



Sun StorEdge™ Availability Suite 3.1 Remote Mirror Software Release Notes

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Contents

Installation and Service Information	2
Related Documentation	3
Documentation on CD	4
Supported Software and Hardware In a Nonclustered Environment	5
Supported Hardware and Software In a Sun Cluster 3.0 Environment	6
Product Notes	7
Volume and Configuration Location Size Requirements for the Sun StorEdge Configuration	8
Using Volume Manager Software and Metatrans Devices	9
Bitmap Files Are Not Supported in the Version 3.1 Software	9
Bitmap Size Requirements	9
Compatibility With Previous Versions	10
Which Version Do I Have?	10
Log Files	11
If an Initial Synchronization is Interrupted	12
Performing a Reverse Copy or Update After a Primary Volume or Network Link Failure	13
Using The Remote Mirror Software with the Point-in-Time Copy Software	14
Rebooting Your Server Using the <code>shutdown</code> Command	15
Upgrading the Solaris Operating Environment with the Remote Mirror Software Installed	15

Documentation Additions and Errata	16
Known Bugs	16

Sun StorEdge Availability Suite 3.1 Remote Mirror Software Release Notes

This document contains important last-minute product information about the Sun StorEdge™ Availability Suite 3.1 remote mirror software.

Note – This software was previously known as the Sun StorEdge Network Data Replicator (Sun SNDR) data services software.

This document describes the following topics:

- [“Installation and Service Information” on page 2](#)
- [“Related Documentation” on page 3](#)
- [“Supported Software and Hardware In a Nonclustered Environment” on page 5](#)
- [“Supported Hardware and Software In a Sun Cluster 3.0 Environment” on page 6](#)
- [“Product Notes” on page 7](#)
- [“Documentation Additions and Errata” on page 16](#)
- [“Known Bugs” on page 16](#)

Note – The Sun StorEdge Availability Suite versions 3.0 and 3.0.1 contained the SUNWnvm package for Sun StorEdge Fast Write Cache 2.0 users. The 3.1 version of the suite does not contain or support any SUNWnvm version.

Installation and Service Information

If you are a Sun™ support or service provider, for product information, go to:

<http://webhome.ebay/networkstorage/products/>

For installation services in the U.S., contact Sun at the following number.

1-800-USA4SUN (1-800-872-4786)

For installation services outside the U.S., contact your local sales or service representative.

For information about service, sales, consulting, and support, go to:

<http://www.sun.com/service/support/contactsalesoffice.html>

<http://www.sun.com/service/support/sunsolve/index.html>

Related Documentation

For late-breaking news about this release, go to the following web site:

<http://www.sun.com/storage/software/>

For the latest version of released storage software documentation, go to:

<http://www.sun.com/products-n-solutions/hardware/docs/Software/>

Application	Title	Part Number
Man pages	sndradm	N/A
	cron	
	dscfg	
	file	
	fwcadm	
	pkgadd	
	pkgrm	
	scmadm	
	svadm	
dsstat		
Release	<i>Sun Cluster 3.0 and Sun StorEdge Software 3.0 Release Note Supplement</i>	816-5128
	<i>Sun StorEdge Availability Suite 3.1 Point-In-Time Copy Software Release Notes</i>	816-4314
Sun Cluster with Sun StorEdge software	<i>Sun Cluster 3.0 and Sun StorEdge Software Integration Guide</i>	816-5127
Installation and user	<i>Sun StorEdge Availability Suite 3.1 Point-In-Time Copy Software Installation Guide</i>	816-4312
	<i>Sun StorEdge Availability Suite 3.1 Remote Mirror Software Installation Guide</i>	816-4413
	<i>SunATM 3.0 Installation and User's Guide</i>	805-0331
	<i>SunATM 4.0 Installation and User's Guide</i>	805-6552
	<i>Sun Gigabit Ethernet FC-AL/P Combination Adapter Installation Guide</i>	806-2385
	<i>Sun Gigabit Ethernet/S 2.0 Adapter Installation and User's Guide</i>	805-2784
	<i>Sun Gigabit Ethernet/P 2.0 Adapter Installation and User's Guide</i>	805-2785

Application	Title	Part Number
System administration	<i>Sun Enterprise 10000 InterDomain Networks User Guide</i>	806-4131
	<i>Sun StorEdge Availability Suite 3.1 Remote Mirror Software Administration and Operations Guide</i>	816-4415
	<i>Sun StorEdge Availability Suite 3.1 Point-In-Time Copy Software Administration and Operations Guide</i>	816-4313
	<i>TCP/IP and Data Communications Administration Guide</i>	805-4003
	<i>System Administration Guide, Volume 3 (for the Solaris 8 operating environment)</i>	806-0916
Configuration	<i>Sun StorEdge Fast Write Cache 2.0 System Administrator's Guide</i>	806-2064
	<i>Sun Enterprise 10000 InterDomain Network Configuration Guide</i>	806-5230

Documentation on CD

The remote mirror documentation is available on the product CD in Adobe Acrobat PDF format. To access this documentation:

1. **Log on as root.**
2. **Insert the product CD into the CD-ROM drive that is connected to your system.**
3. **Start the Volume Manager daemon `vold(1M)` (if needed) and change to the `Docs` directory.**

```
# /etc/init.d/volmgt start
# cd /cdrom/cdrom0/Docs
```

From this location, you can view the documentation using the free Adobe Acrobat Reader software. This CD also contains the Adobe Acrobat Reader software in the `/Acro_Read` directory. Install this software to your local machine if you do not currently have the Adobe Reader software installed. It is also available from Adobe Systems at <http://www.adobe.com>.

Supported Software and Hardware In a Nonclustered Environment

[TABLE 1](#) shows the supported software in a nonclustered environment. Patches are available at:

<http://sunsolve.sun.com/>

Note – Some patches might require a SunSolve subscription.

[TABLE 2](#) shows the supported hardware in a nonclustered environment.

TABLE 1 Supported Software, Noncluster Environments

Operating Environment and Software	Patches Required
Solaris 2.6 05/98	105181-28 - kernel super patch 106639-06 - rpcmod
Solaris 7 8/99 (also known as Update 3) Solaris 7 11/99 (Update 4)	None
Solaris 8	None
Solaris 9	None
Sun StorEdge Availability Suite 3.1 remote mirror software	None
TCP/IP network transport software such as SunATM™ or Gigabit Ethernet transports	None
Sun StorEdge Availability Suite 3.1 point-in-time copy software	None
Volume manager software	Sun Solstice DiskSuite™ Sun Volume Manager (SVM) VERITAS Volume Manager

- The Sun StorEdge software does not support metatrans devices created by using the Sun Solstice DiskSuite and Sun Volume Manager. See [“Using Volume Manager Software and Metatrans Devices”](#) on page 9.

TABLE 2 Supported Hardware, Noncluster Environments

Hardware	<p>A CD-ROM drive connected to the host server where the remote mirror software is to be installed.</p> <p>The remote mirror software is supported on server hosts using the Solaris operating environment and any network interface card supported by Sun. Hosts include but are not limited to:</p> <ul style="list-style-type: none">• Sun Enterprise™ 220R, 250, 420R, and 450 servers• Sun Enterprise 3500, 4500, 5500, 6500, and 10000 servers• Sun Fire™ 3800, 4800, 4810, 6800, and 15K servers• Sun Ultra™ 60 and 80 workstations• Sun Blade™ 100 and 1000 workstations• Sun Netra™ t 1400/1405 and 1120/1125 servers
Disk Space	<p>The remote mirror software requires approximately 1.4 Mbytes. The Sun StorEdge configuration location requires 5.5 Mbytes. Supporting packages require approximately 3 Mbytes.</p>
Supported Attached Storage	<p>The remote mirror software is storage-hardware independent.</p>

Supported Hardware and Software In a Sun Cluster 3.0 Environment

If you are using the Sun StorEdge software in a Sun Cluster 3.0 Update 1 or Update 2 environment, see the *Sun Cluster 3.0 and Sun StorEdge Software Integration Guide* for more information. Sun Cluster 3.0 Update 1 is also known as the Sun Cluster 3.0 07/01 release. Sun Cluster 3.0 Update 2 is also known as the Sun Cluster 3.0 12/01 release.

Note – You cannot use the Sun StorEdge Fast Write Cache (FWC) product (all versions, including any version of the SUNWnvm software) in any Sun Cluster environment because cached data is inaccessible from other machines in a cluster. To compensate, you can use a Sun caching array.

Product Notes

This section includes the following topics:

- [“Volume and Configuration Location Size Requirements for the Sun StorEdge Configuration” on page 8](#)
- [“Using Volume Manager Software and Metatrans Devices” on page 9](#)
- [“Bitmap Files Are Not Supported in the Version 3.1 Software” on page 9](#)
- [“Bitmap Size Requirements” on page 9](#)
- [“Compatibility With Previous Versions” on page 10](#)
- [“Log Files” on page 11](#)
- [“If an Initial Synchronization is Interrupted” on page 12](#)
- [“Performing a Reverse Copy or Update After a Primary Volume or Network Link Failure” on page 13](#)
- [“Using The Remote Mirror Software with the Point-in-Time Copy Software” on page 14](#)
- [“Rebooting Your Server Using the shutdown Command” on page 15](#)
- [“Upgrading the Solaris Operating Environment with the Remote Mirror Software Installed” on page 15](#)

Volume and Configuration Location Size Requirements for the Sun StorEdge Configuration

■ Sun StorEdge configuration location

Ensure that you have at least 5.5 Mbytes of disk space for the Sun StorEdge configuration used by the Sun StorEdge data services.

(4.5 Mbytes is the disk space requirement for versions 3.0 and 3.0.1.)

If you are upgrading from versions 3.0 and 3.0.1 where the configuration location was a file on the root (/) or /usr file system, the installation process determines if adequate disk space exists to grow the configuration size to 5.5 Mbytes of disk space. If the disk space exists, the configuration is automatically converted to a file of the appropriate size.

If the installation process determines that not enough disk space is available or if the existing configuration information is located on a block device that is smaller than 5.5 Mbytes, perform the following:

1. Back up your existing configuration information using the `dscfg` command.
2. Specify a new configuration location as a file or volume of at least 5.5 Mbytes.
3. Restore your configuration information to the new location by using the `dscfg` command.

The *Sun StorEdge Availability Suite 3.1 Remote Mirror Software Installation Guide*, Chapter 3, describes backing up and restoring your configuration information using the `dscfg` command.



Caution – Do not restore your configuration information to its original location. If you do, the restore procedure will create duplicate entries in your configuration which might cause data corruption.

■ Primary and secondary volumes

The size of the secondary site volume must be equal to or greater than the corresponding primary site volume. If you enable a volume set where the secondary volume is smaller than the primary volume, the command `sndradm` fails with an error.

Using Volume Manager Software and Metatrans Devices

The remote mirror software and point-in-time copy software do not support metatrans devices (also known as trans metadevices) created by the Sun Solstice DiskSuite or Solaris Volume Manager software.

Metatrans devices are intended for use with UNIX file systems (`ufs`) without using any other layered services. Use the `ufs logging mount` option as an alternative to the use of metatrans devices. The Sun StorEdge Availability Suite software supports `ufs logging` which should be used when available instead of metatrans devices.

Bitmap Files Are Not Supported in the Version 3.1 Software

The remote mirror software does not support bitmap files.

If you used bitmap files in the Sun SNDR Version 2.0 software, you must convert them to volumes after you upgrade from Version 2.0 to Version 3.1. The 3.1 software does not support bitmap files. The *Sun StorEdge Availability Suite 3.1 Remote Mirror Software Installation Guide* describes how to convert bitmap files to volumes.

Bitmap Size Requirements

The bitmap size can be calculated using the following formula:

- 4 Kbytes per Gbyte of device storage space + 1 Kbyte

For example, a 2-Gbyte data device requires a bitmap size of 9 Kbytes, a 5-Gbyte data device requires a bitmap size of 21 Kbytes, and so on. (You can create bitmaps that are larger than the calculated size.)

Compatibility With Previous Versions



Caution – Do not attempt to mix remote mirror and Sun SNDR software versions on primary and secondary hosts. For example, do not run the Sun SNDR 2.0 software on a primary host and attempt to enable volumes on a secondary host running the remote mirror 3.1 software. This configuration is not supported. Upgrade all hosts to the remote mirror version 3.1 software.

The Sun StorEdge Availability Suite 3.1 software is binary-incompatible with the 1.x, 2.0, 2.0.1, 3.0, and 3.0.1 versions of the following Sun StorEdge software, including all versions of the SUNNvm (Sun StorEdge Fast Write Cache) software:

- Sun StorEdge Network Data Replicator software
- Sun StorEdge Instant Image software
- Sun StorEdge Fast Write Cache product and the SUNWnvm package
- SUNWte package, also known as the Sun StorEdge Target Emulation software

Note – The Sun StorEdge Network Data Replicator and Instant Image software (versions 3.0 and 3.0.1) and the Availability Suite 3.0 software contained the SUNWnvm package for Sun StorEdge Fast Write Cache 2.0 users. The 3.1 version of the suite does not contain or support any SUNWnvm version.

When you plan to install or upgrade to the remote mirror or point-in-time copy software version 3.1, you must remove all previous versions of the Sun StorEdge data services software first. For example, you cannot use the Sun StorEdge Instant Image software version 2.0 or the SUNWnvm version 3.0 package with the remote mirror software version 3.1

Note – You can continue using the Sun StorEdge Component Manager software.

Which Version Do I Have?

- **To find out which version of the software you have installed, type:**

```
# sndradm -v
SNDR version 3.1
```

Log Files

Check the following files, which might help you troubleshoot problems:

- `/var/opt/SUNWesm/ds.log`
This log contains error or informational messages.
- `/var/adm/messages`
This log contains general system error or informational messages.

Example `/var/adm/messages` Output

This error message occurred because the `rdc` service was not active when the remote mirror software started.

```
Completing SNDR startup: sndrd Aug 16 08:37:16 sndrd[291]: Cannot get address
for transport tcp6 host \1 service rdc
Aug 16 08:37:16 sndrd[291]: Cannot establish RDC service over /dev/tcp6:
transport setup problem.
Aug 16 08:37:16 sndrd[291]: Cannot get address for transport tcp host \1 service
rdc
Aug 16 08:37:16 sndrd[291]: All transports have been closed with errors.
Exiting.
Aug 16 08:37:16 sndrd[291]: SNDR Fatal server error
sndrsyncd done
```

Example /var/opt/SUNWesm/ds.log Output

The /var/opt/SUNWesm/ds.log file contains timestamped operation log messages for the `sndradm` and `iiadm` commands.

```
Aug 20 19:13:55 scm: scmadm cache enable succeeded
Aug 20 19:13:55 ii: iiboot resume cluster tag <none>
Aug 20 19:13:58 sndr: sndrboot -r first.atm /dev/vx/rdisk/rootdg/vol5
/dev/vx/rdisk/
rootdg/bm6 second.atm /dev/vx/rdisk/rootdg/vol7 /dev/vx/rdisk/rootdg/bm7
Successful
Aug 20 19:13:58 sndr: sndrboot -r first.atm /dev/vx/rdisk/rootdg/vol4
/dev/vx/rdisk/
rootdg/bm4 second.atm /dev/vx/rdisk/rootdg/vol4 /dev/vx/rdisk/rootdg/vol4
Successful
Aug 20 19:13:58 sndr: sndrboot -r first.atm /dev/vx/rdisk/rootdg/vol2
/dev/vx/rdisk/
rootdg/bm2 second.atm /dev/vx/rdisk/rootdg/vol2 /dev/vx/rdisk/rootdg/bm2
Successful
Aug 20 19:13:58 sndr: sndrboot -r first.atm /dev/vx/rdisk/rootdg/vol3
/dev/vx/rdisk/
rootdg/bm3 second.atm /dev/vx/rdisk/rootdg/vol3 /dev/vx/rdisk/rootdg/bm3
Successful
```

If an Initial Synchronization is Interrupted

Consider the following if, after enabling the volume sets, the initial synchronization operation using the `sndradm -m` or `sndradm -u` commands is interrupted

If You Enabled the Volume Sets With This Command	And Used This Command to Synchronize Volume Sets	The <code>sndradm -u</code> Command Results In
<code>sndradm -e</code>	<code>sndradm -m</code> <code>sndradm -m -r</code>	Another full synchronization operation starting from the beginning.
<code>sndradm -E</code>	<code>sndradm -m</code> <code>sndradm -m -r</code>	The synchronization restarts from the point of interruption (that is, not a full synchronization starting from the beginning).

Performing a Reverse Copy or Update After a Primary Volume or Network Link Failure

Perform the following commands after the network link or disk failure is repaired:

1. Ensure that any cached data at the secondary site is purged or synchronized by using the `scmadm -p` or `scmadm -s` command.

If you do not perform this step, when you attempt to perform a reverse copy or update operation, the software reports that the update failed and that the volume sets are in logging mode.

2. Place the primary and secondary host volumes into logging mode if they are not already in logging mode using the `sndradm -l` command.

Note – If you check the volume status at this point, using the `sndrstat -l` or `scmadm -S` commands, the volume status might report VOF (volume failed) or RSN (reverse synchronization needed). When you perform the reverse copy or update, this volume status is cleared.

3. Perform the reverse copy or update:
 - Update the secondary volume to match the primary volume. Use the `sndradm -u` update command.
 - If you are unsure about the secondary volume contents, perform a full forward synchronization to match the primary volume. Use the `sndradm -m` synchronization command.

Using The Remote Mirror Software with the Point-in-Time Copy Software

Note – You must place the related remote mirror volume set in logging mode for the point-in-time copy software to successfully perform an enable, copy, update, or reset operation on a remote mirror volume. If the volume set is not in logging mode, the point-in-time operation fails and the remote mirror software reports that the operation is denied. The *Sun StorEdge Availability Suite 3.1 Remote Mirror Software Administration and Operations Guide* describes the procedures to follow when using both software packages together. See the section “Rehearsing Disaster Recovery”.

To help ensure the highest level of data integrity on both sites during normal operations or during data recovery, use the remote mirror software with the Sun StorEdge Availability Suite 3.1 point-in-time copy software.

Use the point-in-time copy software just before you perform a resynchronization, to help ensure that a consistent copy of data exists. If a failure occurs during the resynchronization, you have the point-in-time data copy to roll back to and you can start again when the failure is resolved.

During the resynchronization process of updating the local and remote sites, the data on a secondary remote mirror volume is temporarily inconsistent with the primary volume. The secondary volume cannot be relied on for data recovery. Consistency is restored when the resynchronization is complete. To help ensure data integrity, use point-in-time copy software regularly to create a point-in-time copy of data at both sites. See the point-in-time copy documentation listed in [“Related Documentation” on page 3](#).

Rebooting Your Server Using the `shutdown` Command

During the Sun StorEdge software installation and upgrade processes, the installation guides instruct you to shut down and restart your server. **Do not use the `reboot` command.** As described in the instructions, always use the `shutdown(1M)` command. The `shutdown` command ensures that any shutdown scripts in the `/etc/init.d` directory are executed.

Upgrading the Solaris Operating Environment with the Remote Mirror Software Installed

If you installed the remote mirror software in a Solaris 7 operating environment and now wish to upgrade to the Solaris 8 or Solaris 9 operating environment:

1. Remove the software.
2. Upgrade your operating environment.
3. Reinstall the remote mirror software.

See the *Sun StorEdge Availability Suite 3.1 Remote Mirror Software Installation Guide* for the removal and reinstallation procedures.

Note – Perform this procedure on each machine where you are upgrading the operating environment.

Documentation Additions and Errata

None at this time.

Known Bugs

This section provides workarounds to or information about the following known bugs:

- [“4680046 Availability Suite 3.1 TNF Tracing Panics a Solaris 2.6 System” on page 17](#)
- [“4682519 Cache Display for dsstat Command Limited to Path Names of 16 Characters or More” on page 17](#)
- [“4684695 The scmadm Command Switches -r, -s and -p Do Not Use 'all' as a Valid Option” on page 18](#)
- [“4678727 Repeat Remote Mirror Software Installation Reports that Previous Installation was Incomplete” on page 18](#)

4680046

Availability Suite 3.1 TNF Tracing Panics a Solaris 2.6 System

Enabling Availability Suite 3.1 TNF tracing on any system running these operating environments causes the system to panic:

- Solaris 2.6
- Solaris 7, initial release
- Solaris 7, 3/99 release (also known as Update 1)

Workaround

Do not initiate TNF tracing with the `prex -k` command on any system running an operating environment version prior to Solaris 7, Update 2.

4682519

Cache Display for dsstat Command Limited to Path Names of 16 Characters or More

If you use the `dsstat` command to display cache statistics, the command displays the statistics for volumes that have full path names that are at least 16 characters long. (Type `scmadm` at a command prompt to show all volumes.)

The first volume found that has a path name fewer than 16 characters is displayed as a blank or null field. Any other volumes like this are considered duplicates and are not reported.

For example, the command will display information for a volume named `/dev/md/rdisk/d11`. It will not display information for a volume named `/dev/md/rdisk/d5`.

Workaround

None at this time. Use volume path names that are 16 characters or longer.

4684695

The scmadm Command Switches -r, -s and -p Do Not Use 'all' as a Valid Option

The `scmadm` man page erroneously states that the `scmadm` command can use the `all` option with the following switches:

- `scmadm -p`
- `scmadm -r`
- `scmadm -s`

Typing `scmadm -h` to display syntax usage also shows `all` as an option with these command switches. This option is not available.

Workaround

Do not use the `all` option with these command switches.

4678727

Repeat Remote Mirror Software Installation Reports that Previous Installation was Incomplete

Attempts to install the remote mirror 3.1 software over an existing installation result in invalid error messages. If you try to install the software on a machine where it is already installed, the following error message is displayed:

```
ERROR: A previous installation of package SUNWrdcu was not complete.  
Please remove this package with the command pkgrm, then re-run install.sh
```

This error message is invalid.

For example, the `pkginfo` command shows that the package is already installed.

```
# pkginfo -l SUNWrdcu
  PKGINST: SUNWrdcu
    NAME: Sun StorEdge Availability Suite remote mirror software (usr)
  CATEGORY: system
    ARCH: sparc
  VERSION: 3.1.28,REV=2002.04.25
  BASEDIR: /usr
    VENDOR: Sun Microsystems, Inc.
    DESC: The Sun StorEdge remote mirror software provides replication of
volumes across physically separate hosts without host intervention.
    PSTAMP: SPS 04/25/02
  INSTDATE: May 02 2002 10:10
  HOTLINE: Please contact your local service provider
  STATUS: completely installed
  FILES:      78 installed pathnames
             20 shared pathnames
             1 linked files
             30 directories
             30 executables
             4075 blocks used (approx)
```

Workaround

Ignore the error message.

