing data, and serving clients.
  - 4) Custom - You may choose the components you want, including optional components, such as Development Tools and Cooperative Consoles.
- Select the type of setup you prefer. [1] **4 [Return]**

#### COMPONENT SELECTION

- 1) ☒ Management Services
- 2) ☒ IP Protocol Adapters (SNMP/RPC)
- 3) ☒ CMIP Protocol Adapter (TMNQ3)
- 4) ☒ Java Management Services
- 5) ☒ Java DMK Protocol Adapter
- 6) ☒ Client Applications
- 7) ☒ Development Environment
- 8) ☒ CORBA Gateway Runtime Supplement
- 9) ☒ CORBA Gateway Developer Supplement
- 10) ☒ Documentation
- 11) ☒ License
- 12) ☐ Geographical Map Images
- 13) ☐ Cooperative Consoles

Enter item number to toggle selection.

**CODE EXAMPLE 3-1 Setup Installation in Command-Line Mode (Continued)**

```
Enter '0' to continue [0] 12 [Return]

1) [X] Management Services
2) [X] IP Protocol Adapters (SNMP/RPC)
3) [X] CMIP Protocol Adapter (TMNQ3)
4) [X] Java Management Services
5) [X] Java DMK Protocol Adapter
6) [X] Client Applications
7) [X] Development Environment
8) [X] CORBA Gateway Runtime Supplement
9) [X] CORBA Gateway Developer Supplement
10) [X] Documentation
11) [X] License
12) [X] Geographical Map Images
13) [ ] Cooperative Consoles
```

```
Enter item number to toggle selection.
Enter '0' to continue [0] 13 [Return]
```

```
1) [X] Management Services
2) [X] IP Protocol Adapters (SNMP/RPC)
3) [X] CMIP Protocol Adapter (TMNQ3)
4) [X] Java Management Services
5) [X] Java DMK Protocol Adapter
6) [X] Client Applications
7) [X] Development Environment
8) [X] CORBA Gateway Runtime Supplement
9) [X] CORBA Gateway Developer Supplement
10) [X] Documentation
11) [X] License
12) [X] Geographical Map Images
13) [X] Cooperative Consoles
```

```
Enter item number to toggle selection.
Enter '0' to continue [0] [Return]
```

**INSTALL LICENSE**

Some of the components you are installing require a license.

The License Distribution Center (contact information is packaged with your CD) will send you the required license information.

You may install the license(s) now (Setup requires them in a file) or after installation.

### CODE EXAMPLE 3-1 Setup Installation in Command-Line Mode (Continued)

```
Do you want to install the license(s) now? [no] y [Return]  
License File:[] /net/licenses/SEM-Network-Mgmt_Pak-4.1 [Return]
```

#### CONFIGURATION

Setup is designed to use defaults for configuration settings and post-installation activities for the components you selected.

You may, however, choose to manually configure these settings.

```
Do you want to manually configure now? [no] y [Return]
```

#### CONFIGURE - MIS (AND REQUIRED CMIP)

Solstice Enterprise Manager 4.1 uses CMIP as its internal protocol.

Enter the host and port number information necessary for the Management Information Server (MIS) to communicate with the CMIP Management Protocol Adapter (MPA).

```
CMIP MPA Host Name:[kailee] [Return]
```

```
Port Number on the CMIP MPA Host:[5557] [Return]
```

```
Port Number on the MIS Host:[5555] [Return]
```

#### CONFIGURE - SNMP MPA

Enter the host, port number, and request information necessary for the MIS to communicate with the SNMP Management Protocol Adapter (MPA).

```
SNMP MPA Host Name:[kailee] [Return]
```

```
Port Number on the SNMP MPA Host:[5575] [Return]
```

```
Port Number on the MIS Host:[5555] [Return]
```

```
Request Timeout (seconds):[20] [Return]
```

```
Retries:[3] [Return]
```

#### CONFIGURE - RPC MPA

Enter the host, port number, and request information necessary for the MIS to communicate with the RPC Protocol Adapter (MPA).

```
RPC MPA Host Name:[kailee] [Return]
```

```
Port Number on the RPC MPA Host:[5577] [Return]
```

```
Request Timeout (seconds):[15] [Return]
```

```
Retries:[0] [Return]
```

#### CONFIGURE - SNMP TRAP INFORMATION

### CODE EXAMPLE 3-1 Setup Installation in Command-Line Mode (Continued)

SNMP traps are converted to CMIP notifications and forwarded to the Management Information Server (MIS).

Enter the name of the MIS host to receive these CMIP notifications. Optionally, enter the names of other MIS hosts to also receive this information.

MIS Host:[kailee] **[Return]**

Other MIS Hosts (comma separated):[] **[Return]**

#### CONFIGURE - STARTING MIS

The Management Information Server (MIS) must be started before running Solstice Enterprise Manager 4.1.

You may choose to have the MIS started once installation is complete. If you do, Setup also lets you set options for Security, Data Definitions, and Discover.

Do you want the MIS started once installation is complete? [yes] **[Return]**

#### CONFIGURE - SECURITY

Enabling Security gives you control over who can access the tools and objects within the product. Otherwise, all users have full access to everything.

Do you want to enable Security now? [no] **y [Return]**

Would you like to add users to privilege groups?[no]**y [Return]**

Login Name[] **arubin [Return]**

Full Name[] **Ann Marie Rubin [Return]**

Would you like to add this user to any of these privilege groups:

Full Access[no] **y [Return]**

Operators[no] **[Return]**

View Only[no] **[Return]**

Security Trustee[no]**y [Return]**

Would you like to add more users?[no] **[Return]**

#### CONFIGURE - DATA DEFINITIONS

Data definitions, stored in the MIS, allow you to retrieve and create network objects. Default definitions are provided.

Do you want to load more data definitions now? [no] **[Return]**

#### CONFIGURE - BROWSER AS NETWORK TOOL

### CODE EXAMPLE 3-1 Setup Installation in Command-Line Mode (Continued)

```
The online documentation requires an HTML browser for
display.

You may specify the path and file name of an existing
browser to use.
Do you want to specify an HTML browser now? [no] y [Return]
Browser:[] /usr/dist/exe/netcape [Return]

CONFIGURE - NETWORK DISCOVERY

Network Discovery finds and adds network objects, such as
hosts, routers, networks, subnets, links, and SNMP devices
to the Management Information Server.

You may choose to automatically start network discovery
once installation is complete.
Do you want to automatically start network discovery?[no] y
[Return]

1) Discover the local subnet
2) Let me configure discovery in the Network Discovery tool
Select the type of discovery you prefer. [1] [Return]

CONFIGURE - AUTOMATIC MANAGEMENT

You may launch a request against all router interfaces in
the topology. The request checks "up" and "operational"
status whenever a router is discovered and every 20 seconds
after. If there is a problem, status is posted and an alarm
is generated.
Do you want to launch this request against all router
interfaces?[no] y [Return]
You may launch a request against all hosts in the topology.
The request tests for reachability using Ping whenever a
host is discovered and every 5 minutes after.

Do you want to launch this request against all hosts?[no] [Return]

CONFIGURE - DATABASE PASSWORD

Solstice Enterprise Manager uses a database to store
management data.

Enter the administrator's password for this database.

Password:[] ***** [Return]
```

**CODE EXAMPLE 3-1** Setup Installation in Command-Line Mode (*Continued*)

```
Confirm Password:[ ]***** [Return]

Configuration Complete

Installation Settings for Review:
Target Directory
    Target Directory: /opt
Setup Type: Custom
Selected components:
    Management Services
    IP Protocol Adapters (SNMP/RPC)
    CMIP Protocol Adapter (TMNQ3)
    Java Management Services
    Java DMK Protocol Adapter
    Client Applications
    Development Environment
    CORBA Gateway Developer Supplement
    CORBA Gateway Developer Supplement
    Documentation
    License
    Geographical Map Images
    Cooperative Consoles
Install License
    Install license now: Yes
    License File: /home/arubin/.cshrc
Configure - MIS (and required CMIP)
    CMIP MPA Host Name: kailee
    Port Number on the CMIP MPA Host: 5577
    Port Number on the MIS Host: 5555
Configure - SNMP MPA
    SNMP MPA Host Name: kailee
    Port Number on the SNMP MPA Host: 5575
    Port Number on the MIS Host: 5555
    Request Timeout (seconds): 20
    Retries: 3
Configure - RPC MPA
    RPC MPA Host Name: kailee
    Port Number on the RPC MPA Host: 5577
    Request Timeout (seconds): 15
    Retries: 0
Configure - SNMP Trap Information
    MIS Host: kailee
    Other MIS Hosts (comma separated):
Configure - Starting MIS
    Starting MIS: Yes
Configure - Security
    Security Enabled: Yes
```

### CODE EXAMPLE 3-1 Setup Installation in Command-Line Mode (Continued)

```
Number of users added: 4
Configure - Data Definitions
  Load additional data definitions now: No
  Directories containing additional data definitions:
    - Retrieving remote device information only.
Configure - Browser as Network Tool
  Configure Browser: Yes
  Browser:/usr/dist/exe/netcape
Configure - Network Discovery
  Start Discovery Automatically: Yes
  Network Discovery Options:
    - Discover the local subnet
Configure - Automatic Management
  Launch router request: Yes
  Launch reachability request: No

Setup has enough information to start the installation.

Review the settings listed above.If the settings are
incorrect, type quit followed by Enter to exit setup.

Press Enter to START INSTALLATION NOW. Once started,
installation cannot be interrupted.[] [Return]
  INSTALLING SOLSTICE ENTERPRISE MANAGER 4.1

Installing Java support files
Setting database password
Component 1 of 13: Management Services
Component 1 of 13: Management Services - SUNWemalb
Component 1 of 13: Management Services - SUNWemrdb
Component 1 of 13: Management Services - SUNWsnmag
Component 1 of 13: Management Services - SUNWemmis
Component 1 of 13: Management Services - SUNWemlog
Component 1 of 13: Management Services - SUNWemobj
Component 1 of 13: Management Services - SUNWembc
Component 1 of 13: Management Services - SUNWsnmct
Component 2 of 13: IP Protocol Adapters (SNMP/RPC)
Component 2 of 13: IP Protocol Adapters (SNMP/RPC) - SUNWemalb
Component 2 of 13: IP Protocol Adapters (SNMP/RPC) - SUNWemdmn
Component 2 of 13: IP Protocol Adapters (SNMP/RPC) - SUNWemipa
Component 3 of 13: CMIP Protocol Adapter (TMNQ3)
Component 3 of 13: CMIP Protocol Adapter (TMNQ3 - SUNWrk6
Component 3 of 13: CMIP Protocol Adapter (TMNQ3 - SUNWrk6x
Component 3 of 13: CMIP Protocol Adapter (TMNQ3) - SUNWemcpa
Component 3 of 13: CMIP Protocol Adapter (TMNQ3) - SUNWomgta
Component 3 of 13: CMIP Protocol Adapter (TMNQ3) - SUNWomgtb
Component 3 of 13: CMIP Protocol Adapter (TMNQ3) - SUNWmgtbx
```



**CODE EXAMPLE 3-1 Setup Installation in Command-Line Mode (Continued)**

```
Component 3 of 13: CMIP Protocol Adapter (TMNQ3) - SUNWomgte
Component 4 of 13: Java Management Services
Component 4 of 13: Java Management Services - SUNWemjme
Component 5 of 13: Java DMKJDMK Protocol Adapter
Component 5 of 13: Java DMK Protocol Adapter - SUNWemjmk
Component 6 of 13: Client Applications
Component 6 of 13: Client Applications - SUNWemalb
Component 6 of 13: Client Applications - SUNWemapp
Component 7 of 13: Developer Environment
Component 7 of 13: Developer Environment - SUNWemdev
Component 8 of 13: CORBA Gateway Runtime Environment
Component 8 of 13: CORBA Gateway Runtime Environment - SUNWemcgs
Component 9 of 13: CORBA Gateway Developer Environment
Component 9 of 13: CORBA Gateway Developer Environment - SUNWemcgs
Component 10 of 13: Documentation
Component 10 of 13: Documentation - SUNWemhtd
Component 11 of 13: License
Component 11 of 13: License - SUNWlit
Component 11 of 13: License - SUNWlicsw
Component 12 of 13: Geographical Map Images
Component 12 of 13: Geographical Map Images - SUNWemmap
Component 13 of 13: Cooperative Consoles
Component 13 of 13: Cooperative Consoles - SUNWcccfg
Component 13 of 13: Cooperative Consoles - SUNWccrcv
Activity 1 of 12: Installing Patch: 104190-06
Activity 2 of 12: Installing Patch: 104018-08
Activity 3 of 12: Creating Discovery links
Activity 4 of 12: Installing Java Runtime Environment
Activity 5 of 12: Starting SEA daemons
Activity 6 of 12: Adding uninstall files
Activity 7 of 12: Install license now:
Activity 8 of 12: Starting MIS
Activity 9 of 12: Loading MIB, GDMO and SNM files
Activity 10 of 12: Setting up access control
Activity 11 of 12: Configure Browser:
Activity 12 of 12: Running discovery
All components installed!

Press Enter to continue. [Return]

      FINISHING SETUP

Solstice Enterprise Manager 4.1 has been installed
successfully!

Would you like to run EM Panel? [no] [Return]
```



# Setting up Solstice Enterprise Manager

---

This chapter describes how to set up Solstice Enterprise Manager (Solstice EM) software after installation.

This chapter describes the following topics:

- Section 4.1 “Enabling Connections to the X Server” on page 4-1
- Section 4.2 “Setting Environment Variables” on page 4-2
- Section 4.3 “Setting up Internationalization and Localization” on page 4-3
- Section 4.4 “Starting the Solstice EM MIS and Tools” on page 4-5
- Section 4.5 “Getting Help” on page 4-9

---

## 4.1 Enabling Connections to the X Server

The `xhost` program is used to add and delete host and user names to the list of names that are allowed to make connections to the X server. Before opening the Network Tools window, you must give root (as well as all other users) access to the X server with the following command.

```
xhost +
```

If the window system was started by root, and if you are running the applications locally, you do not need to type this command.

---

## 4.2 Setting Environment Variables

You need to unset the Solstice EM environment variables before starting the `em_services`, or during new installation of Solstice EM in a different directory if the variables are already set by a previous installation. The variables that are already set are not modified by the `emenv.sh` or `emenv` scripts.

---

**Note** – For both commands described in this section, `/opt` is the default installation directory. If you have installed the Solstice EM software in a different location, substitute your location in place of `/opt`.

---

### ▼ To Run the `emenv` Script in the C-Shell

- Type the following command:

```
source /opt/SUNWconn/em/bin/emenv.csh
```

You can add this command to your `.cshrc` file to set Solstice EM environment variables automatically each time you start a new shell.

### ▼ To Run the `emenv` Script in the Korn or Bourne Shell

- Type the following command:

```
. /opt/SUNWconn/em/bin/emenv.sh
```

You can add this command to your `.profile` file to set Solstice EM environment variables automatically each time you start a new shell.

---

## 4.3 Setting up Internationalization and Localization

Internationalization (I18N) is a method of designing and producing software that facilitates easy adaptation to local markets. Solstice EM has been internationalized to support different languages with minimum effort. All Solstice EM applications have been brought to level four compliance with full support of text and code sets, formats, and collation, messages and text presentation, and Asian language support. The internationalization of messages was incorporated using the `catopen` and `catgets` functions.

Localization (L10N) is the process of preparing Solstice EM for a specific locale. The localization process includes the translation of the message files, compiling the translated message files, and installing the message catalog.

The L10N and I18N processes are discussed in the *Solaris International Developer's Guide*, a Prentice Hall/SunSoft Press book (ISBN 0-13-031063-8).

### ▼ To Localize Solstice EM Software

1. **Log in as root or become superuser.**
2. **Change directory to the location of the text files.**

For example:

```
cd /install directory/SUNWconn/em/lib/locale/en_US/LC_MESSAGES
```

3. **Translate the messages contained in the Solstice EM tool message files for the target locale.**

One message file exists for each Solstice EM tool, under the name `app_name.msg`

4. **Compile the message files.**

For example:

```
gencat em.cat *.msg
```

**5. Compile the PMI message file.**

For example:

```
gencat pmi.cat pmi.msg
```

**6. Translate the messages contained in *app\_name.po* for the target locale.**

**7. Create the message file.**

For example:

```
msgfmt -o em.mo *.po
```

**8. Install the message files.**

For example:

```
mkdir ../LANG/LC_MESSAGES  
cp em.cat ../LANG/LC_MESSAGES  
cp pmi.cat ../LANG/LC_MESSAGES  
cp em.mo ../LANG/LC_MESSAGES
```

## ▼ To Use Localized Solstice EM Software

To use the localized Solstice EM software, you need to set some environment variables.

**1. Set the environment variable *LANG* to your locale.**

For example, to set the *LANG* variable in the C-shell for the locale Japan:

```
setenv LANG ja
```

The equivalent command in a Korn or Bourne shell is:

```
LANG=ja; export LANG
```

**2. If you installed Solstice EM software in a non-default directory, or if the message file is not installed in the default location, set the *NLSPATH* environment variable to the path of the localized message catalog for internationalized applications.**

For example:

```
setenv NLSPATH path_to_catalog/%N
```

---

## 4.4 Starting the Solstice EM MIS and Tools

This section explains how to start the Solstice EM Management Information Server (MIS), the Security Manager, and other tools. If you configured these components to start after installation, they will start automatically.

### 4.4.1 Starting the MIS After a New Installation

If you did not choose to have the `setup` program automatically start the MIS after installation, you must manually start the MIS.

#### ▼ To Start the MIS After a New Installation

- **To start the MIS after a new installation of Solstice EM, type the following command:**

```
/opt/SUNWconn/bin/em_services -reload
```

This command starts the MIS, recreates the entire database, and recompiles all MIBs.

### 4.4.2 Starting the MIS After Upgrading Solstice EM Software

Upgrading over an existing installation of version 2.01, 2.1, 3.0 or 4.0 exports topography data and alarm data from the existing version, then installs Solstice EM 4.1 software. If you choose to have the `setup` program automatically start the MIS after installation, the topography and alarm data are automatically imported from the older version to the current version after the installation completes.

If you choose not to have the `setup` program start the MIS automatically after installation, the `setup` program exports the existing data, but does not import the data into the MIS. After installation, you must manually start the MIS and then import the data that the `setup` program exported.

## ▼ To Start the MIS After Upgrading Solstice EM Software

1. **Log in as root and type the following command in a shell or command tool:**

```
/opt/SUNWconn/bin/em_services -start
```

This command starts the MIS, while preserving the existing Solstice EM data.

---

**Note** – If you installed the product in a different directory, substitute your partition name for `/opt` directory.

---

---

**Note** – If the MIS does not start, check that you have a license installed. If the shared memory and semaphore parameters on your system required adjusting, you must reboot your system before the MIS will start.

---

2. **Import the exported alarm log data by typing the following command:**

```
/opt/SUNWconn/bin/em_imex -file /var/tmp/em_alarmlog_data.exp  
-import
```

3. **Import the exported topology data by typing the following command:**

```
/opt/SUNWconn/bin/em_topoimex -file /var/tmp/em_topo_data.exp  
-import
```

For more information on MIS, refer to the *Management Information Server Guide*.



## ▼ To Prevent the MIS From Starting After Rebooting

By default, the MIS starts automatically when your machine is rebooted.

- **To start the database on your own, either rename or remove the following files:**
  - `/etc/rc2.d/S96mis` file
  - `/etc/rc2.d/K96mis` file.

The MIS will not start when your machine is rebooted, and you must start the MIS manually as described in Section 4.4.2 “Starting the MIS After Upgrading Solstice EM Software” on page 4-5.”

### 4.4.3 Starting Network Tools

You can start the Solstice EM tools from Network Tools windows. The command shown below opens the Network Tools window and causes applications to connect to an MIS on the local machine.

```
/opt/SUNWconn/bin/em &
```

---

**Note** – To start the tools from the command line, you must set the Solstice EM environment variables by using the `emenv` scripts. See Section 4.2 “Setting Environment Variables” on page 4-2.”

---

### 4.4.4 Starting Security

Access to the Solstice EM applications and functions is provided through Password Authentication (the user must provide a password to use the system) and Access Control (the user must be authorized to use Solstice EM applications and their features, and must be given access to the objects in the database). If you installed the Solstice EM software using `pkgadd` utility, Password Authentication and Access Control are active by default.

## ▼ To Start Security

1. Log in as root.
2. Type the following command:

```
/opt/SUNWconn/bin/em_accessmgr &
```

## ▼ To Start Security and Connect to a Remote MIS

1. Log in as root.
2. Type the following command:

```
/opt/SUNWconn/bin/em_accessmgr -host hostname &
```

Use the optional `-host hostname` parameter, where *hostname* is the name of the machine where the MIS is running.

For more information on using Security or enabling Password Authentication and Access Control, refer to Chapter 6 in *Managing Your Network*.

### 4.4.5 Setting up HTML Documentation

If you installed the HTML documentation but chose not to have the installation program add the Documentation icon to the Network Tools window, you can do this manually by using the Configure Applications window. For information on adding a documentation icon to the Network Tools Window, refer to Chapter 3 in *Managing Your Network*.

### 4.4.6 Starting the Network Discovery Tool

The Network Discovery tool is used to add managed objects to the MIS database. Shown below is the command to start the Network Discovery tool and connect it to the MIS on the local machine. This command opens the Network Discovery window.

```
/opt/SUNWconn/bin/em_discover &
```

---

## 4.5 Getting Help

For help with any of the Solstice EM tools, you can invoke Online Help by using the `em_help` command.

```
/opt/SUNWconn/bin/em_help &
```

Also, you can view the HTML online documentation by pointing your browser to the following URL, `file:/opt/SUNWconn/em/docs/SEMDOCHP/index.html`



# Administering Licenses

---

Some Solstice Enterprise Manager (Solstice EM) software components require a license to use them. You can obtain licenses for these components before installing Solstice EM software. You can then enter the licenses during installation, and the `setup` program will install them for you.

You must install the licenses before using any of the components that require licenses. If you did not install licenses during the installation, you can install them by running the `lit` program.

This chapter discusses how licensing works, the types of licenses available, how to obtain a license, how to set up a license server, and how to manage licenses.

This chapter describes the following topics:

- Section 5.1 “Licensed Components” on page 5-1
- Section 5.2 “How Licensing Works” on page 5-2
- Section 5.3 “License Types” on page 5-3
- Section 5.4 “Installing Solstice EM Licensing” on page 5-3
- Section 5.5 “Starting License Manager Daemons” on page 5-10
- Section 5.6 “About License Data Files” on page 5-11
- Section 5.7 “Combining License Files” on page 5-12
- Section 5.8 “Adding New Products to an Existing License File” on page 5-13
- Section 5.9 “Managing Licenses” on page 5-13
- Section 5.10 “Manual Pages” on page 5-16

---

## 5.1 Licensed Components

The following components of Solstice EM require licenses:

- CMIP 9.0 for SPARC™—one license is required for CMIP 9.0.
- Common Management Information Protocol (CMIP) Management Protocol Adapter (MPA) (TMNQ3)—one license is required for each instance of the CMIP MPA.

- Client applications—one license can be shared by all client applications, as long as they are started by the same user on the same client machine.
- Management Information Server (MIS)—one license is required for each instance of the MIS.
- ToolKit—one license is required for the Solstice EM development environment.
- Java DMK Protocol Adapter—one license is required for each instance of the Java DMK Protocol Adapter.

---

**Note** – For SEM-HA, the above individual component licenses should be installed on all the nodes.

---

## 5.2 How Licensing Works

The Solstice EM CD-ROM contains software that you install on your network to manage concurrent (shared) licenses.

Inside your Solstice EM product kit, you will find a certificate. This certificate corresponds to a license for a number of Rights to Use (RTU) for one or more Solstice EM components.

The licensing mechanism requires the following:

- *License manager daemon* – The license manager daemon runs on the network.
- *License server* – The machine that runs the license manager daemon is the license server. The license server must be a Solaris™ system.
- *License data file* – The license data file contains the information that makes licensing work. It is installed on the license server.
- *License database* – One or more license data files constitute the license database.
- *Serial number* – The serial number is on the license certificate included with your software. You need this number to get your license password.
- *License distribution center* – You must call a license distribution center with the serial number and information about your license server in order to obtain the license password to enter into the data file.
- *License password* – A license key (password) is assigned to each feature for which you have a valid license.

Whenever a program starts, it must first obtain a license from the license database. This database can be local to the machine (an individual license) or located on a license server (a shared license).

When you run a program, the program reads the license database or sends a message to the license daemon asking for a license. If a license exists in the license database, the program runs. If the license database is located on a license server, the computer running the program must be able to connect to that server.

---

## 5.3 License Types

Permanent licenses can be either concurrent (shared) or node-locked (local to the individual machine). An evaluation license is local to the individual computer.

- A concurrent license is shared among many users. In order to use concurrent licensing, the administrator must set up a license server with a centrally administered license database on a network. This is the preferred method for licensing Solstice EM components.
- A node-locked license is permanently assigned to an individual computer (or node). This type of license does not require a license server.
- An evaluation (demo) license has a built-in expiration date. This allows you to use an application for a restricted time period (generally thirty days). If you have installed Solstice EM software with an evaluation license, you must replace the evaluation license with a permanent license within the time period if you want to continue using the software. A warning message will appear when the expiration date approaches. Install a permanent license using the License Installation Tool.

---

## 5.4 Installing Solstice EM Licensing

The following sections provide a quick overview of how to set up licenses at your site. If you are using only node-locked licenses, you do not need to set up a license server. Setting up a license server involves these tasks:

- Selecting the license server(s)
- Installing the licensing software on each server
- Obtaining a license and password
- Activating the license

### 5.4.1 Selecting a License Server

Before you install and run the licensing software, you need to select a license server and obtain the host name and host ID to be provided to the license distribution center.

You should choose a stable machine to function as your license server. Do not choose a machine that must be frequently shut down and restarted.

---

**Note** – Once you have selected a machine as a single, multiple, or redundant license server, that machine cannot be used in a different licensing configuration.

---

With this licensing system, you can use any of the following types of license server configurations:

- Single independent server
- Multiple independent servers
- Redundant servers

### 5.4.1.1 Single Independent Servers

All licenses are handled by a single server. You can have any number of independent servers and divide your licenses among them. The default is a single server. A single server is the easiest to install and is recommended.

### 5.4.1.2 Multiple Independent Servers

Each server acts separately to administer a subset of licenses.

### 5.4.1.3 Redundant Servers

Three servers act as one server, administering the same set of licenses. You can set up three redundant servers to manage the same set of licenses. The set of servers operate as one logical server. If one server is unavailable, the applications will be able to acquire a license from one of the other servers.

The licensing software requires that a majority of redundant servers be running. If you have three redundant license servers, two must be running. If only one of a three-servers configuration is running, then no licenses will be available.

To set up the redundant servers, you must provide the host IDs for all three machines to the license distribution center when you call for your license password. All server host IDs are incorporated into the license password and any servers that are not incorporated into the password will not work.

If you choose to use redundant servers, all your licenses installed on those machines must use the same redundant servers. If, for example, you purchase a license for a product to be served by servers A, B, and C, then any new licenses added to one of those servers must be added to the other two servers with the same configuration as the first license.



The main advantage of redundant servers is the probability that all licenses will be available. However, there is the risk that if two of the three license servers are down, then no licenses are available.

## 5.4.2 Installing the Licensing Software

Before the licenses can be installed, the licensing software, comprising the STE Licensing Tool (SUNWlit package) and the FlexLM License Manager (SUNWlicsw package) must be installed. You can use the `setup` program to install these packages at any time prior to or after installing the rest of the software.

If you installed the License component, the licensing software is already installed. Type the following command to check if the licensing software already exists on your system:

```
pkginfo SUNWlicsw
```

If the SUNWlit and SUNWlicsw packages already exist, go to Section 5.4.4 “Activating the License” on page 5-7.” If not, then you must follow the instructions in this section to add the packages using the `pkgadd` command.

### ▼ To Install the License Software

To install the licensing software, perform the following steps as root:

- 1. Change to the directory where the CD-ROM is mounted.**

This is typically `/cdrom/solstice_em_4.1`

```
cd /cdrom/solstice_em_4.1
```

- 2. Type the following command:**

```
pkgadd -d . SUNWlicsw SUNWlit
```

After you press Return, the packages are installed. During the installation, if you see questions pertaining to the subjects listed below, enter `y` if you want to continue, or `n` if you do not:

- Executing scripts with superuser permissions
- Installing files with `setuid` and/or `setgid` permissions

The installation is complete when your prompt re-appears.

After running `SUNWlit` on your license server, two things are accomplished by the program:

- It automatically generates the file, `licenses_combined`. This file is used by the license daemon, and is located on the license server in `/etc/opt/licenses/licenses_combined`
- It starts or restarts the license daemons.

## 5.4.3 Obtaining a License and Password

This section describes how to contact the license distribution center to obtain your license. Acquiring a license involves the following tasks:

- Gathering the necessary information
- Contacting the license distribution center
- Receiving the license password

Once you have collected the necessary information, you can obtain your license password from one of the license distribution centers. The license distribution center will give you the choice of delivery by voice, email, or fax.

### 5.4.3.1 What You Will Need to Provide

Before you contact the license distribution center, gather the following information:

- Serial number from the license certificate. Your Solstice EM component includes a license certificate with the following information:
  - Serial number
  - Product
  - Version
  - Rights to Use
- Host ID of the license server (three host IDs if you are using redundant servers). To get the host ID of your system, type `hostid`.
- Host name of the license server (three host names if you are using redundant servers). To get the name of your server, type `uname -n` or `hostname`.

### 5.4.3.2 Contacting the License Distribution Center

You can contact the license distribution center by email, fax, or telephone. The phone numbers for most of the license distribution centers are provided on the proof of your license certificate. Email addresses are also listed.

---

**Note** – If you receive your license password by email, the License Installation Tool can read the licensing information directly from the email file sent from the license distribution center. See “To Load Your License Data From a File” .

---

- United States, Canada, and Puerto Rico – [license@sun.com](mailto:license@sun.com)
- Europe – [eu-licensing@UK.sun.com](mailto:eu-licensing@UK.sun.com)
- Japan – [japan\\_licensing@Japan.sun.com](mailto:japan_licensing@Japan.sun.com)
- All Other Countries – [license@sun.com](mailto:license@sun.com)

Once you have contacted the license distribution center, you will receive one of the following:

- email – You will receive a license file for the licensed features. The entire file can be read into the license database using the License Installation Tool.
- Fax or phone – You will receive the following information, which you can enter into the database using the License Installation Tool:
  - Rights To Use (RTU)
  - Password
  - Data checksum that will be verified
  - Password checksum that will be verified

### 5.4.4 Activating the License

Before activating the license, complete the procedures in the previous subsections of Section 5.4, “Installing Solstice EM Licensing.”

There are two methods for activating the license:

- Load license data into the license file automatically
- Type license data into the license file manually

You must be superuser to enter license passwords.

#### ▼ To Load Your License Data From a File

If you receive your license by email, you can easily load your license data (and avoid mistyped information) into a license file. This method creates a new file or adds to an existing one.

1. **Save as a file the email message you received from the license distribution center.**

The license file might be included as an attachment.

2. **As root, start the License Installation Tool. Type: `/etc/opt/licenses/lit`**

The License Installation Tool opens on your desktop.

3. **Select “Loaded From An email Message Saved To A File”.**

4. **Type the absolute path name of the saved file containing the license, then click Load License Information From File or click browse button.**

The License Installation Tool displays the licenses in a window.

5. **Do Load File.**

6. **Click Install.**

The License Installation Tool installs the licenses on your server and displays a message stating that the licenses are installed.

When the licenses are installed, the license configuration script, `LIC_CONFIG_SCRIPT`, runs on the server where you ran `lit`.

7. **If you have redundant servers, perform the following steps.**

- a. **Copy file `/etc/opt/licenses/LIC_CONFIG_SCRIPT` from the license server where you ran `lit` to the remaining redundant license servers.**

- b. **Run the configuration script on each of the redundant servers by typing:**

```
/etc/opt/licenses/LIC_CONFIG_SCRIPT
```

This command puts a copy of the license file on each of the redundant license servers in `/etc/opt/licenses/licenses_combined` file.

Look in log file `/tmp/license_log` for any errors.

- c. **Repeat these steps for each redundant server.**

## ▼ To Type Your License Data Manually

You must be superuser to install the license passwords using the License Installation Program.

1. **As root, start the License Installation Tool. Type the following command:**

```
/etc/opt/licenses/lit
```

The License Installation Tool opens.

**2. Click “Entered Manually”.**

The “Add License Menu” opens.

**3. Click the Product Name field to select the product.**

You can select:

- Solstice EM MIS
- Solstice EM APPS
- Solstice EM CMIP MPA
- Solstice EM DEV
- Solstice EM CMIP, Version 9.0

**4. Enter the number of licenses in the RTU field.**

**5. Type the password for the licenses in the Password field.**

The password consists of 20 hexadecimal characters.

**6. Verify that the password checksum number matches the information you have received from the license distribution center.**

If the checksum does not match, you must retype the password, the number of RTUs or the expiration date until the checksum is correct.

**7. Verify that the data checksum number matches the information you have received from the license distribution center.**

If the data checksum numbers differ, you must contact the license distribution center to resolve the difference. These numbers must match.

**8. Click Add.**

If you have additional licenses to install, repeat Step 2 through Step 5 for each feature and password.

**9. Click Close when you have added the license for each feature.**

The license information appears in the Licenses To Be Installed field.

**10. (Optional) Click Set Up Redundant Server Information.**

The Set Up Redundant Server Information menu opens. Use this menu to add the host name and host ID of two redundant servers, if you plan to use them.

**11. Click Install.**

The License Installation Tool installs the licenses on your server and displays a message telling you that licenses are installed.

When the licenses are installed, the license configuration script, `LIC_CONFIG_SCRIPT`, runs on the server where you run `lit`. If you have redundant license servers, a message appears identifying the servers on which you need to run the license configuration script.

## 12. Install licenses on the redundant servers.

If you have redundant servers, perform the following steps.

**a. Copy file `/etc/opt/licenses/LIC_CONFIG_SCRIPT` from the license server where you ran `lit` to the remaining redundant license servers.**

**b. Run the configuration script on each of the redundant servers. Type:**

```
/etc/opt/licenses/LIC_CONFIG_SCRIPT
```

This puts a copy of the license file on each of the redundant license servers in `/etc/opt/licenses/licenses_combined` file.

Look in log file `/tmp/license_log` for any errors.

---

## 5.5 Starting License Manager Daemons

The Solstice EM software uses two license manager daemons:

- `lmgrd`
- `suntechd`

---

**Caution** – You should never start `suntechd` directly; `lmgrd` reads the license data file and starts all the daemons listed there.

---

If the license manager daemons are not running, you can start them by entering the `lmgrd` command. If you have multiple servers, you need to start the daemons on each server.

If the license manager daemons are running, you can update them by entering the `lmreread` command. This forces the license manager daemon (`lmgrd`) to reread the license data file and start any vendor daemons that have been added.

The administration commands are installed in the `/opt/SUNWste/bin` directory.

## ▼ To Start the lmgrd Daemon

Under normal operations, you should not have to restart the `lmgrd` daemon. It restarts automatically when you install new license software and when the system reboots.

If the license daemon goes down, you need to restart it.

1. To find out if the license daemon is running, type the command:

```
ps -ef | grep lmgrd
or
ps -ef | grep suntechd
```

2. If `lmgrd` and `suntechd` are not running, start `lmgrd` by typing the command:

```
/etc/rc2.d/S85lmgrd start
```

---

## 5.6 About License Data Files

A license data file contains information about the license server, the location of the license daemon, and the features being licensed. The example below shows an installation with one license server. There are five licensed features.

### CODE EXAMPLE 5-1 Sample License Data File

```
#
# Product : SEM 4.1 DEV TOOLKIT, 4.1
# Date    : 21-Aug-2001
#
SERVER binu.india 80d0ee1d 1726
DAEMON lic.SUNW /etc/opt/licenses/lic.SUNW
INCREMENT ssp.em.app lic.SUNW 4.100 01-jan-0 1
CBCA10117E8701E0B613 "2"
#LICENSE_FILE ssp.em.app 4.100 ssp.em.lic 1
INCREMENT ssp.em.mis lic.SUNW 4.100 01-jan-0 1
CB3A10D17E8F01E4AC12 "3"
#LICENSE_FILE ssp.em.mis 4.100 ssp.em.lic 1
INCREMENT ssp.em.cmipmpa lic.SUNW 4.100 01-jan-0 1
5B3AE091A6924C99249B "2"
#LICENSE_FILE ssp.em.cmipmpa 4.100 ssp.em.lic 1
INCREMENT ssp.em.dev lic.SUNW 4.100 01-jan-0 1
DB1A10F1BA98637BBDD9 "0"
#LICENSE_FILE ssp.em.dev 4.100 ssp.em.lic 1
```

A license data file consists of four types of lines.

- **Server line** – A line beginning with `SERVER` followed by the server host name, server host ID, and, optionally, a TCP port number. If you request redundant servers, the data file will have three server lines, one for each redundant server.
- **Daemon line** – A line beginning with `DAEMON`, followed by the name of the daemon (always `suntechd`), the path name of the executable code of the daemon, and, optionally, the path name of an options file.

Be sure the daemon path name is correct.

- **Feature line** – A line beginning with `FEATURE` or `INCREMENT` followed by the name of the feature being licensed, daemon name, feature version number, expiration date, number of licenses, password, and vendor string (currently null). There is one feature line for each feature being licensed.
- **Comment line** – A line beginning with a pound sign (`#`). There may be one or more comment lines in this file.

Most of the information in this file may not be altered. You should restrict access to this file so that users cannot accidentally alter it. You can alter only the following items:

- Host names—but not host IDs—on `SERVER` lines
- Port numbers on `SERVER` lines
- Path name of the daemon on `DAEMON` lines
- Path name of the options file on `DAEMON` lines
- Comment lines

---

## 5.7 Combining License Files

If you have other Sun products or products from another vendor that use FlexLM as their licensing mechanism, you may already have a FlexLM license server. This section describes how to administer licenses by combining license files, or by using the same server to administer multiple licenses.

You can combine license files into a single file if:

- Both files have the same number of `SERVER` lines.
- The `hostid` field of each server line in one file exactly matches the `hostid` field of each server line in the other file.

You cannot combine license files when the host IDs or number of servers are different as in the following situations:

- **Different host IDs:**
  - The license files are set up to run on different servers.



- One vendor uses a custom `hostid` algorithm, so the host IDs on the `SERVER` lines are different, even though both files run on the same server.
- Different numbers of servers: One file is set up for a single server and the other is set up for multiple servers.

If any of the above is true, you should not combine files. You must keep the license files separate and run separate copies of `lmgrd` for each license file.

---

## 5.8 Adding New Products to an Existing License File

If you are adding another Solstice product to an existing file, add the new feature line after the existing feature line(s).

If you are combining products from different vendors, combine the license files and remove the extra `SERVER` lines so that only one set of `SERVER` lines remains.

---

## 5.9 Managing Licenses

The FlexLM licensing software includes administration tools that allow you to manage the licenses at your site. You can also create an options file that restricts and controls access to licenses.

### 5.9.1 License Administration Tools

The licensing package includes six administration tools:

- `lmdown` – Shuts down all license daemons. You must be root to run `lmdown`. This command should be run without the `-q` (quiet) option, thus forcing confirmation of the license server shutdown.
- `lmhostid` – Calls the FlexLM version of `gethostid` and displays the results.
- `lmremove` – Allows you to remove a single user's license for a specific feature. This is useful if, for example, a user's workstation crashes and a license becomes unusable. In that case, `lmremove` will free the license.

- `lmreread` – Causes the license daemon to reread the license data file and start any vendor daemons that have been added. All running daemons are signalled to reread the license data file so any new information is incorporated into their operation. Options files, however, are not reread. To reread the option files, you must restart `lmgrd`.
- `lmstat` – Displays the status of networking licensing activities.
- `lmver` – Displays the version of a library or binary file.

## 5.9.2 Setting Up an Options File

A default `daemon_options` file is installed as part of the licensing package in `/etc/opt/licenses/daemon_options`. You can modify this file before running the License Installation Tool. If the license daemon is running, you must stop it, modify the file, and then restart the daemon.

If you have multiple servers, be sure to make the same changes on all servers.

The options file allows you to control and manage the licensing mechanism. You can use the options file to:

- Allow or deny access to features by user
- Reserve licenses for specified users or hosts
- Define a linger time for idle licenses
- Define a time-out period for inactive licenses
- Control which license daemon messages are logged

The options file contains a number of lines starting with a keyword, with each line controlling one option. For example, the line `EXCLUDE netfeature HOST mypc` excludes host `mypc` from acquiring a license to use the feature `netfeature`.

### 5.9.2.1 Keywords

The keywords used in the options file are listed in the following table.

**TABLE 5-1** Keywords Used in Options File

Keyword	Description
LINGER	Allows a host to keep a license for a set period of time after quitting the product
INCLUDE	Specifies a list of hosts allowed access to a feature
EXCLUDE	Specifies a list of hosts denied access to a feature
INCLUDEALL	Like <code>INCLUDE</code> , but applies to all features

**TABLE 5-1** Keywords Used in Options File (*Continued*)

Keyword	Description
EXCLUDEALL	Like EXCLUDE, but applies to all features
TIMEOUT	Sets a time after which an inactive license is reclaimed and can be used by a waiting user (default is 15 minutes)
NOLOG	Causes messages to be filtered out of the daemon's log output

### 5.9.2.2 Options File Format

The options file consists of lines in the following format.

```
LINGER feature value_in_seconds
INCLUDE feature HOST hostname
EXCLUDE feature HOST hostname
INCLUDEALL HOST hostname
EXCLUDEALL HOST hostname
TIMEOUT feature value_in_seconds
NOLOG {IN | OUT | DENIED | QUEUED}
```

The notation HOST means you use the keyword HOST, followed by the name of a host.

The value given for TIMEOUT can be any positive number. However, the minimum value is 900 seconds (15 minutes).

Lines beginning with a pound sign (#) are considered comments and are ignored.

### 5.9.2.3 Allow or Deny Access to Features

Use the options file to specify a list of hosts that are allowed access to the licenses.

Use the INCLUDE line to indicate a list of hosts that are allowed access to the license. Any host not included in the INCLUDE statement will not be allowed to use that feature. For example, the line INCLUDE netfeature HOST mypc defines a host machine called mypc and allows it access to the feature netfeature. No other machine will be allowed access to this feature.

### 5.9.2.4 Define a Time-out Period for Inactive Licenses

You can specify the time, in seconds, after which an idle license will be freed and released to another user. You can specify this time in seconds, with a minimum number of 900 seconds (15 minutes). If you specify a time shorter than the minimum, the time-out will be set to 900 seconds.

### 5.9.2.5 Reserve Licenses

Use this option to reserve one or more licenses for a specific machine in the network. Reserved licenses are not available to other hosts. For example, the option line `RESERVE 1 netfeature HOST pc-twenty` reserves one license of feature `netfeature` for machine `pc-twenty`. Even when that host is not using the feature, the license will not be available to other machines on the network.

### 5.9.2.6 Control Information Logging

The option keyword, `NOLOG`, allows you to filter the types of messages that will be entered into the debug log file. The format for the `NOLOG` line is `NOLOG status`, where *status* can be one of the following:

- `IN` – licenses checked in
- `OUT` – licenses checked out
- `DENIED` – licenses denied
- `QUEUED` – queued requests

To turn off logging of checkins: `NOLOG IN`

To turn off logging of queued requests: `NOLOG QUEUED`

To turn off both checkins and queued requests requires two lines:

```
NOLOG IN
NOLOG QUEUED
```

Use this option to limit the size of the debug log file.

---

## 5.10 Manual Pages

Helpful information in the form of manual (referred to as Man) pages for license administration tools are included in the licensing package and are installed in the directory `/opt/SUNWste/man`

To view these pages, set your `MANPATH` environment variable to point to the proper directory. For example, in a C shell, type the command:

```
set MANPATH /opt/SUNWste/man
```

In a Bourne shell, type the commands:

```
MANPATH=$MANPATH:/opt/SUNWste/man  
export MANPATH
```

To set the path to the man pages permanently, add the `/opt/SUNWste/man` directory to the `MANPATH` environment variable in your shell startup file.



## Installing SNM Agents

---

This chapter provides instructions for installing SunNet Manager (SNM) Agents that are shipped with Solstice Enterprise Manager (Solstice EM) software. Install these on remote systems.

This chapter describes the following topics:

- Section 6.1 “Updating NIS Maps or NIS+ Tables for SNM Agents” on page 6-1
- Section 6.2 “SNM RPC Agents” on page 6-3
- Section 6.3 “Using pkgadd to Install Agents” on page 6-4
- Section 6.4 “Using getagents to Install Agents” on page 6-5

---

### 6.1 Updating NIS Maps or NIS+ Tables for SNM Agents

If you plan to use the SunNet Manager (SNM) agents and are running NIS or NIS+, you must update the NIS `services` and `rpc.bynumber` maps or the equivalent tables in NIS+.

#### ▼ To Update NIS Maps or NIS+ Tables

1. **On the master NIS or NIS+ server, log in as root or become superuser.**

For example:

```
hostname% su
Password: *****
```

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

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

**3. If the following lines do not exist in the `/etc/rpc` file, edit the file to add the following lines:**

```
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
iostat2    100136      na.iostat2
hostmem2   100137      na.hostmem2
```

**4. Implement the changes by using one of the following methods:**

- 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.
- 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.

---



5. Look for, and send a signal to, the `inetd` process by typing the following commands:

```
# ps -ef | grep inetd
# kill -HUP processnumber
```

In the preceding command, *processnumber* is the `inetd` process number.

---

## 6.2 SNM RPC Agents

The workstation running the Solstice EM MIS is the focal point for collecting and analyzing information. It receives the information from data collection programs (agents), which usually run on remote machines.

The Solstice EM software includes SNM RPC agents that run on:

- Solaris 2.0 and compatible systems on a SPARC platform
- Solaris 2.0 and compatible systems on an x86 platform
- SunOS 4.1 and compatible systems on a SPARC platform

You install these agents on remote Solaris 2.0 and compatible systems by running the `pkgadd` program. You install agents on remote SunOS 4.1 and compatible systems by running `getagents`.

Solstice EM provides tools (the Viewer and the Object Configuration Tool) that enable you to configure machines as SNM RPC agents. With the proper configuration and with SNM agents installed, you can manage SNM agents similar to the way you use Solstice EM to manage CMIP or SNMP objects.

---

**Note** – Throughout this chapter, the term “MIS machine” designates the machine on which the SNM agents package is installed. In fact, you need not have installed the agents package on the same machine as the MIS. If you did not, when performing the procedures here, substitute the name of the machine on which the agents package is installed for the name of the MIS machine.

---

---

## 6.3 Using pkgadd to Install Agents

The SNM agents are contained in the Site/SunNet/Domain Agents and Libraries package (SUNWsnmag). You have already installed the SUNWsnmag package, if you:

- Chose to install the Solstice EM MIS component using the `setup` program
- Selected the SUNWsnmag package during installation using the `pkgadd` command

This section describes how to install the SUNWsnmag package using `pkgadd`.

### ▼ To Install Agents Using the pkgadd Utility

1. **Log in as root.**
2. **Change to the directory where the CD-ROM is mounted.**

Usually, this directory is `/cdrom/solstice_em_4.1`

For example,

```
cd /cdrom/solstice_em_4.1
```

3. **Perform one of the following steps, as applicable:**

- To install in the default location, type the following `pkgadd` command:

```
pkgadd -d . SUNWsnmag
```

This command installs the packages in the default directory `/opt`

- To install in a directory other than the default, type the following command:

```
pkgadd -d . -a none SUNWsnmag
```

During the installation, you will be asked questions regarding the following:

- Executing scripts with superuser permissions
- Installing files with `setuid` and/or `setgid` permissions

4. **For each of the questions you are asked, type `y` if you want to continue, or `n` if you do not.**

5. If you are installing the Site/SunNet/Domain Manager Agents and Libraries Package, answer the questions for this package:
- Specify the location of the SNM log files or press Return if the default of `/var/opt/SUNWconn/snm` is acceptable.
  - Verify your selection by pressing Return, or type `n` to specify another location.

---

**Note** – On an x86 platform, the `SUNWsnmag` package is referred to as `SUNW86nma`. This package name appears only inside the actual script text.

---

The `pkgadd` script terminates after this package is installed, and the menu showing the various packages available for installation is displayed. Type `q` to quit the installation procedure.

---

## 6.4 Using `getagents` 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
- Running the `getagents` script using `rcp`
- Overview of the `getagents` script

The `getagents` script allows a Sun™ machine to run SNM 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 MIS machine to another machine. The script makes backup copies of all system files that are modified.

Specifically, the `getagents` script does the following:

- Copies the agents, schema files, libraries, and native SNMP agent files from the MIS machine.
- Under SunOS 4.0 and compatible versions, 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 SNM agent and manager applications. If the link creation fails, an error message is printed, and you 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.

---

- Adds SNM agent entries to `/etc/rpc`—see `rpc(5)`.
- Adds SNMP definitions to the `/etc/services` file for SunOS 4.x systems.

- Updates `/etc/inetd.conf` under SunOS 4.x and asks `inetd(8C)` to reread its configuration file. See the `inetd.conf(5)` man page.
- Creates a sample database file you can add to your management database on an SNM Console machine (if you are running SNM somewhere on your network).
- Creates the `/var/adm/snm/snmp.hosts` file as well as the `/var/adm/snm/snmp.traps` file for use by the SNMP proxy agent.

## 6.4.1 Copying Scenarios

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

Because 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 Solstice EM distribution NFS mounted from the MIS machine. *Do not* copy the agents because you will run the agents over the mount.
- The system has the Solstice EM distribution NFS mounted from the MIS machine. You *want* to copy the agents because you will run the agents from a different file system.
- The Solstice EM distribution is not NFS mounted, so `rcp` is needed to copy the agents.

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

## 6.4.2 Running `getagents` Using an NFS Mount

In the following procedure, the local machine (`agenthost`) has the Solstice EM 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 MIS machine.**

2. Type the commands to export the file system and start the NFS daemons, if they are not already running.

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

3. Log in as root to the machine that runs the agents (this machine is referred to as the local machine).
4. Create a mount point on the local machine.

```
mkdir mountpoint
```

5. Mount the Solstice EM software on your local machine from the MIS machine (by default, in `/opt/SUNWconn/snm` directory)

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

---

**Note** – You must specify an absolute path when specifying the mount point using the `mount` command.

---

6. Run the `getagents` script from the `bin` directory under the mount point you created on the local machine.

```
./mountpoint/bin/getagents
```

The `getagents` script starts and asks for the name of the directory where you are installing the agents.

7. Press Return if `/opt/SUNWconn/snm` is correct, specify a directory, or type NFS to run the agents over an NFS mount.

---

**Note** – If you type NFS, the `getagents` script asks for the name of the root directory under which the Solstice EM agents and libraries are located. Go to Step 10.

---

After specifying a directory, the `getagents` script asks if you want to create the `agents` directory.

**8. Press Return to create the directory.**

The `getagents` script asks for the name of the host where the agents are located.

**9. 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.

**10. Type the name of the mount point you created in Step 4.**

The `getagents` script creates library links, then asks if you want to install the Sun SNMP agent.

**11. Choose one of the following options:**

- If you want to install the Sun SNMP agent, press Return.
- If you do not, type `n`.

---

**Note** – If you type `n`, the `getagents` script creates the `/etc/snm.conf` file, then asks for the location of the database files. Go to Step 15.

---

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

**12. To accept the default read community name, “public,” press Return, or enter a new read community name.**

The `getagents` script asks if you want to change the default write community name.

**13. To accept the default write community name, “private,” press Return, or enter a new write community name.**

The `getagents` script then 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]
```

14. If you want to add these lines, press Return, or type `n` if you do not.

If you type `n`, you must 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.

15. To accept the default location, `/var/adm/snm`, press Return, or type `n` to specify a different location.

If you type `n`, you are prompted for the location of the database files.

The `getagents` script then asks for the location of the log files.

16. To accept the default location, `/var/adm/snm`, press Return, or type `n` to specify a different location.

If you type `n`, you will be prompted for the location of 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 run and be managed on this system.

### 6.4.3 Running getagents Using rcp

The following procedure uses `rcp` to copy agents from `mgrhost` (the MIS machine) to `agenthost` (the local host). To run the `getagents` script using `rcp`, follow these steps:

1. Log in as root.
2. If `.rhosts` does not exist, type the command `touch .rhosts` to create it.
3. Set up the MIS machine to allow root access across the network for the host(s) that will be running `getagents` (add `agenthost` to the list of trusted hosts).

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

4. Copy `getagents` from the MIS machine to the local machine.

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

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

**5. Run the `getagents` script.**

The `getagents` script starts and asks for the name of the directory where the agents will be installed.

The following instructions assume you have copied `getagents` to `/tmp` on the local host, although you can copy it to any directory.

**6. To accept the default, `/usr/snm` press Return, or type the name of a different directory.**

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

**7. If you want to create the directory, press Return, or type `n` if you do not.**

The `getagents` script asks for the name of the host where the agents are located.

**8. To accept the default, `<localhost>`, press Return, or enter a host name.**

The `getagents` script asks for the name of the root directory on the MIS machine under which the agents and libraries are located.

**9. To accept the default, `/opt/SUNWconn/snm` press Return, or enter a directory of your choice.**

The `getagents` script continues, installs the agents, then asks if you want to install the Sun SNMP agent.

**10. If you want to install the Sun SNMP agent, press Return, or type `n` if you do not.**

---

**Note –** If you type `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, then asks for the read community name.

**11. To accept the default read community name, “public,” press Return, or enter a new read community name.**

The `getagents` script then asks if you want to change the default write community name.



- 12. To accept the default write community name, “private,” press Return, 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. If you want the lines added now, press Return, or type `n` if you do not.**

If you type `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.

- 14. To accept the default location of the database files, `/var/adm/snm` press Return, or type `n` to specify a different location.**

If you type `n`, you are prompted for the location of the database files.

The `getagents` script then asks for the location of the log files.

- 15. To accept the default location for the log files, `/var/adm/snm` press Return, or type `n` to specify a different location.**

If you type `n`, you are prompted for the location of the log files.

The `getagents` script creates `snmp` files, updates other files, and displays a message that it has finished.

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

---

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

---



# Removing Solstice Enterprise Manager Software

---

This chapter describes how to remove Solstice Enterprise Manager (Solstice EM) software from a local machine or server.

This chapter describes the following topics:

- Section 7.1 “Why Remove the Software?” on page 7-1
- Section 7.3 “Example Uninstall Session” on page 7-4
- Section 7.2 “Removing Solstice EM Software With the Uninstall Program” on page 7-3
- Section 7.4 “Removing Solstice EM Software With the `pkgrm` Command” on page 7-8
- Section 7.5 “Removing the License Software” on page 7-10

---

## 7.1 Why Remove the Software?

You might want to remove Solstice EM software to free disk space on a particular system.

---

**Note** – In order to remove Solstice EM software, you must be logged in as root. All procedures in this chapter, unless otherwise noted, require that you access the system as root.

---

If you are installing Solstice EM software on a system on which a version prior to 2.0 is already installed, you must remove the existing packages before installing the new version of Solstice EM.

In addition to removing the software, you should remove configuration files that may reside in your home directory, such as `$HOME/.em_viewer.cf`. These configuration files only exist if you made changes to a tool’s default settings. If these configuration

files are not removed, then the tools will use the settings in these old configuration files rather than the new configuration files in the */install directory/SUNWconn/em/config* directory.

When you remove Solstice EM software, you might want to keep some Solstice EM files and directories – for example, configuration files that you have edited or files you might use with another application. The Uninstall program asks if you want to remove these files and directories.

The base directory is the directory where you installed Solstice EM (/opt is the default). The runtime directory is */var/install directory/SUNWconn/em* for example, if you installed Solstice EM in /opt (base directory) and */var/opt/SUNWconn/em* is the runtime directory, the Uninstall program removes the files and directories listed in the following table.

**TABLE 7-1** Files and Directories Removed by the Uninstall Program

If You Choose to Remove...	The Uninstall Program Removes...
The SUNWsnmag package, you can choose to remove the SunNet Manager log files	Files in <i>/var/opt/SUNWconn/snm</i> and the SUNWsnmag package
Java Runtime Environment	<i>/install directory/jre1.1.5</i> directory
Solstice EM Runtime and Base Directories	<i>/var/opt/SUNWconn/em/conf</i> <i>/var/opt/SUNWconn/em/data</i> <i>/var/opt/SUNWconn/em/usr</i> <i>/var/opt/SUNWconn/em/debug</i> <i>/var/opt/SUNWconn/em</i> <i>/etc/opt/SUNWconn/em/conf/cmipautoreg</i> <i>/etc/opt/SUNWconn/em/conf/compiler</i> <i>/etc/opt/SUNWconn/em/conf</i> <i>/etc/opt/SUNWconn/em</i> <i>/etc/opt/SUNWconn</i> <i>/opt/SUNWconn/em/install/em_platform/init_dbobj</i> <i>/opt/SUNWconn/em/config/em_panel.old</i> <i>/opt/SUNWconn/snm/struct/elements.schema.*</i> <i>/opt/SUNWconn/snm/struct/netware_elements.schema.*</i> <i>/opt/SUNWemrdb/online.log</i> <i>/opt/SUNWemrdb/etc/ixbar.1</i> <i>/opt/SUNWemrdb/etc/oncfg_rancid_emdb.?</i> <i>/opt/SUNWemrdb/etc/onconfig.em</i> <i>/etc/init.d/init.snmpd</i>
All components	In addition to the above files, the Uninstall program removes itself.

---

## 7.2 Removing Solstice EM Software With the Uninstall Program

You can use the Uninstall program to remove most of the Solstice EM software. You must use the `pkgrm` utility to remove the following:

- STE License Installation Tool (SUNWlit package)
- FlexLM License System (SUNWlicsw package)

See Section 7.4 “Removing Solstice EM Software With the `pkgrm` Command” on page 7-8.”

### ▼ To Remove Solstice EM Software With the Uninstall Program

**1. Log in as root or become superuser.**

For example, type the following command.

```
% su
Password:*****
```

**2. Type the following command to start the Uninstall program.**

```
/install directory/SUNWconn/em_uninstall
```

The Uninstall program lists all Solstice EM components. The components that are installed on your system are marked with an X.

**3. To remove a component, type its number and press Return.**

To remove all components, type `all` and press Return. The Uninstall program again lists Solstice EM components. The component(s) you removed are no longer marked with an X. You can continue removing components.

If you type `all`, the Uninstall program removes all installed Solstice EM components except the license software, and then removes itself. Instructions for removing the license software can be found in Section 7.5, “Removing the License Software.” You receive a message for each package that is successfully removed.

4. If you chose to remove the `SUNWsnmag` package, you are asked if you also want to remove the SNM log files in `/var/opt/SUNWconn/snm`.

Type `y` to remove the SunNet Manager log files and remove the `SUNWsnmag` package. Type `n` to keep the SunNet Manager log files and remove the `SUNWsnmag` package.

5. If you have installed licenses for Solstice EM components, the Uninstall program asks if you want to save the licenses. If you type `y`, the Uninstall program copies the licenses to `/etc/opt/licenses`. Type `n` to remove the licenses.

The Uninstall program then asks if you want to remove the runtime and base directories.

6. If you want to remove these directories, type `y`. If you do not, type `n` to keep them.

The base directory is the directory where you installed Solstice EM (`/opt` is the default). The runtime directory is `/var/install_directory/SUNWconn/em`

See TABLE 7-1 for a list of the files and directories that are removed.

7. When you finish removing components, type `quit` and press **Return**.

The Uninstall program displays the message `Uninstallation complete`.

---

## 7.3 Example Uninstall Session

The following is a sample session using the `em_uninstall` command to remove Solstice EM software.

**CODE EXAMPLE 7-1** Using the `em_uninstall` Command to Remove Entire Solstice EM Software

```
# ./em_uninstall

          Solstice Enterprise Manager 4.1 Uninstallation Program
-----

Below is a list of Solstice Enterprise Manager components. An 'X' in
the box means that the component is currently installed on this .
system

1. [X] Management Services
2. [X] IP Protocol Adapters (SNMP/RPC)
3. [X] CMIP Protocol Adapter and Utilities
4. [X] Java Management Services
5. [X] JDMK Protocol Adapter
6. [X] Client Applications
```

**CODE EXAMPLE 7-1** Using the `em_uninstall` Command to Remove Entire Solstice EM Software (*Continued*)

```
7. [X] Development tools
8. [X] CORBA Runtime Supplement
9. [X] CORBA Developer Supplement
10. [ ] Documentation
11. [ ] Geographical Map Images
12. [X] Cooperative Consoles

To remove a component, type it's number followed by the Enter key.
To remove all components, type "all" followed by the Enter key.
Type "quit" followed by the Enter key to exit this uninstall
program.

Selection: all [Return]

THIS WILL COMPLETELY REMOVE ENTERPRISE MANAGER FROM THIS SYSTEM!

Are you sure you want to do this? [n] y [Return]
Removing component: 1
Removing package: SUNWsnmct

Removal of <SUNWsnmct> was successful.
Removing package: SUNWembc
Terminating the Solstice Enterprise Manager processes.

Removal of <SUNWembc> was successful.
Removing package: SUNWemobj

Removal of <SUNWemobj> was successful.
Removing package: SUNWemlog
Terminating any running em_log2rdb processes.

Removal of <SUNWemlog> was successful.
Removing package: SUNWemmis
Terminating any running MIS processes.

Removal of <SUNWemmis> was successful.
Removing package: SUNWsnmag
Do you want to remove the SNM log files in /var/opt/SUNWconn/snm (y/
n) [y]: [Return]
Modifying /etc/rpc
Modifying /etc/inet/services
Modifying /etc/inet/inetd.conf

Removal of <SUNWsnmag> was successful.
Removing package: SUNWemrdb
Terminating any running database processes...

Removal of <SUNWemrdb> was successful.
```

**CODE EXAMPLE 7-1** Using the `em_uninstall` Command to Remove Entire Solstice EM Software *(Continued)*

```
Removing package: SUNWemalb

Removal of <SUNWemalb> was successful.
Removing package: SUNWemrwd

Removal of <SUNWemrwd> was successful.
Removing package: SUNWemrwt

Removal of <SUNWemrwt> was successful.
Removing package: SUNWgdmmod

Removal of <SUNWgdmmod> was successful.
Removing component: 2
Removing package: SUNWemipa
Terminating any running IP Management Protocol Adapter processes.

Removal of <SUNWemipa> was successful.
Removing package: SUNWemdmn
Terminating any running Solstice Enterprise Manager Daemon
processes.

Removal of <SUNWemdmn> was successful.
Removing package: SUNWemalb
Removing package: SUNWemrwd
Removing package: SUNWemrwt
Removing component: 3
Removing package: SUNWomgte

Removal of <SUNWomgte> was successful.
Removing package: SUNWomgtb

Removal of <SUNWomgtbx> was successful.
Removing package: SUNWomgtbx

License files exist for this product. Do you want them saved
[y/n]? y
Licesnes copied to /etc/opt/licenses

Removal of <SUNWomgtb> was successful.
Removing package: SUNWomgta
Cleaning MBX directory

Removal of <SUNWomgta> was successful.
Removing package: SUNWemcpa
Terminating any running Solstice Enterprise Manager CMIP MPA
processes.

Removal of <SUNWemcpa> was successful.
Removing package: SUNWrk6
```



**CODE EXAMPLE 7-1** Using the `em_uninstall` Command to Remove Entire Solstice EM Software *(Continued)*

```
Removing otk6 driver ...

Removal of <SUNWrk6> was successful.
Removing package: SUNWrk6x
Removing package: SUNWemalb
Removing package: SUNWemrwd
Removing package: SUNWemrwt
Removing component: 4
Removing package: SUNWemjme
Terminating any running JMA daemons ...

Removal of <SUNWemjme> was successful.
Removing component: 5
Removing package: SUNWemjmk

Removal of <SUNWemjmk> was successful.
Removing package: SUNW2jddc

Removal of <SUNW2jddc> was successful.
Removing package: SUNW2jdex

Removal of <SUNW2jdex> was successful.
Removing package: SUNW2jdtk

Removal of <SUNW2jdtk> was successful.
Removing package: SUNW2jdrt

Removal of <SUNW2jdrt> was successful.
Removing component: 6
Removing package: SUNWemapp
Terminating any running Solstice Enterprise Manager Core Application
processes.

Removal of <SUNWemapp> was successful.
Removing package: SUNWemalb
Removing package: SUNWemrwd
Removing package: SUNWemrwt
Removing component: 7
Removing package: SUNWemdev

Removal of <SUNWemdev> was successful.
Removing component: 8
Removing package: SUNWemcgs

Removal of <SUNWemcgs> was successful.
Removing component: 9
Removing package: SUNWemcgd

Removal of <SUNWemcgd> was successful.
```

**CODE EXAMPLE 7-1** Using the `em_uninstall` Command to Remove Entire Solstice EM Software (*Continued*)

```
Removing component: 12
Removing package: SUNWccrcv
Terminating running Cooperative Consoles Receiver Application.

Removal of <SUNWccrcv> was successful.
Removing package: SUNWcccfg

Removal of <SUNWcccfg> was successful.
Do you want to remove Enterprise Manager's runtime
and base directories? [y] [Return]

Uninstallation complete.
```

---

## 7.4 Removing Solstice EM Software With the `pkgrm` Command

This section provides instructions for removing the Solstice EM software from your machine using the `pkgrm` command.

### 7.4.1 Finding Installed Packages

To remove the Solstice EM software from your machine using `pkgrm`, you must know which packages are installed. To determine which Solstice EM packages are installed on your machine, type:

```
pkginfo | grep Manager
```

---

**Note** – You do not need to be root to use the `pkginfo` command.

---

The preceding command locates the existence of all Solstice EM packages, as well as the SunNet Manager packages `SUNWsnmag` and `SUNWsnmpd`, which are included with the Solstice EM product.

The Cooperative Consoles packages `SUNWcccrv` and `SUNWcccfg` are also included with the Solstice EM product. To see if these packages are installed, type:

```
pkginfo | grep Cooperative
```

## 7.4.2 Removing the Packages

To remove Cooperative Consoles packages using the `pkgrm` command, type the `pkgrm` command followed by the packages you want to remove. For example:

```
#pkgrm SUNWcccrv SUNWcccfg
```

---

**Note** – The packages should be removed in the reverse order in which they were installed, due to package dependencies.

---

The packages are removed one-by-one. Before each package is removed, you are asked to confirm the removal of the package. During the removal of the packages, you might be asked if you want to continue because of one of the following reasons:

- The package contains scripts that will be executed with superuser permission.
- Another package depends on the one you are trying to remove.

For any of these questions, type `y` at the prompt to continue with package removal, `n` to skip this package and remove the next package, or `q` to quit and not remove any more packages.

The removal of the `SUNWsnmag` package produces one extra question:

```
Do you want to remove the SNM log files in /var/opt/SUNWconn/  
snm (y/n) [y]
```

Press Return or type `y` to this question if you want to remove the SunNet Manager log files, or type `n` if you do not. Regardless of your answer to this question, the removal of the `SUNWsnmag` package continues. Only the SNM log files are affected by your answer to this question.

A given machine might have a subset of all the product packages. You must specify only those packages that are installed. If you specify uninstalled packages, the `pkgrm` command fails.

---

## 7.5 Removing the License Software

By default, the Uninstall program does not remove the Solstice EM license software because it can be shared by multiple products. To remove the STE License Installation Tool (SUNWlit package) and the FlexLM License System (SUNWlicsw package), type the following command:

```
pkgrm SUNWlicsw SUNWlit
```

---

**Note** – The `pkgrm` command does not remove all of the licensing data on the machine. In addition to removing the two licensing packages, you also need to remove the data in `/etc/opt/licenses`. As root, type the following command:

```
rm -r /etc/opt/licenses
```

---

Before each package is removed, you are asked to confirm the removal of the package. During the removal of the packages, you might be asked if you want to continue because of one of the following reasons:

- The package contains scripts that will be executed with superuser permission.
- Another package depends on the one you are trying to remove.

For any of these questions, type `y` at the prompt to continue with package removal, type `n` to skip this package and remove the next package, or type `q` to quit and not remove any more packages.

# Components and Packages Installed

This appendix lists the components and packages installed by each of the installation methods (the `setup` program, the `em_install` script, and the `pkgadd` utility).

This chapter describes the following topics:

- Section A.1 “`setup` Program Components” on page A-1
- Section A.2 “`pkgadd` Utility Package Dependencies” on page A-6
- Section A.3 “`em_install` Script Components” on page A-8

## A.1 `setup` Program Components

The following table describes the Solstice EM components and features installed for each type of setup and indicates whether the component is checked by default during a Custom installation using the `setup` command.

TABLE A-1 Components Installed for Each Setup Type

Component	Function	Typical	Server	Client	Custom	Checked by Default
Management Services	Management Information Server, object creation tools, relational database, SunNet Manager™ compatibility	X	X		X	*
Java Management Services	Java Runtime Environment for running Java Applications				*	*

**TABLE A-1** Components Installed for Each Setup Type *(Continued)*

Component	Function	Typical	Server	Client	Custom	Checked by Default
CMIP Protocol Adapter (TMNQ3) and Utilities	Distributed CMIP Protocol Adapter (TMNQ3) processing	X	X		X	X
IP Protocol Adapters (SNMP/RPC)	Distributed IP management protocol adapter processing	X	X		*	*
Java DMK Protocol Adapter	Java software needed to manage Java agents created with the Java Dynamic Management Kit				*	*
Client Applications	Network tools for managing the MIS and databases, security, backup and recovery, and for tracking, correcting, and reporting network errors.	X	X		X	X
Applications Development ToolKit	Development environment				X	X
SEM-HA	High Availability for Solstice EM				X	
SEM CORBA ToolKit	SEM CORBA development environment				X	X
License	FLEX LM license software and license installation tools	X	X	X	X	X
Documentation	Solstice EM HTML documentation	X	X	X	X	X

**TABLE A-1** Components Installed for Each Setup Type *(Continued)*

Component	Function	Typical	Server	Client	Custom	Checked by Default
Graphical Map Data	Geographical map images				X	
Cooperative Consoles	SunNet Manager to Enterprise Manager data path				X	

The following table describes the Solstice EM software packages installed for each Solstice EM component selected during an installation using the `setup` program.

**TABLE A-2** Solstice EM Packages Installed for Each Component

Component	Packages	Contents
Management Services	SUNWema1b	Solstice EM Libraries
	SUNWemrdb	Relational Database
	SUNWsnmag	Site/SunNet/Domain Manager Agents and Libraries
	SUNWemmis	Management Information Server
	SUNWemlog	Export log data to relational database
	SUNWemobj	Object Development Tools
	SUNWembc	SNM Compatibility
	SUNWsnmct	Solstice SunNet Core Tools to Enterprise Manager
	SUNWgdmod	Solstice GDMO/ASN.1 Documents
Java Management Services <sup>1</sup>	SUNWj2dem	JDK 1.2 Demo Programs
	SUNWj2dev	JDK 1.2 Development Tools
	SUNWj2man	JDK 1.2 Man Pages
	SUNWj2rt	JDK 1.2 Runtime Environment
	SUNWemjme	Java Management Application Adapter Interface (JMI), a Java-based API for manipulating managed objects, and Java Management Application Adapter (JMA) daemon

**TABLE A-2** Solstice EM Packages Installed for Each Component *(Continued)*

Component	Packages	Contents
CMIP Protocol Adapter (TMNQ3) and Utilities	SUNWmgtdbx	CMIP Network Management Executables (64 bits)
	SUNWrk6	RFC 1006/TLI Module
	SUNWrk6x	RFC 1006/TLI Module (64 bits)
	SUNWemcpa	CMIP MPA
	SUNWomgta	CMIP Network Management Configuration Files
	SUNWomgtb	CMIP Network Management Executables
	SUNWomgte	CMIP Network Management Libraries
IP Protocol Adapters (SNMP/RPC)	SUNWemalb	Solstice EM Libraries
	SUNWemdmn	Solstice EM Daemons
	SUNWemipa	IP Protocol Adapter
JDKM Protocol Adapter <sup>1</sup>	SUNWemalb	Solstice EM Libraries
	SUNWemjmk	Java Dynamic Management Protocol Adapter (JDKM), JDKM CMIS event listener, and the JavaBean-to-GDMO converter
	SUNW2jddc	JDKM Online Documentation
	SUNW2jdex	JDKM Examples
	SUNW2jdrt	JDKM Runtime
	SUNW2jdktk	JDKM Tools
Client Applications	SUNWemalb	Solstice EM Libraries
	SUNWemapp	em, em_admintool, em_alarmmgr, em_clear_alarms, em_datacollector, em_dataviewer, em_discover, em_grapher, em_help, em_logmgr, em_logview, em_obed, em_oct, em_panel, em_purgemgr, em_reqedit, em_snmpbrowser, em_viewer, em_report, hyperhelp, em_accessmgr, em_automgr, em_dbarchive, em_dbbackup, em_dbrestore, em_imex, em_layout, em_mismgr, em_sql, em_topoimex, em_topoimex_BC, hyperhelp
	SUNWemrwt	Solstice EM RW Tool Libraries



**TABLE A-2** Solstice EM Packages Installed for Each Component *(Continued)*

Component	Packages	Contents
ToolKit	SUNWemdev	Solstice EM development tools
SEM CORBA	SUNWemcgd	CORBA Gateway Developer Supplement
	SUNWemcgs	CORBA Gateway ToolKit
SEM-HA	SUNWemha	Solstice EM High Availability Environment
License	SUNWlit	STE License Installation Tools
	SUNWlicsw	FlexLM License System
Documentation	SUNWemhtd	Solstice EM HTML Documentation
Geographical Map Data <sup>2</sup>	SUNWemmap	Geographical map images
Cooperative Consoles <sup>3</sup>	SUNWcccfg	Cooperative Consoles Configuration Tool
	SUNWccrcv	Cooperative Consoles Receiver package

1. Requires SUNWjzjit (Java JIT compiler), SUNWjvdev (Java development environment), and SUNWj2rt (Java virtual Machine Runtime Environment).

2. Requires the Client Applications component.

3. Requires the MIS component.

## A.2 pkgadd Utility Package Dependencies

The `pkgadd` utility requires that you add packages in order of dependency. The following table describes the Solstice EM software packages in alphabetical order, along with their dependencies.

**TABLE A-3** Solstice EM Package Dependencies for `pkgadd` Installations

Package	Description	Dependencies
SUNWccrcv	Cooperative Consoles Receiver Application	SUNWcccfg
SUNWemapp	Solstice EM Client Applications	SUNWemalb
SUNWembc	Solstice EM SNM Compatibility	SUNWsnmag
SUNWemcpa	Solstice EM CMIP Management Protocol Adapter (TMNQ3)	SUNWemalb
SUNWemdmn	Solstice EM Daemons	SUNWemalb
SUNWemhtd	Solstice EM Documentation in HTML Format	SUNWjvrt
SUNWemjme	Java Management Environment	SUNWemalb
SUNWemipa	Solstice EM IP Management Protocol Adapters	SUNWemalb
SUNWemmis	Solstice EM Management Information Server	SUNWemalb, SUNWemrdb
SUNWemobj	Solstice Object Development Tools	SUNWemmis, SUNWemalb
SUNWemrdb	Solstice EM Relational Database	SUNWemalb
SUNWj2dem	JDK 1.2 Demo Programs	SUNWcar, SUNWkvm, SUNWcsr, SUNWcsu, SUNWcsd, SUNWjvthr, SUNWj2rt, SUNWmfrun
SUNWj2dev	JDK 1.2 Development Tools	SUNWcar, SUNWkvm, SUNWcsr, SUNWcsu, SUNWcsd, SUNWjvthr, SUNWj2rt, SUNWmfrun
SUNWj2man	JDK 1.2 Man Pages	SUNWcar, SUNWkvm, SUNWcsr, SUNWcsu, SUNWcsd
SUNWj2rt	JDK 1.2 Runtime Environment	SUNWcar, SUNWkvm, SUNWcsr, SUNWcsu, SUNWcsd, SUNWmfrun,

**TABLE A-3** Solstice EM Package Dependencies for pkgadd Installations *(Continued)*

Package	Description	Dependencies
SUNWmgtdbx	CMIP Network Management Executables (64 bits)	SUNWomgtb
SUNWomgtb	CMIP Network Management Programs	SUNWomgta
SUNWomgte	CMIP Network Management Libraries	SUNWomgta, SUNWomgtb
SUNWemcgd	CORBA Gateway Developer Supplement	SUNWemcgs
SUNWemcgs	CORBA Gateway ToolKit	SUNWemmis
SUNWemha	High Availability	SUNWscr

## A.3 em\_install Script Components

The following table describes the Solstice EM packages installed and the available configuration options for each selected component when you install Solstice EM software using the `em_install` script.

**TABLE A-4** Packages Installed by `em_install` for Each Component

Component	Function	Configuration Option	Package(s)
Both IP and CMIP Management	SNMP manageable devices, trap forwarding, distributed CMIP processing, IP MPAs, and software licensing.	Non-default installation for both IP and CMIP management, with no additional components	SUNWemalb, SUNWemdmn, SUNWemipa, SUNWemalb, SUNWrk6, SUNWemcpa, SUNWomgta, SUNWomgtb, SUNWomgte, SUNWmgtbx, SUNWrk6x
IP Management	SNMP manageable devices, trap forwarding, and distributed IP MPA processing.	Non-default installation for Internet Protocol (IP) management only, with no additional components	SUNWemalb, SUNWemdmn, SUNWemipa
CMIP Management	Distributed CMIP processing and software licensing.	Non-default installation for distributed Common Management Information Protocol (CMIP) management only, with no additional components	SUNWemalb, SUNWrk6, SUNWemcpa, SUNWomgta, SUNWomgtb, SUNWomgte, SUNWrk6x, SUNWmgtbx,
Management Information Server, plus any one of the first three listed above	Management Information Server, object creation tools, relational database, SunNet Manager™ compatibility	Default or non-default installation of any one of the first three options listed above, plus the Management Information Server (MIS)	SUNWemalb, SUNWemrdb, SUNWsnmag, SUNWemmis, SUNWemlog, SUNWemobj, SUNWembc, SUNWsnmct, SUNWemdev
Cooperative Consoles	SunNet Manager to Enterprise Manager data path	Default or non-default installation of either of the first two options listed above, plus Cooperative Consoles	SUNWcccfg, SUNWccrcv

**TABLE A-4** Packages Installed by `em_install` for Each Component *(Continued)*

Component	Function	Configuration Option	Package(s)
Java Supplement	Java Management Environment	Default or non-default installation of either of the first two options listed above, plus Java Supplement	SUNWj2rt, SUNWj2dev, SUNWj2dem, SUNWj2man
Solstice EM Applications	Network tools for managing the MIS and databases, security, backup and recovery, and for tracking, correcting, and reporting network errors.	Default or non-default installation of any one of the first three options listed above, plus the Client Applications	SUNWemapp
Geographical Map Data	Geographical map images	Default or non-default installation of any one of the first three options listed above, plus the applications, plus the Map Data	SUNWemmap
JDMK Package	Java Dynamic Management Kit Agents support		SUNWemjmk, SUNW2jddc, SUNW2jdex, SUNW2jdrt, SUNW2jdtk
High Availability for Solstice EM	High Availability		SUNWemha
CORBA Gateway ToolKit Supplement	CORBA Gateway Supplement		SUNWemcgs
CORBA Gateway Developer Supplement	CORBA Gateway Developer		SUNWemcgd
Solstice EM HTML Documentation Set	Solstice EM HTML Documentation	This is always offered, regardless of the configuration option you select	SUNWemhtd



## Sample Installation Using the em\_install Script

---

This appendix provides the complete output of a sample installation using the following installation options:

- Option 1 from the em\_install main menu (install for both IP and CMIP management).
- All default values.
- All packages except for JDMK.

The sample installation follows.

### CODE EXAMPLE B-1 Sample Installation Using the em\_install Script

```
# ./em_install [Return]

Solstice Enterprise Manager 4.1 Installation Menu

    1.  Install both IP and CMIP Management

    2.  Install Internet Protocol (IP) Management Only

    3.  Install Common Management Information Protocol (CMIP)
Management Only

    4.  List what Solstice Enterprise Manager packages are
installed

    5.  Remove Solstice Enterprise Manager packages

Select one of the above, '?' for help, or 'q' to quit

> 1 [Return]

Solstice Enterprise Manager Installation
```

### CODE EXAMPLE B-1 Sample Installation Using the em\_install Script (Continued)

You are about to install Solstice Enterprise Manager 4.1 from CDROM media on to your system. You will be asked for a path to the product media and the path to install to. You will also be asked if you want to install the default configuration. If you select the default, all the product components will be installed and default configuration options will be used. If the default installation is not selected, questions for component selection and configuration options will be asked.

Enter path to product media [/net/hope/projects/embuild/  
installation/image]: **[Return]**

Do you want to install in directory "/opt", the default location?  
[y]: **[Return]**

Selecting the default installation will install the complete Solstice Enterprise Manager Solution, using the default configuration settings.

If you intend to install the complete Solstice Enterprise Manager Solution and the default configuration values are acceptable, selecting the default installation will eliminate having to answer very many more questions.

Do you want the default installation? [y]: **[Return]**

Access Control provides the ability to restrict access to the management data and restrict use of the management applications. Restrictions can be based on user id or group id, and may be set to full, limited, or read-only access.

Do you want Access Control? [y]: **[Return]**  
Access Control will be enabled.

Do you want to install the Geographical Map Data? (y/n/?) [n]:  
**[Return]**

Do you want to install JDMK Package? (y/n) [n]: **n**

Skipping complete JDMK package installation.

Do you want to install the CORBA Gateway Runtime Supplement? (y/  
n/?) [n]: **y**

Please enter the ORB you will be using to build the EM CORBA Gateway runtime. Visibroker 4.5 or above, Orbix 4.x or above and Orbacus 4.0.5 or above are supported.



**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (Continued)

```
Which ORB you will be using to build the EM CORBA Gateway?
1.Visibroker 2.Orbix 3.Orbacus [1]: 1

Please enter the path to your Visibroker installation:
/net/mars/export/tools/inprise/vbroker

Do you want to install the CORBA Gateway Developer Supplement?
(y/n/?) [n]: y

Do you want to install the online documentation? (y/n/?) [y]:
[Return]
The online documentation requires an HTML browser in order to read
it. If you would like, one can be launched from the Application
Launcher.

Do you want to add an HTML browser to the Application Launcher?
[y]: y

Please enter the path to your HTML browser [/usr/dist/exe/
netscape]:

You have selected the following Solstice Enterprise Manager
components for installation:

-> IP Management
-> CMIP Management
-> CORBA Gateway Runtime Supplement
-> CORBA Gateway Developer Supplement
-> online documentation

Is this correct? [y]:

Product usage license is required for this product. You appear to
have a license file in /etc/opt/licenses/ssp.em.lic,node with
keys for the following Solstice Enterprise Manager features:
ssp.em.app
ssp.em.cmipmpa
ssp.em.dev
ssp.em.mis

Do you wish to install additional licenses? (y/n/?) [n]: [Return]

The default access control configuration will only allow "root"
user to start EM applications and connect with the MIS. If non-
root users are to use EM applications they must be granted
permission to do so using the Access Manager application.
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
Do you want to discover the local IP network once installation is
complete? (y/n/?) [n]: [Return]
```

```
Do you want auto-management for router interfaces? (y/n/?) [n]:
[Return]
```

```
Do you want auto-management of all devices for reachability? (y/
n/?) [n]: [Return]
```

```
Enter the password to be used for EM's administration.
Password should be of atleast 6 characters and space is not
allowed.
```

```
New password: *****
```

```
Re-enter password: *****
```

```
Setting up password, please wait ...Done
```

```
Checking for an existing installation...
```

```
Solstice Enterprise Manager is not installed on this machine
Installing SUNWemrwt SUNWemalb SUNWemrdb SUNWemmis SUNWemobj
SUNWemlog SUNWemdmn      SUNWemipa SUNWemcpa SUNWemapp SUNWemdev
SUNWsnmag SUNWembc      SUNWcccfgr SUNWccrcv SUNWlit SUNWlicsw
SUNWsnmct      SUNWj2rt SUNWj2dem SUNWj2dev SUNWj2man
SUNWemjme      SUNWgdmod CMIP9.0-SUNWomgta CMIP9.0-SUNWomgtb
CMIP9.0-SUNWmgtbx CMIP9.0-SUNWomgte CMIP9.0-SUNWrk6 CMIP9.0-
SUNWrk6x SUNWemcgs SUNWemcgd SUNWemhtd
```

```
Processing package instance <SUNWemrwt> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>
```

```
Solstice Enterprise Manager RW Tool Libraries
(sparc) 4.1,REV=2001.08.24.07.27
```

```
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
```

```
Using </opt> as the package base directory.
```

```
## Processing package information.
```

```
## Processing system information.
```

```
1 package pathname is already properly installed.
```

```
## Verifying disk space requirements.
```

```
Installing Solstice Enterprise Manager RW Tool Libraries as
<SUNWemrwt>
```

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

```
/opt/SUNWconn/em/lib/librwtool.so <symbolic link>
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
/opt/SUNWconn/em/lib/librwtool.so.2
[ verifying class <none> ]

Installation of <SUNWemrwt> was successful.

Processing package instance <SUNWemalb> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>

Solstice Enterprise Manager Common Libraries
(sparc) 4.1,REV=2001.08.24.07.27
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    3 package pathnames are already properly installed.
## Verifying disk space requirements.

Installing Solstice Enterprise Manager Common Libraries as
<SUNWemalb>

## Installing part 1 of 1.
/opt/SUNWconn/bin/emenv.csh <symbolic link>
/opt/SUNWconn/bin/emenv.sh <symbolic link>
/opt/SUNWconn/em/bin/em_add_db_server
/opt/SUNWconn/em/bin/emenv.csh
/opt/SUNWconn/em/bin/emenv.sh
/opt/SUNWconn/em/bin/get_local_host
/opt/SUNWconn/em/lib/libCstd.so <symbolic link>
/opt/SUNWconn/em/lib/libCstd.so.1
.
.
/opt/SUNWemrdb/release/en_us/0333/VTIDOC.html
[ verifying class <none> ]
## Executing postinstall script.
removing the existing link /usr/lib/ismdd09a.so ...
...Linking /usr/lib/ismdd09a.so from lib/ismdd09a.so...
removing the existing link /usr/lib/iosm09a.so ...
...Linking /usr/lib/iosm09a.so from lib/iosm09a.so...
removing the existing link /usr/lib/ipldd09a.so ...
...Linking /usr/lib/ipldd09a.so from lib/ipldd09a.so...
Installing host configuration...

Installation of <SUNWemalb> was successful.
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script *(Continued)*

```
Processing package instance <SUNWemrdb> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>

Solstice Enterprise Manager Relational Database
(sparc) 4.1,REV=2001.08.24.07.27
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    1 package pathname is already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing Solstice Enterprise Manager Relational Database as
<SUNWemrdb>

## Executing preinstall script.
## Installing part 1 of 1.
/opt/SUNWemrdb/bin/cdr
/opt/SUNWemrdb/bin/chkenv
/opt/SUNWemrdb/bin/cron_autovop
/opt/SUNWemrdb/bin/crtcmmap
.
.
/opt/SUNWemrdb/bin/stop_oncatlgr
[ verifying class <none> ]

Installation of <SUNWemrdb> was successful.

Processing package instance <SUNWemmis> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>

Solstice Enterprise Manager Management Information Server
(sparc) 4.1,REV=2001.08.24.07.27
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    11 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing Solstice Enterprise Manager Management Information
Server as <SUNWemmis>
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
## Executing preinstall script.
Terminating any running MIS processes.
## Installing part 1 of 1.
/etc/opt/SUNWconn/em/conf/em_database_config.default
/etc/opt/SUNWconn/em/conf/em_database_config.raw
/etc/opt/SUNWconn/em/conf/em_database_config.raw_large
.
.
/opt/SUNWconn/em/src/cmipautoreg/agentprovision.cc
[ verifying class <none> ]
/etc/init.d/S96mis <linked pathname>
## Executing postinstall script.
Installing CMIP MPA configuration...

Installing host configuration...
Warning: This machine has more than one interface card. The
database
server will only listen for connections on the following
interface:

Name:      hme0
MTU:       1500
Net/Dest:  jupiter
Address:   jupiter

Installation of <SUNWemmis> was successful.

Processing package instance <SUNWemobj> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>

Solstice Enterprise Manager Object Development Tools
(sparc) 4.1,REV=2001.08.24.07.27
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    7 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing Solstice Enterprise Manager Object Development Tools
as <SUNWemobj>

## Installing part 1 of 1.
/opt/SUNWconn/bin/em_obcodegen <symbolic link>
/opt/SUNWconn/em/bin/em_obcodegen
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
/opt/SUNWconn/em/bin/var-obj-install
/opt/SUNWconn/em/build/acct/.em_obcodegen.tmpl
.
.
/opt/SUNWconn/em/src/odt/odtsamples.cc
[ verifying class <none> ]
## Executing postinstall script.
drwxr-xr-x   3 bin      other      512 Aug 24 17:41 /etc/opt/
SUNWconn/em
drwxr-xr-x   3 root     other      512 Aug 24 17:46 /etc/opt/
SUNWconn/em/conf
drwxrwxrwx   2 root     other      512 Aug 24 17:46 /etc/opt/
SUNWconn/em/conf/odt
/opt/SUNWconn/em/build/acct/EM-obcodegen.cfg -> /etc/opt/
SUNWconn/em/conf/odt/EM-obcodegen.cfg
/opt/SUNWconn/em/build/acct/.em_obcodegen.tmpl -> /etc/opt/
SUNWconn/em/conf/odt/.em_obcodegen.tmpl
```

Installation of <SUNWemobj> was successful.

Processing package instance <SUNWemlog> from </net/hope/  
projects/embuild/installation/image/products/  
Solstice\_Enterprise\_Manager\_4.1/Solaris\_2.8+/sparc/Product>

Solstice Enterprise Manager Export Log to Relational Database  
(sparc) 4.1,REV=2001.08.24.07.27

Copyright 2001 Sun Microsystems, Inc. All rights reserved.

Using </opt> as the package base directory.

## Processing package information.

## Processing system information.

4 package pathnames are already properly installed.

## Verifying disk space requirements.

Installing Solstice Enterprise Manager Export Log to Relational  
Database as <SUNWemlog>

## Executing preinstall script.

Terminating any running em\_log2rdb processes.

## Installing part 1 of 1.

/opt/SUNWconn/em/install/log2rdb/README

/opt/SUNWconn/em/install/log2rdb/log2rdb.cfg

/opt/SUNWconn/em/install/log2rdb/log2rdb.def

/opt/SUNWconn/em/install/log2rdb/sybase/install\_db.sql

/opt/SUNWconn/em/unsupported/log2rdb/bin/em\_log2rdb.ifmx

[ verifying class <none> ]

Installation of <SUNWemlog> was successful.

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
Processing package instance <SUNWemdmn> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>

Solstice Enterprise Manager Daemons
(sparc) 4.1,REV=2001.08.24.07.27
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    10 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing Solstice Enterprise Manager Daemons as <SUNWemdmn>

## Executing preinstall script.
Terminating any running Solstice Enterprise Manager Daemon
processes.
## Installing part 1 of 1.
/etc/opt/SUNWconn/em/conf/trap_forward
/etc/opt/SUNWconn/em/conf/trap_maps
/opt/SUNWconn/bin/em_trapd <symbolic link>
/opt/SUNWconn/em/bin/em_snmp-trap
/opt/SUNWconn/em/bin/em_trapd
/opt/SUNWconn/em/lib/locale/en_US/LC_MESSAGES/em_trapd.po
[ verifying class <none> ]
## Executing postinstall script.

Installation of <SUNWemdmn> was successful.

Processing package instance <SUNWemipa> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>

Solstice Enterprise Manager IP Management Protocol Adapters
(sparc) 4.1,REV=2001.08.24.07.27
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    10 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
```

### CODE EXAMPLE B-1 Sample Installation Using the em\_install Script (Continued)

```
Installing Solstice Enterprise Manager IP Management Protocol
Adapters as <SUNWemipa>

## Executing preinstall script.
Terminating any running IP Management Protocol Adapter processes.
## Installing part 1 of 1.
/etc/opt/SUNWconn/em/conf/rpc_mpa_config
/etc/opt/SUNWconn/em/conf/snmp_mpa_config
/etc/rc2.d/S98ipmpa
/opt/SUNWconn/em/bin/em_mpa_rpc
/opt/SUNWconn/em/bin/em_mpa_snmp
/opt/SUNWconn/em/lib/locale/en_US/LC_MESSAGES/S98ipmpa.po
/opt/SUNWconn/em/lib/locale/en_US/LC_MESSAGES/em_mpa_rpc.msg
/opt/SUNWconn/em/lib/locale/en_US/LC_MESSAGES/em_mpa_snmp.msg
[ verifying class <none> ]
## Executing postinstall script.

Installation of <SUNWemipa> was successful.

Processing package instance <SUNWemcpa> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>

Solstice Enterprise Manager CMIP Management Protocol Adapter
(sparc) 4.1,REV=2001.08.24.07.27
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    6 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing Solstice Enterprise Manager CMIP Management Protocol
Adapter as <SUNWemcpa>

## Executing preinstall script.
Terminating any running Solstice Enterprise Manager CMIP MPA
processes.
## Installing part 1 of 1.
/etc/rc2.d/S98cmipmpa
/opt/SUNWconn/em/bin/em_cmip
/opt/SUNWconn/em/lib/locale/en_US/LC_MESSAGES/S98cmipmpa.po
/opt/SUNWconn/em/lib/locale/en_US/LC_MESSAGES/em_cmip.msg
[ verifying class <none> ]
## Executing postinstall script.
```



**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
Installation of <SUNWemcpa> was successful.

Processing package instance <SUNWemapp> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>

Solstice Enterprise Manager Core Applications
(sparc) 4.1,REV=2001.08.24.07.27
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    9 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing Solstice Enterprise Manager Core Applications as
<SUNWemapp>

## Executing preinstall script.
Terminating any running Solstice Enterprise Manager Core
Application processes.
## Installing part 1 of 1.
/opt/SUNWconn/bin/em <symbolic link>
/opt/SUNWconn/bin/em_accessmgr <symbolic link>
/opt/SUNWconn/bin/em_admintool <symbolic link>
.
.
/opt/SUNWconn/em/logmgr_filters/Overload_Alarms.flt
[ verifying class <none> ]
## Executing postinstall script.

Installation of <SUNWemapp> was successful.

Processing package instance <SUNWemdev> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>

Solstice Enterprise Manager Development Environment
(sparc) 4.1,REV=2001.08.24.07.27
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    5 package pathnames are already properly installed.
## Verifying disk space requirements.
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
Installing Solstice Enterprise Manager Development Environment as
<SUNWemdev>
```

```
## Installing part 1 of 1.
/opt/SUNWconn/em/include/acapi/ac_types.hh
/opt/SUNWconn/em/include/acapi/acaccessuserlist.hh
/opt/SUNWconn/em/include/acapi/acapplication.hh
/opt/SUNWconn/em/include/acapi/acapplicationfeature.hh
.
.
/opt/SUNWconn/em/src/viewer_api/viewerapi_listener.cc
[ verifying class <none> ]
```

Installation of <SUNWemdev> was successful.

Processing package instance <SUNWsnmag> from </net/hope/  
projects/embuild/installation/image/products/  
Sun\_Net\_Manager\_2.3/Solaris\_2.8+/sparc/Product>

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

Copyright 1989-96 Sun Microsystems, Inc. All Rights Reserved.

Printed in the United States of America.

2550 Garcia Avenue, Mountain View, California, 94043-1100 U.S.A.

Using </opt> as the package base directory.

## Processing package information.

## Processing system information.

1 package pathname is already properly installed.

## Verifying disk space requirements.

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

```
## Installing part 1 of 1.
/etc/opt/SUNWconn/snm/snm.conf
/etc/opt/SUNWconn/snm <implied directory>
/opt/SUNWconn/include/netmgt <symbolic link>
/opt/SUNWconn/lib/libnetmgt.so <symbolic link>
.
.
/opt/SUNWconn/snm/x86/lib/libnetmgt_db.so.2
[ verifying class <none> ]
Modifying /etc/inet/inetd.conf
Modifying /etc/inet/services
Modifying /etc/rpc
[ verifying class <sed> ]
## Executing postinstall script.
```

**CODE EXAMPLE B-1** Sample Installation Using the `em_install` Script (*Continued*)

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

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

Instructing inetd to re-read config file

If you're running NIS/NIS+, you need to update the services
map/table. See the SNM 2.3 Installation Guide, Chapter 3

Installation of <SUNWsnmag> was successful.

Processing package instance <SUNWembc> from </net/hope/projects/
embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>

Solstice Enterprise Manager SNM Compatibility
(sparc) 4.1,REV=2001.08.24.07.27
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    18 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing Solstice Enterprise Manager SNM Compatibility as
<SUNWembc>

## Executing preinstall script.
Terminating the Solstice Enterprise Manager processes.
## Installing part 1 of 1.
/opt/SUNWconn/bin/build_oid <symbolic link>
/opt/SUNWconn/bin/build_tt <symbolic link>
/opt/SUNWconn/bin/em_snm_type_import <symbolic link>
/opt/SUNWconn/bin/em_snmdb_import <symbolic link>
/opt/SUNWconn/bin/em_topo_args <symbolic link>
.
.
/opt/SUNWconn/snm/struct/netware_elements.schema
[ verifying class <none> ]
## Executing postinstall script.

Installation of <SUNWembc> was successful.
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
Processing package instance <SUNWcccfcg> from </net/hope/
projects/embuild/installation/image/products/
Cooperative_Console_1.2/Solaris_2.8+/sparc/Product>

Cooperative Consoles Configuration Tool
(sparc) 1.2
    Copyright 1996 Sun Microsystems, Inc. All Rights Reserved.
    Printed in the United States of America.
    2550 Garcia Avenue, Mountain View, California, 94043-1100 U.S.A.

Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    11 package pathnames are already properly installed.
## Verifying disk space requirements.

Installing Cooperative Consoles Configuration Tool as <SUNWcccfcg>

## Installing part 1 of 1.
/opt/SUNWconn/bin/cc_config <symbolic link>
/opt/SUNWconn/lib/libcoop.so <symbolic link>
/opt/SUNWconn/snm/bin/cc_config
.
.
/opt/SUNWconn/snm/struct/cooptools.schema
[ verifying class <none> ]
## Executing postinstall script.

Installation of <SUNWcccfcg> was successful.

Processing package instance <SUNWccrcv> from </net/hope/
projects/embuild/installation/image/products/
Cooperative_Console_1.2/Solaris_2.8+/sparc/Product>

Cooperative Consoles Receiver Application
(sparc) 1.2
    Copyright 1996 Sun Microsystems, Inc. All Rights Reserved.
    Printed in the United States of America.
    2550 Garcia Avenue, Mountain View, California, 94043-1100 U.S.A.

Technologies Inc.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    10 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
Installing Cooperative Consoles Receiver Application as
<SUNWccrcv>

## Executing preinstall script.
Terminating running Cooperative Consoles Receiver Application.
## Installing part 1 of 1.
/opt/SUNWconn/bin/cc_receiver <symbolic link>
/opt/SUNWconn/snm/bin/cc_receiver
/opt/SUNWconn/snm/bin/cc_update_schema
.
.
/opt/SUNWconn/snm/man/man1/cc_receiver.1
[ verifying class <none> ]
## Executing postinstall script.
Using /opt/SUNWconn/snm as base dir.
moved /opt/SUNWconn/snm/struct/elements.schema to /opt/SUNWconn/
snm/struct/elements.schema.8129
moved /opt/SUNWconn/snm/struct/netware_elements.schema to /opt/
SUNWconn/snm/struct/netware_elements.schema.8129

Installation of <SUNWccrcv> was successful.

Processing package instance <SUNWlit> from </net/hope/projects/
embuild/installation/image/products/License>

STE License Installation Tool
(sparc) 4.1
Copyright 1998 Sun Microsystems, Inc. All rights reserved.
Copyright 1998 Sun Microsystems, Inc., Tous droits réservés.

This appears to be an attempt to install the same architecture and
version of a package which is already installed. This
installation
will attempt to overwrite this package.

Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    27 package pathnames are already properly installed.
## Verifying disk space requirements.

Installing STE License Installation Tool as <SUNWlit.2>

## Installing part 1 of 1.
[ verifying class <none> ]
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
Installation of <SUNWlit.2> was successful.

Processing package instance <SUNWlicsw> from </net/hope/
projects/embuild/installation/image/products/License>

FLEX License Manager Software and Utilites
(sparc) 6.2
Copyright 2001 Sun Microsystems, Inc. All rights reserved.

This appears to be an attempt to install the same architecture and
version of a package which is already installed. This
installation
will attempt to overwrite this package.

Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    75 package pathnames are already properly installed.
## Verifying disk space requirements.

Installing FLEX License Manager Software and Utilites as
<SUNWlicsw.2>

## Executing preinstall script.
## Installing part 1 of 1.
[ verifying class <none> ]
## Executing postinstall script.

Installation of <SUNWlicsw.2> was successful.

Processing package instance <SUNWsnmct> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>

Solstice SunNet Core Tools to Enterprise Manager
(sparc) 4.1,REV=2001.08.24.07.27
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    6 package pathnames are already properly installed.
## Verifying disk space requirements.

Installing Solstice SunNet Core Tools to Enterprise Manager as
<SUNWsnmct>

## Installing part 1 of 1.
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
/opt/SUNWconn/bin/snm_version <symbolic link>
/opt/SUNWconn/em/bin/snm_version
/opt/SUNWconn/snm/bin/snm_version
[ verifying class <none> ]

Installation of <SUNWsnmct> was successful.

Processing package instance <SUNWj2rt> from </net/hope/projects/
embuild/installation/image/products/Java_Development_Kit_1.2/
Solaris_2.8+/sparc/Product>

JDK 1.2 run time environment
(sparc) 1.2.2,REV=2000.10.24.14.37
Copyright 2000 Sun Microsystems, Inc. All rights reserved.

This appears to be an attempt to install the same architecture and
version of a package which is already installed. This
installation
will attempt to overwrite this package.

The installation of this package was previously terminated and
installation was never successfully completed.

Do you want to continue with the installation of <SUNWj2rt.2>
[y,n,?]
Installation of <SUNWj2rt.2> was terminated due to user request.
No changes were made to the system.

Processing package instance <SUNWj2dem> from </net/hope/
projects/embuild/installation/image/products/
Java_Development_Kit_1.2/Solaris_2.8+/sparc/Product>

JDK 1.2 demo programs
(sparc) 1.2.2,REV=2000.10.24.14.37
Copyright 2000 Sun Microsystems, Inc. All rights reserved.

This appears to be an attempt to install the same architecture and
version of a package which is already installed. This
installation
will attempt to overwrite this package.

Using </usr> as the package base directory.
## Processing package information.
## Processing system information.
    610 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
```

**CODE EXAMPLE B-1** Sample Installation Using the `em_install` Script (*Continued*)

```
Installing JDK 1.2 demo programs as <SUNWj2dem.2>

## Installing part 1 of 1.
[ verifying class <none> ]

Installation of <SUNWj2dem.2> was successful.

Processing package instance <SUNWj2dev> from </net/hope/
projects/embuild/installation/image/products/
Java_Development_Kit_1.2/Solaris_2.8+/sparc/Product>

JDK 1.2 development tools
(sparc) 1.2.2,REV=2000.10.24.14.37
Copyright 2000 Sun Microsystems, Inc. All rights reserved.

This appears to be an attempt to install the same architecture and
version of a package which is already installed.  This
installation
will attempt to overwrite this package.

Using </usr> as the package base directory.
## Processing package information.
## Processing system information.
    45 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing JDK 1.2 development tools as <SUNWj2dev.2>

## Installing part 1 of 1.
[ verifying class <none> ]
## Executing postinstall script.

Installation of <SUNWj2dev.2> was successful.

Processing package instance <SUNWj2man> from </net/hope/
projects/embuild/installation/image/products/
Java_Development_Kit_1.2/Solaris_2.8+/sparc/Product>

JDK 1.2 man pages
(sparc) 1.2.2,REV=2000.10.24.14.37
Copyright 2000 Sun Microsystems, Inc. All rights reserved.

This appears to be an attempt to install the same architecture and
version of a package which is already installed.  This
installation
```



**CODE EXAMPLE B-1** Sample Installation Using the `em_install` Script (*Continued*)

```
will attempt to overwrite this package.

Using </usr> as the package base directory.
## Processing package information.
## Processing system information.
    21 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing JDK 1.2 man pages as <SUNWj2man.2>

## Installing part 1 of 1.
[ verifying class <none> ]

Installation of <SUNWj2man.2> was successful.

Processing package instance <SUNWemjme> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>

Solstice Enterprise Manager Java Management Environment
(sparc) 4.1,REV=2001.08.24.07.27
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    9 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing Solstice Enterprise Manager Java Management
Environment as <SUNWemjme>

## Installing part 1 of 1.
/opt/SUNWconn/em/.jme_version
/opt/SUNWconn/em/bin/jme_jre
/opt/SUNWconn/em/bin/jme_services
/opt/SUNWconn/em/build/acct/globalProperties.txt
/opt/SUNWconn/em/build/acct/server.jma.policy
/opt/SUNWconn/em/classes/emjme.tar
.
.
/opt/SUNWconn/em/lib/locale/en_US/LC_MESSAGES/jmi.msg
[ verifying class <none> ]
## Executing postinstall script.
/opt/SUNWconn/em/classes
/usr/sbin/tar xvf emjme.tar
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
x com, 0 bytes, 0 tape blocks
x com/sun, 0 bytes, 0 tape blocks
x com/sun/em, 0 bytes, 0 tape blocks
x com/sun/em/server, 0 bytes, 0 tape blocks
x com/sun/em/server/jma, 0 bytes, 0 tape blocks
.
.

Installation of <SUNWemjme> was successful.

Processing package instance <SUNWgdmmod> from </net/hope/
projects/embuild/installation/image/products/GDMO/Solaris_2.8+/
sparc/Product>

Solstice GDMO/ASN.1 Documents
(all) 2.0
    Copyright 06/23/98 Sun Microsystems, Inc. All Rights
Reserved.

    Printed in the United States of America.
2550 Garcia Avenue, Mountain View, California, 94043-1100 U.S.A.

Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
## Verifying disk space requirements.

Installing Solstice GDMO/ASN.1 Documents as <SUNWgdmmod>

## Installing part 1 of 1.
/opt/SUNWconn/gdmo/GDMOBuilder/m3100.mib
/opt/SUNWconn/gdmo/GDMOBuilder/od/standards_nmf/and_att_.ing
/opt/SUNWconn/gdmo/GDMOBuilder/od/standards_nmf/asn1_def.ing
.
.
/opt/SUNWconn/gdmo/standard/x790.gdm <symbolic link>
[ verifying class <none> ]
## Executing postinstall script.

Installation of <SUNWgdmmod> was successful.

Processing package instance <SUNWomgta> from </net/hope/
projects/embuild/installation/image/products/
Common_Management_Information_Protocol_9.0/Solaris_2.8+/sparc/
Product>

CMIP Network Management Configuration Files
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
(sparc) 9.0
      Copyright 01/29/01 Sun Microsystems, Inc. All Rights
Reserved.
      Printed in the United States of America.
2550 Garcia Avenue, Mountain View, California, 94043-1100 U.S.A.

Using </> as the package base directory.
## Processing package information.
## Processing system information.
      7 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing CMIP Network Management Configuration Files as
<SUNWomgta>

## Executing preinstall script.
e_ok=0
e_fatal=1
e_warning=2
e_int=3
e_reboot=10
e_rebootnow=20
+ exit 3
+ trap 15
+ echo /var/opt/SUNWconn/OSIROOT
.
.
+ installf -f SUNWomgta
+ exit 0

Installation of <SUNWomgta> was successful.

Processing package instance <SUNWomgtb> from </net/hope/
projects/embuild/installation/image/products/
Common_Management_Information_Protocol_9.0/Solaris_2.8+/sparc/
Product>

CMIP Network Management Executables
(sparc) 9.0,PATCH=1
      Copyright 01/29/01 Sun Microsystems, Inc. All Rights
Reserved. Printed in the United States of America.
      2550 Garcia Avenue, Mountain View, California, 94043-1100 U.S.A.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
      4 package pathnames are already properly installed.
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
## Verifying package dependencies.
## Verifying disk space requirements.

Installing CMIP Network Management Executables as <SUNWomgtb>

## Executing preinstall script.
## Installing part 1 of 1.
/opt/SUNWconn/bin/cmipagent <symbolic link>
/opt/SUNWconn/bin/cmipmanager <symbolic link>
/opt/SUNWconn/cmip/bin/cmipagent
/opt/SUNWconn/cmip/bin/cmipmanager
.
.
/opt/SUNWconn/sbin/cmiptrace <symbolic link>
[ verifying class <none> ]
## Executing postinstall script.
No licenses available to insert.
You must run the license insertion tool or the license
configuration script on this machine.

Installation of <SUNWomgtb> was successful.

Processing package instance <SUNWmgtbx> from </net/hope/
projects/embuild/installation/image/products/
Common_Management_Information_Protocol_9.0/Solaris_2.8+/sparc/
Product>

CMIP Network Management Executables (64-bit)
(sparcv9) 9.0,PATCH=1
      Copyright 01/29/01 Sun Microsystems, Inc. All Rights
Reserved.
      Printed in the United States of America.
2550 Garcia Avenue, Mountain View, California, 94043-1100 U.S.A.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
      6 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing CMIP Network Management Executables (64-bit) as
<SUNWmgtbx>

## Executing preinstall script.
## Installing part 1 of 1.
/opt/SUNWconn/bin/sparcv9/cmipagent <symbolic link>
/opt/SUNWconn/bin/sparcv9/cmipmanager <symbolic link>
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
/opt/SUNWconn/cmip/bin/sparcv9/cmipagent
/opt/SUNWconn/cmip/bin/sparcv9/cmipmanager
.
.
/opt/SUNWconn/lib/sparcv9/libxom.so.1 <symbolic link>
[ verifying class <none> ]

Installation of <SUNWmgmtbx> was successful.

Processing package instance <SUNWomgte> from </net/hope/
projects/embuild/installation/image/products/
Common_Management_Information_Protocol_9.0/Solaris_2.8+/sparc/
Product>

CMIP Network Management Libraries
(sparc) 9.0
    Copyright 01/29/01 Sun Microsystems, Inc. All Rights
Reserved.
    Printed in the United States of America.
    2550 Garcia Avenue, Mountain View, California, 94043-1100 U.S.A.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    8 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing CMIP Network Management Libraries as <SUNWomgte>

## Executing preinstall script.
## Installing part 1 of 1.
/opt/SUNWconn/cmip/examples/xmp/Makefile
/opt/SUNWconn/cmip/examples/xmp/README
/opt/SUNWconn/cmip/examples/xmp/address.h
/opt/SUNWconn/cmip/examples/xmp/assoc_agent.c
/opt/SUNWconn/cmip/examples/xmp/assoc_manager.c
.
.
/opt/SUNWconn/man/man3/xmp_synchronisation.3n <symbolic link>
[ verifying class <none> ]

Installation of <SUNWomgte> was successful.

Processing package instance <SUNWrk6> from </net/hope/projects/
embuild/installation/image/products/
Common_Management_Information_Protocol_9.0/Solaris_2.8+/sparc/
Product>
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
Solstice RFC1006/TLI Module
(sparc) 1.1
    Copyright 1996-2001 Sun Microsystems, Inc. All Rights
Reserved.
    Manufactured in the United States of America.
2550 Garcia Avenue, Mountain View, California, 94043-1100 U.S.A.

Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    13 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing Solstice RFC1006/TLI Module as <SUNWrk6>

## Executing preinstall script.
## Installing part 1 of 1.
/etc/init.d/rk6
/etc/opt/SUNWconn/rk6/rk6d.conf
/etc/rc2.d/S90rk6 <symbolic link>
/opt/SUNWconn/bin/rk6d <symbolic link>
/opt/SUNWconn/bin/rk6stat <symbolic link>
.
.
/usr/kernel/drv/otk6.conf
[ verifying class <none> ]
## Executing postinstall script.
Installing RFC1006 driver (otk6)...

Installation of <SUNWrk6> was successful.

Processing package instance <SUNWrk6x> from </net/hope/projects/
embuild/installation/image/products/
Common_Management_Information_Protocol_9.0/Solaris_2.8+/sparc/
Product>

64 bits Solstice RFC1006/TLI Module
(sparc) 1.1
    Copyright 1996-2001 Sun Microsystems, Inc. All Rights
Reserved.
    Manufactured in the United States of America.
2550 Garcia Avenue, Mountain View, California, 94043-1100 U.S.A.
```

**CODE EXAMPLE B-1** Sample Installation Using the `em_install` Script (*Continued*)

```
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    8 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing 64 bits Solstice RFC1006/TLI Module as <SUNWrk6x>

## Executing preinstall script.
## Installing part 1 of 1.
/opt/SUNWconn/rk6/bin/sparcv9/rk6d
/opt/SUNWconn/rk6/bin/sparcv9/rk6stat
/opt/SUNWconn/rk6/bin/sparcv9/rk6trace
/usr/kernel/drv/sparcv9/otk6
/usr/kernel/drv/sparcv9/otk6.conf
[ verifying class <none> ]
## Executing postinstall script.
Installing RFC1006 driver (otk6)...

Adding otk6 driver

Installation of <SUNWrk6x> was successful.
Processing package instance <SUNWemcgs> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.6+/sparc/Product>

Solstice Enterprise Manager CORBA Gateway Runtime Environment
(sparc) 4.1,REV=2001.03.14.15.33
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    6 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing Solstice Enterprise Manager CORBA Gateway Runtime
Environment as <SUNWemcgs>

## Installing part 1 of 1.
/opt/SUNWconn/em/bin/em_cgw_services
/opt/SUNWconn/em/bin/em_corba_edc
.
.
.
/opt/SUNWconn/em/lib/libtspmi_scheduler.so <symbolic link>
```

**CODE EXAMPLE B-1** Sample Installation Using the em\_install Script (*Continued*)

```
/opt/SUNWconn/em/lib/libtspmi_scheduler.so.1
[ verifying class <none> ]

Installation of <SUNWemcgs> was successful.

Processing package instance <SUNWemcgd> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.6+/sparc/Product>

Solstice Enterprise Manager CORBA Gateway Development Environment
(sparc) 4.1,REV=2001.03.14.15.33
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    5 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.

Installing Solstice Enterprise Manager CORBA Gateway Development
Environment as <SUNWemcgd>

## Installing part 1 of 1.
/opt/SUNWconn/em/etc/idl/cos/CosEventChannelAdmin.idl
/opt/SUNWconn/em/etc/idl/cos/CosLifeCycle.idl
.
.
.
/opt/SUNWconn/em/src/corba_gateway/requests/cpp/vbroker/
set_text/set_text_linked_reply_handler_impl.hh
/opt/SUNWconn/em/src/corba_gateway/vbcpp.tmpl
[ verifying class <none> ]

Installation of <SUNWemcgd> was successful.

Processing package instance <SUNWemhtd> from </net/hope/
projects/embuild/installation/image/products/
Solstice_Enterprise_Manager_4.1/Solaris_2.8+/sparc/Product>

Solstice Enterprise Manager Documentation in HTML format.
(all) 4.1,REV=2001.08.24.07.27
Copyright 2001 Sun Microsystems, Inc. All rights reserved.
Using </opt> as the package base directory.
## Processing package information.
## Processing system information.
    2 package pathnames are already properly installed.
## Verifying package dependencies.
```



**CODE EXAMPLE B-1** Sample Installation Using the `em_install` Script (*Continued*)

```
## Verifying disk space requirements.

Installing Solstice Enterprise Manager Documentation in HTML
format. as <SUNWemhtd>

## Executing preinstall script.
## Installing part 1 of 1.
/opt/SUNWconn/em/docs/CONSOLESADMIN/appdiagnosis.doc.html
/opt/SUNWconn/em/docs/CONSOLESADMIN/comments_sdm.html
/opt/SUNWconn/em/docs/CONSOLESADMIN/config.doc.anc.gif
/opt/SUNWconn/em/docs/CONSOLESADMIN/config.doc.anc1.gif
/opt/SUNWconn/em/docs/CONSOLESADMIN/config.doc.anc10.gif
.
.
/opt/SUNWconn/em/docs/em_runnr
[ verifying class <none> ]

Installation of <SUNWemhtd> was successful.

Attempting to install patch for C++ Shared library (libC) ...
Checking installed patches...
Verifying sufficient filesystem capacity (dry run method)...
Installing patch packages...

Patch number 108434-01 has been successfully installed.
See /var/sadm/patch/108434-01/log for details

Patch packages installed:
    SUNWlibC

Checking installed patches...
Verifying sufficient filesystem capacity (dry run method)...
Installing patch packages...

Patch number 108435-01 has been successfully installed.
See /var/sadm/patch/108435-01/log for details

Patch packages installed: SUNWlibCx

Successfully installed patch for libC

/opt/SUNWconn/em exists, no link was created.

Starting the Management Information Server ...

Starting the Access Manager ...
```

**CODE EXAMPLE B-1** Sample Installation Using the `em_install` Script *(Continued)*

```
ERROR:  starting the em_accessmgr application has failed.
```

```
Unable to start Graphical User Interface (GUI): Connection to  
":0.0" refused by server.  You must be running X windows  
and have your X display set correctly.
```

```
Once installation has finished and this problem has been  
corrected. You may setup access permissions by manually invoking  
the //opt/SUNWconn/bin/em_accessmgr application. Note that you  
must be root or super user the first time you do this.
```

```
ERROR:  starting the application launcher has failed.
```

```
Unable to start Graphical User Interface (GUI): Connection to  
":0.0" refused by server.  You must be running X windows and have  
your X display set correctly.
```

```
Once installation has finished and this problem has been  
corrected. You may start the application launcher by invoking  
//opt/SUNWconn/bin/em
```

```
A log of the installation has been saved as /var/tmp/  
em_install.log  
Installation is now complete.
```

```
cleaning up...
```

## Data Definition Files

---

The Solstice Enterprise Manager (Solstice EM) software includes GDMO and ASN.1 files that store object definitions in the Management Information Server (MIS). These files can be categorized as follows:

- Files required to run the MIS
- Files that are extensions of the SNMP MIB-II or files for specific vendor's devices
- Files required to run the SunNet Manager (SNM) RPC agents

The files in the first two categories are part of the Solstice EM MIS package (SUNWemmis), while the files in the third category are part of the SNM Compatibility package (SUNWembc).

This chapter lists the GDMO and ASN.1 files in each category, and provides instructions on how you can improve the Solstice EM MIS startup time by moving some of the GDMO and ASN.1 files.

The Solstice EM software also includes additional third-party MIBs that you can compile using the Load Data Definitions tool.

This chapter describes the following topics:

- Section C.1 “Files Required for the MIS” on page C-2
- Section C.2 “Extensions to SNMP-MIB II and Vendor-Specific Files” on page C-3
- Section C.3 “Files Required for SNM RPC Agents” on page C-4
- Section C.4 “Improving the MIS Startup Time” on page C-5
- Section C.5 “Third-Party MIBs” on page C-6

---

## C.1 Files Required for the MIS

### C.1.1 GDMO Files

The following GDMO files are required for the MIS:

- anno.gdmo
- coll.gdmo
- d3.gdmo
- dmi.gdmo
- iimcIIMCProxy.gdmo
- iimcManagementDoc-1.gdmo
- map.gdmo
- mpa.gdmo
- nc-d3.gdmo
- nc.gdmo
- rfc1213.gdmo
- rfc1155.gdmo
- security.gdmo
- topo.gdmo
- voll.gdmo
- vol4.gdmo

### C.1.2 ASN.1 Files

The following ASN.1 files are required for the MIS:

- IimcAssignedOIDs.asn1
- IimcCommonDef.asn1
- IimcProxyASN1.asn1
- acse.asn1
- anno.asn1
- any.asn1
- asn1.asn1
- cnm.asn1
- coll.asn1
- d3.asn1
- dmi.asn1
- evr2oc.asn1
- infofw.asn1
- map.asn1

- mpa.asn1
- nc-d3.asn1
- nc.asn1
- rfc1213TYPE.asn1
- security.asn1
- topo.asn1
- test.asn1
- usefuldef.asn1
- vol1.asn1
- vol2.asn1
- vol4.asn1
- x711.asn1

---

## C.2 Extensions to SNMP-MIB II and Vendor-Specific Files

### C.2.1 GDMO Files

The following GDMO files are extensions to MIB-II or are vendor-specific:

- 3com.gdmo
- cisco.gdmo
- retix-remote-bridge.gdmo
- sun.gdmo
- synoptics.gdmo

### C.2.2 ASN.1 Files

The following ASN.1 files are extensions to MIB-II or are vendor-specific:

- 3comTYPE.asn1
- ciscoTYPE.asn1
- retix-remote-bridgeTYPE.asn1
- sunTYPE.asn1
- synopticsTYPE.asn1

---

## C.3 Files Required for SNM RPC Agents

### C.3.1 GDMO Files

The following GDMO files are required if you plan to use the SNM RPC agents in the SUNWsnmag package:

- `diskinfo.gdmo`
- `centillion-elements-schema.gdmo`
- `cisco-elements-schema.gdmo`
- `cooptools-schema.gdmo`
- `elements-schema.gdmo`
- `netware-elements-schema.gdmo`
- `switch-elements-schema.gdmo`
- `syn-multimedia-switch-schema.gdmo`
- `synoptics-elements-schema.gdmo`
- `synoptics-lcell-schema.gdmo`
- `synoptics-stackprobe-schema.gdmo`

### C.3.2 ASN.1 Files

The following ASN.1 files are required if you plan to use the SNM RPC agents in the SUNWsnmag package:

- `diskinfo.asn1`
- `centillion-elements-schema.asn1`
- `cisco-elements-schema.asn1`
- `cooptools-schema.asn1`
- `elements-schema.asn1`
- `netware-elements-schema.asn1`
- `switch-elements-schema.asn1`
- `syn-multimedia-switch-schema.asn1`
- `synoptics-elements-schema.asn1`
- `synoptics-lcell-schema.asn1`
- `synoptics-stackprobe-schema.asn1`

---

## C.4 Improving the MIS Startup Time

MIS startup is considerably faster if you use only the required GDMO and ASN.1 files. If you want to have less than the full complement of GDMO and ASN.1 files compiled into your MIS at startup, you must move the unnecessary files to a different directory after the installation is complete. The GDMO and ASN.1 files are stored in `$EM_HOME/etc/gdmo` and `$EM_HOME/etc/asn1`, respectively.

### ▼ To Move the GDMO/ASN.1 Files

---

**Caution** – The following procedure permanently removes all data from the MIS, including managed objects and discovery data. If you have not made a backup copy of data, it is recommended that you do so before deleting any data.

Also, it is strongly recommended that you export topology information to a file. Additionally, you may want to export request templates, conditions, poll rates, and severities. For more information on using the import/export tool, refer to Chapter 5 *Management Information Server Guide*.

---

1. Move the unnecessary GDMO and ASN.1 files to a different directory.
2. To start the MIS, recreate the entire database, and recompile all MIBs, type the following command in a shell or command tool:

```
/opt/SUNWconn/bin/em_services -reload
```

---

**Note** – If you installed the product in a different directory, substitute your partition name for `/opt`.

---

The prompt asks if you want to delete all data from the database.

3. When prompted to delete all database information, type `y` to continue, or `n` to return to the shell prompt.

The system performs the following actions:

- stops the database server and removes all data, including the schema files associated with the GDMO and ASN.1 files you moved
- Instantiates the object definitions for objects described in `$EM_HOME/etc/gdmo`, `$EM_HOME/etc/asn1`, and `/var/$EM_HOME/data`
- recreates the directory and database structure

- recompiles and reloads MIBs
- recreates database tables and indexes
- restarts Solstice EM daemons

#### 4. Re-import the data.

## C.5 Third-Party MIBs

The Solstice EM software includes additional third-party MIBs that you can compile using the Load Data Definitions tool. For information on compiling these MIBs into GDMO files in the MIS, refer to the *Management Information Server (MIS) Guide*.

**TABLE 7-2** Third-Party MIBs

chipcom-composite.mib
cisco.mib
ctron-bdg.mib
ctron-bridge.mib
ctron-chassis.mib
ctron-common.mib
ctron-community.mib
ctron-container.mib
ctron-device.mib
ctron-irm-oids.mib
ctron-irm3.mib
ctron-mib-names.mib
ctron-oids.mib
ctron-router-oids.mib
ctron-router.mib
ctron-rrev4.mib
ctron-sys-res.mib
dec-dhchas20.mib
dec-dhcom20.mib
sun-e10000.mib
wellfleet.mib
xyplex-ethernet-hub.mib
xyplex-ethernet.mib
xyplex-ieee-hub.mib
xyplex-system.mib
xyplex.mib



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---

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