



SGI InfiniteStorage 4000 Series and 5000 Series SANtricity ES Storage Manager Installation Guide

(ISSM 10.86)

The information in this document supports the SGI InfiniteStorage 4000 series and 5000 series storage systems (ISSM 10.86). Refer to the table below to match your specific SGI InfiniteStorage product with the model numbers used in this document.

| SGI Model # | NetApp Model |
|------------------------------|------------------------|
| TP9600H | 6091 |
| TP9700F | 6091 |
| IS4500F | 6091 |
| TP9600F | 3994 and 3992 |
| IS4000H | 3994 |
| IS350 | 3992 |
| IS220 | 1932 1333 DE1300 |
| IS4100 | 4900 |
| IS-DMODULE16-Z | FC4600 |
| IS-DMODULE60 | DE6900 |
| IS4600 | 7091 |
| IS-DMODULE12 & IS2212 (JBOD) | DE1600 |
| IS-DMODULE24 & IS2224 (JBOD) | DE5600 |
| IS-DMODULE60-SAS | DE6600 |
| IS5012 | E2600 |
| IS5024 | E2600 |
| IS5060 | E2600 |
| IS5512 | E5400 |
| IS5524 | E5400 |
| IS5560 | E5400 |
| IS5600 | E5500 |

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POST-INSTALLATION CONFIGURATION TASKS

Manually Installing the Storage Manager Software on the Linux OS

Perform the tasks in this chapter to manually install the storage manager software on the Linux operating system (OS).

Preparing for Installation

A system restart is required only when you install the Redundant Dual Active Controller (RDAC) driver package. The Event Monitor software is installed automatically during client software installation.

If your current version of the storage management software is version 9.12 and you are upgrading to the Linux 2.6 kernel, you must install an updated version of the RDAC driver package.

- 1** Make sure that you have root privileges, which are required to install the software.
- 2** If you have a previous version of the RDAC failover driver installed, uninstall it.
- 3** Insert the installation disc into the optical drive.
- 4** If necessary, mount the optical drive.

In the command that follows, the installation disc is mounted at `/mnt`.

NOTE The following mount point is shown here only as an example. You might need to modify this command for your operating system. For more information about mounting devices on your operating system, refer to the documentation that came with your operating system.

```
mount /dev/hda /mnt
```

- 5 Choose one of these actions based on how you want to install the storage management software:
 - **Install the software using the command line** – Go to “[Installing the Storage Manager Packages on the Linux OS Using the Command Line](#)” on page 1-2.
 - **Install the software using the installation package** – Go to “[Installing the Storage Manager Packages on the Linux OS Using the Installer](#)” on page 1-4.

Installing the Storage Manager Packages on the Linux OS Using the Command Line

Before you install the client software, you must install the runtime software. Installing the storage manager packages is required for both hosts and storage management stations. There are two install packages available, depending on whether your Linux server is 32-bit or 64-bit:

- 32-bit server – Install the *SMIA-Linux* package.
- 64-bit server – Install the *SMIA-LinuxX64* package.

In these procedures, you must enter commands to install the applicable software packages. After each initial command, the software installation starts. When the installation has completed, a message indicates that the installation was successful. Then, you are returned to the command prompt.

- 1 To install the packages, type the following commands in the sequence shown, and press **Enter** after each command.

In the table that follows, *<mount-point>* is a placeholder for the mount point for the disc, and *<SM*-package>* is a placeholder for the package name of each storage manager package.

| Package | Command |
|-----------|---|
| Runtime | <code>rpm -ivh /<mount-point>/install/native/<SMruntime-package>.rpm</code> |
| ESM | <code>rpm -ivh /<mount-point>/install/native/<SMesm-package>.rpm</code> |
| Client | <code>rpm -ivh /<mount-point>/install/native/<SMclient-package>.rpm</code> |
| Utilities | <code>rpm -ivh /<mount-point>/install/native/<SMutil-package>.rpm</code> |
| Agent | <code>rpm -ivh /<mount-point>/install/native/<SMagent-package>.rpm</code> |

- 2 To install RDAC, you need to unzip the RDAC `tar.gz` file and untar the RDAC tar file by typing this command, and pressing **Enter**.

```
tar -zxvf <filename>
```

- 3 Go to the Linux RDAC directory.

```
cd linuxrdac
```

- 4 If you have a previous RDAC version, type this command, and press **Enter**.

```
Make uninstall
```

- 5 To remove the old driver modules in that directory, type this command, and press **Enter**:

```
make clean
```

- 6 To compile all driver modules and utilities in a multiple CPU server (SMP kernel), type this command, and press **Enter**:

```
make
```

- 7 To install the RDAC failover driver, type this command, and press **Enter**:

```
make install all
```

These actions result from running this command:

- The driver modules are copied to the kernel module tree.
 - The new RAMdisk image (`mpp- `uname -r` .img`) is built, which includes the RDAC driver modules and all driver modules that are needed at boot.
- 8 Follow the instructions at the end of the build process to add a new boot menu option that uses `/boot/mpp- `uname -r` .img` as the initial RAMdisk image.
 - 9 Restart the system by using the new boot menu option.
 - 10 To make sure that RDAC is installed correctly, type the following command and press **Enter**:

```
/sbin/lsmmod
```

Make sure that these driver stacks were loaded after restart:

```
- scsi_mod  
- sd_mod  
- sg  
- mppUpper  
- The physical HBA driver module  
- mppVhba
```

- 11** To check the RDAC version, type the following and press **Enter**:

```
mpUtil -V
```

- 12** To make sure that the storage manager packages are installed correctly, type the following commands in the sequence shown, and press **Enter** after each command.

| Package | Command |
|-----------|-------------------------------|
| Runtime | <code>rpm -q SMruntime</code> |
| ESM | <code>rpm -q SMesm</code> |
| Client | <code>rpm -q SMclient</code> |
| Utilities | <code>rpm -q SMutil</code> |
| Agent | <code>rpm -q SMagent</code> |

- 13** Was the installation for the selected package successful (no problems were reported)?

- **Yes** – The installation is complete.
- **No** – Repeat step 1 through step 12. If the problem persists, refer to the *Storage System Product Release Notes for Version 10.x*, or contact a Technical Support representative.

Installing the Storage Manager Packages on the Linux OS Using the Installer

Installing the storage manager packages is required for both hosts and storage management stations. There are two install packages available, depending on whether your Linux server is 32-bit or 64-bit:

- 32-bit server – Install the *SMIA-Linux* package.
- 64-bit server – Install the *SMIA-LinuxX64* package.

There are four install sets from which you can choose:

- **Typical** – This installs all the components except Java Access Bridge.
- **Management** – This installs only the SMclient component.
- **Host** – This installs SMAgent, SMutils, and Failover.
- **Custom** – This allows you to install only the components that you want to install by selecting them in the check boxes that are shown on the screen. This is the only option that allows you to select the Java Access Bridge.

You can choose to run the installer in any of these three modes: GUI, silent, or console. Run one of the following commands:

- GUI mode – SMIA-xx.xx.xxxx.xxxx.bin -i GUI. Proceed to Step 1.
- Silent mode – SMIA-xx.xx.xxxx.xxxx.bin -f installer.properties. To install using the Silent mode option, see [Installing the Storage Manager Packages on the Linux OS Using the Silent Mode](#) on page 1-7.
- Console mode – SMIA-xx.xx.xxxx.xxxx.bin -i console. Proceed to Step 1.

1 Go to the directory where the installation package SMIA* .bin is on the disc:

```
cd /<mount-point>/
```

2 Change the permissions on the file so that you can execute it:

```
chmod +x SMIA*.bin
```

3 Execute the command:

```
./SMIA*.bin
```

4 Choose Complete Install to install the whole package which includes the runtime, ESM, client, utilities, agent, and the RDAC failover driver. Follow the remaining instructions on the screen.

5 To install RDAC, you need to unzip the RDAC tar.gz file and untar the RDAC tar file by typing this command, and pressing **Enter**.

```
tar -zxvf <filename>
```

6 Go to the Linux RDAC directory.

```
cd linuxrdac
```

7 If you have a previous RDAC version, type this command, and press **Enter**.

```
Make uninstall
```

8 To remove the old driver modules in that directory, type this command, and press **Enter**:

```
make clean
```

9 To compile all driver modules and utilities in a multiple CPU server (SMP kernel), type this command, and press **Enter**:

```
make
```

10 To install the RDAC failover driver, type this command, and press **Enter**:

```
make install all
```

These actions result from running this command:

- The driver modules are copied to the kernel module tree.
- The new RAMdisk image (mpp- `uname -r` .img) is built, which includes the RDAC driver modules and all driver modules that are needed at boot.

11 Follow the instructions shown at the end of the build process to add a new boot menu option that uses /boot/mpp- `uname -r` .img as the initial RAMdisk image.

12 Restart the system by using the new boot menu option.

13 To make sure that RDAC is installed correctly, type the following command and press **Enter**:

```
/sbin/lsmoD
```

Make sure that these driver stacks were loaded after restart:

- scsi_mod
- sd_mod
- sg
- mppUpper
- The physical HBA driver module
- mppVhba

14 To check the RDAC version, type the following and press **Enter**:

```
mppUtil -V
```

15 To make sure that the storage manager packages are installed correctly, type the following commands in the sequence shown, and press **Enter** after each command.

| Package | Command |
|-----------|------------------|
| Runtime | rpm -q SMruntime |
| ESM | rpm -q SMesm |
| Client | rpm -q SMclient |
| Utilities | rpm -q SMutil |
| Agent | rpm -q SMagent |

- 16** Was the installation for the selected package successful (no problems were reported)?
- **Yes** – The installation is complete.
 - **No** – Repeat step 1 through step 15. If the problem persists, refer to the *Storage System Product Release Notes for Version 10.x*, or contact a Technical Support representative.

Installing the Storage Manager Packages on the Linux OS Using the Silent Mode

You can use the Silent installation mode for any OS that is supported by Install. To install the storage manager packages using the Silent mode, locate the specified components in the `installer.properties` file by entering the following command:

```
SMIA.xx.xx.xx.xx.bin -f installer.properties
```

Options for Silent Installation

The installer provides four options for Silent mode installation:

- All (client, agent, utils, failover driver)
- Custom1 (client only)
- Custom2 (host only)
- Custom

You can make the following changes to these options by changing the value of `CHOSEN_INSTALL_SET`, which is located in the `installer.properties` file.

- To install all components: `CHOSEN_INSTALL_SET=All`
- To install only the client set: `CHOSEN_INSTALL_SET=Custom1`
- To install the host configuration set: `CHOSEN_INSTALL_SET=Custom2`
- To install a customized configuration set: `CHOSEN_INSTALL_SET=Custom`

Custom Installation Parameters

These five features are available for you to install: `SMclient`, `SMagent`, `SMutil`, `RDAC`, `JAVA AC`. You can install one or more of the five features by entering the corresponding value. For example, to install only the `SMclient` and the `SMutil`, enter the following parameter:

```
CHOSEN_INSTALL_FEATURE_LIST=SMclient,SMutil
```

The Default Installer.Properties File

Consider the following information about the default installer.properties file:

- If this file is named installer.properties and is in the same directory as the installer, it is automatically accessed when you run the installer. If it is named something different or is in a different directory, you can enter the following -f option in the installer:

```
INSTALLER_UI=silent
```

Determine which of the following install sets you want to use:

- All: SMclient, SMagent, SMutils, failover, ttsp
- Custom: Select one or more installs sets (SMclient, SMagent, SMutils, failover, ttsp)
- Custom1: SMclient only
- Custom2: SMutil, SMagent, failover

After you have determined which install set to use, enter the corresponding value. For example, to install only the SMclient enter the following value:

```
CHOSEN_INSTALL_SET=Custom1
```

If you have previously selected the Custom install set, you can choose to install only the components that you want by selecting them in the check boxes that are shown on the screen. The valid values are SMclient, SMagent, SMutil, RDAC, and Java Ac. For example, if you want to install only the SMclient, you would enter the following:

```
CHOSEN_INSTALL_FEATURE_LIST=SMclient
```

NOTE This is the only option that allows you to select the Java Access Bridge.

You can specify whether or not to start the monitor service by entering either 0 for Yes, or 1 for No. For example, to start the monitor service, enter the following:

```
AUTO_START_CHOICE=0
```

You can choose whether or not to reboot the system when the installation completes by entering either Yes or No. For example, if you do not want the system to reboot after the installation completes, enter the following:

```
USER_REQUESTED_RESTART=NO
```

NOTE If the failover driver was removed during the uninstall, you will need to set the value to NO and manually reboot the system.

NOTE The auto-reboot does not work for the uninstall.

If a failover driver is included in the install set, you can choose which failover driver to install. If this variable is not set in a Silent installation, or if it is set to something that is not included in the bundle, an error is logged and the installation exits. The valid value is `mpio` so you would enter the following:

```
REQUESTED_FO_DRIVER=mpio
```

Uninstalling the Storage Manager Packages

The commands for uninstalling storage manager packages are located at `<SANtricity Install Directory>\Uninstall SANtricity ES\directory`. The default location is `C:\Program Files\StorageManager\Uninstall SANtricity ES`. To uninstall, select the following command:

```
Uninstall SANtricity ES.bin
```

This uninstall command supports all three modes (GUI, Silent, and Console) so, when you run the uninstall command, the command defaults to the same mode as the one you selected when you installed the packages. For example, if you selected GUI as the installation mode, then the default mode of the uninstall command will be GUI. You can change the default mode by using the `-i` argument as follows:

```
C:\Program Files\StorageManager\Uninstall SANtricity
ES\Uninstall SANtricity ES.bin -i GUI/silent/console
```

NOTE The uninstaller does not need a property file for a silent-mode uninstallation.

Troubleshooting the Linux OS

Linux operating systems have the following common installation issues:

1 The installation failed.

Error Log – No java executable in <Install Directory>/jre/bin. Either SMruntime is not installed or its installed location does not match the requirements of SMclient. The installation of the SMclient package has been terminated.

Root Cause – The installer is not able to install SMruntime. This problem occurs due to presence of SMruntime rpm in that system.

Solution – Run the following Linux command

```
rpm -qa | grep SM
```

That command lists the SANtricity components installed on the system. You can remove the components by running the following command:

```
rpm -e <component name>
```

2 The user is not able to uninstall the existing SANtricity installation by running the Uninstaller.

Root Cause – Uninstaller file is corrupted.

Solution – Check the existing SANtricity rpm packages by running this command:

```
rpm -qa | grep SM
```

That command lists the SANtricity components installed on the system. You can remove the components by running the following command:

```
rpm -e <component name>
```

Uninstall all of the SANtricity rpm packages by running the following command:

```
Delete /opt/<SANtricity Install Directory> folder
```

3 RPM package Uninstallation is failing.

Root Cause – An uninstallation script file is corrupted.

Solution – Run the following command:

```
rpm -e --nodeps <SANtricity component RPM package name>
```

Rebuild RPM database using the following command:

```
rpm --rebuilddb
```

4 Installer executable is not running.

Root Cause – xLib libraries are not installed on the system.

Solution – Install all xLib rpm packages required for Linux GUI and run the installer command again.

5 xLib libraries are installed on the Linux system, but the installer is still not running.

Root Cause – The executable file is corrupted.

Solution – Download another copy of the executable file and run the installation again.

6 The installation is failing after checking all previous causes and solutions.

Root Cause – Unknown

Solution – Search for errors in the installation log files that are located in the install directory.

7 After installation, the install log does not exist on the host.

Root Cause – This means that the installer did not complete normally. The log and other files are not written until the installer exists normally. This causes problems when trying to uninstall:

- User stops the install process
- Host is rebooted during install process
- DSM installer hangs/interrupted

Solution – If the client is not running correctly, reinstall it using the same installer.

8 The installer is not launched after double clicking the executable file or you see the following error message: `Windows Error 193 occurred while loading the java VM.`

Root Cause – You are using the incorrect installer build.

Solution – Select the correct installer build and run the installation again.

Manually Installing the Storage Manager Software on the Linux OS

Manually Installing the Storage Manager Software on the Solaris OS

Perform the tasks in this chapter to manually install the storage manager software on the Solaris operating system (OS).

Preparing for Installation

A system restart is required only when you install the Redundant Dual Active Controller (RDAC) driver package. The Event Monitor software is installed automatically during client software installation.

The storage management software supports using the storage array as a boot device. For assistance in setting up this configuration, contact a Technical Support representative.

IMPORTANT VERITAS Volume Manager and RDAC are not supported on the same system. If you are using VERITAS Volume Manager, you must use VERITAS Volume Manager DMP for your failover driver.

Before you can install storage manager software, you must manually mount the optical drive. However, before you can successfully mount the optical drive, you must make sure that the vold process is not running.

NOTE If the optical drive auto-mounts, proceed with [“Installing the Storage Manager Packages on the Solaris OS Using the Command Line”](#) on page 2-3.

To manually mount the optical drive, perform these steps:

- 1 To make sure that the `vold` process is not running, type this command and press **Enter**.

```
pgrep vold
```

If a number appears, then the process is running.

- 2 To stop the `vold` process, type this command, and press **Enter**.

```
pkill vold
```

- 3 Make sure that you have root privileges, which are required to install the software.
- 4 Insert the installation disc into the optical drive.
- 5 If necessary, mount the optical drive.

In the command that follows, the installation disc is mounted at `/mnt`.

NOTE The following mount point is shown here only as an example. You might need to modify this command for your operating system. For more information about mounting devices on your operating system, refer to the documentation that came with your operating system.

```
mount -F hsfs -r /dev/c#t#d0s2 /mnt
```

The optical drive on Solaris is usually linked to the device `/dev/sr0`. You can determine the name of the device by entering the following command:

```
ls -al /dev/sr* | awk '{print "/" $11}'
```

- 6 Choose one of these actions based on how you want to install the storage management software:
 - **Install the software using the command line** – Go to [“Installing the Storage Manager Packages on the Solaris OS Using the Command Line”](#) on page 2-3.
 - **Install the software using the installation package** – Go to [“Installing the Storage Manager Packages on the Solaris OS Using the Installer”](#) on page 2-5.

Installing the Storage Manager Packages on the Solaris OS Using the Command Line

Before you install the client software, you must install the runtime software. Installing the storage manager packages is required for both hosts and storage management stations.

In these procedures, you must enter commands to install the applicable software packages. After each initial command, the software installation starts. When the installation has completed, a message indicates that the installation was successful. Then, you are returned to the command prompt.

- 1 To install the packages, type the following commands in the sequence shown, and press **Enter** after each command.

In the table that follows, *<mount-point>* is a placeholder for the mount point for the disc, and *<SM*-package>* is a placeholder for the package name of each storage manager package.

| Package | Command |
|-----------|---|
| Runtime | <code>pkgadd -d /<mount-point>/install/native/<SMruntime-package> .pkg</code> |
| ESM | <code>pkgadd -d /<mount-point>/install/native/<SMesm-package> .pkg</code> |
| Client | <code>pkgadd -d /<mount-point>/install/native/<SMclient-package> .pkg</code> |
| Utilities | <code>pkgadd -d /<mount-point>/install/native/<SMutil-package> .pkg</code> |
| Agent | <code>pkgadd -d /<mount-point>/install/native/<SMagent-package> .pkg</code> |

- 2 Was the installation for the selected package successful (no problems were reported)?
 - **Yes** – Go to [“Restarting the System”](#) on page 2-4.
 - **No** – Repeat step 1. If the problem persists, refer to the *Storage System Product Release Notes for Version 10.x*, or contact a Technical Support representative.

Restarting the System

If you installed RDAC, you must restart the system.

- 1 If the package installation choices are still on the screen, type `q` to exit the menu.
- 2 Did you install RDAC?
 - **Yes** – Go to step 3.
 - **No** – Go to [“Checking the Installation on the Solaris OS.”](#)
- 3 To turn off the system, type this command, and press **Enter**.

```
/etc/shutdown -y -i0 -g0
```
- 4 To restart the system, type this command, and press **Enter**.

```
boot -r
```
- 5 Go to [“Checking the Installation on the Solaris OS.”](#)

Checking the Installation on the Solaris OS

After you have completed installing the software packages, make sure that they installed successfully.

- 1 At the command prompt, type this command, and press **Enter**.

In this command, `<package-name>` is a placeholder for the name of a package that you installed.

```
pkginfo -l <package-name>
```
- 2 From the `/opt/StorageManager` directory, review any error messages from the error message log, and correct the problem. If the problem persists, contact a Technical Support representative.
- 3 For each package that you installed, repeat step 1 through step 2.

Installing the Storage Manager Packages on the Solaris OS Using the Installer

Installing the storage manager packages is required for both hosts and storage management stations.

There are four install sets from which you can choose:

- Typical – This installs all the components except Java Access Bridge.
- Management – This installs only the SMclient component.
- Host – This installs SMAgent, SMutils, and Failover.
- Custom – This allows you to install only the components that you want to install by selecting them in the check boxes that are shown on the screen. This is the only option that allows you to select the Java Access Bridge.

You can choose to run the installer in any of these three modes: GUI, silent, or console. Run one of the following commands:

- GUI mode – SMIA-xx.xx.xxxx.xxxx.bin -i GUI. Proceed to Step 1.
- Silent mode – SMIA-xx.xx.xxxx.xxxx.bin -f installer.properties. To install using the Silent mode option, see [Installing the Storage Manager Packages on the Solaris OS Using the Silent Mode](#) on page 2-6.
- Console mode – SMIA-xx.xx.xxxx.xxxx.bin -i console. Proceed to Step 1.

- 1 Go to the directory where the installation package SMIA* .bin is on the disc:

```
cd /<mount-point>/
```

- 2 Change the permissions on the file so that you can execute it:

```
chmod +x SMIA*.bin
```

- 3 Execute the command:

```
./SMIA*.bin
```

- 4 Choose Complete Install to install the whole package which includes the runtime, ESM, client, utilities, and agent. The RDAC failover driver is installed on the Solaris 8 OS and the Solaris 9 OS. RDAC is not installed on Solaris 10 which uses Multiplexed Input/Output (MPxIO) natively. If you want to install VERITAS Volume Manager DMP for your failover driver instead, go to [“Checking the Installation on the Solaris OS”](#) on page 2-4.

Follow the remaining instructions on the screen.

- 5 If you installed RDAC, you must restart the system. Go to [“Restarting the System”](#) on page 2-4.

Installing the Storage Manager Packages on the Solaris OS Using the Silent Mode

You can use the Silent installation mode for any OS that is supported by Install. To install the storage manager packages using the Silent mode, locate the specified components in the `installer.properties` file by entering the following command:

```
SMIA.xx.xx.xx.xx.bin -f installer.properties
```

Options for Silent Installation

The installer provides four options for Silent mode installation:

- All (client, agent, utils, failover driver)
- Custom1 (client only)
- Custom2 (host only)
- Custom

You can make the following changes to these options by changing the value of `CHOSEN_INSTALL_SET`, which is located in the `installer.properties` file.

- To install all components: `CHOSEN_INSTALL_SET=All`
- To install only the client set: `CHOSEN_INSTALL_SET=Custom1`
- To install the host configuration set: `CHOSEN_INSTALL_SET=Custom2`
- To install a customized configuration set: `CHOSEN_INSTALL_SET=Custom`

Custom Installation Parameters

These five features are available for you to install: `SMclient`, `SMagent`, `SMutil`, `RDAC`, `JAVA AC`. You can install one or more of the five features by entering the corresponding value. For example, to install only the `SMclient` and the `SMutil`, enter the following parameter:

```
CHOSEN_INSTALL_FEATURE_LIST=SMclient,SMutil
```

The Default Installer.Properties File

Consider the following information about the default installer.properties file:

- If this file is named installer.properties and is in the same directory as the installer, it is automatically accessed when you run the installer. If it is named something different or is in a different directory, you can enter the following -f option in the installer:

```
INSTALLER_UI=silent
```

Determine which of the following install sets you want to use:

- All: SMclient, SMagent, SMutils, failover, ttsp
- Custom: Select one or more installs sets (SMclient, SMagent, SMutils, failover, ttsp)
- Custom1: SMclient only
- Custom2: SMutil, SMagent, failover

After you have determined which install set to use, enter the corresponding value. For example, to install only the SMclient enter the following value:

```
CHOSEN_INSTALL_SET=Custom1
```

If you have previously selected the Custom install set, you can choose to install only the components that you want by selecting them in the check boxes that are shown on the screen. The valid values are SMclient, SMagent, SMutil, RDAC, and Java Ac. For example, if you want to install only the SMclient, you would enter the following:

```
CHOSEN_INSTALL_FEATURE_LIST=SMclient
```

NOTE This is the only option that allows you to select the Java Access Bridge.

You can specify whether or not to start the monitor service by entering either 0 for Yes, or 1 for No. For example, to start the monitor service, enter the following:

```
AUTO_START_CHOICE=0
```

You can choose whether or not to reboot the system when the installation completes by entering either Yes or No. For example, if you do not want the system to reboot after the installation completes, enter the following:

```
USER_REQUESTED_RESTART=NO
```

NOTE If the failover driver was removed during the uninstall, you will need to set the value to NO and manually reboot the system.

NOTE The auto-reboot does not work for the uninstall.

If a failover driver is included in the install set, you can choose which failover driver to install. If this variable is not set in a Silent installation, or if it is set to something that is not included in the bundle, an error is logged and the installation exits. The valid value is `mpio` so you would enter the following:

```
REQUESTED_FO_DRIVER=mpio
```

Uninstalling the Storage Manager Packages

The commands for uninstalling storage manager packages are located at `<SANtricity Install Directory>\Uninstall SANtricity ES\directory`. The default location is:
`C:\Program Files\StorageManager\Uninstall SANtricity ES\`.
To uninstall, select the following command:

```
Uninstall SANtricity ES
```

This uninstall command supports all three modes (GUI, Silent, and Console) so, when you run the uninstall command, the command defaults to the same mode as the one you selected when you installed the packages. For example, if you selected GUI as the installation mode, then the default mode of the uninstall command will be GUI. You can change the default mode by using the `-i` argument as follows:

```
<Install Directory> -i GUI/silent/console
```

NOTE The uninstaller does not need a property file for a silent-mode uninstallation.

Troubleshooting the Solaris OS

Solaris operating systems have the following common installation issues:

1 The installation failed.

Error Log – No java executable in <Install Directory>/jre/bin. Either SMruntime is not installed or its installed location does not match the requirements of SMclient. The installation of the SMclient package has been terminated.

Root Cause – The installer is not able to install SMruntime. This problem occurs due to presence of SMruntime pkg in that system.

Solution – Run the following command on the console:

```
pkginfo | grep SM
```

This will show a list of installed SANtricity components. Remove all the existing components and run the installer again.

2 The user is not able to uninstall the existing SANtricity installation by running the Uninstaller.

Root Cause – Uninstaller file is corrupted.

Solution – Check the existing SANtricity packages by running this command:

```
pkginfo | grep SM
```

That command lists the SANtricity components installed on the system. You can remove the components by running the `pkgrm <component name>` command. For example, to remove SMruntime, run the following command:

```
pkgrm SMruntime
```

After removing all the pkg components, run the following command:

```
delete /opt/<SANtricity Install Directory> folder
```

3 pkg Uninstallation is failing.

Root Cause – An uninstallation script file is corrupted.

Solution – Run the following command:

Open the following package, which contains the package database: `/var/sadm/pkg`. Remove information related to the corrupted SANtricity package, then delete installation files from `/opt/<install directory>`.

- 4** The installation is failing after checking all previous causes and solutions.

Root Cause – Unknown

Solution – Search for errors in the installation log files that are located in the install directory.

- 5** After installation, the install log does not exist on the host.

Root Cause – This means that the installer did not complete normally. The log and other files are not written until the installer exists normally. This causes problems when trying to uninstall:

- User stops the install process
- Host is rebooted during install process
- DSM installer hangs/interrupted

Solution – If the client is not running correctly, reinstall it using the same installer.

- 6** The installer is not launched after double clicking the executable file or you see the following error message: `Windows Error 193 occurred while loading the java VM.`

Root Cause – You are using the incorrect installer build.

Solution – Select the correct installer build and run the installation again.

Manually Installing the Storage Manager Software on the HP-UX OS

Perform the tasks in this chapter to manually install the storage manager software on the HP-UX operating system (OS).

Preparing for Installation

The Event Monitor software is installed automatically during client software installation.

To manually mount the optical drive, perform these steps:

- 1 Make sure that you have root privileges, which are required to install the software.
- 2 Insert the installation disc into the optical drive.
- 3 If necessary, mount the optical drive.

In the command that follows, the installation disc is mounted at `/mnt`.

NOTE The following mount point is shown here only as an example. You might need to modify this command for your operating system. For more information about mounting devices on your operating system, refer to the documentation that came with your operating system.

```
mount -o cdcase /dev/dsk/c#t#d0 /mnt
```

- 4 Choose one of these actions based on how you want to install the storage management software:
 - **Install the software using the command line** – Go to [“Installing the Storage Manager Packages on the HP-UX OS Using the Command Line”](#) on page 3-2.
 - **Install the software using the installation package** – Go to [“Installing the Storage Manager Packages on the HP-UX OS Using the Installer”](#) on page 3-3.

Installing the Storage Manager Packages on the HP-UX OS Using the Command Line

Before you install the client software, you must install the runtime software. Installing the storage manager packages is required for both hosts and storage management stations.

In these procedures, you must enter commands to install the applicable software packages. After each initial command, the software installation starts. When the installation has completed, a message indicates that the installation was successful. Then, you are returned to the command prompt.

- 1 To install the packages, type the following commands in the sequence shown, and press **Enter** after each command.

In the table that follows, *<mount-point>* is a placeholder for the mount point for the disc, and *<SM*-package>* is a placeholder for the package name of each storage manager package.

| Package | Command |
|-----------|---|
| Runtime | <code>swinstall -s /<mount-point>/install/native/<SMruntime-package>.depot</code> |
| ESM | <code>swinstall -s /<mount-point>/install/native/<SMesm-package>.depot</code> |
| Client | <code>swinstall -s /<mount-point>/install/native/<SMclient-package>.depot</code> |
| Utilities | <code>swinstall -s /<mount-point>/install/native/<SMutil-package>.depot</code> |
| Agent | <code>swinstall -s /<mount-point>/install/native/<SMagent-package>.depot</code> |

- 2 Was the installation for the selected package successful (no problems were reported)?
 - **Yes** – Go to [“Checking the Installation on the HP-UX OS”](#) on page 3-3.
 - **No** – Repeat step 1. If the problem persists, refer to the *Storage System Product Release Notes for Version 10.x*, or contact a Technical Support representative.

Checking the Installation on the HP-UX OS

After you have completed installing the software packages, make sure that they installed successfully.

- 1 At the command prompt, type this command, and press **Enter**.

In this command, *<package-name>* is a placeholder for the name of a package that you installed.

```
swverify -v <package-name>
```

- 2 Note any problem that is reported.
- 3 For each package that you installed, repeat step 1 through step 2.
- 4 Was the installation for the selected package successful (no problems were reported)?
 - **Yes** – Go to step 5.
 - **No** – From the `/opt/StorageManager` directory, review any error messages from the error message log, and correct the problem. If the problem persists, contact a Technical Support representative.
- 5 Perform one of these actions:
 - **Storage management software is required on other systems** – For each system that is used as a storage management station or host, perform the software installation procedures that are described in this chapter.
 - **Storage management software installation has completed on all systems** – You have completed this procedure.

Installing the Storage Manager Packages on the HP-UX OS Using the Installer

Installing the storage manager packages is required for both hosts and storage management stations.

There are four install sets from which you can choose:

- **Typical** – This installs all the components except Java Access Bridge.
- **Management** – This installs only the SMclient component.
- **Host** – This installs SMAgent, SMutils, and Failover.
- **Custom** – This allows you to install only the components that you want to install by selecting them in the check boxes that are shown on the screen. This is the only option that allows you to select the Java Access Bridge.

You can choose to run the installer in any of these three modes: GUI, silent, or console. Run one of the following commands:

- GUI mode – `SMIA-xx.xx.xxxx.xxxx.bin -i GUI`. Proceed to Step 1.
- Silent mode – `SMIA-xx.xx.xxxx.xxxx.bin -f installer.properties`. To install using the Silent mode option, continue to [Installing the Storage Manager Packages on the HP-UX OS Using the Silent Mode](#).
- Console mode – `SMIA-xx.xx.xxxx.xxxx.bin -i console`. Proceed to Step 1.

1 Go to the directory where the installation package `SMIA* .bin` is on the disc:

```
cd /<mount-point>/
```

2 Change the permissions on the file so that you can execute it:

```
chmod +x SMIA*.bin
```

3 Execute the command:

```
./SMIA*.bin
```

4 Choose Complete Install to install the whole package which includes the runtime, ESM, client, utilities, and agent. The storage manager software does not install a failover driver because the HP-UX OS has its own failover driver. Follow the remaining instructions on the screen.

Installing the Storage Manager Packages on the HP-UX OS Using the Silent Mode

You can use the Silent installation mode for any OS that is supported by Install. To install the storage manager packages using the Silent mode, locate the specified components in the `installer.properties` file by entering the following command:

```
SMIA.xx.xx.xx.xx.bin -f installer.properties
```

Options for Silent Installation

The installer provides four options for Silent mode installation:

- All (client, agent, utils, failover driver)
- Custom1 (client only)
- Custom2 (host only)
- Custom

You can make the following changes to these options by changing the value of `CHOSEN_INSTALL_SET`, which is located in the `installer.properties` file.

- To install all components: `CHOSEN_INSTALL_SET=All`
- To install only the client set: `CHOSEN_INSTALL_SET=Custom1`
- To install the host configuration set: `CHOSEN_INSTALL_SET=Custom2`
- To install a customized configuration set: `CHOSEN_INSTALL_SET=Custom`

Custom Installation Parameters

These five features are available for you to install: `SMclient`, `SMagent`, `SMutil`, `RDAC`, `JAVA AC`. You can install one or more of the five features by entering the corresponding value. For example, to install only the `SMclient` and the `SMutil`, enter the following parameter:

```
CHOSEN_INSTALL_FEATURE_LIST=SMclient,SMutil
```

The Default Installer.Properties File

Consider the following information about the default `installer.properties` file:

- If this file is named `installer.properties` and is in the same directory as the installer, it is automatically accessed when you run the installer. If it is named something different or is in a different directory, you can enter the following `-f` option in the installer:

```
INSTALLER_UI=silent
```

Determine which of the following install sets you want to use:

- All: `SMclient`, `SMagent`, `SMutils`, `failover`, `ttsp`
- Custom: Select one or more install sets (`SMclient`, `SMagent`, `SMutils`, `failover`, `ttsp`)
- Custom1: `SMclient` only
- Custom2: `SMutil`, `SMagent`, `failover`

After you have determined which install set to use, enter the corresponding value. For example, to install only the SMclient enter the following value:

```
CHOSEN_INSTALL_SET=Custom1
```

If you have previously selected the Custom install set, you can choose to install only the components that you want by selecting them in the check boxes that are shown on the screen. The valid values are SMclient, SMagent, SMutil, RDAC, and Java Ac. For example, if you want to install only the SMclient, you would enter the following:

```
CHOSEN_INSTALL_FEATURE_LIST=SMclient
```

NOTE This is the only option that allows you to select the Java Access Bridge.

You can specify whether or not to start the monitor service by entering either 0 for Yes, or 1 for No. For example, to start the monitor service, enter the following:

```
AUTO_START_CHOICE=0
```

You can choose whether or not to reboot the system when the installation completes by entering either Yes or No. For example, if you do not want the system to reboot after the installation completes, enter the following:

```
USER_REQUESTED_RESTART=NO
```

NOTE If the failover driver was removed during the uninstall, you will need to set the value to NO and manually reboot the system.

NOTE The auto-reboot does not work for the uninstall.

If a failover driver is included in the install set, you can choose which failover driver to install. If this variable is not set in a Silent installation, or if it is set to something that is not included in the bundle, an error is logged and the installation exits. The valid value is `mpio` so you would enter the following:

```
REQUESTED_FO_DRIVER=mpio
```

Uninstalling the Storage Manager Packages

The commands for uninstalling storage manager packages are located at `<SANtricity Install Directory>\Uninstall SANtricity ES\directory`. The default location is:
`C:\Program Files\StorageManager\Uninstall SANtricity ES\`.
 To uninstall, select the following command:

```
Uninstall SANtricity ES.bin
```

This uninstall command supports all three modes (GUI, Silent, and Console) so, when you run the uninstall command, the command defaults to the same mode as the one you selected when you installed the packages. For example, if you selected GUI as the installation mode, then the default mode of the uninstall command will be GUI. You can change the default mode by using the `-i` argument as follows:

```
<Install Directory> -i GUI/silent/console
```

NOTE The uninstaller does not need a property file for a silent-mode uninstallation.

Troubleshooting the HP-UX OS

HP-UX operating systems have the following common installation issues:

1 The installation failed.

Error Log – No java executable in `<Install Directory>/jre/bin`. Either SMruntime is not installed or its installed location does not match the requirements of SMclient. The installation of the SMclient package has been terminated.

Root Cause – The installer is not able to install SMruntime. This problem occurs due to presence of SMruntime depot in that system.

Solution – Run the following HP-UX command:

```
swlist | grep SM
```

This will show a list of installed SANtricity components. Remove all the existing components and run the installer again.

- 2** The user is not able to uninstall the existing SANtricity installation by running the Uninstaller.

Root Cause – Uninstaller file is corrupted.

Solution – Check the existing SANtricity packages by running this command:

```
swlist | grep SM
```

Uninstall all of the SANtricity packages by running the `swremove` command and then delete the `/opt/<SANtricity Install Directory>` folder

- 3** The installation is failing after checking all previous causes and solutions.

Root Cause – Unknown

Solution – Search for errors in the installation log files that are located in the install directory.

- 4** After installation, the install log does not exist on the host.

Root Cause – This means that the installer did not complete normally. The log and other files are not written until the installer exists normally. This causes problems when trying to uninstall:

- User stops the install process
- Host is rebooted during install process
- DSM installer hangs/interrupted

Solution – If the client is not running correctly, reinstall it using the same installer.

- 5** The installer is not launched after double clicking the executable file or you see the following error message: `Windows Error 193 occurred while loading the java VM.`

Root Cause – You are using the incorrect installer build.

Solution – Select the correct installer build and run the installation again.

Post-Installation Configuration Tasks

Configure the storage management software using the following post-installation tasks. Complete these configuration tasks in order.

- 1 Manually add the storage array, if you did not select the **Automatic Discovery** option.

The **Automatic Discovery** option automatically discovers directly-managed storage arrays, known as in-band management, and host-managed storage arrays, known as out-of-band management, and adds the storage arrays to the management domain. You can manually add storage arrays by specifying the host controller IP address or the host name.

- 2 Name or rename the storage array.

Providing a storage array with a unique name helps you clearly distinguish one storage array from another.

- 3 Set a password.

Configuring each storage array with a password protects it from unauthorized access. You use the password when you activate any functions that change the state of the storage array.

- 4 Set up Simple Network Management Protocol (SNMP) and email alert notifications.

If a storage array component degrades, fails, or an adverse environmental condition occurs, the storage management software generates an alert notification. Alerts are sent as emails to the addresses that you specify, or are sent as SNMP messages to the network management stations that you specify.

- 5 Disable or enable Event Monitor, if applicable.

Disable Event Monitor if you do not want the host to send alert notifications. If you are running the storage management software on multiple hosts, disabling Event Monitor on all but one host prevents duplicate messages from being sent to the Major Event Log (MEL).

- 6 Configure network parameters for each iSCSI host port automatically, or specify the configuration information for each iSCSI host port.

- 7 Configure the host access by specifying which hosts should access volumes on the storage array.

8 Configure the volumes, the disk pools, and the volume groups.

Disk pools and volume groups are created from unconfigured capacity on the storage array. You can organize the capacity of disk pools and volume groups into volumes by using free capacity or unconfigured capacity. You specify the RAID level when you create your volumes and volume groups, but disk pools are automatically configured as RAID Level 6. You cannot change the RAID level of disk pools.

NOTE For information about disk pools, see *SANtricity Online Help* or *SANtricity ES Storage Manager Concepts for Version 10.86*.

9 Configure the hot spare drives for the volume groups. Disk pools do not use hot spare drives for data reconstruction of failed drives.

Use hot spare drives in a volume group that has a RAID level other than 0 to provide an additional layer of redundancy for your data. Hot spare drives take over data storage for a failed drive.

10 Configure the host to recognize the volumes, the disk pools, and the volume groups.

Register the volume with the host to make sure that the host recognizes the volume.

11 If the Snapshot Volume premium feature is enabled on your system, create the snapshot volumes.

12 If the Volume Copy premium feature is enabled on your system, create the volume copies.