



# Sun StorEdge™ 6130 Array Release Notes

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Sun Microsystems, Inc.  
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# Sun StorEdge 6130 Array Release Notes

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This document contains important information about the Sun StorEdge™ 6130 array that was not available at the time the product documentation was published. Read this document so that you are aware of issues or requirements that can impact the installation and operation of the Sun StorEdge 6130 array.

The Release Notes consist of the following sections:

- “Features in This Release” on page 1
- “System Requirements” on page 2
- “Installing Packages and Patches” on page 13
- “Known Issues” on page 21
- “Release Documentation” on page 39
- “Service Contact Information” on page 40
- “Third-Party Web Sites” on page 40

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## Features in This Release

The online help describes the main features of the Sun StorEdge 6130 array. This section provides additional information about new features in this release. Note that this is a maintenance release primarily designed to update bugs.

Features include:

- The new 1.2 firmware (\* This is a mandatory upgrade)
- A simplified two-tab user interface
- A new Java™ Web Console

- Updated Java help for the browser and for the Sun Storage Automated Diagnostic Environment
  - Man page internationalization and localization
  - Bug fixes that provide improvements for:
    - Array firmware
    - Software lifecycle management
    - Management and diagnostics software
  - Installation improvements, such as a more than 50 percent reduction in installation, uninstallation, and upgrade time
  - Solaris™ 10 Operating System (OS) SPARC® data path and management support
  - Solaris 10 OS x86 data path support
  - A new MPP driver for Linux data path support
  - 10 Kb drive support (for example, for Fujitsu and Hitachi systems)
- 

## System Requirements

The software and hardware products that have been tested and qualified to work with the Sun StorEdge 6130 array are described in the following sections:

- “Management Host System Requirements” on page 3
- “Remote CLI Client Platforms” on page 3
- “Supported Data Host Platforms” on page 4
- “Supported Management Control Tools” on page 11
- “Supported Web Browsers” on page 12
- “Supported Languages” on page 12



# Management Host System Requirements

The management host on which the management software resides must meet the system requirements described in TABLE 1.

**TABLE 1** Management Host System Requirements

Host System Feature	Requirement
Platform	SPARC server or workstation
Operating system	Solaris 8 OS 4/01 Solaris 9 Solaris 10
Disk space for Solaris 9 and 10	500 Mbytes (Includes 300 Mbytes in the /opt directory and 200 Mbytes in the /var directory)
Minimum memory (2 arrays, 2 users)	512 Mbytes
Recommended memory	1 Gbyte
Client memory	256 Kbytes

## Remote CLI Client Platforms

TABLE 2 lists the remote CLI clients, also called thin-scripting clients for remote management, available by platform. You can obtain the package from the Sun Download Center (SDLC), <http://www.sun.com/software/download/>, or from the Sun StorEdge 6130 Host Installation Software CD (Solaris only).

**TABLE 2** Remote CLI Client Available by Platform

Operating System	Remote CLI Client
Windows 2000 Server and Advanced Server	Available from SDLC
Windows Server 2003 Standard, Web, and Enterprise Editions	Available from SDLC
Red Hat Linux AS/ES/WS 2.1 and AS/WS 3.0 (32-bit)	Available from SDLC
Suse Linux LES 8.x 32 and 64 bit	Available from SDLC
HP-UX 11.0, 11.11	Available from SDLC
IBM AIX 5.2	Available from SDLC
Solaris 8 OS 4/01 (SPARC systems only)	Distributed on Host CD

**TABLE 2** Remote CLI Client Available by Platform (Continued)

Operating System	Remote CLI Client
Solaris 9 (SPARC systems only)	Distributed on Host CD
Solaris 10	Distributed on Host CD
Novell NetWare 6 and 6.5	Not available
SGI IRIX 6.5.22	Not available

## Supported Data Host Platforms

TABLE 3 lists the recommended security patches and host-bus adapters (HBAs) for the Solaris 8, 9, and 10 OSs.

Note that you must install multipathing software on each data host that communicates with the Sun StorEdge 6130 array. For Solaris OS data hosts, the multipathing software is part of the Sun StorEdge SAN Foundation Software. For data hosts running the Solaris OS, follow the instructions in the *Sun StorEdge 6130 Array Getting Started Guide* to install the software from CD.

**TABLE 3** Solaris Patches and HBAs

Operating System	Recommended and Security Patches	HBA Driver	HBA Firmware	SAN Foundation Kit Patches
Solaris 8	U4 and above HW 2/04	SG-XPC11FC-QF2 (Amber2-6767A)	1.14.09	4.4.3 111095-18
		SG-XPC12FC-QF2 (Crystal2-6768A)	1.14.09	111413-14 114877-08
		6757A (Ivory)	1.14.05	111412-16
		6727A (Crystal+)	1.14.09	
		6799A (Amber)	1.14.09	
		6748A (Diamond)	1.14.09	
		SG-XPC11FC-JF2 (Amber2J)	1.5.b.3	
		SG-XPC12FC-JF2 (Crystal2J)	1.5.b.3	

**TABLE 3** Solaris Patches and HBAs (*Continued*)

<b>Operating System</b>	<b>Recommended and Security Patches</b>	<b>HBA Driver</b>	<b>HBA Firmware</b>	<b>SAN Foundation Kit Patches</b>
Solaris 9	FCS and above HW 4/04	SG-XPC11FC-QF2		4.4.3
		(Amber2-6767A)	1.14.09	113039-08
		SG-XPC12FC-QF2		113040-10
		(Crystal2-6768A)	1.14.09	113043-08
		6757A (Ivory)	1.14.05	114878-08
		6727A (Crystal+)	1.14.09	
		6799A (Amber)	1.14.09	
		6748A (Diamond)	1.14.09	
		SG-XPC11FC-JF2		
(Amber2J)	1.5.b.3			
		SG-XPC12FC-JF2		
		(Crystal2J)	1.5.b.3	
Solaris 10	FCS	SG-XPC11FC-QF2		
		(Amber2-6767A)	1.14.09	
		SG-XPC12FC-QF2		
		(Crystal2-6768A)	1.14.09	
		6757A (Ivory)	1.14.05	
		6727A (Crystal+)	1.14.09	
		6799A (Amber)	1.14.09	
		6748A (Diamond)	1.14.09	
		SG-XPC11FC-JF2		
(Amber2J)	1.5.b.3			
		SG-XPC12FC-JF2		
		(Crystal2J)	1.5.b.3	
Solaris 10 x86	FCS	SG-XPC11FC-QF2		
		(Amber2- 6767A)		
		SG-XPC12FC-QF2		
		(Crystal2-6768A)		

TABLE 4, TABLE 5, and TABLE 6 list security patches and HBAs for Windows, Linux, and other supported data host platforms. For data hosts running these operating systems, you use the Sun StorEdge Traffic Manager software or other multipathing software as listed in the respective tables.

You can download the software for hosts running these operating systems from the Sun Download Center, <http://www.sun.com/software/download/>, or other URL indicated in each table.

**Note** – If a data host needs multipathing software, you must install it before you install the patches.

For HBA drivers supported by Sun StorEdge Traffic Manager, go to the Sun Download Center. Be sure to download operating system updates from the web site of the operating system company.

**TABLE 4** Supported Microsoft Windows Data Host Platforms

Host OS	Patches or Service Pack	Sun Servers	HBAs	HBA Firmware	HBA Drivers	MPIO	JRE Version (min level)	Cluster Configs
Windows 2000 Server and Windows 2000 Advanced Server	Service Pack 4 (SP4)	V65 V65X V20z V40z W1100z W2100z	Emulex LP952/LP9002 (SCSI Miniport driver) Emulex LP982/LP9802 (SCSI Miniport driver) QLogic QLA2310/2342	3.92a  1.90a4  BIOS-1.34	v5-5.10a10 (SCSI port Miniport driver, adjunct version)  8.2.3.12	SSTM 4.6	1.4	MS Cluster software included in the Base OS (2 nodes)
Windows Server 2003 Standard, Web, and Enterprise Editions	N/A	V65 V65X V20z V40z W1100z W2100z	Emulex LP952/LP9002 (SCSI Miniport driver) Emulex LP982/LP9802 (SCSI Miniport driver) QLogic QLA2310/2342	3.92a  1.90a4  BIOS-1.34	v5-5.10a10 (SCSI port Miniport driver, adjunct version)  8.2.3.12	SSTM 4.6	1.4	MS Cluster software included in the Base OS (2 nodes)

Note:

All HBAs and switches supported by SSTM 4.6 on Microsoft Windows systems are supported for the Sun StorEdge 6130 array.

**TABLE 5** Supported Linux Data Host Platforms

Host OS	Patches or Service Pack	Sun Servers	HBA's	HBA Firmware	HBA Drivers	MPIO	Cluster Configs
Suse Linux ES 8.0, 9.0 - AMD 64	LSI HBA BIOS 2.02.00		LSI 449290	2.00.09	2.05.22	MPP	SteelEye LifeKeeper does not support the LSI HBA
			LSI 409190	2.00.09	2.05.22		
			QLogic QLA 2342		7.00.90		
			QLogic QLA 2340		7.00.90		
			QLogic QLA 2310F		7.00.90		
Suse Linux ES 8.0, 9.0 - IA 32	LSI HBA BIOS 2.02.00		Emulex LP952L	3.92a2	7.1.14	MPP	SteelEye LifeKeeper Server Clustering 4.5.0
			Emulex LP982	1.90a4	7.1.14		
			Emulex 9802DC	1.90a4	7.1.14		
			Emulex 9002DC	3.92a2	7.1.14		
			Emulex LP1050	1.90a4	7.1.14		
			Emulex LP1000DC	1.90a4	7.1.14		
			Emulex LP1000DC				
			LSI 449290	1.90.04	7.1.14		
			LSI 409190	2.00.09	2.05.22		
			QLogic QLA 2342	2.00.09	2.05.22		
			QLogic QLA 2340		7.00.90		
			QLogic QLA 2310F		7.00.90		
					7.00.90		
Red Hat Linux AS 2.1	Kernel 2.4.9-e.40 (FCS Distribution) 32-bit only		Emulex LP982	1.90a4	7.1.14	MPP	SteelEye LifeKeeper Server Clustering 4.5.0. 4.6.0
			Emulex LP9802DC	1.90a4	7.1.14		
			Emulex LP952L	3.92a2	7.1.14		
			Emulex 9002DC	3.92.a2	7.1.14		
			Emulex LP1050	1.90.a4	7.1.14		
			Emulex LP1000DC	1.90a4	7.1.14		
			Emulex LP1000DC				
			QLogic QLA 2342	1.90a4	7.1.14		
			QLogic QLA 2340		2.05.22		
			QLogic QLA 2310F		7.00.90		
					7.00.90		

**TABLE 5** Supported Linux Data Host Platforms (Continued)

Host OS	Patches or Service Pack	Sun Servers	HBA	HBA Firmware	HBA Drivers	MPIO	Cluster Configs
Red Hat Linux ES/WS 2.1	Kernel 2.4.9-e.3 (FCS Distribution) 32-bit only		Emulex LP982	1.90a4	7.1.14	MPP	SteelEye LifeKeeper Server Clustering 4.5.0. 4.6.0
			Emulex LP9802DC	1.90a4	7.1.14		
			Emulex LP952L	3.92a2	7.1.14		
			Emulex 9002DC	3.92.a2	7.1.14		
			Emulex LP1050	1.90.a4	7.1.14		
			Emulex LP1000DC	1.90a4	7.1.14		
			Emulex LP1000DC				
			QLogic QLA 2342	1.90a4	7.1.14		
			QLogic QLA 2340		2.05.22		
			QLogic QLA 2310F		7.00.90		
7.00.90							
Red Hat Linux 3.0 32-Bit WS/AS	Kernel 2.4.21-15EL		Emulex LP982	1.90a4	7.1.14	MPP	SteelEye LifeKeeper Server Clustering 4.5.0. 4.6.0
			Emulex LP9802DC	1.90a4	7.1.14		
			Emulex LP952L	3.92a2	7.1.14		
			Emulex 9002DC	3.92.a2	7.1.14		
			Emulex LP1050	1.90.a4	7.1.14		
			Emulex LP1000DC	1.90a4	7.1.14		
			Emulex LP1000DC				
			QLogic QLA 2342	1.90a4	7.1.14		
			QLogic QLA 2340		2.05.22		
			QLogic QLA 2310F		7.00.90		
7.00.90							
Red Hat Linux 3.0 AS for AMD64	Kernel 2.4.21- 15EL		LSI 449290	2.00.09	2.05.22	MPP	None
			LSI 409190	2.00.09	2.05.22		
			QLogic QLA 2342		7.00.90		
			QLogic QLA 2340		7.00.90		
IA64	Kernel 2.4.21-20		QLogic QLA 2310F		7.00.90		

Note:

If the Sun Servers column is blank, the servers from all Linux vendors are supported with that particular OS.

**TABLE 6** Other Supported Data Host Platforms

Host OS	Patches or Service Pack	Sun Servers	HBA	HBA Firmware	HBA Drivers	MPIO	Cluster Configs
Novell NetWare 6.0	SP4 QLogic HBA BIOS 1.35	Not tested with Sun servers	QLogic QLA 2342 QLogic QLA 2340 QLogic QLA 2310F	Firmware is packaged with the driver	6.51d	QLogic Failover Driver	Novell Cluster Services (NCS 1.6)
Novell NetWare 6.5	SP1.1 QLogic HBA BIOS 1.35	Not tested with Sun servers	QLogic QLA 2342 QLogic QLA 2340 QLogic QLA 2310F	Firmware is packaged with the driver	6.51d	QLogic Failover Driver	Novell Cluster Services (NCS 1.7)
SGI IRIX 6.5.24	None	Not tested with Sun servers	QLogic QLA 2200F QLogic QLA 2310F QLogic QLA 2340 QLogic QLA 2342		2.2.6  3.2.15  3.2.15 3.2.15	SGI XLV	N/A

## Notes:

1. AIX- The multipathing driver is VERITAS DMP and Volume Manager 3.2 supported on IBM AIX 5.1 and 5.2. You can download it from <http://seer.support.veritas.com/docs.273698.htm>
2. HP-UX- To be supplied

The enterprise software applications listed in TABLE 7 are compatible with the Solaris OS on the Sun StorEdge 6130 array.

**TABLE 7** Supported Enterprise Software

Software	Version
Sun Cluster	3.0, 3.1
VERITAS Volume Manager (VxVM)	3.2, 3.5, 4.0
VERITAS File System (VxFS)	3.2, 3.5, 4.0
VERITAS Cluster Server (VCS)	3.2, 3.5, 4.0
Legato Networker	7.1
VERITAS NetBackup (NBU)	5.0 or higher
Sun StorEdge Performance Suite with Sun StorEdge QFS software	4.0 minimum

**TABLE 7** Supported Enterprise Software (Continued)

Software	Version
Sun StorEdge Utilization Suite with Sun StorEdge SAM-FS software	4.0 minimum
Sun StorEdge Availability Suite	3.2 minimum
Sun StorEdge Enterprise Backup Software	7.1
Solstice DiskSuite	4.2.1 (in conjunction with the Solaris 8 OS)
Solaris Volume Manager	Embedded in the Solaris 9 OS

The Fibre Channel (FC) switches listed in TABLE 8 are compatible for use on data hosts with data paths or network connections to the Sun StorEdge 6130 array.

**TABLE 8** Supported FC Switches

FC Switches	Firmware	Switch Software
Sun Sanbox 1 8/16	4.02.42	SANbox_Manager 2.00.16
Sun Sanbox 2 8/16/64 <sup>1</sup>	2.00.50	SANbox_Manager 2.00.16
Brocade SW2400/2800	2.6.2a	Fabric Manager 4.1.1
Brocade SW3200/3800	3.1.3	Fabric Manager 4.1.1
Brocade SW3900, SW12000, 3250/3850/24000	4.2.2	Fabric Manager 4.1.1
McData 2G ES4300 <sup>1</sup>	6.02	No EFCM
McData 2G ES4500 <sup>1</sup> ED6064/6140	6.02	EFCM Lite 08.01

Notes:

1. Supported HBA and host driver with the Solaris 8, 9, and 10 OSs.
2. There may be additional FCs switches that are compatible with the Sun StorEdge 6130 array. Refer to the SAN WWW (Sunwin 397802) document for more details.



# Supported Management Control Tools

The Sun StorEdge 6130 array provides the management control tools listed in TABLE 9.

**TABLE 9** Supported Management Control Tools

<b>OS</b>	<b>Version</b>	<b>Browser-based Management</b>	<b>Management Host</b>	<b>Remote CLI Software</b>	<b>JRE Version</b>	<b>CIM Provider</b>
Solaris 8 SPARC	4/01	Yes	Yes	Yes	1.4.x and above	Yes
Solaris 9 SPARC	8/03	Yes	Yes	Yes	1.4.x and above	Yes
Solaris 10 SPARC		Yes	Yes	Yes	1.4.x and above	Yes
Windows 2000 Server	Server (SP4) and Advanced Server (SP4)	Yes	No	Yes	1.4.x and above	No
Windows Server 2003	Standard/Web/Enterprise Edition	Yes	No	Yes	1.4.x and above	No
Red Hat Linux	AS/ES/WS 2.1 AS/WS 3.0 (32-bit only)	Yes	No	Yes	1.4.x and above	No
Suse Linux	LES 8.x, 9.x (32- and 64-bit only)	Yes	No	Yes	1.4.x and above	No
IBM AIX	5.1, 5.2	Yes	No	Yes	1.4.x and above	No
HP-UX	11.0, 11.11	Yes	No	Yes	1.4.x and above	No
Novell NetWare	6 SP4, 6.5 SP 1.1	Yes	No	No	N/A	No
SGI IRIX	6.5.22	Yes	No	No	N/A	No

# Supported Web Browsers

The Sun StorEdge 6130 array supports the web browsers listed in TABLE 10.

**TABLE 10** Supported Web Browsers

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<b>Browser</b>	<b>Minimum Version</b>
Netscape Navigator	7.0
Mozilla	1.2.1
Firefox	1.0.1
Microsoft Internet Explorer	5.0

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**Note** – The Sun StorEdge 6130 management software requires that you enable pop-up windows in your web browser.

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# Supported Languages

The Sun StorEdge 6130 array software and the Sun Storage Automated Diagnostic Environment application support the languages and locales listed in TABLE 11.

**TABLE 11** Supported Languages and Locales

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<b>Language</b>	<b>Locale</b>
English	en
French	fr
Japanese	ja
Korean	ko
Simplified Chinese	zh
Traditional Chinese	zh_TW

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**Note** – Man pages are available only in English and Japanese.

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# Installing Packages and Patches

The array installation procedures are described in the *Sun StorEdge 6130 Array Getting Started Guide* that came with your array. This section describes release-specific steps for firmware and patch upgrades that you must perform:

- “Before You Begin” on page 13
- “Initially Installing Management Software” on page 14
- “Upgrading Array Firmware and Management Software” on page 14
- “Downgrading Array Firmware and Management Software” on page 16
- “Backing Up and Restoring Persistent Files” on page 17
- “Updating the SSD Driver for the Solaris OS” on page 18
- “Downloading the VERITAS Volume Manager ASL” on page 19

## Before You Begin

The Sun StorEdge 6130 management software is distributed on the Sun StorEdge 6130 Host Installation Software CD. The installation script on that CD verifies any host requirements. In particular, it ensures that there are at least 500 Mbytes of disk space available before starting the installation script.

If a requirement is not met, the script informs you and then cleans up afterwards, or in some cases, exits. Specifically, the script prompts you when the following are present in the system:

- Older versions of the Sun Storage Automated Diagnostic Environment or *sscs*
- Pre-installation versions of the Sun Storage Automated Diagnostic Environment or Sun StorEdge SAN Foundation software
- Unsupported versions of Sun’s Lockhart software which provides the Java Web Console and web-based UI components

The script fails and then exits when these conditions occur:

- Less than 500 Mbytes of disk space are available
- The operating system is not one of the following:
  - Solaris 8 OS 4/01
  - Solaris 9 OS for the SPARC platform
  - Solaris 10
- The root password is unavailable to run the installation script

- An unsupported version of Tomcat, the servlet container used by Java, is present in the system

Should a failure occur, be sure to check the available disk space again. Then, consult the system log `/var/sadm/install/se6130/6130_Host_SW_install.log` for more information.

## Initially Installing Management Software

If you are installing the array and the management software for the first time, follow the entire installation and configuration procedure in the *Sun StorEdge 6130 Array Getting Started Guide*.

After the initial installation and configuration, you will be able to upgrade the management software and firmware with each release.

## Upgrading Array Firmware and Management Software

If your array has Sun StorEdge 6130 array release 1.0 or 1.1 of the management software and array firmware installed, you must upgrade to the 1.2 firmware for this release. To do so, use the upgrade script available on the Sun StorEdge 6130 Host Installation Software CD, or on the software you obtain from the Sun Download Center at <http://www.sun.com/software/download/>.

---

**Note** – Disk I/O must be quiesced prior to disk drive firmware updates.

---

TABLE 12 lists the version information for the software included in this release.

**TABLE 12** Host CD Contents

Type	Version
Sun StorEdge Configuration Service application	3.01.01.00
Remote Management application	2.1
CRM-F	06.12.03.12
Sun Storage Automated Diagnostic Environment software	2.4.30.018
Sun StorEdge SAN Foundation software	4.4.3

**TABLE 12** Host CD Contents (*Continued*)

Type	Version
Java Web Console software	2.2.1
Sun StorEdge Configuration Service Online Help	1.0
Localized versions - Sun StorEdge Configuration Service application and Sun StorEdge Configuration Service Online Help	1.0
Localized versions - Sun Storage Automated Diagnostic Environment Software	2.4.30.018

TABLE 13 lists the firmware files for this release.

**TABLE 13** Array Firmware

Type	Version
CRM-F	06.12.03.12
CRM-F-NVSRAM	N2882-612843-003
IOM-F	9630
IOM-S	9721
DISK/ST314680FSUN146G	0407
DISK/ST373307FSUN72G	0407
DISK/ST373453FSUN72G	0449
DISK/HDS7240SBSUN400G	KFAOA47A

## ▼ To Upgrade the Software and Firmware

1. **Verify that you registered the arrays in the Sun Storage Automated Diagnostic Environment software after the previous installation.**
2. **Go to the Sun Storage Automated Diagnostic Environment software to review, acknowledge, and clear all existing alarms.**

The upgrade script will not upgrade arrays that have critical or down alarms.

3. **Log in to the management host as `root`.**
4. **Insert the Host Installation Software CD into a local drive.**
5. **Change to the `/cdrom/cdrom0` directory:**

```
cd /cdrom/cdrom0
```

If you downloaded the build software over the network, change to the directory where the software installed after you uncompressed and untarred the build.

**6. Start the installation script by typing:**

```
./upgrade -n
```

The `-n` option specifies a non-interactive upgrade. After asking whether you want to upgrade software or firmware, the script will complete the upgrade without pausing for questions.

**7. Go to the Sun Storage Automated Diagnostic Environment software to review and clear any alarms that were logged for components upgraded during the upgrade process.**

---

**Note** – The array will remain in a degraded state until all alarms are cleared.

---

## Downgrading Array Firmware and Management Software

Use the `downgrade` command if you need to bring your array back to the previously installed firmware level. The `downgrade` command is an undo operation and will undo the most recent upgrade action on the system. For example, if you ran `upgrade` once to upgrade array A, and then ran `upgrade` again to upgrade arrays B and C, the first run of `downgrade` will downgrade B and C, and a second run of `downgrade` will downgrade array A.

You can use the `downgrade` command if you upgraded the array from Sun StorEdge 6130 array release 1.0 or 1.1 to release 1.2.

### ▼ To Downgrade the Array Firmware and Management Software

1. **Log in to the management host.**
2. **Change to the `/cdrom/cdrom0` directory:**

```
cd /cdrom/cdrom0
```

If you downloaded the build software over the network, change to the directory where the software installed after you uncompressed and untarred the build.

### 3. Run the downgrade script:

```
./downgrade -n
```

The `-n` option specifies a noninteractive downgrade. After asking whether you want to downgrade software or firmware, the script will complete the downgrade without pausing for questions.

## Backing Up and Restoring Persistent Files

Use the archive and restore commands to back up and restore all persistent files for the Sun StorEdge 6130 Host Installation Software CD.

The first time you use the archive and restore commands, run them from the CD. Thereafter, you can run them from:

```
/var/sadm/install/se6130
```

## ▼ To Back Up and Restore Persistent Files

### 1. Insert the Sun StorEdge 6130 Host Installation Software CD into the CD drive on the management host.

### 2. Change to the software directory.

```
cd location-of-your-software
```

The default directory is:

```
/var/sadm/install/se6130
```

### 3. Archive the state of the management host:

```
./archive archive-location
```

For example:

```
./archive /tmp
```

An archive file is created in the archive file directory with the name `SP_Personality.tar.Z`.

Store the archive file somewhere other than on the local disk so that it is available in case of host failure.

---

**Note** – You can use the `cron` command to schedule jobs to create archive files automatically.

---

4. Reinstall the management host software on the new host.

5. Restore the saved state in the archive file:

```
./restore archive-location
```

For example: `./restore /tmp`

## Updating the SSD Driver for the Solaris OS

After installing software for the data hosts from the Sun StorEdge 6130 Host Installation Software CD, download from SunSolve (<http://www.sun.com/sunsolve>) the SSD driver for data hosts running the Solaris 8 and 9 Operating Systems.

### ▼ To Update the SSD Driver for the Solaris 8 OS

---

**Note** – Patch 108974-41 or higher requires patch 108528-29 or higher. If needed, apply patch 108528-29 or higher first.

---

1. **Download the 108974-41 or higher patch from SunSolve.**

Refer to the README file for more information on downloading patches.

2. **Unpack the patch:**

```
unzip 108974-41.zip
```

3. **Read the README file:**

```
108974-41/README.108974-41
```

4. **Apply the patch with the patchadd command:**

```
patchadd 108974-41
```

5. **Reboot your system.**

```
reboot -- -r
```



## ▼ To Update the SSD Driver for the Solaris 9 OS

---

**Note** – Patch 113277-26 or higher requires patches 112233-02 and 112834-02, which are already included in most versions of the Solaris 9 OS. If needed, apply patches 112233-02 and 112834-02 first.

---

- 1. Download the 113277-26 or higher patch from SunSolve.**

Refer to the README file for more information on downloading patches.

- 2. Unpack the patch:**

```
unzip 113277-26.zip
```

- 3. Read the README file:**

```
113277-26/README.113277-26
```

- 4. Apply the patch with the patchadd command.**

```
patchadd 113277-26
```

- 5. Reboot your system.**

```
reboot -- -r
```

## Downloading the VERITAS Volume Manager ASL

The VERITAS Volume Manager 3.2, 3.5, and 4.0 provide support for the Sun StorEdge 6130 array in the form of Array Support Library (ASL) software packages for the Solaris 8 and 9 OSs and IBM AIX 5.2. The ASL must be installed on the same host system as the Volume Manager 3.2, 3.5, or 4.0 software to enable the software to recognize the Sun StorEdge 6130 array modules. Download the ASL and the accompanying README file for the Sun StorEdge 6130 array from the Sun Download Center or from <http://support.veritas.com>. The AIX ASL is available only from VERITAS.

## ▼ To Download the ASL

- 1. Log in as superuser on the Sun server to be connected to the array.**

- 2. Go to the Products Download page:**

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

**3. In the Search area, search for VERITAS.**

The Products Downloads > VERITAS Volume Manager ASL link is displayed.

**4. Click Download to go to the Sun Download Center.**

The page identifies the product you selected as VERITAS Volume Manager Array Support Library (ASL) for your platform and language.

**5. If you have not previously registered, register as follows:**

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

**b. On the registration page, complete the required fields and click Register.**

**6. Log in:**

**a. Type your user name and password in the left column, and click Login.**

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

**7. Download the compressed zip file that contains the ASL package for the Sun StorEdge 6130 array and README file.**

**8. Use the unzip command to extract the files from the zip file.**

**9. Refer to the README file to determine how to install the VERITAS Volume Manager ASL.**

## ▼ To Download the UNIX ASL

**1. Go to the Volume Manager page:**

`http://support.veritas.com`

**2. In Step 1 - Select Product window, select Volume Manager.**

**3. In Step 2 - Select Volume Manager for UNIX.**

The Volume Manager for UNIX is displayed.

**4. Select the Downloads tab.**

**5. In the Downloads window, select the default All in each search category, and click GO. (Otherwise, you can refine your search to Drivers or other criteria).**

A list of documents and files display for the product.

6. **Scroll to the File list and select the appropriate ASL for the Sun StorEdge 6130 array.**  
A page displays with the ASL installation instructions.
7. **Scroll down and select the Download Now button.**
8. **Follow the instructions to uncompress and install the ASL.**

---

## Known Issues

The following sections provide information about known issues and bugs filed against this product release:

- “Installation and Initial Configuration Issues” on page 21
- “General Issues” on page 22
- “Sun StorEdge Configuration Service Issues” on page 27
- “Command-Line Interface Issues” on page 29
- “Sun Storage Automated Diagnostic Environment Issues” on page 30
- “Localization Issues” on page 32
- “Documentation Issues” on page 33

If a recommended workaround is available for a bug, it follows the bug description.

## Installation and Initial Configuration Issues

This section describes known issues and bugs related to installing and initially configuring the Sun StorEdge 6130 array.

### *Configuring IP Using BOOTP Services*

The *Sun StorEdge 6130 Array Getting Started Guide* describes a method of setting the IP address using the BOOTP services that are included in the DHCP server. BOOTP services are included with the DHCP server as a convenience. They are different services.

You can also make BOOTP services available using Solaris Operating System commands.

## *Bootability Issues With 1-Gigabit HBAs and Direct Attached Configurations*

**Bug 5084873** - When you use a Sun StorEdge 6130 array as a boot device, the host system boots its operating system from the array. There are known issues with using the array as a boot device using 1-gigabit host bus adapters (HBAs) in direct attach configurations. Therefore, 1-gigabit HBAs can be used with the Sun StorEdge 6130 array for nonboot applications only. If you want to use the Sun StorEdge 6130 array as a direct attached boot device, use it only with 2-gigabit HBAs supported by Sun.

In Fibre Channel switched configurations in which a Fibre Channel switch is connected between the host and a Sun StorEdge 6130 array being used as a boot device, both 1-gigabit and 2-gigabit Sun HBAs can be used.

## General Issues

This section describes general issues related to the Sun StorEdge 6130 array.

### *Disk Scrubbing Might Be Prolonged for Large Volumes*

**Bug 6266127**- Disk scrubbing takes significantly longer than 30 days if the volume size is over 1.85 TeraBytes (TB). The problem here is that a buffer allocated in the array firmware can only handle 32 bits.

**Workaround** - Reduce the data scrubbing duration to allow the LUN to finish scrubbing sooner. Be aware that by setting the duration to one (1) day, it still takes at least 36 days to scrub a 1.86 TeraByte (TB) volume.

This issue has already been resolved in a future release of the Sun StorEdge 6130 array firmware.

### *Initial format Command Might Fail to Detect All Configured LUNs*

**Bug 5084996** - When run for the first time from one of the hosts in a multihost configuration, the `format` command might fail to detect all 256 or more LUNs created on the Sun StorEdge 6130 array.

**Workaround** - Wait a few minutes, and then execute a second `format` command. All LUNs should be now detected.

## *The Array Stops Reporting I/O Data When a Controller Is Removed*

**Bug 5086807** - In Sun StorEdge 6130 array configurations using expansion modules, if one RAID controller or one of the inter-tray cables connecting the RAID controller to the expansion modules is removed, some expansion module data fields are reported incorrectly.

This results from the loss of one monitoring path to the expansion module. The incorrect data fields from the expansion module can cause the Sun Storage Automated Diagnostic Environment to incorrectly report a firmware revision change on the expansion modules.

**Workaround** - When the missing cable or missing RAID controller is replaced, full and accurate status reporting of the expansion trays is restored.

## *Maximum Temperature Threshold*

**Bug 5093731** - In the event that a high-temperature threshold is reached, to prevent temperature-related damage and to protect data integrity, the Sun StorEdge 6130 array power supplies will terminate power to the array. This event occurs only during extreme, sustained, elevation of ambient room temperatures and typically occurs only with a simultaneous failure of one or both fans.

**Workaround** - In the event of a high-temperature warning message from the Sun StorEdge 6130 array monitoring facilities, ensure that air flow passages to the array are unobstructed and that ambient room temperature is not elevated. Should these issues not be immediately correctable, manually shut down the array until the elevated room temperature issues are resolved.

Ensure that ambient room temperature monitoring and adequate cooling is in place at all times.

## *Faulty Expansion Cable Causes an Event but the Front Panel Status LED Remains Green*

**Bug 6180131** - Using a faulty expansion cable causes the management software to report the array health as Degraded and causes the Sun Storage Diagnostic Environment to report the error `Drive tray path redundancy lost`. However, the status LED on the front of the chassis does not signal an error and remains green instead of turning amber, as expected.

## *Degraded State Results From Using a Non-Preferred Path*

**Bug 6196986** - Before you perform live firmware updates on a Sun StorEdge 6130 array, autofailback should be enabled on the host multipathing solution. If an autofailback feature is not supported or is not enabled, I/O paths to the Sun StorEdge 6130 array will not be restored to their original, preferred paths after the firmware update has been completed. Although I/O will continue, management applications may report the system as operating in a nonoptimal state until the I/O paths to the array are manually restored to their original, preferred paths.

## *Replacing Failed Disk Drives From Another Array*

**Bug 6203836** - If a volume failure on a Sun StorEdge 6130 array results from failed disk drives, you must be careful when introducing replacement drives that were part of a volume in use by another Sun StorEdge 6130 array.

**Workaround** - To avoid having the 6130 system incorrectly initiate a volume migration process with the newly introduced replacement drives, perform one of the following tasks:

- Verify that the volume on the Sun StorEdge 6130 array with the failed disk drives has not been deleted. You should leave the volume in a failed state and not delete the volume.
- Verify the disk drives being taken from the inactive Sun StorEdge 6130 array are not part of an active volume. If the disk drives are part of an active volume, delete the drives associated with the volume before removing the disk drives.

## *Controller Module Battery Information*

During bootup, the battery light might flash for an extended period. The battery charger performs a series of battery qualification tests before starting a battery charge cycle. This series of tests occurs at subsystem power-up. The tests are automatically reinitialized approximately every 25 hours by a timer.

Each controller module contains a 4V lead acid battery pack for cache backup in case of power loss. The on-board battery is capable of holding cache up for three days (72 hours) for a 1-gigabyte cache. The service life of the battery pack is two years, at the end of which the battery pack must be replaced.

## *Deleting Initiators That No Longer Appear on the SAN*

**Bug 6224251** - When creating initiators on an array previously connected to a host, be aware that should this host be removed and another host attached, the pull-down menu for creating an initiator shows the WWNs for the original host, plus the WWNs of the new host.

## *Failure to Detect Re-Added Redundancy Initiator*

**Bug 6237268** - A host with two initiators is configured as a redundancy path to the Sun StorEdge 6130 array volumes. Using the Sun StorEdge Configuration Service browser interface to delete one of the initiators results in a failover while I/O is live.

If you then attempt to add this initiator back to the same host using the Sun StorEdge Configuration Service browser interface, a missing handshake or protocol between the 6130 array and the host does not permit the host to check to see if the path or initiator is live again.

## *Browser Refresh Causes Data Reposting*

**Bug 6238963** - If you refresh the browser page using the reload button, the following message is displayed:

The page you are trying to view contains POSTDATA. If you resend the data, any action the form carried out (such as search or online purchase) will be repeated. To resend the data, click OK. Otherwise, click Cancel.

If you click OK in response, it executes the command and causes either error messages to appear or unexpected actions to occur. For example, when copying volumes, the potential targets are listed.

Reloading the page after a successful copy causes another copy command with the same index of listed targets to be created. The next one in the original list is now chosen since it is referenced by the index. Thus, a second copy is created without your knowledge.

## *Initiator Modification Selected From a Search Result Fails*

**Bug 6239087** - When you select an Initiator from the Initiator Summary page, you can go ahead and modify it should you wish. However, should you search for the Initiator, select the search result, and then attempt a modification, the following error appears:

WWN is required to perform this operation. The modification attempt failed.

### *Target Volume Details Missing Remove Copy Pair*

**Bug 6239090** - In the Sun StorEdge Configuration Service browser interface, when you use the Search button to locate a specific target volume, a Search Results window is displayed, listing the target volume name. If you click on the target volume name in the Search Results window, the Volume Details page is displayed without the Remove Copy Pair button.

**Workaround** - For access to the Remove Copy Pair button, select the target volume from the Volume Summary page.

### *Array Locking for Service Advisor Not Global*

**Bug 6246249** - A reservation message that the array is locked for a Service Advisor procedure only displays in the Sun StorEdge Configuration Service browser interface on the management host initiating the procedure. Be sure to warn others via the Sun Storage role of pending Service Advisor procedures since they will not receive a warning when making configuration changes from a different host.

### *Expanding Virtual Disks (SATA Drives) With an FC Drive*

**Bug 6249111** - Presuming that vdisk 3 is composed only of SATA type drives, should you attempt to expand this vdisk using the Sun StorEdge Configuration Service browser interface, the array correctly displays only the SATA drives as available disks. An incorrect error message is displayed when you use the `sscs` CLI with the following command:

```
sscs modify -a qam 16 -d t0d03 vdisk 3
```

where `t0do3` is an FC drive.

The error message indicates that the command does not execute because the number of drives selected is invalid. In fact, the problem is the type of drive selected, rather than the number of drives.

### *Using the Solaris 10 OS as the Data Host Software*

**Bug 6258014** - The Sun StorEdge 6130 array supports the Solaris 10 OS on a SPARC station as a 6130 data host, even if the Sun StorEdge 6130 array data host software is not installed. However, the Sun Storage Automated Diagnostic Environment is



unable to monitor or run diagnostics on the Solaris 10 host. You must install the data host software for the Sun StorEdge 6130 array if monitoring or diagnostic capability is required.

### *Firmware Hangs With Multiple Operations on Volumes*

**Bug 6258674** - You should not perform volume operations, such as volume resizing, until volume initialization is complete. The Sun StorEdge 6130 array can hang if volume resizing operations are done before a volume is initialized.

## Sun StorEdge Configuration Service Issues

This section describes known issues and bugs related to the Sun StorEdge Configuration Service software.

### *Detection of Large Numbers of LUNs Is Delayed With the Format Command*

**Bug 5084996** - When you run the `format` command under the Solaris OS to detect a large number of LUNs that have just been mapped to a Solaris system from a Sun StorEdge 6130 array, there might be some delay before the Solaris host actually detects and reports these newly added LUNs. This behavior typically happens only when more than 100 LUNs are being mapped to the Solaris system simultaneously.

When creating volumes, wait until all of the volumes have been created before issuing a `format` command. Otherwise, the `format` command might return an invalid number of LUNs.

**Workaround** - Wait approximately 20 minutes after the volumes have been created for all of the LUNs to be properly detected when you issue the `format` command.

### *Wrong Error Is Displayed During Creation of a Snapshot or Volume Without Enough Available Space*

**Bug 5098638** - When you try to create a snapshot or a volume without enough available capacity, the management software returns the error message `Unable to create snapshot with the RAID level selected instead of saying that there is not enough space on the array.`

### *Cannot Remove a Copy Pair or Recopy the Volume Copy When the Volume Copy Fails*

**Bug 6184925** - When a volume copy operation fails, you cannot successfully remove the copy pair nor successfully recopy the volume copy.

### *Different Target Volume Capacity Viewed From Host and CLI*

**Bug 6202031** - When you create a volume copy, the target volume must have at least as much capacity as a source volume. If the volume selected as the target volume has a greater capacity than the source volume, the target volume will appear after the volume copy operation to have only as much capacity as the source volume when viewed from the host. However, the SSCS CLI displays the correct capacity of the target volume.

### *Array Health Is Displayed Incorrectly During RAID-5 and RAID-1 Reconstruction*

**Bug 6202126** - During RAID-1 or RAID-5 reconstruction, the array health status is incorrectly reported as OK in the Sun StorEdge Configuration Service application while the Sun Storage Automated Diagnostic Environment correctly reports volumes in degraded mode.

### *sscs Command Resets Array Configuration Without Confirmation*

**Bug 6223469** - The `sscs modify -r array <array-name>` command resets the array configuration without prompting you for confirmation. After the reset operation is finished, all volumes are deleted and data is lost. Be sure not to confuse this command with the similar `sscs modify -R array array-name` command, which performs the normal administrative task of redistributing volumes on the array. The only difference here is the capitalization of the `-R` parameter.

### *Unmap Attempt on a Volume with Persistent Reservations*

**Bug 6228026** - If you unmap a volume that has persistent reservations placed on it, the operation neither succeeds nor produces an error message. The Unmap button, which normally changes to Map after the operation, remains the same and does not change. To correct this problem, release the reservation at the host and then retry the operation.

## *Using a Volume Before It Is Fully Initialized*

When you create a volume and label it, you can start using the volume before it is fully initialized.

## Command-Line Interface Issues

This section describes known issues and bugs related to the Sun StorEdge 6130 Array command-line interface (CLI).

### *Command Displays the Wrong Volume Status*

**Bug 6174028** - During a volume copy process, the target volume becomes inaccessible for any I/O operation. The format command on a Solaris 8 or Solaris 9 host displays the volume status as `drive type unknown`.

The `ofgadm` command incorrectly displays a message that the target volume is still available and does not mark it as “unusable.”

### *CLI Does Not Allow the Modification of an In-Use Profile*

**Bug 6241006** - You are allowed to perform a modify operation even though the profile is in use, or checked with the browser interface. The following error message that is displayed here is incorrect:

```
The settings of this volume do not conform to the pool's
profile. Click the Reset Settings button to attempt to match
the volume's settings with the profile. If the Reset Settings
operation fails again, move the volume to a different pool that
matches its settings.
```

A second modify operation does produce the correct response. However, the profile is still modified, or checked with the browser interface. The browser interface does not allow modification of an in-use profile (that is, if a pool exists with that profile).

# Sun Storage Automated Diagnostic Environment Issues

This section describes known issues and bugs related to the Sun StorEdge 6130 array Sun Storage Automated Diagnostic Environment. Read the release notes that came with your Sun Storage Automated Diagnostic Environment software for a complete understanding of issues and bugs.

If additional Sun Storage Automated Diagnostic Environment arrays are present in the SAN, you must download and install SUNWstade patch 117650-10 and SUNWstadm patch 117654-10 to obtain the latest fixes for the Sun Storage Automated Diagnostic Environment product. These patches also include late-breaking enhancements to the Service Advisor.

To locate potential patches on SunSolve, go to:

<http://www.sun.com/sunsolve> -> PatchFinder 116720 and 117654

## *Displaying Diagnostics*

**Bug 5076153** - Sun Storage Automated Diagnostic Environment diagnostic results are not updated in the client UI if the data host or management station host is using Perl Version 5.8. However, the test results are updated when the test finishes.

The following error message appears:

```
Error on test-name: ERR: Invalid PID:
```

**Workaround** - Run the diagnostics from the command-line interface on the client, or simply wait for the test to reach completion.

Alternatively, use an older version of Perl.

## *Placing a Controller in the Offline State*

**Bug 5096265** - When you manually place a controller offline using the Sun Storage Automated Diagnostic Environment, monitoring applications might report this offline controller as “failed.” This is expected behavior. After you place the controller back online, the controller state will change to “optimal.”

## *Sun Storage Automated Diagnostic Environment Slaves*

**Bug 5109505** - Sun Storage Automated Diagnostic Environment slaves should be used only on the Sun StorEdge 6130 array data host. Therefore, the management host on which the management software resides, including the Sun Storage Automated Diagnostic Environment browser interface package (SUNWstadm), must be designated as a Sun Storage Automated Diagnostic Environment master.

If you used the Sun StorEdge 6130 Host Installation Software CD to install the data or the management host, the installation scripts install the correct Sun Storage Automated Diagnostic Environment image.

## *Configuring Slave Agents on Data Hosts*

After installing the Sun Storage Automated Diagnostic Environment on a data host, enter the following command to configure the software as a slave agent and to synchronize the slave agent with the master agent on the management host. The management host software must be installed and the IP address defined before entering this command on the data host:

```
/opt/SUNWstade/bin/ras_install
```

Use the `ras_install` command only on data hosts, never on the management host that contains the management software with the master agent.

The `ras_install` script displays. Enter the following options:

S for the slave agent

IP address of the management host

C to start the agent cron

Following is the output from a sample `ras_install` script:

```
+-----+
| Installing the Package and Crons |
+-----+
? Are you installing a Master or a Slave Agent? (Enter M=master, S=slave, E=Empty
Master)
[M/S/E]: (default=M) S
The address of the master must already be defined before a slave can be installed.
If the master has not been installed yet, abort this install and go install this
package on the host that was selected to be the master.
? Enter the IP Name/Address of the Master Host Agent 10.8.88.135
- Testing communication with host '10.8.88.135' ..
- Communication successful.
- Starting the Storage A.D.E service (rasserv):
/opt/SUNWstade/rasserv/bin/apachectl startssl: ./rasserv started
- Setting up crons:
```

```

? Do you want to C=start or P=stop the Agent cron
[C/P] : (default=C) C
- cron installed.
- Testing access to rasserv (this test will timeout after 4 tries of 10 secs):
- ping '10.8.88.135' succeeded!
- 1/4 attempting to contact agent service...
- Contacted agent with hostid=80cffc87.
+-----+
| SUNWstade installed properly |
+-----+
- Sending monitored device-list to agent at 10.8.88.135
-- diag-lsil.Central.Sun.COM already there
OK

```

## Localization Issues

This section describes known issues and bugs related to internationalization and language translation.

### *sscs Command and Mixed-Language Environments*

**Bug 5095750** - Using the `sscs` command to create or view objects (such as pools or volumes) in mixed-language environments might result in pool, volume, or other object names with undisplayable characters.

When you use the `sscs` command in a mixed-language environment, the object names are displayed properly only in the locale in which the objects were created.

- Make sure the locale environment setting is correct before executing an `sscs` command.

For example, in the Japanese environment, depending on your shell type, execute one of the following:

```

setenv LANG ja
LANG=ja; export LANG

```

- Always execute `sscs logout` to exit from an `sscs` session when finished. This ensures that the next `sscs login` will result in the locale being properly set for the new session.

The locale for a given `sscs` session is set when `sscs login` is first executed by a UNIX user, and is the locale for the duration of that session. Since `sscs` sessions are shared for multiple instances of a given UNIX user, any attempt to start another simultaneous `sscs` session with a different locale will fail. Preferably, run only one `sscs` session per UNIX user when operating in a multilocale environment.

# Documentation Issues

This section describes known issues and bugs related to the online help or the command-line interface `SSCS` man page.

## *Creating a Snapshot on a Virtual Disk*

The online help erroneously states that a snapshot can be created on a virtual disk as long as the RAID level, the number of disks, and the disk type (either FC or SATA) of the virtual disk match the primary volume's profile.

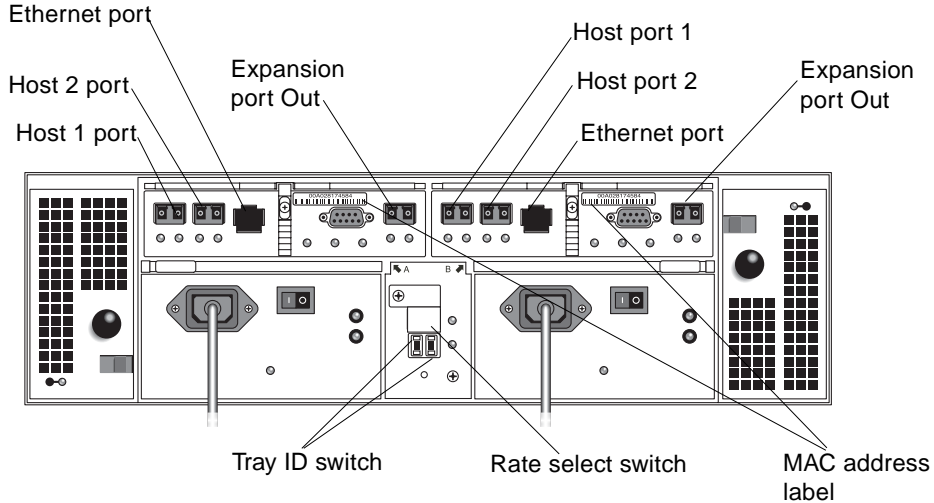
The only requirement for creating a snapshot on a virtual disk is that the virtual disk must have enough capacity for the snapshot.

## *Incorrect Help Displays From the General Setup Page*

When you click the Help button from the Administration > General Setup page, the first page of online help displays instead of the expected help for the General Setup page. You can view the online help for the General Setup page from the table of contents in the left-hand pane by clicking Sun StorEdge 6130 > Connection and Administration Tasks > Administration Tasks > Reference Pages > General Setup Page.

## *Additional Callout for the Rear View of the Controller Tray*

**Bug 6177528** - Figure 1-3 in the *Sun StorEdge 6130 Array Getting Started Guide* shows the ports and switches at the back of the controller tray. An additional callout has been added to identify the location of the MAC address label.



### *Volume Snapshot Creation*

**Bug 6183884** - The online help for volume snapshots indicates that creating a snapshot causes the array controller module to suspend input/output (I/O) to the base volume while creating a physical volume. Note that you must execute the `fsck` command before you can mount the snapshot volume if the snapshot was created while the I/O was running on the base volume.

### *No Default Password for Storage and Guest Users*

**Bug 6245280** - The online help erroneously states that the Storage and Guest users have a default password of `!Storage` and `!Guest`, respectively. There are no default users or passwords for the Sun StorEdge 6130 array.

The array has roles of storage and guest that you assign to Solaris user accounts with access to the management host. These roles define the privileges available to the user.

You initially install the array software on a new server and sign into the browser interface using `root`. You then use the User Management function in the browser interface to assign the roles of storage or guest to valid Solaris user accounts. Users can then sign into the browser interface using their Solaris user names and passwords.



For information about creating Solaris user accounts, refer to the Solaris system administration documentation.

### *Removing Users on the Sun StorEdge 6130 Array*

**Bug 6245297** - To remove user access privileges for a Sun StorEdge 6130 array, select the User Summary page in the User Management function of the browser interface. Then, select the user and click the Remove button.

Consult the Solaris system administration documentation for information about removing user accounts from the server or NIS.

### *Determining the Size of a Snapshot Reserve Volume*

**Bug 6249609** - During snapshot volume creation, you specify the size of the snapshot reserve volume that stores snapshot data and any data needed during the life of the snapshot volume. When entering the size of the snapshot reserve volume, you must enter a percentage of the size of the base volume, as long as that percentage is not less than 8 Mbytes.

The capacity needed for the snapshot reserve volume varies, depending on the frequency and size of I/O writes to the base volume and how long you need to keep the snapshot volume. In general you should choose a larger capacity for the reserve volume if you intend to keep the snapshot volume for a long period of time and/or if a large percentage of data blocks will change on the base volume during the life of the snapshot volume due to heavy I/O activity. Use historical performance to monitor data or other operating system utilities to help you determine typical I/O activity to the base volume.

Remember that you are given a warning when the snapshot reserve volume reaches a certain percentage of capacity. You set the threshold level when you create a snapshot volume. The default threshold level is 50 percent.

If you get a warning and determine that the snapshot reserve volume is in danger of filling up before you are finished with the snapshot volume, you can increase its capacity by navigating to the Snapshot Details page and clicking Expand. If the snapshot reserve volume fills up before you are finished with the snapshot, the snapshot failure handling conditions specify what action that will be taken.

When creating the snapshot volume, you can allocate as large a snapshot reserve as you have space.

Use the following information to help determine the appropriate capacity of the snapshot reserve volume:

- A snapshot reserve volume cannot be smaller than 8 Mbytes.

- The amount of write activity to the base volume after the snapshot volume has been created dictates how large the snapshot reserve volume needs to be. As the amount of write activity to the base volume increases, the number of original data blocks that need to be copied from the base volume to the snapshot reserve volume also increases.
- The estimated life expectancy of the snapshot volume contributes to determining the capacity of the snapshot reserve volume. If the snapshot volume is created and remains enabled for a long period of time, the snapshot reserve volume runs the risk of reaching its maximum capacity.
- The amount of management overhead required on the snapshot reserve volume to store snapshot volume data contributes to determining the snapshot reserve volume's capacity. The amount of management overhead actually required is fairly small, and can be calculated using the simple formula that is presented later in this bug description.
- There is not necessarily a one-to-one correlation between the number of data blocks that change on the base volume and the amount of snapshot reserve space data stored on the snapshot reserve volume. Depending on the location of data blocks that need to be copied, for performance reasons, the controller can copy over a full set of 32 blocks, even if only one set of blocks has changed. Consider this when determining the percentage of the base volume's capacity that can be copied to the snapshot reserve volume.

Use the following information to calculate expected overhead:

- Important: Using a defragment utility to perform a defragment operation on a volume with an associated snapshot reserve volume will cause a snapshot reserve space on every data block in the base volume. This can cause the snapshot reserve volume to fill before the defragment operation is completed. As a result, the snapshot volume will fail or host writes will fail to the base volume, depending on the snapshot volume full condition that was originally set for the snapshot volume. To prevent any failures during a base volume defragment operation, ensure that the snapshot reserve volumes' capacity is set to 105 percent of the size of the base volume before starting the defragment utility. This is the minimum size needed to support a snapshot reserve space on every data block in the base volume.

Use the following formula to calculate the amount of management overhead required to store snapshot data on the snapshot reserve volume. Note that this formula should be used merely as a guide. You should re-estimate the snapshot reserve volume capacity periodically. Conversion from bytes, to kilobytes, and then to megabytes is required here.

$$192 \text{ Kbytes} + (X/2000)$$

where X is the capacity of the base volume in bytes.

For example, for a 5-Gbyte base volume, where 30 percent of the data blocks are expected to change on the base volume, you can calculate the estimated snapshot reserve volume capacity as follows:

1. Convert the base volume's capacity to bytes.

Result: When converted, 5 Gbytes equals 5,368,709,120 bytes.

2. Divide the base volume's capacity (in bytes) by 2000.

Result: When divided, the result is 2,684,354.56 bytes

3. Convert the result from step 2 (in bytes) to kilobytes (Kbytes).

Result: When converted, the result is 2621.44 Kbytes.

4. Add 192 Kbytes to the results from step 3.

$192 \text{ Kbytes} + 2621.44 \text{ Kbytes} = 2813.44 \text{ Kbytes}$

5. Convert the result from step 4 to megabytes (Mbytes).

Result: When converted, the amount of management overhead required is calculated to be 2.75 Mbytes (or 0.002686 Gbytes).

6. In this example, 30 percent of the data blocks on the base volume are expected to change. To accurately calculate the snapshot reserve volume capacity, sufficient space needs to be allowed for the snapshot reserve space data as well as the management overhead (calculated in step 5).

To calculate the snapshot reserve space required, calculate the percentage of the base volume expected change:

$30 \text{ percent of } 5 \text{ Gbytes} = 1.5 \text{ Gbytes}$

The final estimated snapshot reserve volume capacity for this example is:

$1.5 \text{ Gbytes} + 0.002686 \text{ Gbytes} = 1.502686 \text{ Gbytes}$

7. In the Create Snapshot Volume Wizard: Specify Reserve Capacity dialog box, use the percentage (%) of base volume to set the estimated snapshot reserve volume capacity.

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**Note** – You set the snapshot reserve volume capacity as a percentage of the base volume. You can increase or decrease the percentage until the Snapshot Reserve Volume Capacity value matches the estimated capacity calculated in step 6. (Some rounding up may be required.)

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## *Correction to Man -M Command Option*

The *Sun StorEdge 6130 Array Getting Started Guide* references the location of the `sscs(1M)` man page in the `/opt/se6x20/cli/man` directory. The note that follows this path location then explains about updating the `MANPATH` variable or using the `man` command `-m` option to locate the `sscs` man page. The correct option for the `man` command should be `-M`. As a result, the complete command and path should be:

```
man -M /opt/se6x20/cli/man sscs
```

When you enter this command, you will be given a general introduction to `sscs`. To see the specific man page for a Sun StorEdge 6130 array, follow the `sscs` command with `-6130` as follows:

```
man -M /opt/se6x20/cli/man sscs-6130
```

This enables you to access `sscs` commands that are specific to the Sun StorEdge 6130 array. Note here that when you are in the management host software, you should continue to enter `sscs` and its command options, such as `sscs list array`.

## *Correction to the Process for Creating an Initiator*

The *Sun StorEdge 6130 Array Getting Started Guide* and online help discuss the process of creating an initiator. When doing so, you can either select an existing WWN, or enter a new one. Specifically, when you are prompted to select an existing WWN, the drop-down menu list displays only those existing WWNs that are currently unassigned. The WWN you select automatically appears in the `Type a New WWN` field.

If no WWNs exist, the list is empty and you must enter a new WWN in this field. Be aware that when you enter a new WWN, the delimiting colons (:) of the 16-character hexadecimal WWN are optional.

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**Note** – The Sun StorEdge 6130 array firmware retains all created or discovered WWNs until they are manually deleted. If the WWNs no longer apply because a server is moved or rezoned, you should delete the WWNs from the Initiator page and reboot the controllers.

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## *Correction to the Cabinet Environmental Specifications*

In the *Sun StorEdge 6130 Array Site Preparation Guide*, be aware of the following corrections to the cabinet environmental specifications:

- Table 2-4 lists the nonoperating temperature specifications as -40° F to -150.8° F (-40°C to -66° C). They should be -40° F to 149° F (-40°C to 65° C)
- Table 2-9 lists the nonoperating temperature specifications as -40°F to 140°F (-20°C to -60°C). They should be -4°F to 140°F (-20°C to 60°C).
- Table 2-13 lists the nonoperating temperature specifications as -40°F to 150.8°F (-40°C to -66°C). They should be -40° F to 149° F (-40°C to 65° C).

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## Release Documentation

Following is a list of documents related to the Sun StorEdge 6130 array. For any document number with *nn* as a version suffix, use the most current version available.

You can search for this documentation online at:

- <http://www.sun.com/documentation>
- <http://docs.sun.com>

<b>Application</b>	<b>Title</b>	<b>Part Number</b>
Site planning information	<i>Sun StorEdge 6130 Array Site Preparation Guide</i>	819-0033- <i>nn</i>
Regulatory and safety information	<i>Sun StorEdge 6130 Array Regulatory and Safety Compliance Manual</i>	819-0035- <i>nn</i>
Installation and initial configuration instructions	<i>Sun StorEdge 6130 Array Getting Started Guide</i>	819-0032- <i>nn</i>
Instructions for installing the Sun StorEdge Expansion cabinet	<i>Sun StorEdge Expansion Cabinet Installation and Service Manual</i>	805-3067- <i>nn</i>
Instructions for installing the Sun Rack 900/1000 cabinets	<i>Sun Rack Installation Guide</i>	816-6386- <i>nn</i>
Instructions for installing the Sun Fire cabinet	<i>Sun Fire Cabinet Installation and Reference Manual</i>	806-2942- <i>nn</i>
Release-specific information for the Storage Automated Diagnostic Environment	<i>Sun Storage Automated Diagnostic Environment Enterprise Edition Release Notes</i>	819-0432- <i>nn</i>

In addition, the sun StorEdge 6130 array includes the following online documentation:

- Sun StorEdge Configuration Service online help  
Contains system overview and configuration information.
- Sun Storage Automated Diagnostic Environment online help  
Includes system maintenance, management, and basic troubleshooting information.
- Service Advisor  
FRU replacement procedures with system information are available in this section of the Sun Storage Automated Diagnostic Environment interface.
- `sscs` man page commands  
Man page commands are available on a management host running the Solaris OS work station or on a remote CLI client.

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## Service Contact Information

If you need help installing or using this product, go to:

<http://www.sun.com/service/contacting>

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