Sun StorEdge™ 3310 SCSI Array Release Notes

Sun Microsystems, Inc.
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Contents

Sun StorEdge 3310 SCSI Array Release Notes

Read these release notes before attempting to install or use the Sun StorEdge™ 3310 SCSI array.

New Features in This Release

The following features and products are now available in this release:

- The Sun StorEdge CLI 1.6.2 software has been provided for bug fixes and can be used with all Sun StorEdge 3000 family arrays. For a listing of fixed bugs, refer to "Fixed Software Bugs" on page 26. Refer to the *Sun StorEdge 3000 Family CLI 1.6 User's Guide* for detailed information about commands and options.
- Firmware patch 113722-07, containing controller firmware version 3.25W and SAF-TE firmware version 1167, is now available. See "Installing Controller Firmware Patches" on page 15 for more information.
- Updated translated manuals are now available on all Sun StorEdge 3000 Family product web sites. Updated translated software is available on the Sun Download Center.

Released Documentation

These release notes supplement the documents shown in the following table.

TABLE 1 Sun StorEdge 3310 SCSI Array Documentation

Title	Part Number
Sun StorEdge 3000 Family Installation, Operation, and Service Manual for the Sun StorEdge 3310 SCSI Array	816-7290
Sun StorEdge 3000 Family Best Practices Manual for the Sun StorEdge 3310 SCSI Array	816-7293
Sun StorEdge 3000 Family FRU Installation Guide	816-7326
Sun StorEdge 3000 Family Rack Installation Guide for 2U Arrays[1]	817-3629
Sun StorEdge 3000 Family RAID Firmware 3.25 and 3.27 User's Guide	817-3711
Sun StorEdge 3000 Family Software Installation Manual	817-3764
Sun StorEdge 3000 Family Configuration Service 1.5 User's Guide	817-3337
Sun StorEdge 3000 Family Diagnostic Reporter 1.5 User's Guide	817-3338
Sun StorEdge 3000 Family CLI 1.6 User's Guide	817-4951
Sun StorEdge 3000 Family Safety, Regulatory, and Compliance Manual	816-7930

1 This manual includes instructions for the universal rack kit. To obtain the rack kit guide for older rackmount kits, refer to "Sun StorEdge 3000 Family EOL Items" on page 27.

You can download the documents listed in the preceding table from either of the following locations:

`http://www.sun.com/products-n-solutions/hardware/docs/Network_Storage_Solutions/Workgroup/3310`

or

`http://docs.sun.com/db/coll/3310SCSIarray`

Supported Operating Systems and Software

The supported operating systems are:

- Solaris 8 and 9 operating systems
- Solaris 9 OS x86 Platform Edition (9 04/04)
- Red Hat Linux AS 2.1 and 3.0
- Microsoft Windows NT Server 4.0, Windows 2000 Advanced Server, and Windows 2003 Server operating systems
- IBM AIX 4.3.3 and 5.1L operating systems
- HP-UX 11.0 and 11i operating systems
- Novell Netware 5.1 and 6.5

The supported software includes:

- Sun StorEdge 3000 Family Configuration Service 1.5
- Sun StorEdge 3000 Family Diagnostic Reporter 1.5
- Sun StorEdge 3000 Family CLI 1.6.2
- Sun Cluster™ 3.0 and 3.1 software
- Sun StorEdge Diagnostic Automated Diagnostic Environment 2.3 (with appropriate patch)

  The Sun StorEdge Diagnostic Automated Diagnostic Environment 2.3 utility is currently being updated to support the Sun StorEdge 3310 SCSI array. When the update is completed, the SUNWstade 116720-06 patch will be required for RAID arrays, and the SUNWstade 116720-07 patch will be required for the JBOD arrays.
- Solstice DiskSuite 4.2.1 or greater (for the Solaris 8 operating system)
- Solaris Volume Manager (for the Solaris 9 operating system and above)
- VERITAS Volume Manager 3.5 and 4.0 ASL. See "Downloading the VERITAS Volume Manager Array Support Libraries" on page 18 for how to obtain the Array Software Library (ASL) that enables the VERITAS software to work with the Sun StorEdge 3310 SCSI array.
- Sun StorEdge Performance Suite (with Sun StorEdge QFS software)
- Sun StorEdge Availability Suite
- Sun StorEdge Utilization Suite (with Sun StorEdge SAM-FS software)

Supported Connection Methods and Host Adapters

The Sun StorEdge 3310 array can be connected to a host in one of two ways:

- By means of a supported host adapter
- By means of a single-ended SCSI controller embedded in a supported host

Refer to TABLE 2 for the list of supported host adapters and connections.

TABLE 2 Supported Host Adapters and Connections

Operating System	Host Adapter	Part Number
Solaris operating system	An on-board SCSI port attachment (on the host system)	N/A
Solaris operating system	Sun StorEdge PCI Dual Ultra3 SCSI host adapter	(X)6758A
Solaris operating system	Dual Ultra2 SCSI and dual FastEthernet PCI adapter	(X)2222A
Solaris operating system	Dual Ultra2 SCSI and dual Gigabit Ethernet PCI adapter	(X)4422A
Solaris operating system	SunSwift adapter (Sun FastEthernet 10/100BaseT F/W UltraSCSI SBus adapter 1.0)	(X)1018A
Solaris x86 9 update 6	Ultra320 SCSI Dual Channel PCI-X adapter (throttled down to 160 speed)	X9265A LSI2230-R [3]
Red Hat AS 2.1 and 3.0	Ultra320 SCSI Dual Channel PCI-X adapter (throttled down to 160 speed)	X9265A LSI22320-R [3]
Windows 2000/2003/NT and Linux operating systems	Ultra320 SCSI Dual Channel PCI-X adapter	X9265A LSI22320-R [3]
Novell Netware 5.1 and 6.5	Adaptec Dual Ultra320 SCSI PCI host adapter	Adaptec 39320A-R [4]
HP-UX operating system	HP Ultra 160 SCSI Adapter for SCSI[1]	A6829A
IBM AIX operating system	IBM Dual channel PCI Ultra3 SCSI Adapter[2]	SYM53C1010

1 This HP HBA is officially tested and supported. Equivalent HP HBAs are also supported.

2 This IBM AIX HBA is officially tested and supported. Equivalent AIX HBAs are also supported.

3 The LSI22320-R HBA is not available from Sun.

4 The Adaptec HBA is not available from Sun.

Caution – If you are using the Sun StorEdge PCI Dual Ultra3 SCSI host adapter (X)6758A, make sure to download and install the adapter's driver in the host where the adapter is installed. (See the *Sun StorEdge PCI Dual Ultra3 SCSI Host Adapter Release Notes*, part number 816-2157 for the download procedure.) Without the driver, any array connected to the adapter is not visible to the host, since this driver is not included in the Solaris operating system.

Supported Sun Platforms and Connection Methods

Tables 3 and 4 show the connection methods supported for each supported Sun server.

TABLE 3 Supported Sun SPARC-Based Systems and Connection Methods

	(X)6758A Host Adapter[1]	On-Board SCSI Port [2]	(X)2222A and (X)4422A HBAs	(X)1018A SBus Adapter
Ultra™ 60 workstation	Yes	Yes	Yes	No
Ultra 80 workstation	Yes	Yes	Yes	No
Sun Blade™ 150 workstation	No	No	Yes	No
Sun Blade 1000 workstation	Yes	Yes	Yes	No
Sun Blade 1500 workstation	Yes	No	Yes	No
Sun Blade 2000 workstation	Yes	Yes	Yes	No
Sun Blade 2500 workstation	Yes	Yes	Yes	No
Netra™ 20 server	Yes	Yes	Yes	No
Netra 120 server	Yes	Yes	Yes	No
Netra 1280 server	Yes	Yes	Yes	No
Netra t 1120 server	Yes	Yes	Yes	No
Netra t 1125 server	Yes	Yes	Yes	No
Netra t 1400 server	Yes	Yes	Yes	No
Netra t 1405 server	Yes	Yes	Yes	No
Sun Enterprise™ 220R server	Yes	Yes	Yes	No
Sun Enterprise 250 server	Yes	Yes	Yes	No

TABLE 3 Supported Sun SPARC-Based Systems and Connection Methods *(Continued)*

	(X)6758A Host Adapter[1]	On-Board SCSI Port [2]	(X)2222A and (X)4422A HBAs	(X)1018A SBus Adapter
Sun Enterprise 420R server	Yes	Yes	Yes	No
Sun Enterprise 450 server	Yes	Yes	Yes	No
Sun Enterprise 3500 server	No	Yes	No	Yes
Sun Enterprise 4500 server	No	Yes	No	Yes
Sun Enterprise 5500 server	No	Yes	No	Yes
Sun Enterprise 6500 server	No	Yes	No	Yes
Sun Enterprise 10000 server	No	Yes	No	Yes
Sun Fire™ 280R server	Yes	Yes	Yes	No
Sun Fire V120 server	Yes	Yes	Yes	No
Sun Fire V210 server	Yes	Yes	Yes	No
Sun Fire V240 server	Yes	Yes	Yes	No
Sun Fire V250 server	Yes	Yes	Yes	No
Sun Fire V440 server	Yes	Yes	Yes	No
Sun Fire V480 server	Yes	No	Yes	No
Sun Fire V880 server	Yes	No	Yes	No
Sun Fire V1280 server	Yes	Yes	Yes	No
Sun Fire 2900 server	Yes	Yes	Yes	No
Sun Fire 4800 server	Yes	No	Yes	No
Sun Fire 4810 server	Yes	No	Yes	No
Sun Fire 4900 server	Yes	No	Yes	No
Sun Fire 6800 server	Yes	No	Yes	No
Sun Fire 6900 server	Yes	No	Yes	No
Sun Fire 12K server [3]	Yes	No	Yes	No
Sun Fire 15K serve3 [3]	Yes	No	Yes	No
Sun Fire E20K server	Yes	No	Yes	No
Sun Fire E25K server	Yes	No	Yes	No

1 No in this column = The HBA in the column heading is not supported on this platform.

2 To enable support for either the Sun StorEdge 3310 SCSI RAID or JBOD arrays using the on-board SCSI port of the Sun Fire V440, see "Modifications for Sun Fire V440 Systems" on page 12. No onboard SCSI port is available on the V480, V880, 4800, 4810 and 6800 servers.

3 The Sun Fire 12K and 15K servers are currently not supported with the (X)4422A HBA.

TABLE 4 Supported Sun x86-Based Systems and Connection Methods

Server [1]	On-board	X9265A LSI22320-R
Sun Fire V60x server	Yes	Yes
Sun Fire V65x server	Yes	Yes
Sun Fire V20z server	No	Yes

1 To change the Ultra320 speed to the Ultra160 speed needed to operate with a 3310 SCSI JBOD array and the X9265A HBA, edit the mpt.conf file on the Sun x86-based system. This is done by creating a /kernel/drv/mpt.conf file with the following lines, and then rebooting the system:

```
name= "mpt" parent="/pci@1f,700000"
unit-address="2,1"
scsi-options=0x1ff8;
```

Supported Cabinets

The following table shows the supported cabinets with their associated rackmount kits and other required kits. See the *Sun StorEdge 3000 Family Rack Installation Guide for 2U Arrays* for installation instructions.

TABLE 5 Supported Cabinets and Associated Rackmount Kits

Cabinet Name	Cabinet Part Number(s)	Required Kit(s)	Required Kit Part Number	Maximum Number of Arrays Supported per Cabinet
Sun StorEdge 72-inch Expansion Cabinet	SG-(X)ARY030A	Rackmount Kit	(X)TA-3000-2URK-19U	14
Sun Fire Cabinet	SF-(X)CAB, SFE-(X)CAB	Rackmount Kit	(X)TA-3000-2URK-19U	5
Sun Rack 900 Cabinet	SR9-(X)KM038A-IP	Rackmount Kit	(X)TA-3000-2URK-19U	18
Sun Fire 6800 System	F6800-1	Rackmount Kit	(X)TA-3000-2URK-19U	3
Sun Fire E6900 System	E6900-BASE	Rackmount Kit	(X)TA-3000-2URK-19U	2

TABLE 5 Supported Cabinets and Associated Rackmount Kits *(Continued)*

Cabinet Name	Cabinet Part Number(s)	Required Kit(s)	Required Kit Part Number	Maximum Number of Arrays Supported per Cabinet
Standard EIA Cabinets	Not Applicable	Rackmount Kit	(X)TA-3000-2URK-19U	Varies
Telco flushmount racks	Not Applicable	Rackmount Kit	(X)TA-3310-RK-19F	Varies
Telco center-of-gravity racks	Not Applicable	Rackmount Kit	(X)TA-3310-RK-19C	Varies

Note – For more information about using Sun StorEdge arrays with the Sun Rack 900 cabinet, refer to the Sun Rack 900 Qualified Products web page at: `http://www.sun.com/servers/rack/approved.html`

Supported Disk Drives

The following table gives descriptions and part numbers for the disk drives supported with the Sun StorEdge 3310 SCSI array.

Description	Part Number
36 GB 10,000 RPM	(X)TA-3310-36GB-10K
36 GB 15,000 RPM	(X)TA-3310-36GB-15K
73 GB 10,000 RPM	(X)TA-3310-73GB-10K
73 GB 15,000 RPM	(X)TA-3310-73GB-15K
146 GB 10,000 RPM	(X)TA-3310-146GB-10K

Note – In an array shipped with less than 12 drives, each empty slot in the array contains an air management sled to correctly handle the air flow and heat. Each drive slot requires either a disk drive or an air management sled.

Note – Disk drive firmware is provided through Sun disk firmware patches, which include the required download utility. Sun disk firmware patches are separate from the Sun StorEdge 3000 family firmware patches. Do not use the Sun StorEdge Configuration Service or CLI utility to download disk drive firmware.

Supported Cables

The following table lists the supported SCSI cables. Cables may be ordered using the marketing part numbers in TABLE 1.

Note – The manufacturing part numbers supplied in the third column of the table can be checked against the manufacturing part numbers stamped on other cables that you might have in stock to confirm that they are supported.

Cable Type and Length	Marketing Part Number	Manufacturing Part Number
VHDCI/VHDCI 0.8 m	(X)1136A	595-5645-01
VHDCI/VHDCI 1.2 m	(X)1137A	595-5647-01
VHDCI/VHDCI 2 m	(X)1138A	595-5646-01
VHDCI/VHDCI 4 m	(X)3830B	595-6349-01
VHDCI/VHDCI 10 m	(X)3831B	595-6350-01
HD-68/VHDCI, 0.8 m	(X)1132A	595-5660-01
HD-68/VHDCI, 1.2 m	(X)1135A	595-7460-01
HD-68/VHDCI, 2 m	(X)3832A	595-4693-01
HD-68/VHDCI, 4 m	(X)3830A	595-4694-01
HD-68/VHDCI, 10 m	(X)3831A	595-4695-01

Note – When you attach the provided SCSI bus cables to the Sun StorEdge 3310 SCSI array or expansion unit, it is important to tighten the cable jack screws with six full clockwise turns prior to powering up the array, to ensure proper operation.

Software Support for JBODs

Sun StorEdge Configuration Service software supports Sun StorEdge 3310 SCSI JBOD arrays (arrays without controllers which are directly attached to servers). However, since Sun StorEdge 3310 SCSI JBOD arrays do not have a RAID controller or RAID controller firmware to manage the disks, this software support is necessarily limited. Monitoring functionality that does not require a RAID controller or RAID controller firmware works properly.

The Sun StorEdge CLI supports Sun StorEdge 3310 SCSI JBOD arrays. However, since Sun StorEdge 3310 SCSI JBOD arrays do not have a RAID controller or RAID controller firmware to manage the disks, this CLI support is limited to the following `sccli` commands:

- `about`
- `download safte-firmware`
- `exit`
- `help`
- `quit`
- `select`
- `set led`
- `show configuration`
- `show enclosure-status`
- `show led (or "show led-status")`
- `show frus`
- `show inquiry-data`
- `show safte-devices`
- `version`

To obtain information on each command, run the `help` command or access the `man` page on Unix systems.

Caution – Be sure to uninstall the old version of software before you install the new version. Two software versions on a server will cause invalid operation or results due to changes in the communications protocols.

Configuring Sun Fire V60x, V65x Servers to Support JBODs (Linux and Windows)

When a Sun StorEdge 3310 SCSI JBOD array equipped with Ultra320-capable disk drives is connected to the on-board Ultra320 SCSI port of a Sun Fire VXx server, the disks will attempt to negotiate the SCSI bus speed at Ultra320 speeds. However, because of design and other limitations, this is not supported. The on-board SCSI port of the Sun Fire V6Xx server must be limited to Ultra160 bus speeds.

Perform the following steps to configure the onboard SCSI port of the Sun Fire VXx server to operate at Ultra160 SCSI speeds.

1. **Power on the server.**
2. **When the** `Adaptec SCSI Bios` **appears, press <ctrl>-<a> when prompted.**
3. **Select** `slot a` **(external SCSI connection) and press Enter.**
4. **Select** `Configure/View SCSI Controller Settings` **and press Enter.**
5. **Select a** `Sync Transfer Rate (MB/sec)` **of** `160` **on all SCSI Device IDs.**
6. **Press Escape twice and select Yes to save changes.**
7. **Repeat Step 3 through Step 6 for mutable slots.**
8. **Press Escape to exit the utility.**

   The server will continue with the boot up.

Modifications for Sun Fire V60x, V65x Systems Running Red Hat AS 2.1 or 3.0

Adding SCSI disks to a Sun Fire V6xx system running Red Hat AS 2.1 or 3.0 requires a change to where the system looks for the kernel. The new logical drive gets pushed to the front of the device list, so `/dev/sdaX` becomes `/dev/sdbX`, etc. After reboot, the boot partition is now `/dev/sdb3`, and Red Hat has a kernel panic.

For Sun StorEdge 3310 SCSI arrays connected to the onboard AIC79xx, edit the `/etc/grub.conf` file (or `/etc/lilo.conf` if you use lilo for your bootloader). This can be done before reboot or during boot up.

1. **During boot up, hit 'e' at the grub kernel selection screen.**
2. **Go to line the which points to the kernel and hit 'e' again to edit the line:**

   ```
   kernel /vmlinuz-2.4.9-3.24 ro root=/dev/sda3
   ```

3. **If one drive was added to the system, change `'/dev/sda3'` to `'/dev/sdb3'` or for two new drives `'/dev/sdc3'` etc.**
4. **Hit the Escape key to finish editing, then hit 'b' to boot.**

   These changes can also be made directly to the `/etc/grub.conf` file before reboot.

Modifications for Sun Fire V440 Systems

This section outlines the changes needed to enable either the Sun StorEdge 3310 RAID or JBOD arrays using the on-board SCSI port of the Sun Fire V440 systems.

- For the Sun StorEdge 3310 RAID Array, the following patches or greater are required to enable support:

  Sun StorEdge 3310 RAID: 113722-04

  Solaris 8: 115275-03

  Solaris 9: 115663-03

- When a Sun StorEdge 3310 JBOD Array equipped with Ultra320-capable disk drives is connected to the on-board SCSI port of a Sun Fire V440 system, the disks will attempt to negotiate at Ultra320. However, because of design and other limitations, this is not supported. The on-board SCSI port of the Sun Fire V440 system must be limited to Ultra160. This is done by creating a `/kernel/drv/mpt.conf` file with the following lines and then rebooting the system.

```
name= "mpt" parent="/pci@1f,700000"
unit-address="2,1"
scsi-options=0x1ff8;
```

Bootability

For embedded controllers and (X)2222A, (X)4422A and (X)1018A HBAs, booting from the array requires no special procedures.

To boot a host through a Sun StorEdge PCI Dual Ultra3 SCSI host bus adapter, follow the procedures in the "Bootability" chapter in the *Sun StorEdge PCI Dual Ultra3 SCSI Host Adapter Installation Guide*, part number 816-2156. An online copy of the installation guide is available from the web site:

```
http://www.sun.com/products-n-solutions/hardware/docs/
Network_Storage_Solutions/Adapters/index.html
```

For a current list of patches for a Sun StorEdge PCI Dual Ultra3 SCSI host bus adapter, including driver patches, you can go to:

```
http://www.sun.com/sunsolve/
```

and search for "Sun StorEdge PCI Dual Ultra3 SCSI Host Adapter" in the "Search SunSolve" search area.

Required Patches

- The Solaris 8 or Solaris 9 Recommended Patch Cluster is required to use Sun StorEdge Configuration Service and Diagnostic Reporter software. See "To Download and Install the Solaris Recommended Patch Cluster" on page 14 for more information.
- The latest firmware patch 113722-07 with SAF-TE version 1167 is optional. Controller firmware patch 113722-05, containing firmware version 3.25S and SAF-TE firmware version 1159, is required if you are running an earlier firmware version. See "Installing Controller Firmware Patches" on page 15 for information about how to verify which firmware version is on your array and how to download the controller version.

If a Sun StorEdge PCI Dual Ultra3 SCSI Host Adapter, X6758A, is used to connect the Sun StorEdge 3310 array, the qus driver must also be updated. The updated qus driver is available in the following patches:

- Solaris 8 Operating Environment: 112697-04
- Solaris 9 Operating Environment: 112706-03

Installing Required Solaris Patches

Make sure the Solaris Recommended Patch Cluster is installed on a Solaris host before connecting the host to the array.

▼ To Download and Install the Solaris Recommended Patch Cluster

1. **Log in to the host that you want to connect to the array.**
2. **Go to:**

   `http://www.sun.com/sunsolve`
3. **Under "SunSolve Patch Contents," click "Patch Portal."**
4. **Under Downloads, click Recommended Patch Clusters.**
5. **Find either Solaris 8 or Solaris 9 in the OS column of the Recommended Solaris Patch Clusters list, click Readme and then click Go.**
6. **Print or save the Readme file from the browser window.**
7. **Click the browser's Back icon to return to the previous page.**
8. **Select the format you want in the row that begins Solaris 8 or Solaris 9 in the Recommended Solaris Patch Clusters list, click either Download HTTP or Download FTP, and then click Go.**
9. **In the File Download dialog box, click Save.**
10. **In the Save As dialog box, type a destination directory for the patch cluster, and then click OK.**
11. **Follow the procedure in the INSTALLATION INSTRUCTIONS section in the Readme file to install the patches.**

Installing Controller Firmware Patches

Firmware patch ID # 113722-07 is available to upgrade controller firmware for Sun StorEdge 3310 SCSI arrays running firmware versions lower than 3.25S and to upgrade SAF-TE firmware lower than 1159.

Carefully review the following criteria before you upgrade the controller firmware:

- You must install and use Sun StorEdge CLI 1.5 or 1.6 to download SAF-TE version 1159 or later.
- If you are already running firmware version 3.25S or later and SAF-TE version 1159 or later, you should not download and install this patch.

TABLE 6 Latest Firmware Patches

Minimum Required Patch	Latest Patch (Optional)
Firmware patch ID # 113722-05 with the following firmware:	Firmware patch ID # 113722-07 with the following firmware:
Controller firmware 3.25S	Controller firmware 3.25W
SAF-TE firmware 1159	SAF-TE firmware 1167
PLD firmware 1000	PLD firmware 1000

Note – Disk drive firmware is provided through Sun disk firmware patches that include the required download utility. Sun disk firmware patches are separate from the Sun StorEdge 3000 family firmware patches. Do not use the CLI or Sun StorEdge Configuration Service to download disk drive firmware.

▼ To Determine Your Current Controller Firmware Version

To determine your current controller firmware version, use one of the following methods:

- Access the controller firmware application through the serial port or through `telnet` and `tip`. Select the "view system information" firmware menu option. The current firmware version is displayed as "Firmware Version."
- In the Sun StorEdge Configuration Service program, highlight any component of the desired Sun StorEdge 3310 SCSI array, click on the View menu and the View Controller command, and then check the FW Rev checkbox.
- Using `sccli`, enter the `show inquiry` command.

▼ To Download the Firmware Patch

1. **Go to** `http://sunsolve.Sun.com`.
2. **Click on Patch Portal.**
3. **Use Patch Finder to locate patch ID 113722-07 by entering the patch ID into the search field and clicking the Find Patch button.**
4. **Select the link for the format that you want, either HTTP or FTP next to Download Patch, or HTTP or FTP next to Download Signed Patch.**
5. **In the dialog box that is displayed, indicate the destination directory for the patch and proceed to download the file to that location.**
6. **Follow the instructions in the** `Readme` **file to install the patch.**

Downloading and Installing Updated Sun StorEdge 3000 Family Software

Sun StorEdge 3000 Family software is available from the Sun Download Center.

▼ To Download and Install the Updated Software

1. **Go to:**

   http://www.sun.com/software/download/

2. **Under System Administration > Storage Management, click the Sun StorEdge 3000 Family Storage Products - Related Software link, and click the Download button.**

   You are taken to a Sun Download Center page.

3. **If not previously registered, register.**

   a. **Click the Register Now link at the bottom of the left column.**

   b. **On the registration page, enter applicable data in the required fields and click Register.**

4. **Log in.**

   a. **Type your Username and Password in the left column, and click Login.**

   b. **On the Terms of Use page, read the license agreement, click Yes next to Accept, and click the Continue button.**

5. **On the software download page, click the link for your array and operating system.**

6. **In the dialog box that is displayed, specify a destination directory and save the file.**

7. **Follow the software installation instructions in the** *Sun StorEdge 3000 Family Software Installation Guide*.

Downloading the VERITAS Volume Manager Array Support Libraries

This section explains what you need to do to enable VERITAS Volume Manager 3.5 and 4.0 software to work with the Sun StorEdge 3310 SCSI array on Sun hosts. VERITAS has provided an Array Support Library (ASL) that must be installed on the same host system as the Volume Manager 3.5 or 4.0 software to enable the software to recognize the Sun StorEdge 3310 SCSI array. Follow the procedure to download the ASL and the accompanying installation guide for the Sun StorEdge 3310 SCSI array from Sun's Download Center.

▼ To Download the ASL

1. **Log in as superuser on the Sun server to be connected to the array.**
2. **Go to the All Products listing at Sun's Download Center.**

   http://www.sun.com/software/download/allproducts.html
3. **Under the V heading, click on VERITAS Volume Manager Array Support Libraries (ASL).**
4. **Choose the link that is appropriate for your platform.**
5. **Click Download to go to the Sun Download Center.**

   The page identifies the product you selected to download as VERITAS Volume Manager Array Support Library (ASL) for your platform and language.
6. **If not previously registered, register.**

   a. **Click the Register Now link at the bottom of the left column.**

   b. **On the registration page, enter the required fields and click Register.**
7. **Log in.**

   a. **Type your Username and Password in the left column, and click Login.**

   b. **On the Terms of Use page, read the license agreement, click Yes next to Accept, and click the Continue button.**
8. **Download the compressed ZIP file that contains the ASL package for the 3310 SCSI array.**
9. **Use the `unzip` command to expand the zip file.**

Note – Installation instructions may or may not be included in the zip file.

Documentation Corrections

Driver .CONF File Example Corrected

In the installation manual for the Sun StorEdge 3310 SCSI array, please note the syntax correction in the example text for Solaris `qus.conf` and `glm.conf` files where the first line needs more spaces between Sun and StorEdge, and the second line should end in a ";" (not a ":"), found on page F-6:

1. **Edit the `/kernel/drv/qus.conf` or `/kernel/drv/glm.conf` file (whichever is appropriate to your HBA) to add more targets and LUNs (up to 32 LUNs per logical drive, and a maximum of 128 LUNs per Sun StorEdge 3310 array).**

Note – If the file does not exist, create it using the format below.

An example of text to add to `/kernel/drv/qus.conf` or `/kernel/drv/glm.conf`

```
device-type-scsi-options-list = "SUN     StorEdge 3310",
"SE3310-scsi-options";                    (correct syntax shown)
SE3310-scsi-options = 0x43ff8;
```

Allow five blank spaces between "Sun" and "StorEdge" on the first line.

Drive Capacity Statement Corrected

In the *Sun StorEdge 3000 Family RAID Firmware 3.25 and 3.27 User's Guide*, the note in Chapter 8 under "Preparing for Logical Drives Larger Than 253 Gbytes on Solaris Systems" has been corrected. The note in the manual text says:

Note – Earlier versions of the Solaris operating environment do not support drive capacities larger than 1 terabyte.

The corrected text for that note is:

Note – Refer to your operating environment documentation for limitations on device sizes.

Known Issues

The bug listing is presented in numeric order.

- **Bug 4702532: Write cache not automatically disabled when battery is offline.** Write cache is not automatically disabled when battery is offline due to battery failure or a disconnected battery. The current design allows the user to enable or disable the write-back cache capabilities of the RAID controller. To ensure data integrity, you may choose to disable Write Back cache option and switch to the Write-through cache option. The risk of data loss is remote.
- **Bug 4714227: The character interface fails to respond correctly in some circumstances**. While running heavy I/O to several LUNs on different logical drives and scrolling through a menu that is long, such as a long, multiple LUN mapping menu, occasionally the menu will "escape" back one or two menus. This problem can occur under heavy I/O and when accessing the unit using `telnet` over long distances or over VPN.
- **Bug 4722610: Parity Error and Target synch. rate reduced after upgrading FW.** A parity error is displayed at the console of the agent server right after downloading 3.25L firmware and then rescanning the device using the SSCS program. This "Parity Error" message only occurs at the first Rescan right after successfully downloading 3.25L firmware. The target synch rate is reduced when using the CLI or when performing the first Rescan with SSCS right after upgrading the controller firmware. Non-Solaris drivers automatically adjust and correct the target sync rate to the higher speed available. To correct the synch rate with Solaris drivers, you must reboot the host system.
- **Bug 4743721: SSCS: no method for identifying disk drives.** The Sun StorEdge Configuration Service program currently cannot identify disk drive status by flashing disk drive LEDs on the array. To perform this operation, you can use the firmware application and select "view and edit scsi drives" command. Then select the desired disk drive, press Return, and select the "Identifying scsi drive" command which offers three modes for flashing the drive LEDs.

- **Bug 4844899: SCSI-option should be set in glm.conf or qus.conf.** The documentation says to set the SCSI-option in `/etc/system`. This is a system-wide definition and therefore not the best place to set SCSI options. The options should be set in the board level driver config file like `glm.conf` or `qus.conf`. `glm.conf` allows the scsi-option to be set depending on the SCSI vendor string. `qus.conf` has no man page.
- **Bug 4881122: Cached blocks from a deleted logical drive are returned on READ.** After a logical drive is deleted and a new logical drive is created with the same index (for example, "P1"), the controller may return data blocks from the deleted logical drive to satisfy host READ requests if the block addresses in the new logical drive have no data. The controller keeps data in cache for the deleted logical drive, which causes the problem.
- **Bug 4881132: Disk status is incorrect when rebuilding after RAID 1 multiple drive failures.** When two disks in a four-disk RAID 1 logical drive fail, the status of the two failed disks is FAILED and the logical drive status is DRV FAILED. After rebuilding one of multiple failed disks, the status of the logical drive changes to GOOD even though one of its constituent disks has a status of FAILED. Because the logical drive has a status of GOOD, it is impossible to rebuild the second disk that failed. As a result, a multi-disk failure in a LUN leaves the array in a degraded mode and creates an environment for potential data loss.
- **Bug 4889967: Time Stamp reported for an event log entry is not constant, it changes over time.** The time stamps on the event log entries are not constant when viewed from either the serial port firmware menu or via the `sccli` utility. When viewed through the serial port, the time stamps drift forward. When viewed through the `sccli` utility, the time stamps drive backward.
- **Bug 4903457: Deassert Reset on Failed Controller (reinit failed ctrlr) loses access to disks.** Reinitializing a failed controller (Deassert Reset) and then issuing a `sccli` from the host caused lost access to the data/disks. All LEDs began blinking and host reported SCSI bus reset messages.
- **Bug 4907020: Request Sense couldn't get sense data on SE3310 when VEA rescan performed.** Installing VxVM 4.0 on an E10K domain and performing a rescan results in warning error messages on the Solaris console for each LUN on the storage array.
- **Bug 4937092: The SCCLI/GUI does'nt allow us to set scsi-io-timeout > 10.** The recommended setting for SCSI I/O timeout is 15, but the maximum setting allowed by Sun StorEdge Configuration Service and the CLI is 10. The firmware application does support timeout values greater than 10 seconds; therefore, use `tip` or `telnet` to access the menu interface and assign the desired value.
- **Bug 4967518: Firmware doesn't track drive failure and the drive can scan back ok.** The controller does not keep track of a failed drive. There is no update in the meta-data area and there is no test to determine this reassignment failure if a

failed drive is scanned back into the system. Because of this, a failed drive continues to be scanned after it fails. To prevent confusion, always replace a drive that has failed due to a "reassignment failure."

- **Bug 4969758: SE3310 uses wrong MAC address for ICMP echo reply under some circumstances.** An Internet Control Message Protocol (ICMP) echo reply always uses the first Media Access Control (MAC) address known to a specific IP address, regardless of the Address Resolution Protocol (ARP) being sent by the system who owns the MAC address. This problem occurs when ICMP or multiple gateways (Cisco HSRP) are used for redundancy. When the array responds with the wrong MAC address to ICMP echo requests, a telnet session works properly. **Workaround**: Use a telnet session when ICMP or multiple gateways are used for redundancy.

Note – Bug 4969758 is fixed in firmware version 3.25W, which is an optional firmware upgrade. If you are running firmware version 3.25W, disregard this issue.

- **Bug 4972674: Inability to rebuild RAID drive if online drive has bad blocks.** If a RAID 0+1 disk drive has bad blocks at 3 LBAs, when you try to rebuild through the UI, the rebuild starts but fails the rebuild after the first bad block. If you try the rebuild again, it asks if it should "Continue Rebuilding on Media Error?" If you respond "Yes," the rebuild completes, but all the bad blocks are silently overwritten and no errors will occur on subsequent reads of the previously bad blocks. Incorrect data is returned instead. After the rebuild completes, the controller should retain the fact that some of the blocks contain bad data and return an error on the subsequent reads. When a drive fails and it's mirror has a bad block, there is no good way to rebuild the failed drive.
- **Bug 4976389: Download of SAF-TE fw via SSCS interface says it succeeded even though it didn't.** When you update SAF-TE firmware using Sun StorEdge Configuration Service or `sccli`, the firmware does not display the new version until you reset controller.
- **Bug 4988102: Port scanning/security software cause the SE3310 to hang.** The Sun StorEdge 3310 SCSI array may disable without warning when probed with third party network security software. Port scanning and other security software cause controller failovers. When a command is issued from a host on a different subnet, the controller and out of band tools (telnet, serial, and so on) fail. Though sccli (inband) continues to work, the only way to re-establish a telnet session is to reset the controller.

Note – Bug 4988102 is fixed in firmware version 3.25W, which is an optional firmware upgrade. If you are running firmware version 3.25W, disregard this issue.

- **Bug 4999185: ssmon dumps application core, analysis of core points to bad argument in memcpy.** When both SSCS and sccli are sending out-of-band requests to the RAID controller at the same time, the RAID controller may return

a response intended for one client to the other client. When this happens, SSCS may incorrectly interpret a mis-routed response in such a way that a random value is passed as a length to memcpy(), resulting in a core dump.

- **Bug 5007664: controller may not correctly understand certain AENs sent out by the drives.** While working on a customer problem, discovered event logs where the drives were wrongly failed by the controller firmware. Need documentation of all the sense codes returned by the drives and how the controller firmware behaves for the sense codes.
- **Bug 5016154: SCCLI: OOB connection failed with "network connection setup failed".** While trying to communicate to diag67 (3310 SCSI) 00b via StorADE, I could not gain access to the unit. In-band works fine. I notice that the problem with StorADE is actually that sccli can not communicate with the 3310 array.
- **Bug 5024472: Running both sccli and SSCS inband can hang V240 server.** Running both sccli and SSCS inband can cause SCSI errors on V240 servers, using on board LVD SCSI and glm driver.
- **Bug 5031134: Single failed drive that affects the bus can crash the controller.** A single 3310 in dual buss configuration with a LD made of drives that are mirrored from one internal buss to the other. A single disk drive failed on one side of the buss. This failure caused a large number of rapidly occurring buss errors to the point at which the controller stopped processing I/O, which caused the connected host to crash and the 3310 to reset.
- **Bug 5036067: firmware patch should warn user not to remove FRU for 10 minutes.** The 113722-05 README file states to wait 2-3 minutes after running the `download controller-firmware` command, while the *Sun StorEdge 3000 Family FRU Installation Guide* indicates that the wait time should be 10 minutes or more. After you run the `download controller-firmware` command, wait 10 minutes before powering down the array or removing the controller.

Note – Bug 5036067 is fixed in firmware version 3.25W, which is an optional firmware upgrade. If you are running firmware version 3.25W, disregard this issue.

- **Bug 5049931: Connection to IP closed by foreign host with 3.25W fw.** The 3.25W firmware targeted to the SE3310 RAID and Jasper320 program has a suspected misbehavior of IP disconnected for every 35 minutes approximately, occurred on the different SE3310 RAID Minnow boxes, with a different IP domain.
- **Bug 5053438: JIST: SE3310 hangs while JIST is running.** A sequence of SCSI commands (including TEST UNIT READY, INQUIRY, READ CAPACITY, REPORT TARGET PORT GROUPS, etc) are sent to a SCSI LUN. Several of the commands are retried during different states to ensure state changes have or have not occurred as expected. During checks for PERSISTENT RESERVE IN/OUT Registration Keys and Reservation keys, the array hangs. The array does not return from the SCSI command. The array does not respond to console or telnet interfaces.

- **Bug 5056862: sccli and SSCS 1.5 displays incorrect information with DC power supplies.** The sccli and SSCS display incorrect information about the status of the enclosure components. The correct information is displayed by the serial console. For example, the FAN, PS, and some temperature information returned on the `sccli enclosure-status` command is reported as missing.
- **Bug 5057307: Assertion failed: 0, file ../lnk/throw.cc, line 375.** Without a Minnow box connected to a host server, 'ssagent start' should not give the following confused, 'failed' message: Assertion failed: 0, file ../lnk/throw.cc, line 375.
- **Bug 5061519: Bus resets encountered when se3kxtr is run on SE3310 SCSI (Minnow).** The configuration contains 4 SE3310 SCSI Minnows. All Minnows are single controller RAID units configured in single bus mode. v440 host systems with Jasper HBAs are used. Each Jasper HBA has 2 ports and each port on the Jasper HBA has a separate SE3310 attached to it. Whenever Explorer or se3kxtr is run on the host system, SCSI bus resets show up in the `/var/adm/message` file. Note: the bus resets occur when the se3kxtr is run IN-BAND.
- **Bug 5069954): ssmon core dumped in libsscsagent.so while using sscli.** A 3310 is connected to a v65x. The v65x is running s10_60. The 3310 is fully populated with 12 136.73 GB disks and has two controllers. It is configured for dual bus operation with both busses connected to different controllers on the same host. While updating the firmware to the latest version (113722-05) using sccli, ssmon did a core dump.
- **Bug 5072132: ssconsole "Controller Array Progress" pop-up terminates prematurely.** On a 3310, a RAID 5 logical drive had a disk failure and the logical drive reconstructed successfully after 4 hours. During this time, the telnet CUI and the ssconsole main window showed reconstruction progress. However, the pop-up titled "Controller Array Progress" terminated suddenly after 1 1/5 hours.
- **Bug 5074871: Channel speed is displayed as narrow or ASYNC when LD is mapped to SID.** The configuration is a 3310 HW RAID array in dual bus configuration with two hosts connections. Two logical drives have been created on the primary controller and two have been created on the secondary controller. the logical drive on the primary controller is mapped out to CH1 and the logical drive on the secondary controller is mapped out to CH3.

  Using the telnet/tip interface to the array to look under the view and edit SCSI channels menu, the current speed of CH3 is ASYNC narrow, which is incorrect and CH1 is 80.0 MHz Wide, which is the correct speed.
- **Bug 5082165: Drives that are exceeding the block reallocation threshold are not taken offline by the controller.** When a drive exceeds the reallocation threshold, the controller is not failing or taking the drive offline as it needs to do.
- **Bug 5084418: show shutdown status output inaccurate for 3310 after shutdown controller command.** The "show shutdown-status" command incorrectly reports the unit as not shutdown after a "shutdown controller" command has been successfully issued. When issuing the show shutdown-status command from the

cli (1.6.2c), after successfully executing the shutdown controller command, the controller incorrectly reports a status of "not shutdown". A subsequent show ID command shows all logical drives on the unit to be in a shutdown state.

- **Bug 5089841: SE3310 IOS Manual (816-7290-15 has incorrect limitations.** In its latest revision (816-7290-15) the Sun StorEdge 3000 Family Installation, Operation, and Service Manual, Sun StorEdge 3310 SCSI Array, has a new section in Appendix B ("Cabling JBODs) entitled "B.1 Know Limitations Affecting Sun StorEdge 3310 SCSI JBOD Arrays, which contains incorrect information. The incorrect information is specific to the Fibre version of the JBOD instead of for the SCSI version of the JBOD.
- **Bug 5090066: sccli map/unmap partition syntax inconsistent and missing error messages.** The `unmap partition` command syntax is inconsistent and error messages do not display when the command is run incorrectly.
  Workaround:

  To unmap a partition using a channel, target, LUN address, use the following syntax.

```
unmap partition channel.target.lun
```

- **Bug 5091272: cannot perform parity check on LD assigned to secondary via the cli.** Running check parity on a logical drive that is assigned to the secondary controller returns an error.
  Workaround: Perform the parity check from the firmware application or from Sun StorEdge Configuration Service (SSCS).
- **Bug 5091492: unmap partition partition does not work as documented.** The `unmap partition` command syntax is incorrect.
  Workaround:

  To unmap a partition using a channel, target, LUN address, use the following syntax.

```
unmap partition channel.target.lun
```

- **Bug 5094779: sscli SE3310 shutdown logical drive gets controller access failure and fails.** Using sscli version 1.6.2h, shutdown logical drive function fails with a controller access error. You can shut down the ids via tip/telnet interface. Shutdown controller works.
- **Bug 5101689: Rebooting a host causes target synch rate to be reduced.** A 3310 JBOD configured as a dual bus multi-initiator connects to two hosts. With one host accessing some of the disks in the array, the other host is rebooted and this causes warning messages to be displayed.
- **Bug 5102064: 3310raid: 00b lost after sccli fail primary.** When the primary controller is manually failed, oob communications are lost.

- **Bug 5103027: Front panel LED does not turn amber upon controller failure.** In the event of a controller failure, there should be some indication on the front panel. LED should turn amber. In this case, the LED was always green even when the controller had failed.
- **But 5103031: When the controller fails, it alarms for only five seconds.** It was found that when a controller fails, it alarms for five seconds, then stops. The alarm should keep ringing until it is reset using the reset alarm switch or upon user intervention.
- **Bug 6179019: Data corruption caused due to bad controller which doesn't show up as bad.** Data corruption occurs due to a controller failure. However, the controller failure is not reported in the event log and the controller continues to run without a problem.
- **Information in section 3.6 of the current Sun StorEdge 3000 Family Installation, Operation, and Service Manual (816-7290-15) is incorrect.** On page 3-4 of the *Sun StorEdge 3000 Family Installation, Operation, and Service Manual* for the Sun StorEdge 3310 SCSI array, the information in section 3.6 (Converting a JBOD to a RAID Array) is incorrect. You cannot convert a 3310 JBOD to a RAID array.

Fixed Software Bugs

The following table contains the bugs that were fixed in Sun StorEdge CLI 1.6.2.

TABLE 7 Fixed CLI Bugs

Bug ID	Synopsis
4922658	"sccli --list" on a host with IDE cd-rom and "vold" disabled causes uata timeout
4986132	show disk output needs a space
5042531	minnow: show safte-devices does not show safte status
5052701	1.5 sccli reports 'not supported' message for older revision batteries
5069625	Cache optimization mode can be incorrectly changed causing data integrity issue.
5092121	sscli allows failed controller operation before a failback has completed on a prev

Sun StorEdge 3000 Family EOL Items

For End-of-Life documentation and other Sun StorEdge 3000 Family files, refer to the Sun StorEdge 3000 Family on the following web site:

`http://www.sun.com/products-n-solutions/hardware/docs/Network_Storage_Solutions/EOL_Products/index.html`

The items now available in this location are:

- 816-7320, *Sun StorEdge 3000 Family Rack Installation Guide for 2U Arrays* which covers older rackmount kits