



Solstice DiskSuite 4.2 Installation and Product Notes

Sun Microsystems, Inc.
901 San Antonio Road
Palo Alto, CA 94303
U.S.A.

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Solstice DiskSuite 4.2 Installation and Product Notes

General Information

- The procedure for upgrading Solstice™ DiskSuite™ is complex. You should read the entire section on upgrading before attempting to upgrade to Solstice DiskSuite 4.2 from an earlier version of the software.

If your system is running Solstice DiskSuite and you are upgrading your system to Solaris 7, you must upgrade to Solstice DiskSuite 4.2.

All the conversion procedures are outlined in “Converting to Solstice DiskSuite 4.2” on page 8.

- If you are using mirrored root or /usr, messages similar to the following may appear during system boot:

```
WARNING: forceload of misc/md_hotspares failed
WARNING: forceload of misc/md_trans failed
WARNING: forceload of misc/md_raid failed
```

These warnings are harmless, and may be ignored. They are an artifact of the way drivers are loaded during the boot process when you have a mirrored root or /usr file system.

- Any bootable disk can be used for the root file system. Refer to *Solstice DiskSuite 4.2 User's Guide* for information on constructing a bootable device.
- DiskSuite's diskset feature is supported only on the SPARC™ platform edition of Solaris. This feature is not supported on x86 systems. The diskset feature is

intended to be used only in conjunction with Solaris High Availability or the clustering software.

- When you reboot the system after installing the DiskSuite SNMP log daemon (SUNWmdn package), the following message appears:

```
Starting mdlogd ...  
  
/etc/opt/SUNWmd/mdlogd.cf: no configuration information
```

DiskSuite displays this message because you have not yet configured the `mdlogd.cf` file.

- Do not attempt to put the power supply management statefile on a metadevice. If you are using power supply management (`suspend/resume`), you must edit the `/etc/power.conf` file and change the default statefile line to locate the statefile on a bootable device which is not a metadevice.
- AnswerBook™ online documentation is no longer part of the DiskSuite distribution. For users upgrading to DiskSuite 4.2, remove the 4.0 AnswerBook to avoid confusion. DiskSuite 4.2 ships HTML versions of the documentation that will display in AnswerBook2. Refer to the section “How to Access the DiskSuite Documentation” on page 4 for additional information.

New Features

Solstice DiskSuite 4.2 includes the following new features:

- Solstice DiskSuite 4.2 is 64-bit compliant. This means that DiskSuite operates on Solaris 7. DiskSuite recognizes whether the computer is booted in 64-bit or 32-bit mode, and the 4.2 release will support either mode.
- Solstice DiskSuite 4.2 supports alternate pathing. This allows DiskSuite to see the alternate pathing pseudo devices that are provided on E10000 Enterprise Servers.
- Numerous bug fixes enhance the reliability and performance on both SPARC and x86 platforms. These fixes include the following:
 - 4147786 — Solstice DiskSuite now supports both Solaris 2.6 and Solaris 7.
 - 4146422 — You can now use DiskSuite Tool (`metatool(1M)`) without installing Solstice AdminSuite.
 - 4115701 — Solstice DiskSuite is now Year 2000 compliant.
 - 4149510 — Solstice DiskSuite documentation is now available in AnswerBook2 format.
 - 4133895 — Internationalization work is complete.

- 4125517 — Solstice DiskSuite now works with Alternate Pathing (AP).
- 4094010 — The Solstice DiskSuite kernel threads now adhere to the Check Point Restart (CPR) protocol.
- 4112296 — Hot swap with FCAL (A5000, E3500, etc) disks now works.
- 4087555 — Write-on-write condition is now detected for raw and direct I/O.

Known Bugs

The following is a list of the priority 1, 2, and 3 bugs associated with Solstice DiskSuite 4.2. The priority and severity of the bugs is given in parentheses following the BugID number.

- 4155935 (P2/S2) — Drives with the same non-zero serial number (from the SCSI inquiry command) are factored to a single drive, if a controller contains no unique drives it is not displayed in the Disk View screen in DiskSuite Tool. This behavior may not be appropriate.
- 4158835 (P2/S2) — DiskSuite Tool appears to make determinations, beyond the kernel and metadb state, about the state of the metadvice based on the accessibility of components. For instance, if you are in DiskSuite Tool and remove power to a drive that has slices that are used by a metadvice that is not being accessed, the tool will display the failure before `metastat(1M)` sees the failure.
- 4068961 (P2/S2) — Synchronous and asynchronous transactions to a trans logging metadvice in conjunction with page faults can lock each other out of the metadvice and hang the system. The workaround for this rare bug is to convert the application from a multithreaded application into a multiprocess application to avoid multithreaded contention for the address space lock, or disable UFS transaction logging on the device to which the application writes.
- 4150183 (P2/S2) — If you have a drive failure on a recoverable metadvice (mirror/RAID) and you have file systems or applications that are not accessing the drive when the failure occurs, DiskSuite does not place the component or slice in the "Needs Maintenance" state because it has never accessed the partition and seen the error. The user could replace a drive that has not gone into an errored state. This would result in file system panics. To safely replace a device that has failed, but not been placed in the "Needs Maintenance" state by DiskSuite, you must cut off read/write access to the metadvice, decompose it into its components, replace the failed component, and reconstruct the device with the new component. Consult the *Solstice DiskSuite 4.2 User's Guide* for instructions on decomposing and restoring metadevices without data loss.
- 4113855 (P3/S3) — High I/O on large filesystems with trans logs attached could cause poor performance or soft hangs. The problem was observed when the size of the trans log file for the filesystem was 150 Mbytes. When the size of the trans log was changed, the soft hangs seemed to go away. However, the machine's

performance did degrade. The cause seemed to be in the trans device. The workaround is to remove the trans logs from the filesystem. This may not be the best solution for all customers, because when the logs are removed the length of time required for an `fsck` may be too great.

Solstice DiskSuite 4.2 Usage Notes

Requirements of the Solstice DiskSuite 4.2 program include the following:

- You must be root to administer Solstice DiskSuite 4.2.
- Before you can commit metadevices created using Solstice DiskSuite 4.2, metadevice state database replicas must exist on the Solstice DiskSuite 4.2 system. Refer to *Solstice DiskSuite 4.2 User's Guide* for instructions on how to create metadevice state database replicas.
- If the GUI is displayed on a system that does not run true color or is running programs that do not share color maps, an error message similar to the following may be displayed when DiskSuite Tool is invoked:

```
Warning: Cannot allocate colormap entry for ``#8caaba``
Warning:
    Cannot parse default background color spec

Warning: Cannot allocate colormap entry for ``orange``
Warning: Cannot allocate colormap entry for ``purple``
Warning: Cannot allocate colormap entry for ``mediumseagreen``
Warning: Cannot allocate colormap entry for ``firebrick``
Warning: Cannot allocate colormap entry for ``tan``
```

If this error is displayed, exit DiskSuite Tool and the other applications. Then restart DiskSuite Tool.

AnswerBook2 Online Documentation

The Solaris Easy Access Server 2.0 Documentation CD contains the AnswerBook2 server and versions of the following DiskSuite documentation:

- *Solstice DiskSuite 4.2 User's Guide*
- *Solstice DiskSuite 4.2 Reference Guide*

For detailed information about the AnswerBook2 product, see the *Solaris Easy Access Server 2.0 Installation Library*.

Installation

Solstice DiskSuite 4.2 is supported on systems running Solaris 2.6 or Solaris 7. Systems running earlier versions of Solaris must be upgraded to either Solaris 2.6 or Solaris 7 before Solstice DiskSuite 4.2 can be installed.

If you are performing the initial installation of Solstice DiskSuite on a system, you can simply install or upgrade the system to Solaris 2.6 or Solaris 7, then install the DiskSuite packages by using the Software Manager (`swmtool(1M)`) graphical user interface, the `pkgadd(1M)` command, or by using Solaris Web Start. Refer to *Solaris Easy Access Server 2.0 Installation Library* for information on Web Start.

If an earlier version of DiskSuite is already running on the system, the installation method will vary according to the system configuration. The following section describes how the system configuration affects these installations.

Upgrading Systems Running Earlier Versions of DiskSuite

On a system which uses DiskSuite, the procedures for upgrading the Solaris operating system and DiskSuite are interrelated. The definitions below can help you understand the procedures and the issues that they address.

- Simple metadvice — A metadvice composed of a single component (disk slice) with a “Start Block” (as shown by `metastat`) of 0.
- Simple mirror metadvice — A mirror whose submirrors are all simple metadvice.
- Simple trans metadvice — A trans device whose master device is a simple metadvice.
- Operating system mount point — A directory that contains Solaris system software and is used as a mount point in `/etc/vfstab`. Operating system mount points are affected by upgrades of Solaris. Operating system mount points always include `root`, `/usr`, and `swap`. The directories `/var`, `/opt`, `/usr/openwin`, `/export`, `/export/root`, and `/export/exec` may also be operating system mount points depending on how Solaris was installed.
- Operating system metadvice — A metadvice is considered an operating system metadvice if `/etc/vfstab` mounts an operating system mount point on it. An operating system metadvice must be either a simple metadvice, a simple mirror metadvice, or a simple trans metadvice. Some systems that use DiskSuite will

not have any operating system metadevices. If root is on a metadevice, all underlying components of that metadevice must be bootable.

The factors that affect installation on systems already running earlier versions of DiskSuite are:

1. Solaris version that you want to run with DiskSuite 4.2 (that is, Solaris 2.6 or Solaris 7)
2. System architecture (that is, SPARC or x86)
3. Solaris version running on the system before installation
4. Solstice DiskSuite version running on the system before installation
5. Whether you have operating system metadevices

The Solaris installation program cannot upgrade Solaris software that resides on metadevices, so each operating system metadevice must be decomposed into a single component (slice) before the Solaris installation program runs. After Solaris has been installed, these operating system metadevices must be reconstructed.

DiskSuite configuration and state information is stored in a private replicated database called a metadevice state database (or `metadb`). Disk drives are described in the database using the driver name and minor number of the device. Since the release of DiskSuite 4.0, Solstice DiskSuite has allowed old `metadbs` to be read by new releases of Solaris and DiskSuite. Each release of DiskSuite supports at least two versions of Solaris. That enables you to upgrade to a desired Solaris/DiskSuite combination from your current versions by upgrading Solaris and then upgrading DiskSuite. The support matrix is depicted in the following table. The shaded areas in the following table depict which versions of DiskSuite and Solaris are compatible.

TABLE 1-1 Solstice DiskSuite Support Matrix

	Solaris 2.3	Solaris 2.4	Solaris 2.5	Solaris 2.5.1	Solaris 2.6	Solaris 7
Online: DiskSuite 2.0 or 3.0	*	*				
DiskSuite 4.0						
DiskSuite 4.1						
DiskSuite 4.2 SPARC						
DiskSuite 4.2 x86						**

TABLE 1-1 Solstice DiskSuite Support Matrix (continued)

* — Use the `metacvt(1M)` command, delivered with Solstice DiskSuite 4.0 and Solstice DiskSuite 4.1, to remove the system metadvice state database replicas and metadevices before DiskSuite upgrades and restore the replicas and metadevices after upgrades.

** — Use the `metacvt` command delivered with Solstice DiskSuite 4.2 to remove the system metadvice state database replicas and metadevices before Solaris 7 upgrades on x86 machines. The `metacvt` command creates a shell script that restores the replicas and metadevices after the upgrade.

For the metadvice state database information to be valid, new Solaris software must be applied via upgrade, preserving the device bindings across the upgrade.



Caution - If a full install of Solaris is performed, all DiskSuite configuration information will be lost. Losing the DiskSuite configuration information can result in data loss or complete system failure.

It is important not to change the hardware configuration of a machine during an upgrade to avoid changes in device bindings. Again, loss of device bindings invalidates the metadvice state database information and can result in data loss or complete system failure.

One of the features of Solaris 7 for x86 is unification of the SCSI drivers. The same `sd` driver is now used on both SPARC and x86. Because the metadvice state database information contains device driver names, an upgrade to Solaris 7 on x86 requires that the DiskSuite `metadb`s be rebuilt. The DiskSuite 4.2 software distribution includes a version of the `metacvt(1M)` command that automates `metadb` removal and reconstruction.

The procedures for dealing with the factors just described can be condensed into the following rules:

1. Always run the “Upgrade” option of the Solaris installation program when upgrading Solaris on a system that is already configured and running Solstice DiskSuite.
2. Never change the hardware configuration of a machine during an upgrade.
3. To upgrade to DiskSuite 4.2 and Solaris 7, the system must be running Solaris 2.5, Solaris 2.5.1, or Solaris 2.6 and DiskSuite 4.0 or DiskSuite 4.1. If necessary, follow the instructions given in the “Solstice DiskSuite 4.0 Product Notes” to upgrade the system to Solaris 2.5 and DiskSuite 4.0.
4. To upgrade an x86 system to DiskSuite 4.2 and Solaris 7, all metadevices must be decomposed, the DiskSuite metadvice state databases must be removed from the system, and the DiskSuite packages must be removed before the system is upgraded to Solaris 7. After the upgrade to Solaris 7, the DiskSuite 4.2 packages

must be added and the metadevices reconstructed. The `metacvt` script supplied with DiskSuite 4.2 automatically decomposes the metadevices, removes the metadevice state database from the system, and writes a shell script that can be used to restore the metadevice state database and reconstruct the metadevices after the upgrade and installation of the DiskSuite 4.2 packages.

5. To upgrade to DiskSuite 4.2 and Solaris 2.6, the system must be running Solaris 2.4, Solaris 2.5, or Solaris 2.5.1, and Solstice DiskSuite 4.0 or DiskSuite 4.1. If necessary, follow the instructions given in the “Solstice DiskSuite 4.0 Product Notes” to upgrade the system to Solaris 2.4 and DiskSuite 4.0.
6. Metadevices containing operating system files (operating system metadevices) must be decomposed into simple components (single slices) before the operating system can be upgraded.



Caution - Failure to decompose operating system metadevices prior to upgrading the system will result in loss of data and can result in complete system failure.

7. Metadevices must not be reconstructed or mounted on file systems until the new version of the Solstice DiskSuite software has been installed.

Converting to Solstice DiskSuite 4.2

Depending on the operating level and version of Solstice DiskSuite you are running on your system, the upgrade procedure will vary.

- If you are running Solstice DiskSuite 4.1 on Solaris 2.6 and you are not upgrading to Solaris 7, you can upgrade to Solstice DiskSuite 4.2 by installing the Solstice DiskSuite 4.2 packages using the procedure in “Initial Installation of Solstice DiskSuite” on page 16.

If you are converting to Solstice DiskSuite 4.2, your system will fall into one of the following three categories:

- SPARC or x86 systems running Solaris 2.3 or Solaris 2.4 with Online: DiskSuite 2.0 or Online: DiskSuite 3.0
- SPARC systems running Solaris 2.5, Solaris 2.5.1, or Solaris 2.6 with Solstice DiskSuite 4.0 or 4.1
- x86 systems running Solaris 2.5, Solaris 2.5.1, or Solaris 2.6 with Solstice DiskSuite 4.0 or 4.1

The following subsections provide instructions for upgrading systems in each category to Solstice DiskSuite 4.2.

▼ How to Convert to DiskSuite 4.2 on Systems Running Solaris 2.3 or Solaris 2.4 with Online: DiskSuite 2.0 or Online: DiskSuite 3.0

You must first upgrade your system to Solstice DiskSuite 4.0 and Solaris 2.5, using the instructions in the DiskSuite 4.0 Installation notes. Then you can use the instructions in the following subsections to upgrade to Solstice DiskSuite 4.2. Follow the upgrade procedure in the Solaris 2.5 and Solstice DiskSuite 4.0 product notes.

▼ How to Convert to DiskSuite 4.2 on SPARC Systems Running DiskSuite 4.0 or 4.1

The procedure in this section only works for customers who have SPARC machines running Solstice DiskSuite 4.0 or 4.1 on Solaris 2.5 or Solaris 2.5.1 and upgrading to Solaris 2.6 or Solaris 7.



Caution - Before you begin this procedure, back up all file systems. See the `ufsdump(1M)` man page for details.

1. Repair any mirrors that have errors.

2. Save the `metadb` configuration, the metadvice configuration, the device bindings, and `/etc/vfstab` on a remote or a floppy disk.

One or more of these files can be overwritten when you reboot the machine, upgrade the operating system, or install the new version of DiskSuite. Here are some example commands that save the `metadb` configuration, the metadvice configuration, and `/etc/vfstab` on a local floppy disk:

```
# /usr/opt/SUNWmd/sbin/metadb > /dev/fd/metadb.cfg
# /usr/opt/SUNWmd/sbin/metastat -p > /dev/fd/metadvice.cfg
# cp /etc/vfstab /dev/fd/meta_vfstab
# ls -l /dev/rdisk/*s0 > /dev/fd/binding
# cp /etc/path_to_inst /dev/fd/path_to_inst
```

The following example commands save the `metadb` configuration, the metadvice configuration, and the `/etc/vfstab` to another machine called *other_machine* on the network connected to the system being upgraded:

```
# /usr/opt/SUNWmd/sbin/metadb -i > /net/other_machine/save/metadb.cfg
# /usr/opt/SUNWmd/sbin/metastat -p > /net/other_machine/save/metadevice.cfg
# cp /etc/vfstab /net/other_machine/save/meta_vfstab
# ls -l /dev/rdisk/*s0 > /net/other_machine/save/bindings
# cp /etc/path_to_inst /net/other_machine/dev/fd/path_to_inst
```



Caution - Make sure you save the metadb configuration, metadevice configuration and /etc/vfstab before going on to the next step in this procedure. Inability to restore any of them after the upgrade will result in data loss, and can result in complete system failure.

3. **Clear any trans metadevices that may be used during the Solaris upgrade (for example, /usr, /var, and /opt).**

See *Solstice DiskSuite 4.2 User's Guide* for information on clearing (removing logging from) trans metadevices. If you are uncertain which trans metadevices should be cleared, clear all trans metadevices.

4. **In /etc/vfstab comment out file systems mounted on metadevices that are not simple metadevices or simple mirrors.**

A simple metadevice is composed of a single component with a Start Block of 0. A simple mirror is composed of submirrors, all of which are simple metadevices.

5. **Convert the remaining (simple) mirrors to one-way mirrors with the metadetach command.**

Upgrade will be performed on a single submirror of each mirror. The other submirrors will be synced up with metattach after the upgrade.

6. **If root (/) is mounted on a metadevice or mirror, set the root file system to be mounted on the underlying component of the metadevice or the underlying component of the remaining attached submirror.**

Use the metaroot command to do this safely.

7. **Edit the /etc/vfstab file to change any file systems or swap devices still mounted on metadevices or mirrors after Step 3.**

Mount the file systems on the underlying component of the metadevices or the underlying component of the remaining attached submirrors.

8. Remove symbolic links to the DiskSuite startup files so that it is no longer initialized at boot time.

```
# rm /etc/rcS.d/S35SUNWmd.init /etc/rc2.d/S95SUNWmd.sync
```

These links will be added back later by reinstalling DiskSuite after the Solaris upgrade.

9. Halt the machine and upgrade Solaris, then reboot the machine.

Note - Make certain that you are upgrading to a version of Solaris that is compatible with Solstice DiskSuite 4.2 (that is, Solaris 2.6 or Solaris 7).



Caution - Make sure you upgrade the correct slice. On machines with mirrored root file systems, the Solaris installation software displays all slices used in the root mirror as available for upgrade. Choose the slice that the system boots from. The section, “How to Find the System Boot Slice When Upgrading the Solaris Operating System” on page 27, explains how to locate the boot slice.

10. Install the Solstice DiskSuite 4.2 software using the instructions in the “Initial Installation of Solstice DiskSuite” on page 16 section of this document.

This will re-establish the symbolic links removed in Step 9.

11. If root (/) was originally mounted on a metadevice or mirror, set the root (/) file system to be mounted back on the original metadevice or mirror.

Use the `metaroot` command to do this safely.

12. Edit the `/etc/vfstab` file to change any file systems or `swap` devices edited in Step 7 to be mounted back on their original metadevice or mirror.

13. Edit the `/etc/vfstab` file to uncomment the file systems commented out in Step 4.

14. Reboot the machine to remount the file systems.

15. Use the `metattach` command to reattach and resync any submirrors detached in Step 5.

16. Recreate the cleared trans metadevices. See *Solstice DiskSuite 4.2 User's Guide* for information on creating trans metadevices.

▼ How to Convert to DiskSuite 4.2 and Solaris 2.6 on x86 Systems Running Solaris 2.5 or 2.5.1 and DiskSuite 4.0 or 4.1

The procedure in this section only works for customers who have x86 machines running Solstice DiskSuite 4.0 or 4.1 on Solaris 2.5 or Solaris 2.5.1 and are upgrading to Solaris 2.6.



Caution - Before you begin this procedure, back up all file systems. See the `ufsdump(1M)` man page for details.

1. **Repair any mirrors that have errors.**
2. **Save the `metadb` configuration, the metadvice configuration, the device bindings, and `/etc/vfstab` on a remote or a floppy disk.**

One or more of these files can be overwritten when you reboot the machine, upgrade the operating system, or install the new version of DiskSuite. Here are some example commands that save the `metadb` configuration, the metadvice configuration, and `/etc/vfstab` on a local floppy disk:

```
# /usr/opt/SUNWmd/sbin/metadb > /dev/fd/metadb.cfg
# /usr/opt/SUNWmd/sbin/metastat -p > /dev/fd/metadvice.cfg
# cp /etc/vfstab /dev/fd/meta_vfstab
# ls -l /dev/rdisk/*s0 > /dev/fd/binding
# cp /etc/path_to_inst /dev/fd/path_to_inst
```

The following example commands save the `metadb` configuration, the metadvice configuration, and the `/etc/vfstab` to another machine called *other_machine* on the network connected to the system being upgraded:

```
# /usr/opt/SUNWmd/sbin/metadb -i > /net/other_machine/save/metadb.cfg
# /usr/opt/SUNWmd/sbin/metastat -p > /net/other_machine/save/metadvice.cfg
# cp /etc/vfstab /net/other_machine/save/meta_vfstab
# ls -l /dev/rdisk/*s0 > /net/other_machine/save/bindings
# cp /etc/path_to_inst /net/other_machine/dev/fd/path_to_inst
```




Caution - Make sure you save the `metadb` configuration, metadvice configuration and `/etc/vfstab` before going on to the next step in this procedure. Inability to restore any of them after the upgrade will result in data loss, and can result in complete system failure.

3. **Clear any trans metadvice that may be used during the Solaris upgrade (for example, `/usr`, `/var`, and `/opt`).**

See *Solstice DiskSuite 4.2 User's Guide* for information on clearing (removing logging from) trans metadvice. If you are uncertain which trans metadvice should be cleared, clear all trans metadvice.

4. **In `/etc/vfstab` comment out file systems mounted on metadvice that are not simple metadvice or simple mirrors.**

A simple metadvice is composed of a single component with a `Start Block` of 0. A simple mirror is composed of submirrors, all of which are simple metadvice.

5. **Convert the remaining (simple) mirrors to one-way mirrors with the `metadetach` command.**

Upgrade will be performed on a single submirror of each mirror. The other submirrors will be synced up with `metattach` after the upgrade.

6. **If root (`/`) is mounted on a metadvice or mirror, set the root file system to be mounted on the underlying component of the metadvice or the underlying component of the remaining attached submirror.**

Use the `metaroot` command to do this safely.

7. **Edit the `/etc/vfstab` file to change any file systems or `swap` devices still mounted on metadvice or mirrors after Step 3.**

Mount the file systems on the underlying component of the metadvice or the underlying component of the remaining attached submirrors.

8. **Remove symbolic links to the DiskSuite startup files so that it is no longer initialized at boot time.**

```
# rm /etc/rcS.d/S35SUNWmd.init /etc/rc2.d/S95SUNWmd.sync
```

These links will be added back later by reinstalling DiskSuite after the Solaris upgrade.

9. **Halt the machine and upgrade Solaris, then reboot the machine.**

Note - Make certain that you are upgrading to a version of Solaris that is compatible with Solstice DiskSuite 4.2 (that is, Solaris 2.6 or Solaris 7).



Caution - Make sure you upgrade the correct slice. On machines with mirrored root file systems, the Solaris installation software displays all slices used in the root mirror as available for upgrade. Choose the slice that the system boots from. The section, “How to Find the System Boot Slice When Upgrading the Solaris Operating System” on page 27, explains how to locate the boot slice.

10. Install the Solstice DiskSuite 4.2 software using the instructions in the “Initial Installation of Solstice DiskSuite” on page 16 section of this document.

This will re-establish the symbolic links removed in Step 9.

11. If root (/) was originally mounted on a metadevice or mirror, set the root (/) file system to be mounted back on the original metadevice or mirror.

Use the `metaroot` command to do this safely.

12. Edit the `/etc/vfstab` file to change any file systems or swap devices edited in Step 7 to be mounted back on their original metadevice or mirror.

13. Edit the `/etc/vfstab` file to uncomment the file systems commented out in Step 4.

14. Reboot the machine to remount the file systems.

15. Use the `metattach` command to reattach and resync any submirrors detached in Step 5.

16. Recreate the cleared trans metadevices. See *Solstice DiskSuite 4.2 User's Guide* for information on creating trans metadevices.

▼ How to Convert to DiskSuite 4.2 and Solaris 7 on x86 Systems Running Solaris 2.5, 2.5.1, or 2.6 and DiskSuite 4.0 or 4.1

If you are running Solaris 2.5, Solaris 2.5.1, or Solaris 2.6 on an x86 machine using Solstice DiskSuite 4.0 or 4.1, use the following procedure to upgrade to Solaris 7 and DiskSuite 4.2.

1. Run the `metacvt(1M)` command included with the DiskSuite 4.2 software distribution. The `metacvt` command is located in the `/tools` subdirectory on the CD. Make sure you save the `S94SUNmd.cvt` output.

Refer to the `metacvt` man page for detailed instruction on how to use this command and a list of the steps the command performs.



Caution - The `metacvt` command generates a script called `S94SUNWmd.cvt`. Make sure you save this script in a location that will not be overwritten during the software upgrade.

2. Reboot the system and upgrade the operating system to the new version.

If a mirrored system partition must be resized to accommodate the new system files, resize each submirror that mirrors the partition to match the partition's new size.



Caution - Do not perform an initial installation. An initial installation will reformat the system disks and destroy the data on them. It may also change the disk device bindings and invalidate the metadevice configuration saved in the `S94SUNmd.cvt` output.



Caution - Make sure you upgrade the correct slice. On machines with mirrored root file systems, the Solaris installation software displays all slices used in the root mirror as available for upgrade. Choose the slice that the system boots from. The section, "How to Find the System Boot Slice When Upgrading the Solaris Operating System" on page 27, explains how to locate the boot slice.

3. Remove all the old Solstice DiskSuite packages that may reside on the system.
4. Install the Solstice DiskSuite 4.2 software using the instructions in the "Initial Installation of Solstice DiskSuite" on page 16.

5. Run the `S94SUNmd.cvt` script.

Refer to the `S94SUNmd.cvt(1M)` man page for additional information on the script.

6. Reboot the system.

Initial Installation of Solstice DiskSuite

The following sections describe how to get ready for a local or remote installation of Solstice DiskSuite on a SPARC or x86 machine that has never had the software installed.

▼ How to Prepare for Local Installation

This procedure assumes that Volume Management is running on the system. This procedure should be used for both SPARC and x86 architectures.

1. **Insert the CD containing the software into the CD-ROM drive.**

If necessary, insert the CD into a caddy first.

2. **Change to the `/cdrom/cdrom0/products/DiskSuite_4.2` directory.**

```
local# cd /cdrom/cdrom0/products/DiskSuite_4.2/'uname -p'
```

`uname` with the `-p` option places you in the directory that contains the correct version of DiskSuite for your architecture (either `sparc` or `i386`). You are now ready to install Solstice DiskSuite 4.2.

▼ How to Prepare for Remote Installation

1. **On the remote machine, insert the CD containing the software into the CD-ROM drive.**

If necessary, insert the CD into a caddy first.

2. **Put a line similar to one of the following into the `/etc/dfs/dfstab` file.**

```
share -F nfs -o ro -d ''CD-ROM Directory'' /cdrom/cdrom0/products
```

This line may be different, depending on how your system is networked.

3. **Export the `/cdrom/cdrom0/` directory with the `shareall` command.**

```
remote# shareall
```

4. **On the local machine, log in as root.**

5. **Create the directory `/cdrom/cdrom0/` (if it doesn't already exist).**

```
local# mkdir -p /cdrom/cdrom0/
```

You may choose another directory besides /cdrom/cdrom0/.

6. Mount the CD-ROM as follows.

```
local# mount remote_machinename:/cdrom/cdrom0/ /cdrom/cdrom0/
```

Change to the /cdrom/cdrom0/products/DiskSuite_4.2 directory.

```
local# cd /cdrom/cdrom0/products/DiskSuite_4.2/'uname -p'
```

uname with the -p option places you in the directory that contains the correct version of DiskSuite for your architecture (either sparc or i386).

You are now ready to install Solstice DiskSuite 4.2.

Choosing Packages

This section describes the three Solstice DiskSuite 4.2 packages.

TABLE 1-2 Solstice DiskSuite 4.2 Packages

Package	Contains ...	Required or Optional
SUNWmd	The base DiskSuite product	Required
SUNWmdg	DiskSuite Tool graphical user interface	Optional, but recommended
SUNWmdn	DiskSuite SNMP log daemon	Optional

Adding Packages

This section describes three methods available for installing the DiskSuite packages. To install packages with the Software Manager graphical user interface, go to “How to Add Packages Using Software Manager” on page 18. To install packages with the pkgadd command, go to “How to Add Packages Using the pkgadd Command” on page 18.

▼ How to Add Packages Using Software Manager

This procedure assumes that `root` is a member of the `sysadmin` group (GID 14).

1. As root, start Software Manager.

```
# swmtool &
```

In Solaris 2.5 and later versions, `Admintool` is invoked.

2. Select Add from the Edit menu.

The `Admintool: Set Source Media` window may appear. If so, specify the path to the installation media then click OK. The default path is a mounted CD.

3. Choose the packages you want to install.

Click the box next to each software component in the Software list. There are multiple packages per component.

When you choose to install software using `Admintool`, the packages are installed in the proper order, regardless of the selection order.

4. Click the Add button.

A `Command Tool` window appears for the installation process.

5. Respond with `y` to any prompts about continuing the installation.

6. Ignore the following message that appears after the installation has finished.

```
System warning: No such file or directory, extras menu file
/usr/lib/.text_extras_menu (Textsw package)
```

▼ How to Add Packages Using the `pkgadd` Command

1. As root, change to the directory on which the CD-ROM is mounted.

Use the directory that you specified when preparing for a local or remote installation. Change to the

`/cdrom/cdrom0/products/DiskSuite_4.2/'uname -p'` directory to be placed automatically in the directory that contains the distribution for your system's architecture.

```
# cd /cdrom/cdrom0/products/DiskSuite_4.2/`uname -p`
```

2. Run pkgadd to install packages.

```
# pkgadd -d .
```

Note - If the `pkgadd` command is not in your current path, you must specify the full path to the command (`/usr/sbin/pkgadd`).

3. Choose the packages you want to install.

`pkgadd` displays the available packages and prompts you to enter the number associated with a package.

4. Respond with `y` to any prompts about continuing with the installation.

`pkgadd` installs the DiskSuite files in the `/usr/opt/SUNWmd` directory, as well as in other system directories. The program loops until you press `q` to quit.

Example — SPARC: Adding Packages from a Local CD Using `pkgadd`

The example shown on the following pages demonstrates installing DiskSuite on a SPARC system running Solaris 2.6.

Note - Do not be concerned if the screens displayed when you install this product do not appear exactly as shown in the following example.

```
# pkgadd -d .

The following packages are available:
 1  SUNWmd      Solstice DiskSuite
    (sparc) 4.2
 2  SUNWmdg     Solstice DiskSuite Tool
    (sparc) 4.2
 3  SUNWmdn     Solstice DiskSuite Log Daemon
    (sparc) 4.2

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

Processing package instance from

Solstice DiskSuite
```

(continued)

```

(sparc) 4.2
      Copyright 1998 Sun Microsystems, Inc. All rights reserved.

... (miscellaneous copyright information) ...

Using  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.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

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

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

Installing Solstice DiskSuite as
## Executing preinstall script.
## Installing part 1 of 1.
/etc/init.d/SUNWmd.init
/etc/init.d/SUNWmd.sync
/etc/opt/SUNWmd/lock
/etc/opt/SUNWmd/md.ctlrmmap
/etc/rc2.d/S95SUNWmd.sync /kernel/drv/md
/kernel/drv/sparcv9/md
/kernel/misc/md_hotspares
/kernel/misc/md_mirror
/kernel/misc/md_notify
/kernel/misc/md_raid
/kernel/misc/md_stripe
/kernel/misc/md_trans
/kernel/misc/sparcv9/md_hotspares
/kernel/misc/sparcv9/md_mirror
/kernel/misc/sparcv9/md_notify
/kernel/misc/sparcv9/md_raid
/kernel/misc/sparcv9/md_stripe
/kernel/misc/sparcv9/md_trans
/usr/lib/drv/config_md.so.1
/usr/lib/drv/preen_md.so.1
/usr/opt/SUNWmd/lib/libap_dmd.so.1
/usr/opt/SUNWmd/lib/libssd.so.1
/usr/opt/SUNWmd/locale/C/LC_MESSAGES/SUNW_MD.po
/usr/opt/SUNWmd/man/man1m/growfs.1m
/usr/opt/SUNWmd/man/man1m/metaclear.1m
/usr/opt/SUNWmd/man/man1m/metadb.1m
/usr/opt/SUNWmd/man/man1m/metadetch.1m
/usr/opt/SUNWmd/man/man1m/metahs.1m
/usr/opt/SUNWmd/man/man1m/metainit.1m
/usr/opt/SUNWmd/man/man1m/metaoffline.1m
/usr/opt/SUNWmd/man/man1m/metaonline.1m
/usr/opt/SUNWmd/man/man1m/metaparam.1m

```

(continued)


```

/usr/opt/SUNWmd/man/man1m/metarename.1m
/usr/opt/SUNWmd/man/man1m/metareplace.1m
/usr/opt/SUNWmd/man/man1m/metaroot.1m
/usr/opt/SUNWmd/man/man1m/metaset.1m
/usr/opt/SUNWmd/man/man1m/metastat.1m
/usr/opt/SUNWmd/man/man1m/metasync.1m
/usr/opt/SUNWmd/man/man1m/metattach.1m
/usr/opt/SUNWmd/man/man1m/rpc.metad.1m
/usr/opt/SUNWmd/man/man1m/rpc.metamhd.1m
/usr/opt/SUNWmd/man/man4/md.cf.4
/usr/opt/SUNWmd/man/man4/md.tab.4
/usr/opt/SUNWmd/man/man4/mddb.cf.4
/usr/opt/SUNWmd/man/man7/md.7
/usr/opt/SUNWmd/sbin/growfs
/usr/opt/SUNWmd/sbin/metaclear
/usr/opt/SUNWmd/sbin/metadb
/usr/opt/SUNWmd/sbin/metadetach
/usr/opt/SUNWmd/sbin/metahs
/usr/opt/SUNWmd/sbin/metainit
/usr/opt/SUNWmd/sbin/metaoffline
/usr/opt/SUNWmd/sbin/metaonline
/usr/opt/SUNWmd/sbin/metaparam
/usr/opt/SUNWmd/sbin/metarename
/usr/opt/SUNWmd/sbin/metareplace
/usr/opt/SUNWmd/sbin/metaroot
/usr/opt/SUNWmd/sbin/metaset
/usr/opt/SUNWmd/sbin/metastat
/usr/opt/SUNWmd/sbin/metasync
/usr/opt/SUNWmd/sbin/metattach
/usr/opt/SUNWmd/sbin/rpc.metad
/usr/opt/SUNWmd/sbin/rpc.metamhd
[ verifying class ]
cp/tmp/solstice_disksuite_beta/root_sparc/SUNWmd/reloc/etc/opt/SUNWmd/devpath
/etc/opt/SUNWmd/devpath
cp/tmp/solstice_disksuite_beta/root_sparc/SUNWmd/reloc/etc/opt/SUNWmd/md.cf
/etc/opt/SUNWmd/md.cf
cp /tmp/solstice_disksuite_beta/root_sparc/SUNWmd/reloc/etc/opt/SUNWmd/md.tab
/etc/opt/SUNWmd/md.tab
cp/tmp/solstice_disksuite_beta/root_sparc/SUNWmd/reloc/etc/opt/SUNWmd/mddb.cf
/etc/opt/SUNWmd/mddb.cf
cp/tmp/solstice_disksuite_beta/root_sparc/SUNWmd/reloc/kernel/drv/md.conf
/kernel/drv/md.conf
[ verifying class ]
## Executing postinstall script.

Installation of  was successful.

Processing package instance  from

Solstice DiskSuite Tool
(sparc) 4.2
Copyright 1998 Sun Microsystems, Inc. All rights reserved.

... (miscellaneous copyright information) ...

```

(continued)

```

Using / 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.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

```

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

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

```

Installing Solstice DiskSuite Tool as
## Executing preinstall script.
## Installing part 1 of 1.
/etc/opt/SUNWmd/SDStool.xpm
/usr/opt/SUNWmd/lib/X11/app-defaults/Metatool
/usr/opt/SUNWmd/lib/X11/bitmaps/battery_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/battery_32.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/browser_icon.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/browser_icon_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/concat_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/concat_16_insens.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/concat_32.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/concat_32_insens.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/concat_drag.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/concat_drag_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/controller_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/controller_32.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/diskview_icon.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/diskview_icon_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/drop_none.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/drop_none_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/drop_not_ok.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/drop_not_ok_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/drop_ok.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/drop_ok_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/drop_site_selection.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/editor_icon.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/editor_icon_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/fan_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/fan_32.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/fibre_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/fibre_32.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/help_icon.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/help_icon_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/hsp_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/hsp_16_insens.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/hsp_32.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/hsp_32_insens.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/hsp_drag.xbm

```

(continued)

```

/usr/opt/SUNWmd/lib/X11/bitmaps/hsp_drag_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/lock_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/lock_32.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/log_icon.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/log_icon_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/metadb_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/metadb_16_insens.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/metadb_32.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/metadb_32_insens.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/metadb_drag.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/metadb_drag_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/mirror_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/mirror_16_insens.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/mirror_32.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/mirror_32_insens.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/mirror_drag.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/mirror_drag_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/multi_drag.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/multi_drag_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/perfview_icon.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/perfview_icon_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/raid_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/raid_16_insens.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/raid_32.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/raid_32_insens.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/raid_drag.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/raid_drag_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/slice_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/slice_16_insens.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/slice_drag.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/slice_drag_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/spundown_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/spundown_32.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/trans_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/trans_16_insens.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/trans_32.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/trans_32_insens.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/trans_drag.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/trans_drag_mask.xbm
/usr/opt/SUNWmd/lib/X11/bitmaps/wrench_16.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/wrench_32.xpm
/usr/opt/SUNWmd/lib/X11/bitmaps/wrench_8.xpm
/usr/opt/SUNWmd/lib/X11/uid/Metatool/Editor.uid
/usr/opt/SUNWmd/lib/X11/uid/Metatool/EditorTmpl.uid
/usr/opt/SUNWmd/lib/X11/uid/Metatool/PerfMonWindow.uid
/usr/opt/SUNWmd/lib/X11/uid/Metatool/concat.uid
/usr/opt/SUNWmd/lib/X11/uid/Metatool/hsp.uid
/usr/opt/SUNWmd/lib/X11/uid/Metatool/logs.uid
/usr/opt/SUNWmd/lib/X11/uid/Metatool/md.uid
/usr/opt/SUNWmd/lib/X11/uid/Metatool/mirror.uid
/usr/opt/SUNWmd/lib/X11/uid/Metatool/physicalview.uid
/usr/opt/SUNWmd/lib/X11/uid/Metatool/popups.uid
/usr/opt/SUNWmd/lib/X11/uid/Metatool/raid.uid
/usr/opt/SUNWmd/lib/X11/uid/Metatool/slice.uid

```

(continued)

```

/usr/opt/SUNWmd/lib/X11/uid/Metatool/slicer.uid
/usr/opt/SUNWmd/lib/X11/uid/Metatool/stripe.uid
/usr/opt/SUNWmd/lib/metatool-toolsmenu
/usr/opt/SUNWmd/locale/C/help/metatool/howto/Howto
/usr/opt/SUNWmd/locale/C/help/metatool/howto/help.h.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/Reference
/usr/opt/SUNWmd/locale/C/help/metatool/reference/catinfo.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/cflog.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/controllerinfo.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/devicestats.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/diskinfo.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/diskview.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/diskview.slicefilters.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/find.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/hspbrowser.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/hspfilters.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/hspinfo.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/logtofile.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/mappingselect.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/mbbrowser.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/mded.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/mdfilters.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/metadbinfo.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/mirrorinfo.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/phytolog.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/problist.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/raidinfo.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/restore.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/save.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/slicebrowser.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/slicefilters.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/sliceinfo.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/statgraphs.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/stripeinfo.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/transinfo.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/reference/trayinfo.r.hlp
/usr/opt/SUNWmd/locale/C/help/metatool/topics/Topics
/usr/opt/SUNWmd/locale/C/help/metatool/topics/glossary.t.hlp
/usr/opt/SUNWmd/man/man1m/metatool.1m
/usr/opt/SUNWmd/man/man4/metatool-toolsmenu.4
/usr/opt/SUNWmd/sbin/metatool
[ verifying class ]
## Executing postinstall script.

Installation of  was successful.

Processing package instance  from

Solstice DiskSuite Log Daemon
(sparc) 4.2
    Copyright 1998 Sun Microsystems, Inc. All rights reserved.

... (miscellaneous copyright information) ...

```

(continued)

```

Using  as the package base directory.
## Processing package information.
## Processing system information.
    11 package pathnames are already properly installed.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

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

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

Installing Solstice DiskSuite Log Daemon as
## Installing part 1 of 1.
/etc/init.d/init.mdlogd
/etc/rc3.d/S25mdlogd  ]
cp /tmp/solstice_disksuite_beta/root_sparc/SUNWmdn/reloc/etc/opt/SUNWmd/\
    mdlogd.cf /etc/opt/SUNWmd/mdlogd.cf
[ verifying class  ]

Installation of  was successful.

The following packages are available:
 1  SUNWmd      Solstice DiskSuite
    (sparc) 4.2
 2  SUNWmdg     Solstice DiskSuite Tool
    (sparc) 4.2
 3  SUNWmdn     Solstice DiskSuite Log Daemon
    (sparc) 4.2

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

```

Viewing Installed Packages

You can confirm that the DiskSuite software has been installed by using the `pkginfo` command:

```

# pkginfo
system      SUNWaccr      System Accounting, (Root)
system      SUNWaccu      System Accounting, (Usr)
system      SUNWadmap    System administration applications

... (other package information)

system      SUNWmd      Solstice DiskSuite
system      SUNWmdg     Solstice DiskSuite Tool
system      SUNWmdn     Solstice DiskSuite Log Daemon

```

(continued)

... (other package information)

The `-l` option gives detailed information about packages:

```
# pkginfo -l SUNWmd
  PKGINST: SUNWmd
    NAME: Solstice DiskSuite
  CATEGORY: system
    ARCH: sparc
  VERSION: 4.2,REV=1998.05.08.11.05.59
  BASEDIR: /
  VENDOR: Sun Microsystems, Inc.
    DESC: Solstice DiskSuite
  PSTAMP: 08/05/98-13:14:37
  INSTDATE: Aug 05 1998 14:03
  VSTOCK: 258-6252-11
  HOTLINE: Please contact your local service provider
  STATUS: completely installed
  FILES:
    95 installed pathnames
    22 shared pathnames
    25 directories
    37 executables
    22424 blocks used (approx)

#
```

Setting the Path Variables

After installing the software, you must set the environment variables `PATH` and `MANPATH`.

The general requirements are as follows:

- Modify your `PATH` variable to include `/usr/opt/SUNWmd/sbin`.
If you do not set this path, you may get other versions of the software.
- Modify your `MANPATH` to include `/usr/opt/SUNWmd/man`.
If you do not set this path, you could get man pages for the wrong release, or no man pages at all.

You can set these paths by using an editor to change your `$HOME/.profile` or `~/.cshrc` file, as follows.

If you installed DiskSuite in the default directory, and:

- If you're using the Bourne shell, your `$HOME/.profile` file should have lines like this:

```
PATH=/usr/opt/SUNWmd/sbin:$PATH
MANPATH=/usr/opt/SUNWmd/man:$MANPATH
export PATH MANPATH
```

- If you're using the C shell (`csh.1`), the `~/.cshrc` file should have lines that look something like this:

```
set path = (/usr/opt/SUNWmd/sbin $path)
setenv MANPATH /usr/opt/SUNWmd/man:$MANPATH
```

Removing Packages

If you want to remove a DiskSuite package, you can remove the installed files using the `pkgrm` command. For example, to remove the `SUNWmd` package, type the following (as root):

```
# pkgrm SUNWmd
```

Note - Do not remove DiskSuite files using the `rm` command. Using `pkgrm` is the only valid way to remove these files.

How to Find the System Boot Slice When Upgrading the Solaris Operating System

On machines with mirrored root file systems, the Solaris installation software will display all slices used in the root mirror as available for upgrade. The slice names may also contain different controller numbers than those used for the same slices in the system's `vfstab` and in the DiskSuite configuration database. BugIDs 4046177, 4043749, 4017614, and 4041649 describe this problem.

If all the upgradable slices are on the same controller, you can ignore controller number changes and choose the slice with the same target and disk number as the root slice in the system `vfstab`. You can display the system `vfstab` during the upgrade, and before choosing which slice to upgrade, by performing the following steps:

1. **When the Solaris installation software displays the list of upgradable slices, either start up a subshell in the windowing system or write down the names of the slices and exit the installation program.**
2. **In a command shell, mount either of the slices displayed by the install software on `/a`:**

```
# mount /dev/dsk/slice_name /a
```

3. Display the system's vfstab:

```
# more /a/etc/vfstab
```

4. Restart or resume the Solaris installation program and upgrade the slice with the same target and disk numbers as the one mounted on the root filesystem in /a/etc/vfstab.

If the slices are on different controllers, follow the procedure below to find out which slice is the boot slice.

- 1. When the Solaris installation software displays the list of upgradable slices, either start up a subshell in the windowing system or write down the names of the slices and exit the installation program.**
- 2. In a command shell, mount either of the slices displayed by the install software on /a:**

```
# mount /dev/dsk/slice_name /a
```

3. Display the system's vfstab:

```
# more /a/etc/vfstab
```

4. Find the root slice in the vfstab, and display its /device path:

```
# ls -l /a/dev/dsk/root_slice_name
```

5. Find the device path for each of the miniroot's slice names, using the following command:

```
# ls -l /dev/dsk/slice_name
```

6. Restart or resume the installation program and upgrade the slice that has the same /device pathname as that of the system root slice, or the pathname most similar to it. There are minor differences between the path names displayed in Solaris 7 and Solaris 2.5, 2.5.1, and 2.6, and `cmdk(7D)` has been replaced by

`sd(7D)` at the ends of the pathnames of SCSI devices in Solaris 7. However, you should have little difficulty choosing the pathname most similar to that of the boot device.

If you can't figure out which slice to upgrade, contact Sun Enterprise Services.

If you choose incorrectly and upgrade the wrong slice, the system will reboot under the old version of Solaris. If that happens, rerun the upgrade on the other slice.

Supported configurations with EIDE Drives

Solstice DiskSuite 4.2 running on Solaris 7 (and DiskSuite 4.1 running on Solaris 2.6) supports EIDE drives on Darwin class SPARC machines, including Ultra 5, Ultra 10, and Ultra 30 and x86 machines that have EIDE drives. Solstice DiskSuite sees no difference between EIDE and SCSI drives.

Solstice DiskSuite supports mirroring of EIDE drives only if they are on different channels. The Darwin class machines have two IDE channels, each with a master and a slave. The problem is that if an error occurs on a master drive, the slave drive for that channel will no longer respond to requests. For that reason, you can mirror only disks on different channels. This is a design issue for IDE drives and not a bug introduced by Sun. If you are running on Solaris 2.6, you can install patchID 106407-02 to prevent this problem.

The following table shows the supported configurations and where mirroring is supported on the Darwin class SPARC machines that have EIDE drives.

TABLE 1-3 Supported Configurations on Darwin Class Machines

Primary			Secondary		SCSI
Category	Master	Slave	Master	Slave	
1	D1	None	None	None	D1 mirrored to SCSI
2	D1	CDROM	None	None	D1 mirrored to SCSI
3	D1	CDROM	D2	None	D1 mirrored to SCSI
4	D1	CDROM	D2	None	D2 mirrored to SCSI

TABLE 1-3 Supported Configurations on Darwin Class Machines *(continued)*

5	D1	None	D2	None	D1 mirrored to SCSI
6	D1	None	D2	None	D2 mirrored to SCSI
7	D1	None	D2	None	D1 mirrored to D2
8	D1	None	D2	CDROM	D1 mirrored to SCSI
9	D1	D2	None	None	D1 & D2 mirrored to SCSI
10	D1	D2	CDROM	None	D1 & D2 mirrored to SCSI
11	D1	D2	D3	CDROM	D1 & D2 mirrored to SCSI
12	D1	None	D2	D3	D2 & D3 mirrored to SCSI

Some users want to create a server with higher availability by mirroring two EIDE drives. In the previous table, configuration 7 shows that this is possible. However, it is important to realize that DiskSuite recommends three disks for the location of three metadevice state databases. These disks create a quorum that guarantees continuous operation. If the first two disks are EIDE drives, the third should be a SCSI drive.

Solstice DiskSuite supports mirroring of the internal boot drive, however DiskSuite requires that three metadevice state databases be created to ensure a quorum. That means you should have three disks on the system to ensure the safety of your data. It is possible to operate with only two metadevice state databases, but you are at risk if a disk fails.