# Sun StorEdge™ 6130 Array Release Notes

Sun Microsystems, Inc.
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# Contents

# Sun StorEdge 6130 Array Release Notes

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:



Additionally, the following document is appended to the back of these notes:
*Installing Array Modules in a Telco Rack*

# Release 1.1 Changes

Release 1.1 includes the following changes:

- Firmware support for SATA
- Support for 400-gigabyte Hitachi disk drives in the Sun StorEdge 6130 array
- Ability to use the Storage Automated Device Environment 2.4 Enterprise Edition with all devices on the storage area network (SAN)

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**Note –** Sun recommends that all users upgrade to release 1.1 as this release fixes an NVSRAM password problem and adds firmware support for SATA disk drives.

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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 features not detailed in the help.

## Premium Features

The Sun StorEdge 6130 array offers three premium features:

- Volume Copy
- Snapshots
- Storage Domains

When you purchase premium features, you receive a license certificate. Follow the procedure on the license certificate to contact the Sun Licensing Center for license information and to register the license information with the Sun StorEdge 6130 array.

The array does not require a license for up to eight storage domains. If you plan to use more than eight storage domains, contact your sales representative for information about purchasing additional license certificates.

## Sun Storage Automated Diagnostic Environment Software

The Sun Storage Automated Diagnostic Environment is included on the Sun StorEdge 6130 Host Installation Software CD. The two components of the Sun Storage Automated Diagnostic Environment, the base package and the management station graphical user interface (GUI), are installed with the management software. Installation procedures for Sun Storage Automated Diagnostic Environment are included in these release notes and in the *Sun StorEdge 6130 Array Getting Started Guide*.

Refer to the following release notes for additional information about the Sun Storage Automated Diagnostic Environment:

*Sun Storage Automated Diagnostic Environment Enterprise Edition Release Notes* (819-0431-10)

# Disk Scrubbing

Disk scrubbing is a background process performed by the array controllers to provide error detection on the drive media. Disk scrubbing detects errors and reports them to the event log.

Before disk scrubbing can run, you must enable it on the array. Disk scrubbing then runs on all volumes on the array. You can disable disk scrubbing on any volume that you do not want to have scrubbed. Later, you can re-enable disk scrubbing for any volume on which you disabled it.

The advantage of disk scrubbing is that the process can find media errors before they disrupt normal drive reads and writes. Disk scrubbing scans all volume data to verify that it can be accessed. If you enable a redundancy check, it also scans the volume redundancy data.

## Enabling Disk Scrubbing on an Array

To enable disk scrubbing on an array:

1. Click Sun StorEdge 6130 Configuration Service.

   The Array Summary page is displayed.

2. Click the array for which you want to enable disk scrubbing.

   The Volume Summary page is displayed.

3. Click Administration > General Setup.

   The General Setup page is displayed.

4. Click the check box next to Disk Scrubbing Enabled and specify the number of days for which you want disk scrubbing to run.

5. Click OK.

## Disabling and Re-enabling Disk Scrubbing on a Volume

To disable or re-enable disk scrubbing for an individual volume:

1. Click Sun StorEdge 6130 Configuration Service.

   The Array Summary page is displayed.

2. Click the array on which you want to disable or re-enable disk scrubbing for a specific volume.

   The Volume Summary page is displayed.

3. Select the volume on which you want to disable or re-enable disk scrubbing and do one of the following:
   - To disable disk scrubbing, select False in the Disk Scrubbing Enabled field.
   - To re-enable disk scrubbing, select True in the Disk Scrubbing Enabled field.
   - To re-enable disk scrubbing so that it also scans the volume redundancy data, select True in the Disk Scrubbing With Redundancy field.
4. Click OK.

# Hot-Spare Drives

A hot-spare is a drive, containing no data, that acts as a standby in the storage array in case a drive fails in a RAID-1, RAID-3, or RAID-5 volume. The hot-spare adds another level of redundancy to the storage array. The Sun StorEdge 6130 array supports up to 15 hot-spares.

If a hot-spare is available when a disk drive fails, the hot-spare is automatically substituted for the failed disk drive, without intervention. The controller uses redundancy data to reconstruct the data from the failed drive onto the hot-spare. When you have physically replaced the failed disk drive, the data from the hot-spare is copied back to the replacement drive. This is called copyback.

If you do not have a hot-spare, you can still replace a failed disk drive while the storage array is operating. If the disk drive is part of a RAID-1, RAID-3, or RAID-5 volume group, the controller uses redundancy data to automatically reconstruct the data onto the replacement disk drive. This is called reconstruction.

## Planning Hot-Spares

A disk drive should be assigned as a hot-spare only if it meets the following criteria:

- The hot-spare must have a capacity that is equal to or greater than the capacity of the largest drive on the storage array. If a hot-spare is smaller than a failed physical disk drive, the hot-spare cannot be used to rebuild the data from the failed physical disk drive.
- The hot-spare drive must be the same type of physical disk as the physical disk drive that failed. For example, a SATA hot-spare cannot replace a Fibre Channel physical disk drive.
- The disk drive's role must be unassigned, its state must be enabled, and it must have an optimal status.

Information about individual disk drives is available on the Disk Summary page.

## Assigning and Unassigning Hot-Spares

You can manually assign or unassign specific disk drives as hot-spares, or you can select the number of hot-spares you want and let the management software assign or unassign the disk drives automatically.

### *Assigning and Unassigning Hot-Spares Manually*

To manually assign or unassign a hot-spare:

1. Click Sun StorEdge 6130 Configuration Service.

   The Array Summary page is displayed.

2. Click the array for which you want to assign or unassign a hot-spare.

   The Volume Summary page is displayed.

3. Click Physical > Disks.

   The Disk Summary page is displayed.

4. Select the disk drive you want to assign or unassign as a hot-spare drive.

5. Do one of the following:
   - To assign the selected disk as a hot-spare, click Assign Hot-Spare.
   - To unassign the selected disk as a hot-spare, click Unassign Hot-Spare

   The Disk Summary page is displayed with the updated information.

### *Assigning and Unassigning Hot-Spares Automatically*

When the management software assigns the hot-spares, it balances the request for spares across all trays within the array and ensures that the hot-spare drive is of the same type as the other disks in the same tray. It also verifies that the disk drives are unassigned, enabled, and in the optimal state.

To enable the management software to assign or unassign a hot-spare:

1. Click Sun StorEdge 6130 Configuration Service.

   The Array Summary page is displayed.

2. Click the array for which you want to assign a hot-spare.

   The Volume Summary page is displayed.

3. Click Administration > General Setup.

   The General Setup page is displayed.

4. In the Array Hot-Spares Change field, select the number of hot-spares, from 0 to 15, that you want to assign to this array. Selecting a number larger than what is currently configured assigns additional hot-spares, while a smaller number unassigns hot-spares.

5. Click OK.

   The management software assigns or unassigns the specified number of hot-spares. The management software balances the selection among trays within the array.

## Moving a Host From One Host Group to Another

If a host is mapped to one or more volumes and you move the host from one host group to another, the mappings specific to the host are retained but mappings associated with the host group from which the host was moved are not retained. Instead, the host inherits any mappings associated with the new host group to which it is moved.

If you move a host from a host group that has no mappings and that has host members without specific mappings, the host group and hosts are moved to the default storage domain.

For example, suppose that two host groups are created on an array, Host Group 1 and Host Group 2. Host Group 1 has three member hosts: Host1, Host2, and Host3. Host Group 1 has no mappings, and Host1 is the only of its hosts with any mappings. Host Group 2 has two member hosts: Host4 and Host5. Host Group 2 is mapped to one volume, and Host4 and Host5 have no specific mappings.

When you move Host1 from Host Group 1 to Host Group 2, the following occurs:

- Host1 keeps its specific mappings and inherits the mapping associated with Host Group 2.
- Host Group 1, Host2, and Host3 become part of the default storage domain, because they have no specific mappings.
- Host4 and Host5 are unaffected because they have no specific mappings.

# Virtual Disks

When you create or expand virtual disks, the disk drives that participate in the virtual disk must all be of the same type, either SATA or Fibre Channel.

# Array Passwords

An array password provides access to an array. When you set the password, the management software stores an encrypted copy of the password in its array registration database. Thereafter, the management software can perform modification operations on the array without a password challenge.

You can change the array password at any time. Changing the array password causes the management software to automatically update the password stored in its array registration database.

Multiple management hosts can access a single array. Each management host has its own instance of management software, each of which has its own array registration database. For the management software to perform modification operations on an array, the password stored in the array registration database for that instance of the management software must match the password set on the array. When you change the array password on one management host, only the array registration database used by that management host is updated with the changed password. Before another management host can perform modification operations on that array, the array registration database for that management host must also be updated with the new password.

You may also need to update the password stored in the array registration database if the array was registered without a password or with an incorrectly typed password.

If the password stored in the array registration database does not match the array password, the following error message is displayed when you attempt a modification operation on the array: "The operation cannot complete because you did not provide a valid password."

To change the array password or update the array registration database with the current password:

1. Click Sun StorEdge 6130 Configuration Service.

   The Array Summary page is displayed.

2. Click the array for which you want to change the password.

   The Volume Summary page for that array is displayed.

3. Click Administration > General Setup.

   The General Setup page is displayed.

4. Click Manage Passwords.

   The Manage Passwords page is displayed.

5. Select one of the following:

- To change the array password, select Change Array Password. Changing the password automatically updates the array registration database with the new password.
- To manually update the array registration database with the password set on the array, select Update Array Password In Array Registration Database. Do this if the array password was changed on another management host or if the array was registered without a password or with an incorrectly typed password.

6. In the Old Password field (available only if you are changing the array password), enter the current password.
7. In the New Password field, enter the new password as an alphanumeric string of up to eight characters.
8. Enter the same new password in the Verify New Password field.
9. Click OK to apply your changes.

# Software and Hardware Requirements

Software and hardware tested and qualified to work with the Sun StorEdge 6130 array is described in the following sections:



## 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 Update 4,<br>Solaris 9 |
| Disk space for Solaris 9 | 500 Mbytes<br>(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 GBytes |
| 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://wwws.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, Update 4 (Sparc systems only) | Distributed on Host CD |
| Solaris 9 (Sparc systems only) | 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 data host platforms, patches, and host-bus adapter (HBA) drivers supported with this release of the software.

Multipathing software must be installed on each data host that communicates with the Sun StorEdge 6130 array. For Solaris OS data hosts, this software is part of the Sun StorEdge SAN Foundation Software. For data hosts running an operating system other than Solaris, use the Sun StorEdge Traffic Manager Software or other multipathing software listed by platform in "Supported Data Host Platforms" on page 11.

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. For hosts running other operating systems, download the software from the Sun Download Center (SDLC), `http://wwws.sun.com/software/download/`, or other URL indicated in TABLE 3.

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 (SDLC), http://wwws.sun.com/software/download/.

Download operating systems updates from the web site of the operating system company.

**TABLE 3** Supported Data Host Platforms

| Operating System | Minimum OS Patch | HBA Driver | Multipath Driver | HA Cluster | Multipath Download |
|---|---|---|---|---|---|
| Windows 2000 Server and Advanced Server | Service Pack 4 (SP4) | Emulex<br>QLogic | Sun StorEdge Traffic Manager 4.6 | Microsoft Cluster Server (MSCS)1.0 | Available from SDLC |
| Windows Server 2003 Standard, Web, and Enterprise Editions | | Emulex<br>QLogic | Sun StorEdge Traffic Manager 4.6 | MSCS 1.0 | Available from SDLC |
| Red Hat Linux AS/ES/WS 2.1 and AS/WS 3.0 (32-bit) | | Sun<br>Emulex | Sun StorEdge Traffic Manager 4.6 | Not supported | Available from SDLC |
| Suse Linux LES 8.x 32 and 64 bit | | LST | NGE<br>MPP | Not supported | Available from SDLC |
| HP-UX 11.0, 11.11 | Patch set September 2003 | HP Native | HP Logical Volume Manager (LVM) | MC/Service Guard | Available from www.hp.com |
| IBM AIX 5.2 | | | DMP Array Support Library (ASL) | | Available from from `support.veritas.com` |
| Solaris 8, Update 4 (Sparc systems only) | | Sun StorEdge SAN Foundation Software 4.4.3 | Sun StorEdge Traffic Manager | Sun Cluster | Distributed on Host CD |
| | | | DMP Array Support Library (ASL) * | VERITAS Cluster | Available from SDLC or from `support.veritas.com` |

**TABLE 3** Supported Data Host Platforms *(Continued)*

| Operating System | Minimum OS Patch | HBA Driver | Multipath Driver | HA Cluster | Multipath Download |
|---|---|---|---|---|---|
| Solaris 9<br>(Sparc systems only) | | Sun StorEdge SAN Foundation Software 4.4.3 | Sun StorEdge Traffic Manager | Sun Cluster | Distributed on Host CD |
| | | | DMP Array Support Library (ASL) | VERITAS Cluster | Available from SDLC or from `support.veritas.com` |
| Novell NetWare 6<br>Novell NetWare 6.5 | SP4<br>SP1.1 | QLogic Driver | QLogic F/O | Novell Cluster Services NW6.5 - NCS v1.7, NW6.0 - NCS 1.6 | Available from SDLC |
| SGI IRIX 6.5.22 | | | Failover support not available | | Available from SDLC |

* Available for download from `http://www.sun.com/software/download/allproducts.html`

# Supported Data Host Software

The Sun software listed in TABLE 4 is compatible for use on data hosts with data paths or network connections to the Sun StorEdge 6130 array.

**TABLE 4** Supported Data Host Software

| Software | Minimum Version |
|---|---|
| Sun StorEdge Enterprise Storage Manager | 2.1 plus Patch 117367-01 |
| Sun StorEdge Availability Suite | 3.2 |
| Sun StorEdge Enterprise Backup Software | 7.1 |
| Solstice DiskSuite | 4.2.1 |
| Solaris Volume Manager software (embedded in the Solaris 9 Operating System) | N/A |
| Sun StorEdge Performance Suite with Sun StorEdge QFS | 4.0 |
| Sun StorEdge Utilization Suite with Sun StorEdge SAM-FS | 4.0 |
| Sun Cluster software | 3.0, update 3 |

The third-party software listed in TABLE 5 is compatible for use on data hosts with data paths or network connections to the Sun StorEdge 6130 array.

**TABLE 5** Supported Third-Party Software

| Software | Version |
|---|---|
| VERITAS NetBackup Server | 5.0 |
| VERITAS NetBackup Enterprise Server | 5.0 |
| VERITAS Volume Manager with Dynamic Multipathing (DMP) for Solaris | 3.5 and 4.0 |
| VERITAS File System (VxFS) for Solaris | 3.5 and 4.0 |
| VERITAS Volume Replicator for Solaris | 3.5 |
| Legato NetWorker® | 7.1 |

# Supported Web Browsers

The Sun StorEdge 6130 array supports the web browsers listed in TABLE 6.

**TABLE 6** Supported Web Browsers

| Browser | Minimum Version |
|---|---|
| Netscape Navigator | 7.0 |
| Microsoft Internet Explorer | 5.0 |
| Mozilla | 1.2.1 |

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

## Supported Languages

The Sun StorEdge 6130 array software and Storage Automated Diagnostic Environment application support the languages and locales listed in TABLE 7.

**TABLE 7** Supported Languages and Locales

| Language | Locale |
|---|---|
| English | en |
| French | fr |
| Japanese | ja |
| Korean | ko |
| Simplified Chinese | zh |
| Traditional Chinese | zh_TW |

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

# Firmware Support for SATA

This release provides firmware support for SATA in the Sun StorEdge 6130 array.

When a Sun StorEdge 6130 array includes both Fibre Channel (FC) and SATA disk drives, each expansion module must have either all SATA disk drives or all FC disk drives.

Cabling of SATA expansion modules is the same as the cabling for FC expansion modules. This information is provided in the *Sun StorEdge 6130 Array Getting Started Guide*.

The placement of SATA expansion modules in relation to FC expansion modules is critical to array performance. FC expansion modules must be grouped together. SATA expansion modules can be placed at either end or at both ends of the group of FC expansion modules, but must not be interspersed among FC expansion modules.

FIGURE >1 shows a 1x1 configuration with a SATA expansion module.

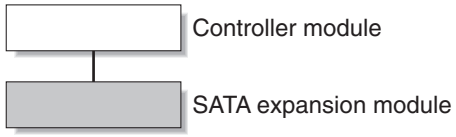


**FIGURE >1** 1x1 Configuration With a SATA Expansion Module

FIGURE 1 is an example of the correct placement of FC and SATA expansion modules in a 1x8 configuration. Note that the SATA expansion modules can be placed at either end of the grouping of FC expansion modules.

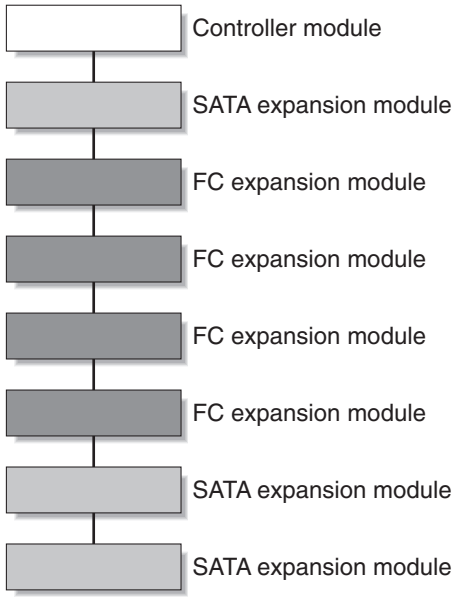


**FIGURE 1** Correct Grouping of Expansion Modules in a 1x8 Configuration

FIGURE 2 shows an incorrect grouping of FC and SATA expansion modules in a 1x8 configuration. The highlighted SATA expansion module should not be placed between FC expansion modules. Instead, it could be moved to either end of the group of FC expansion modules.

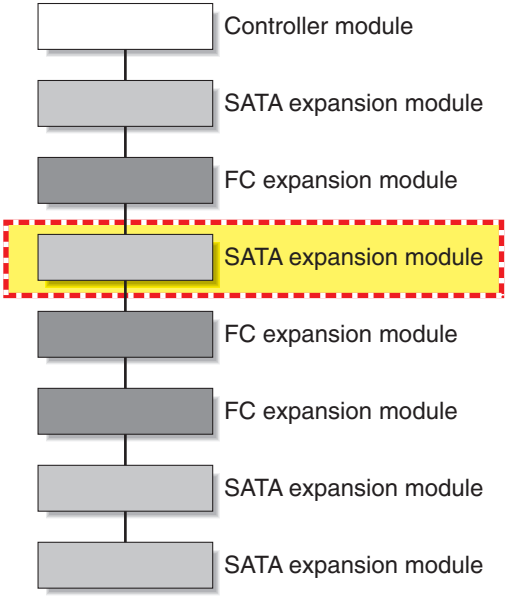


**FIGURE 2** Incorrect Grouping of FC Expansion Modules in a 1x8 Configuration

# Performing Firmware and Patch Upgrades

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 17
- "Initially Installing Management Software" on page 18
- "Upgrading Array Firmware and Management Software" on page 18

# Before You Begin

The Sun StorEdge 6130 array is managed out-of-band by way of a standard Ethernet connection between the RAID controllers and your local area network (LAN).

The Sun StorEdge 6130 management software is distributed on the Sun StorEdge 6130 Host Installation Software CD that is shipped with the array. The management software consists of the following applications and tools:

- Sun Web Console, the user interface, and related components for the array management software
- Storage Automated Diagnostic Environment software (Enterprise Edition 2.4)
- Sun StorEdge 6130 Configuration Service
- Array and drive firmware

Before you start the installation of the management software, check the machine for the following requirements:

- The operating system is Solaris 8 OS Update 4 or Solaris 9 OS for the SPARC platform.
- The root password is available (for running the installation script).
- 500 megabytes of disk space is available.
- Previous versions of the management software are not installed (initial installation only).
- Previous versions of the Storage Automated Diagnostic Environment or Sun StorEdge SAN Foundation software are not installed.
- Services (such as the Storage Automated Diagnostic Environment and Sun Web Console) are not running on the system.

The installation script verifies these requirements. If a requirement is not met, the script informs you or, in some cases, exits.

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**Note –** If a version of Sun Web Console prior to 2.1 is installed on the management host, the script prompts you to upgrade to the current version.

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# 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 of the management software and array firmware installed, you must upgrade to release 1.1 using the upgrade script on the Sun StorEdge 6130 Host Installation Software CD.

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

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TABLE 1 lists version information for this release.

**TABLE 1** Host CD Contents

| Type | Version |
|---|---|
| Configuration Service application | 1.1 |
| CRM-F | 06.10.09.16 |
| Sun Storage Automated Diagnostic Environment Software | 2.4.15.004 |
| Sun StorEdge SAN Foundation Software | 4.4.3 |
| Web console software | 2.1 |
| Configuration Service Online Help | 1.1 |
| Localized versions - Configuration Service application and Configuration Service Online Help | 111904 |
| Localized versions - Sun Storage Automated Diagnostic Environment Software | 2.4 |

TABLE 2 lists firmware files for this release.

**TABLE 2** Array Firmware

| Type | Version |
|---|---|
| CRM-F | 06.10.09.16 |
| CRM-F-NVSRAM | N2882-610843-013 |
| IOM-F | 9627 |
| IOM-S | 9718 |
| DISK/ST314680FSUN146G | 0407 |
| DISK/ST373307FSUN72G | 0407 |
| DISK/ST373453FSUN72G | 0349 |
| 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 and acknowledge all existing 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.**

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

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## Downgrading Array Software and Firmware

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 to release 1.1.

In this release, the `downgrade` command does not apply to SATA components.

To downgrade the array software and firmware:

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 non-interactive 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 backup 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 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.

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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 the `SSD` driver for data hosts running the Solaris 8 and 9 Operating Systems.

## Solaris 8 OS

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

---

1. **Download the 108974-41 patch from SunSolve.**
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
   ```

## Solaris 9 OS

---

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

---

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

VERITAS Volume Manager 3.5 and 4.0 provide support for the Sun StorEdge 6130 array in the form of Array Support Library (ASL) software packages for Solaris OS 8 and 9 and IBM AIX 5.2. The ASL 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 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 only available from Veritas.

To download the ASL from the Sun Download Center:

1. **Log in as superuser on the Sun server to be connected to the array.**
2. **Go to the All Products listing:**

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

3. **Under the V heading, click VERITAS Volume Manager Array Support Library (ASL).**
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 not previously registered, register:**

   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 ASL from `http://support.veritas.com`:

1. **In the Step 1 - Select Product Family window, select Volume Manager.**
2. **In the Step 2 - Select Product window, select Volume Manager for UNIX.**

   The Volume Manager for UNIX appears.
3. **Select the Downloads tab.**
4. **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.
5. **Scroll to the File list and select the appropriate ASL for the Sun StorEdge 6130 array.**

   A page displays with the ASL installation instructions.
6. **Scroll down and select the Download Now button.**
7. **Follow the instructions to uncompress and install the ASL.**

# Known Issues and Bugs

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



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.

## *DHCP Server Configuration*

The following additional step is required for configuration of BOOTP services with the Solaris DHCP server utility according to the example in Appendix B of the *Sun StorEdge 6130 Array Getting Started Guide*:

On the Options tab of the Modify Service Options page, select the Automatic for BOOTP compatibility, as noted in FIGURE 1.

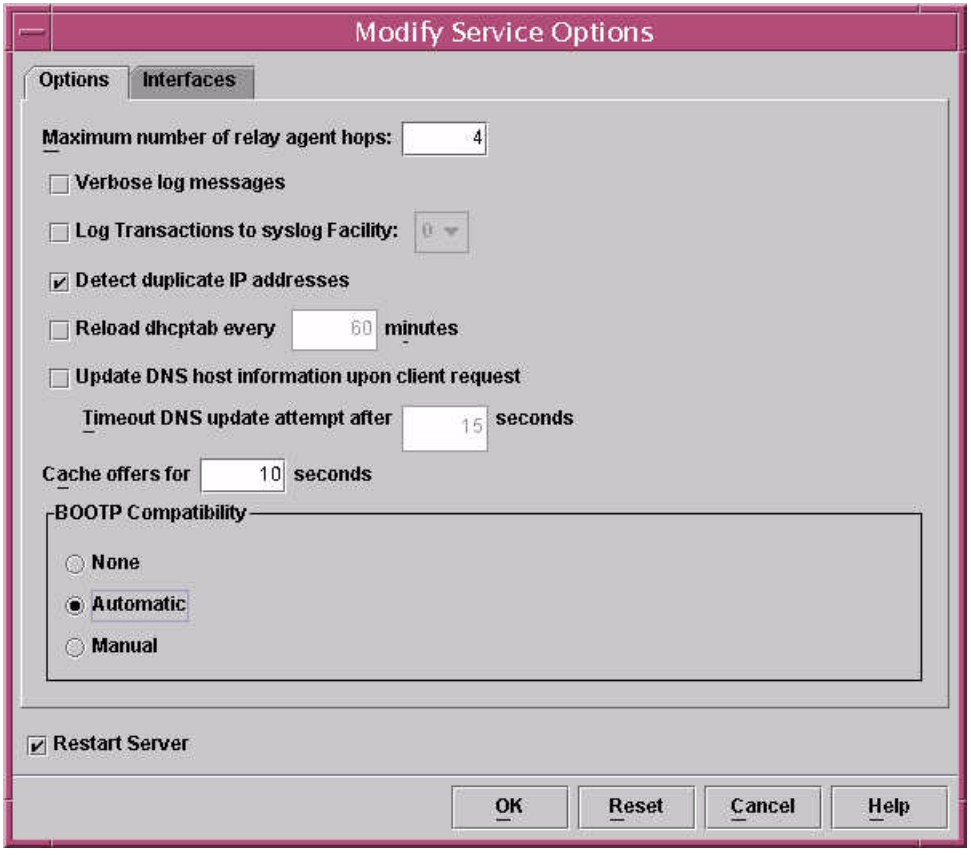


**FIGURE 1** Setting the BOOTP Compatibility Automatic Option

### *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 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.

### *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.

## *Firmware Upgrade or Downgrade Script Sometimes Returns an Error*

**Bugs 5102272, 5105909, 6183334, 6184159, 6196925, 6204602, 6197891** - When you run the array firmware `upgrade` or `downgrade` command, sometimes it initially returns an error.

**Workaround** - Rerun the command.

## *Replacing Failed Disk Drives From Another Array*

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

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 the removing the disk drives.

## *Initial `format` Command May 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 may 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.

## *Controller Module Battery Information*

During bootup you may notice the battery light flashing 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 seven days (168 hours) for a 256-megabyte cache. The 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.

## *Disk Drive Removal Alarms*

**Bug 5090092 -** Disk drive removal alarms are not cleared properly after the disk has been reinserted into the array.

**Workaround** - Disregard these alarms.

## *Maximum Temperature Threshold*

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

In the event of a high temperature warning message from the 6130 monitoring facilities, you should ensure air flow passages to the array are unobstructed and that ambient room temperature is not elevated. Should these issues not be immediately correctable, you should consider a manual shutdown of the array until the elevated room temperature issues are resolved.

You should ensure ambient room temperature monitoring and adequate cooling is in place at all times.

## *Small Form-Factor Pluggable (SFP) Removal Is Inconsistent With Other FRUs*

**Bug 5089234** - When you remove an SFP from an array, the SFP software management object is also removed from the management software. Ideally, the management object would still be present, indicating that the SFP has been removed. When an SFP is inserted into the controller, the management object associated with that SFP reappears and the appropriate FRU monitoring is restored for that SFP.

## *The Array Stops Reporting Input/Output 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.

### *Changing a Volume's RAID Level*

**Bug 5110402** - For you to change a volume's RAID level, the volume cannot be a member of a virtual disk or a storage pool containing other volumes.

### *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 turing amber, as expected.

## Configuration Service Issues

This section describes known issues and bugs related to the Sun StorEdge 6130 Configuration Service software.

### *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.

### *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 Configuration Service application while the Storage Automated Diagnostic Environment correctly reports volumes in degraded mode.

### *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.

## *Mounting a Target LUN Is Possible Before the Volume Copy Process Is Complete*

**Bug 5103785** - After a volume copy process has been started, the management software reports that the volume copy pair has been created and it is currently in a read-only environment. However, it is still possible to mount the target LUN to create new files and directories. This should not be possible until after the volume copy process has been completed.

**Workaround** - Wait until the volume copy process is complete before you mount the target LUN to create new files and directories.

### *Remove Copy Pair Button Is Still Enabled While a Volume Copy Is in Progress*

**Bug 5103424** - The Remove Copy Pair button is enabled while a volume copy is in progress. If you click on this button while the volume copy is in progress, it produces no results.

### *Error Message Is Not Sufficient to Explain Inability to Create a Volume*

**Bug 5108139** - When creating a new volume, you can choose the method by which you select a virtual disk. When you select "Create Volume on a New Virtual Disk" and then "Define the Virtual Disks," but the size of the virtual disks you select (including the overhead of the RAID) cannot satisfy the volume's capacity requirements, the software returns the error message `No volume candidates are available for volume creation` but does not provide further information.

**Workaround** - Select the "Automatic" or "Create Volume on an Existing Virtual Disk" method of virtual disk selection to create a volume successfully.

### *Volume and Snapshot Creation Wizards Do Not Check for the Maximum Number of Volumes on a Virtual Disk*

**Bug 5107055** - The maximum number of volumes or snapshots on a virtual disk is 256. The volume and snapshot creation wizards do not prevent you from trying to create a volume or a snapshot on a virtual disk that already has 256 volumes on it. The software returns the error message `No volume candidates are available for volume creation` but provides no further information.

### *Management Software Accepts a Second Defragmentation Request Even When One Is in Progress*

**Bug 5107060** - When a virtual disk defragmentation operation is in progress, a second defragmentation request returns a success message even though the firmware ignores the request.

### *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.

### *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 may 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.

## *Array Health Monitoring*

**Bugs 5106858, 5110029** - To monitor the health of the Sun StorEdge 6130 array, click Administration > General Setup. The Health field lists the health of the array. Possible values include:

**OK** - Indicates that every component of the storage array is in the desired working condition.

**Degraded** - Indicates that, although the management host can communicate with the storage array, a problem on the array requires intervention. For example, the array may have volumes that are not on the array's preferred I/O controller path. To correct this problem, click the Redistribute Volumes button. If the array status remains in the Degraded state, access the Sun Storage Automated Diagnostic Environment for further information on troubleshooting and correcting this problem.

Typically, multipath drivers move volumes from their preferred owner controller when a problem occurs along the data path between the host and the storage array. Redistributing the volumes causes the volumes to revert back to their preferred controllers.

Redistributing the volumes while an application is using the affected volumes causes I/O errors unless a multipath driver is installed on the data host. Therefore, before you redistribute volumes, verify either that the volumes are not in use or that there is a multipath driver installed on all hosts using the affected volumes.

**Error** - Indicates that the management host cannot communicate with the controllers in the storage array over its network management connection. Access the Sun Storage Automated Diagnostic Environment for information on troubleshooting and correcting this problem.

### *Licensable Feature Details - Snapshots Page Displays Incorrect Information*

**Bug 6174904** - The Snapshot Summary section of the Licensable Features Details - Snapshots page displays incorrect information, as follows:

- The Snapshot column should list the name of the snapshot volume. Instead, it incorrectly lists the name of the base volume of the snapshot.
- The Reserve column should list the name of the snapshot reserve volume. Instead, it lists the name of the snapshot volume.

### *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).

### *sscs modify snapshot Command Does Not Work as Expected*

**Bugs 6175521 and 6175587** - The `-f / --full-policy` and `-w / --warning-threshold` arguments do not work when used alone in the `sscs modify snapshot` command. In order to modify the full policy or warning threshold, you must use both options together.

For example, the following command will update both the full policy and warning threshold for the snapshot `db-snap` as expected:

```
sscs modify -f failsnapshot -w 80 snapshot db-snap
```

If either option is used without the other, neither the full policy nor the warning threshold will be updated.

### *Performing a Recopy While a Volume Copy Is in Progress Does Not Produce an Expected Error*

**Bug 5105535** - When a volume copy operation is in progress, any attempt to perform a recopy operation should result in an error. However, if you try to perform a recopy operation while the original volume copy is in progress, the CLI returns a prompt with no error message. If you attempt the recopy from the browser interface, the software displays the following message: `Success. The volume was successfully recopied`.

### *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 `cfgadm` command incorrectly displays a message that the target volume is still available and does not mark it as "unusable."

## Sun Storage Automated Diagnostic Environment Issues

This section describes known issues and bugs related to the 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://sunsolve.com -> Patch Finder 116720 and 117654

## *Updating With Patch 11765-12 Causes FRU Removal/Addition Events*

**Bug 6192999** - Applying patch 117650-12, which updates you to Storage Automated Diagnostic Environment 2.4.15.004 for Sun StorEdge 6130 array release 1.1, may cause the application to report FRU removal and addition events for most FRUs in a Sun StorEdge 6130 array. This results from a change in the decoding algorithm used to derive the serial number. This report will occur as soon as the device is monitored with the new software and will show up as a single alarm with a large number of aggregated FRU removal and addition events.

**Workaround** - Delete this alarm.

## *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 GUI 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.

## *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 may report this offline controller as “failed.” This is expected behavior. After you place the controller back online, the controller state will change to “optimal.”

## *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.

## *Topology Shows a Connection Between a Host and an Array After the FC Cable is Disconnected*

**Bug 6202140** - Even after you remove the FC cable that connects the data host to the Sun StorEdge 6130 array, the array topology still shows a connection between the data host and the array.

## *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-lsi1.Central.Sun.COM already there
OK
```

# Localization Issues

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

## *Adding a Unicode Username to the Acknowledge Form Produces an Empty Alarm List*

**Bug 6201699** - After a unicode user name has been added to the acknowledge form, all alerts are missing from the Sun Storage Automated Diagnostic Environment GUI.

**Workaround** - Add only ASCII characters into the form.

## *Translation error on "Reset Slave(s) to This Master"*

**6202600 zh_CN/zh_TW** - In both Simplified and Traditional Chinese locales, the phrase "Reset Slave(s) to This Master" is translated incorrectly as "Reset Slave(s) to be the Master". This phrase is displayed on the Administration > General Setup > Configuration Utilities page of the Sun Storage Automated Diagnostic Environment application.

## *Translation Error on "Contact Information"*

**202516 zh_CN -** In the Simplified Chinese locale, the phrase "Contact Information" is translated incorrectly as "Contract Information". This phrase is displayed on the Administration > General Setup > Site Information page of the Sun Storage Automated Diagnostic Environment application.

## *Translation Error on "Contract Number"*

**202513 zh_CN** - In the Simplified Chinese locale, the phrase "Contract Number" is translated incorrectly as "Contact Number". This phrase is displayed on the Administration > General Setup > Site Information page of the Sun Storage Automated Diagnostic Environment application.

## *Translation Error on "Internal Error"*

**6202507 zh_CN** - In the Simplified Chinese locale, the phrase "Some unexpected internal error occurs" its incorrectly translated as "Some unexpected external error occurs". This phrase is displayed under the Topology tab of the Sun Storage Automated Diagnostic Environment application.

## *The French Version of Tooltips Contains Garbled Characters in Internet Explorer*

**BugID 6199399** - Some of tooltips in the French version of the Sun Storage Automated Diagnostic Environment application are not displayed correctly in Internet Explorer.

**Workaround** -

1. Close the Help window.
2. Click View -> Encoding -> Unicode (UTF-8) or View -> Encoding -> More -> Unicode (UTF-8) to set the UTF-8 encoding manually (even if it has already been set automatically by the application).
3. Open the Help window again.

   The tooltips will be displayed correctly.

## *Two Types of Japanese Characters Cannot Be Used in the Search Function*

**Bug 6199754** - The search utility for the Japanese version of the online help of the Sun Storage Automated Diagnostic Environment supports KATAKANA only. KANJI and HIRAGANA cannot be used for search.

**Workaround:** Use the Index or Glossary to search for words.

## *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 may 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 will appear 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` manpage.

## *Correction to the Location of Alarm Symbol Descriptions*

The *Sun StorEdge 6130 Array Getting Started Guide* provides incorrect instructions for viewing a description of the alarm symbols. For a description of the alarm symbols, see the Storage Automated Diagnostics Environment online help. Click the Search tab and type controls and indicators.

## *Corrections to Sun StorEdge Expansion Cabinet Specifications*

The following table lists cabinet clearance and service access requirements and replaces Table 2-2 in the *Sun StorEdge 6130 Array Site Preparation Guide*.

TABLE 2-2. Clearance and Service Access

| Location | With Service Access | Without Service Access |
|---|---|---|
| Front | 48 in. | 24 in. |
| | 122 cm | 61 cm |
| Rear | 36 in. | 24 in. |
| | 92 cm | 61 cm |
| Left | 36 in. | 2 in. |
| | 92 cm | 5.1 cm |
| Right | 36 in | 0 |
| | 92 cm | 0 |

The following table lists operating and nonoperating temperature, relative humidity, and altitude ranges for the Sun StorEdge Expansion cabinet. This table replaces Table 2-4 in the *Sun StorEdge 6130 Array Site Preparation Guide*

TABLE 2-4. Cabinet Environmental Specifications

| Specification | Operating | Nonoperating |
|---|---|---|
| Temperature | 41˚ F to 95˚ F<br>(5˚ C to 35˚ C) | -40˚ F to -150.8˚ F<br>(-40˚C to -66˚ C) |
| Relative Humidity (RH) | 10% to 90% noncondensing | 93% noncondensing |
| Altitude | 9,840 feet<br>(3000 m) | 39,370 feet<br>(12,000 m) |
| Shock (from any axis X, Y, or Z) | 3.0 g for maximum duration of 11 ms, half-sine | 1.0-in. roll-off freefall, front-to-back rolling directions |
| Vibration (from any axis X, Y, or Z) | 0.15 g on z-axis; 0.10 g on x- and y-axes; 5 to 500 Hz sinusoidal | 0.5 g on z-axis; 0.25 g on x- and y-axes; 5 to 500 Hz sinusoidal |

## *Corrections to **Sun Fire** Cabinet Specifications*

The following table lists operating and nonoperating relative humidity, and altitude ranges for the Sun Fire cabinet. The table also provides the optimum operating condition in the recommended operating environment. Operating computer equipment for extended periods of time at or near the temperature or humidity extremes is known to significantly increase the failure rate of hardware components. This table replaces Table 2-9 in the *Sun StorEdge 6130 Array Site Preparation Guide*

TABLE 2-9. Cabinet Temperature, Humidity, and Altitude

| Specification | Optimal | Operating | Nonoperating |
|---|---|---|---|
| Temperature | 70°F to 73.5°F<br>(21°C to 23°C) | 41˚F to 95˚F<br>(5˚C to 35˚C) | -40˚F to 140˚F<br>(-20˚C to -60˚C) |
| Relative Humidity (RH) | 45% to 50% | 20% to 80% noncondensing | 5% to 95% noncondensing |
| Altitude | 0 to 9,840 feet<br>(0 to 3 km) | 0 to 9,840 feet<br>(0 to 3 km) | 0 to 39,370 feet<br>(0 to 12 km) |

### *Corrections to the Sun StorEdge 6130 Array Specifications*

The following table lists the nonoperating environmental conditions of the module. This table replaces Table 3-3 in the *Sun StorEdge 6130 Array Site Preparation Guide*

Table 3-3. Nonoperating Environmental Conditions

| Condition | Range |
|---|---|
| Temperature (Storage) | -10° C to 50° C (-14° F to 120° F) |
| Temperature (Transit) | -40° C to 60° C (-40° F to 140° F) |
| Humidity (Storage) | 10% to 90%, maximum dew point is 26° C (79° F), 10% per hour gradient |
| Humidity (Transit) | 5% to 95%, maximum dew point is 26° C (79° F), 10% per hour gradient |
| Altitude | 100 feet (30.5 meters) below sea level to 40,000 feet (12,000 meters) |
| Shock | 30 G, 11 msec half sinewave in the side/side and up/down directions<br>5 G, 11 msec half sinewave in the front/back direction |

## *Broken Software Download URL*

The following URL for downloading software listed in the Sun StorEdge 6130 Getting Started Guide and the Sun StorEdge 6130 online help has changed:

`http://wwws.sun.com/software/download/sys_admin.html`

Use the following URL instead:

```
http://wwws.sun.com/software/download/index.jsp?cat=
Systems%20Administration&tab=3
```

## *sscs list snapshot Command*

**Bug 6175052** - The `sscs list snapshot` command in the manpage incorrectly provides Response Format detailed output when the specified volume is a reserve volume. The detailed output provides information about the snapshot's reserve volume. However, you cannot explicitly specify a particular reserve volume for which you want to view snapshot information.

Also, the Response Format output incorrectly cites Primary Volume output for the specified snapshot. This should be Base Volume output.

## *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.

## *Default Cache Block Size*

The following parameter has changed since publication of the *Sun StorEdge 6130 Array Getting Started Guide.* The default cache block size of the profiles was listed as 256 kilobytes. The actual default cache block size of the profiles is 16 kilobytes.

## *Setting the Time*

**Bug 6189040** - The following procedure has changed since publication of the *Sun StorEdge 6130 Array Getting Started Guide.* If the array does not use your network's network time protocol server, you must set the array's clock manually.

To set the time manually:

1. Click Sun StorEdge 6130 Configuration Service.

   The Array Summary page is displayed.

2. Click the array for which you want to set the time.

   The Volume Summary page for that array is displayed.

3. Click Administration > General Setup.

   The General Setup page is displayed.

4. Go to the System Time section.

5. Set the hour and minute, using a 24-hour clock.

6. Set the month, day, and year.

7. Click OK to apply your changes.

# Related 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`

| Application | Title | Part Number |
|---|---|---|
| Site planning information | *Sun StorEdge 6130 Array Site Preparation Guide* | 819-0033-*nn* |
| Regulatory and safety information | *Sun StorEdge 6130 Array Regulatory and Safety Compliance Manual* | 819-0035-*nn* |
| Installation and initial configuration instructions | *Sun StorEdge 6130 Array Getting Started Guide* | 819-0032-*nn* |
| Instructions for installing the Sun StorEdge Expansion cabinet | *Sun StorEdge Expansion Cabinet Installation and Service Manual* | 805-3067-*nn* |
| Instructions for installing the Sun Rack 900/1000 cabinets | *Sun Rack Installation Guide* | 816-6386-*nn* |
| Instructions for installing the Sun Fire cabinet | *Sun Fire Cabinet Installation and Reference Manual* | 806-2942-*nn* |

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

- Sun StorEdge 6130 Configuration Service online help

  System overview and configuration information is covered in the online help included with the Sun StorEdge 6130 Configuration Service software

- Sun Storage Automated Diagnostic Environment online help

  System maintenance, management, and basic troubleshooting is covered in the online help included with the Sun Storage Automated Diagnostic Environment software.

- 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.

# Accessing Sun Documentation

You can obtain Sun network storage documentation at:

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

You can also view, print, or purchase a broad selection of other Sun documentation, including localized versions, at:

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

# Service Contact Information

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

```
http://www.sun.com/service/contacting
```

# Installing Array Modules in a Telco Rack

This section describes how to install the Sun StorEdge 6130 array in a Telco rack using Sun Telco rackmount kits. It contains the following procedures:



In addition to the information in these release notes, you will need the *Sun StorEdge 6130 Getting Started Guide* for cabling, power, and other installation instructions.

These installation procedures require the following items:

- #2 Phillips screwdriver
- #3 Phillips screwdriver
- Antistatic protection

**Caution –** Electrostatic discharge can damage sensitive components. Touching the array or its components without using a proper ground might damage the equipment. To avoid damage, use proper antistatic protection before handling any components.

# Preparing for the Installation

Use the following procedures to prepare for installation:



## Preparing the Rackmount Kit

Unpack the rackmount kit and check the contents. Kits contain the following items.

Telco 2-post 3RU Rail Kit:

- Left rail (P/N 341-0532-01)
- Right rail (P/N 341-0533-01)
- Mounting hardware as listed below:

| Quantity | Type |
|---|---|
| 2 | 8-32 (small) panhead screw |
| 4 | 10-32 (medium) panhead screw |
| 12 | 12-24 (large) panhead screw |

Telco 4-post 3RU Rail Kit:

- Left rail (P/N 341-0530-01)
- Right rail (P/N 341-0531-01)
- Mounting hardware as listed below:

| Quantity | Type |
|---|---|
| 2 | 8-32 (small) panhead screw |
| 4 | 10-32 (medium) panhead screw |
| 8 | 12-24 (large) panhead screw |

**Note –** The kits may have extra screws.

# Preparing the Array Module

Unpack the array module and check the kit contents as described on page 13 of the *Sun StorEdge 6130 Array Getting Started Guide*.

# Planning the Order of the Module Installation

Install the modules starting with the first controller module at the bottom of the cabinet. Starting at the bottom distributes the weight correctly in the rack. Next install the expansion modules for the first controller module. If room remains in the rack, repeat for the next controller and expansion modules.

# Preparing the Telco Rack

Select the rack in which you will be installing the array module. The Sun StorEdge Telco mounting rails are designed to fit two types of racks:

- Telco 2-post 3-inch width "C" channel frame
- Telco 4-post 3-inch width "C" channel frame

Install the rack as described in the installation instructions provided by the manufacturer.

---

**Note –** Sun Microsystems makes no warranties or guaranties as to fit, form, or function of the Sun StorEdge 6130 array installed in third-party racks or cabinets. It is the customer's responsibility to ensure that the rack or cabinet can house the Sun StorEdge 6130 array in all conditions that may exist. All racks and cabinets must comply with local building and construction codes.

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# Installing Array Modules in a Telco 2-Post Rack

Use the following procedures to install array modules in a Telco 2-post rack:



## Installing the Mounting Rails

This procedure describes how to attach the rackmount rail kit to a Telco 2-post 3-inch width "C" channel frame.

You will mount each module with its horizontal center aligned with the frame of the Telco 2-post rack.

1. **Insert four 12-24 screws (two in each post) in the front and back mounting holes of the left and right posts (**FIGURE 2**). Do not tighten at this time.**

   Use the lowest available mounting holes at the bottom of each post. Make sure that all four screws are aligned and mounted at the same height.

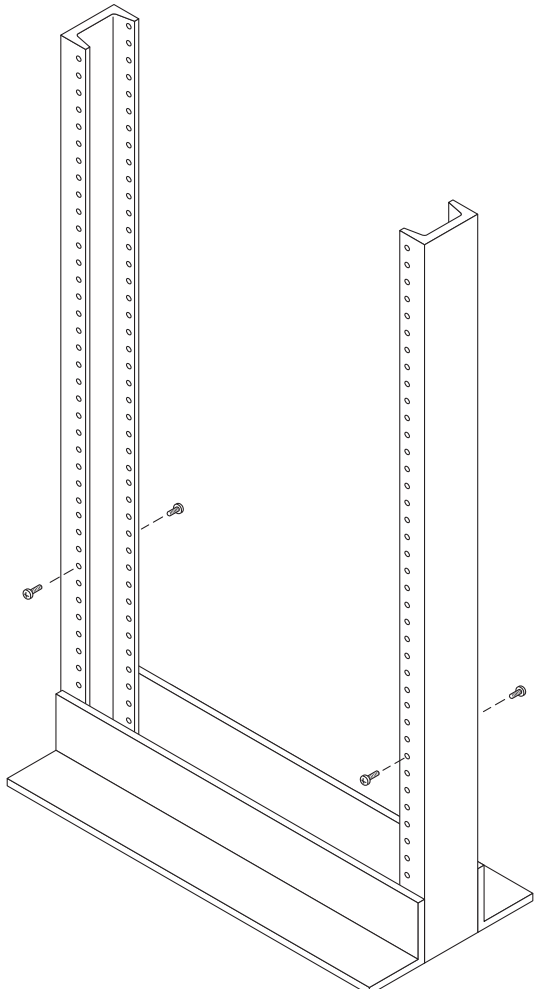

**FIGURE 2** Inserting Screws in the Front and Back Mounting Holes of the Telco 2-Post Rack

2. **Align the open slot of the left mounting rail over the front and back screws of the left post, and press the rail down until it is seated over the screws (FIGURE 3). Repeat for the right rail.**

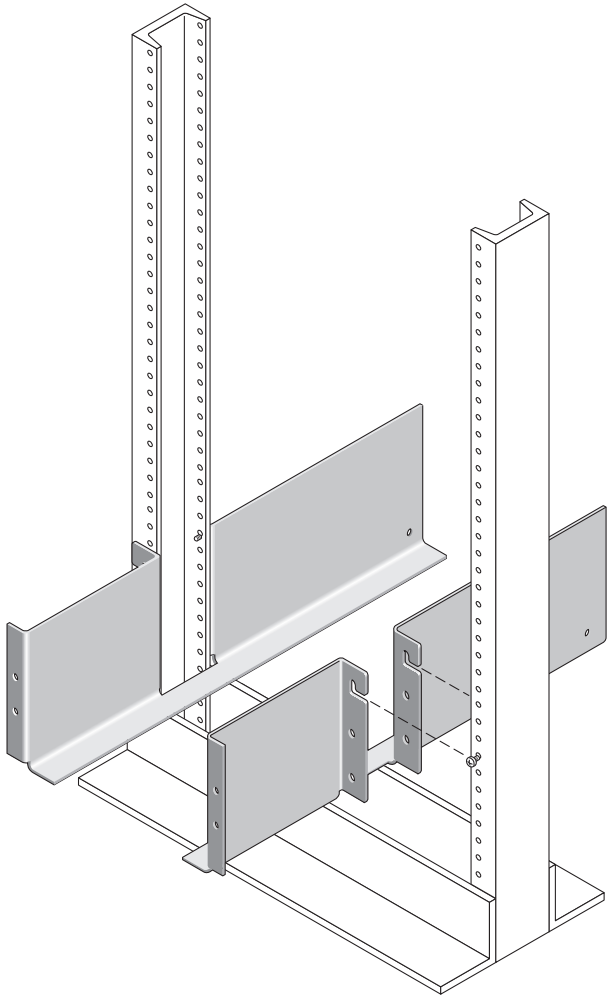

**FIGURE 3** Seating the Mounting Rails Over the Front and Back Screws of the Telco 2-Post Rack

3. **Insert eight 12-24 screws (four in each post) in the lower mounting holes at the front and back of the left and right rails (FIGURE 4).**

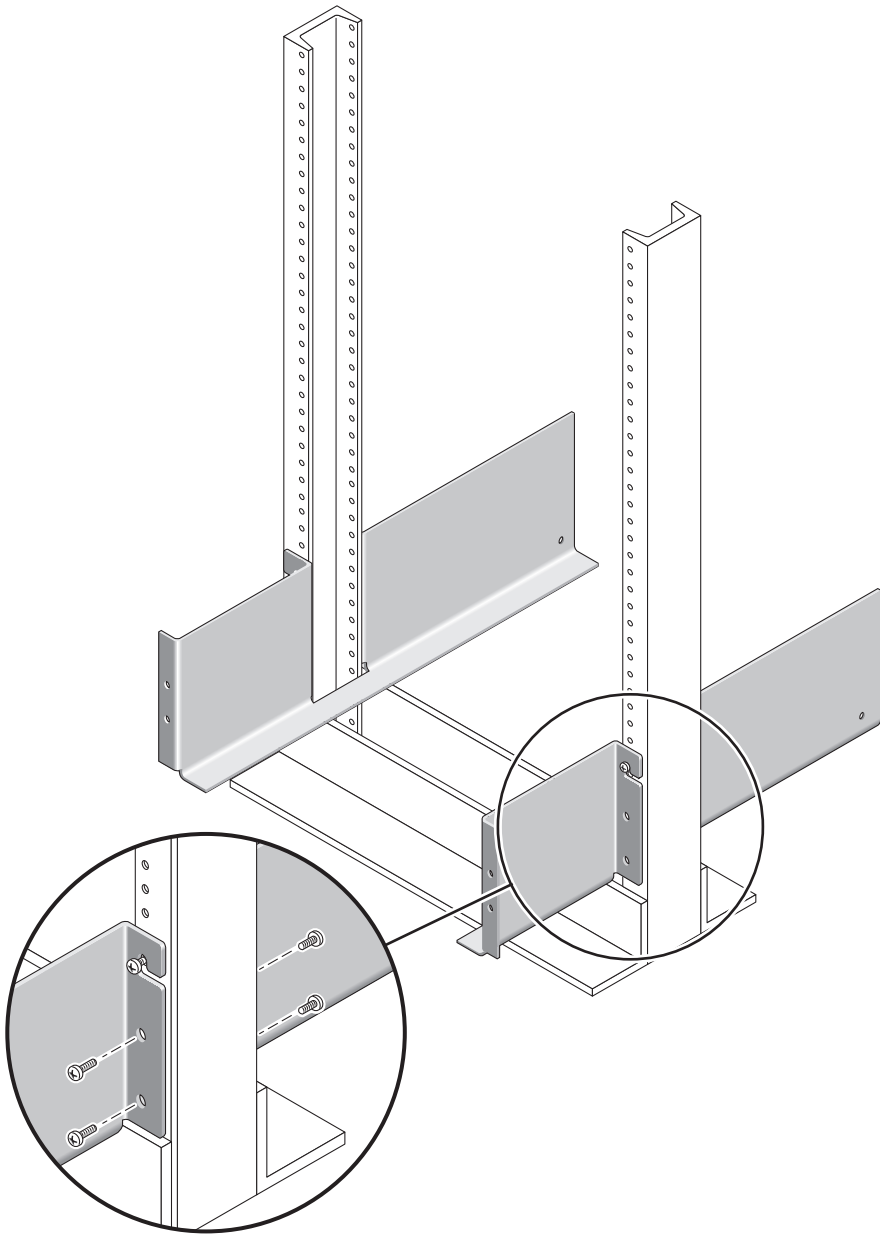

**FIGURE 4** Inserting Screws in the Lower Mounting Holes of the Telco 2-Post Rack

4. **Using the #3 Phillips screwdriver, tighten all twelve screws (six on each side) at the front and back of both mounting rails to secure each rail to its post (FIGURE 5).**

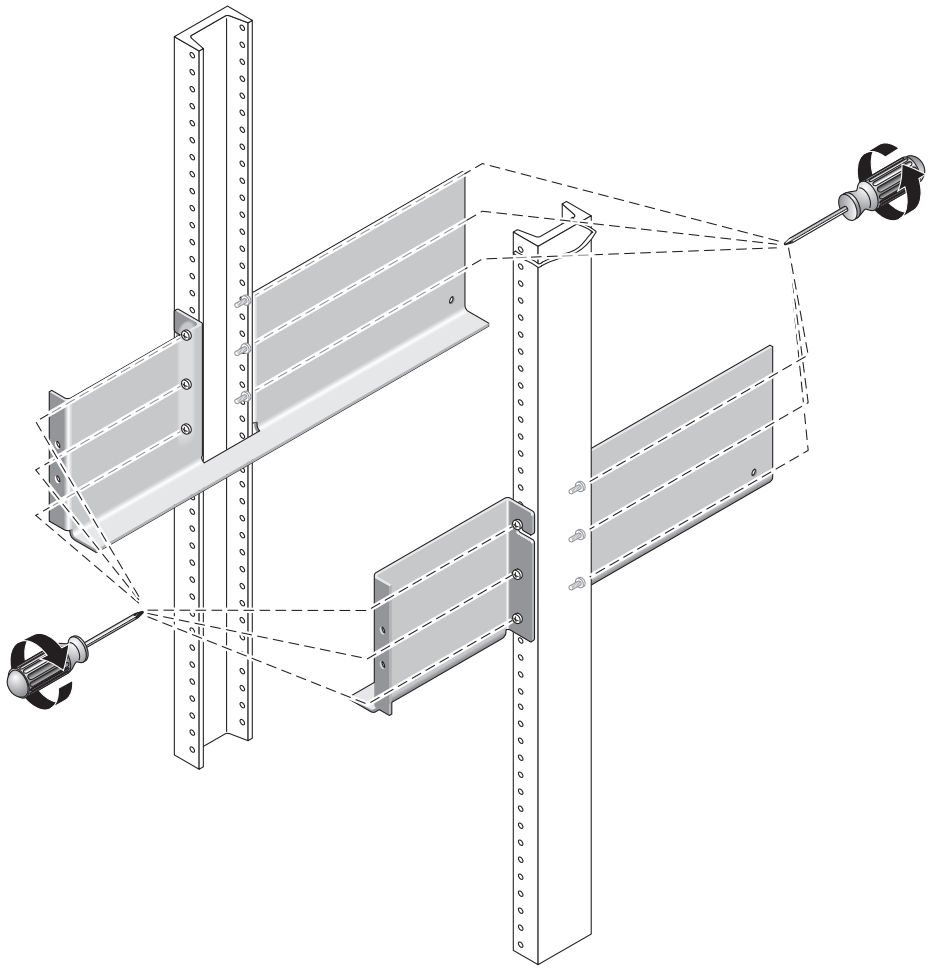

**FIGURE 5** Tightening the Screws of the Left and Right Rails

# Installing an Array Module

Install the controller module in the first empty slot at the bottom of the cabinet. If you are installing expansion modules, continue installing the modules from the bottom up.

After installing each module, you must connect its power cables and set its tray ID as described in Chapter 3 of the *Sun StorEdge 6130 Array Getting Started Guide*.

1. **Unsnap and remove the left and right end caps on the array module to permit access to the screw mounting holes (**FIGURE 6**).**

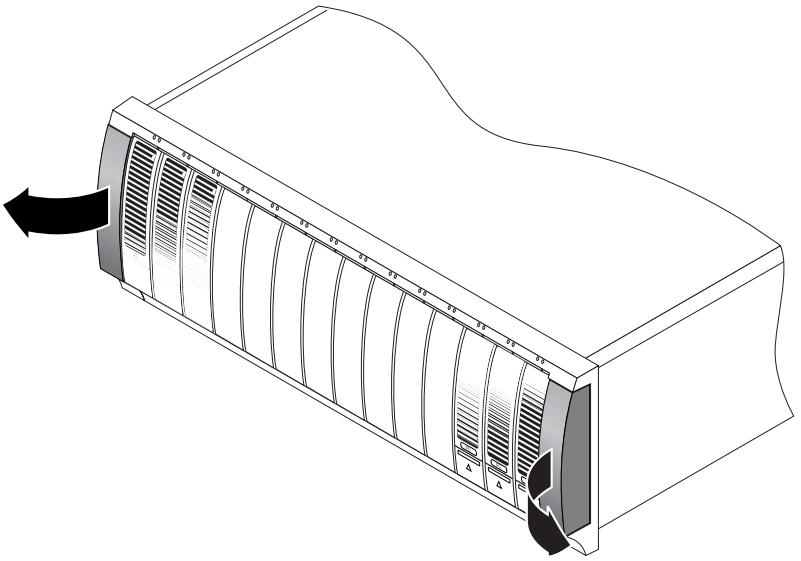

**FIGURE 6** Removing the End Caps on the Array Module

2. **Using two people, one at each side of the array module, carefully lift and rest the module on the bottom ledge of the left and right rails (FIGURE 7).**

**Caution –** Use care to avoid injury. An array module can weigh up to 95 pounds (45 kg).

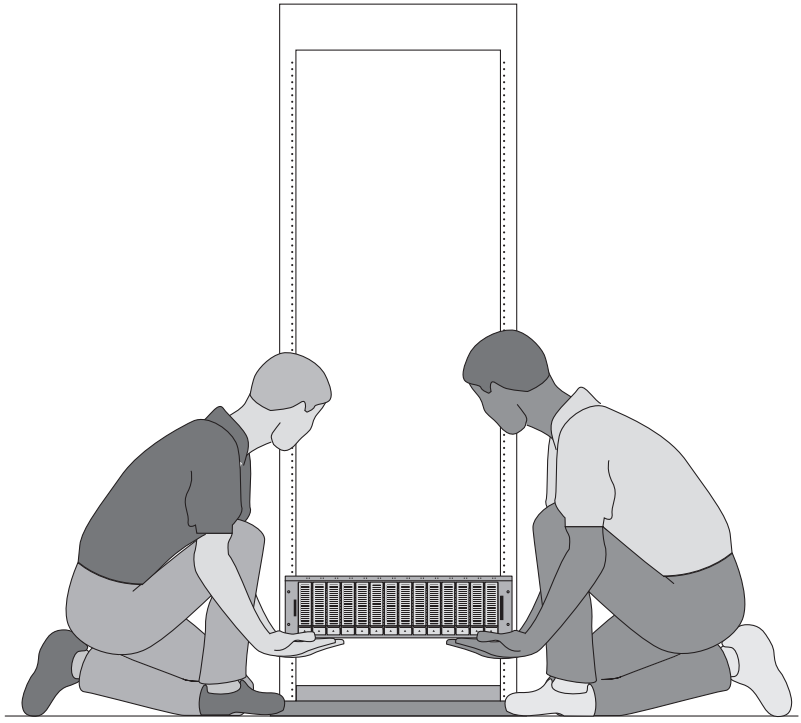

**FIGURE 7** Positioning the Array Module in the Telco 2-Post Rack

3. **Carefully slide the array module onto the mounting rails until the front bezel of the module contacts the rail flange on each side (**FIGURE 8**).**

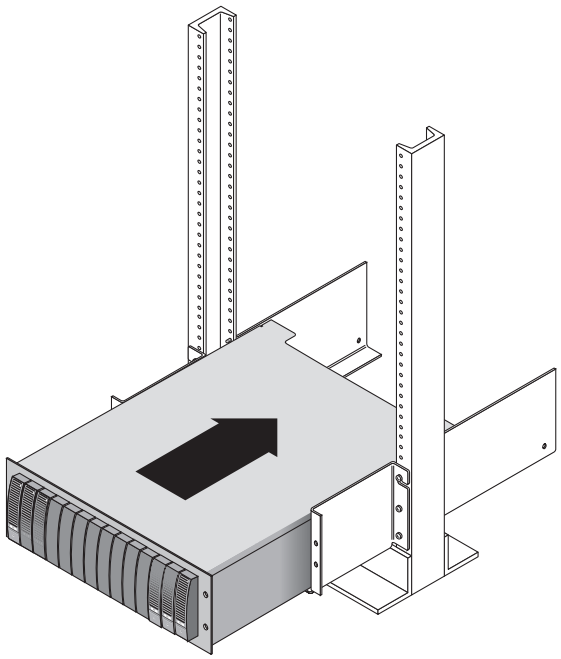

**FIGURE 8** Sliding the Array Module Into the Telco 2-Post Rack

4. **Use the #2 Phillips screwdriver to insert and tighten four 10-32 screws (two per side) to secure the module to the front of the rack (FIGURE 9).**

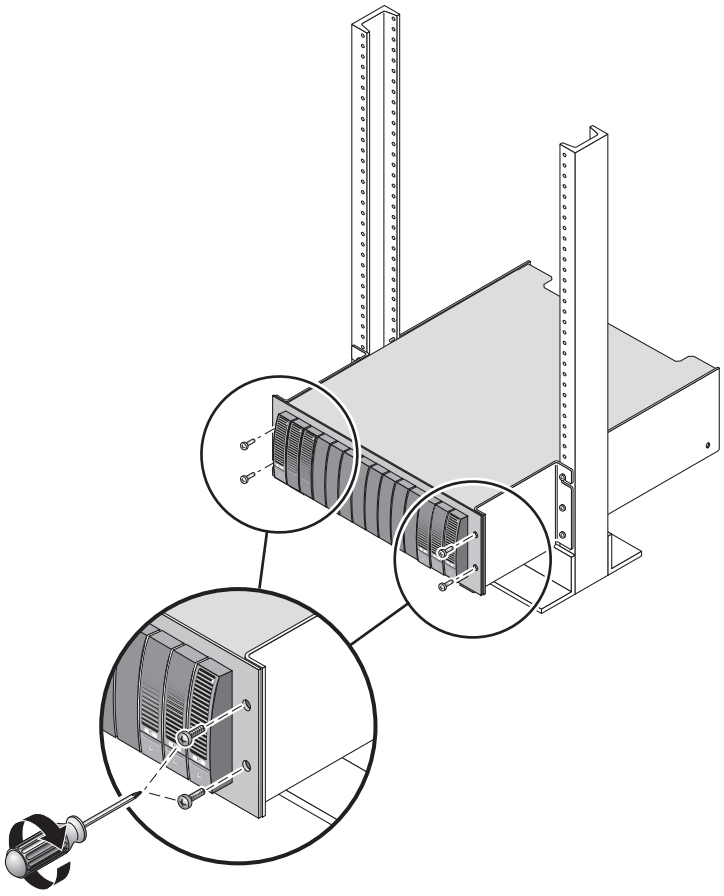

**FIGURE 9** Securing the Module to the Front of the Telco 2-Post Rack

5. **Replace the left and right end caps to hide the front mounting screws.**

   The end caps snap onto the front bezel of the array module.

6. **At the back of the array module, install and tighten two 8-32 screws (one per side) through the rear mounting points (**FIGURE 10**).**

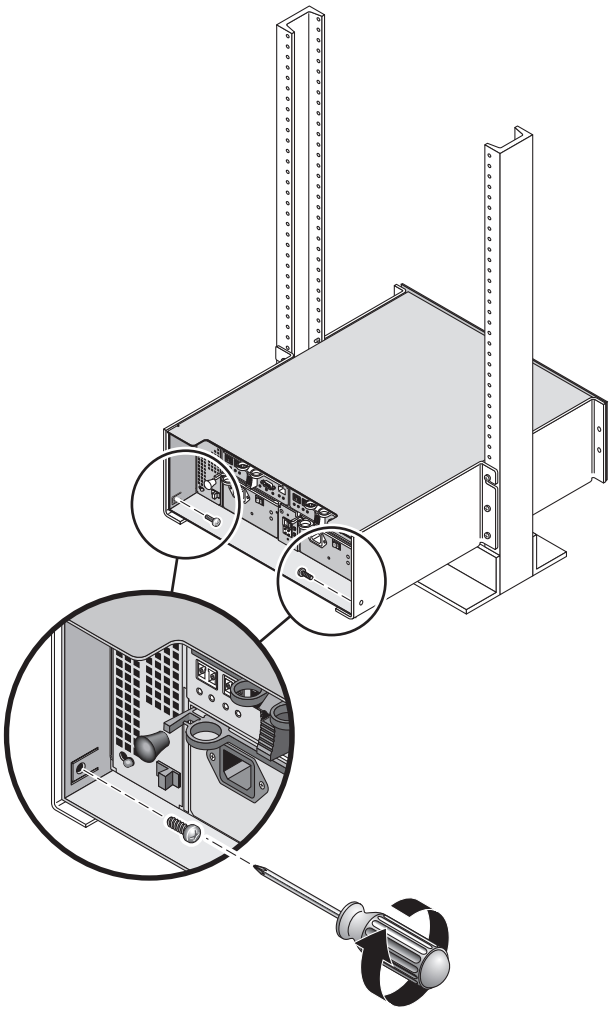

**FIGURE 10** Securing the Array Module to the Back of the Telco 2-Post Rack

# Installing Array Modules in a Telco 4-Post Rack

This procedure describes how to attach the rackmount rail kit to a Telco 4-post 3-inch "C" rack. You can adjust the mounting rails to allow for a 12-inch to 14-inch space between the front and rear posts.

1. **Insert eight 12-32 screws (two in each post) in the back mounting holes of the left and right posts (**FIGURE 11**). Do not tighten at this time.**

   Use the lowest available mounting holes at the bottom of each post. The screws in the back posts will be slightly lower than the screws in the front posts.

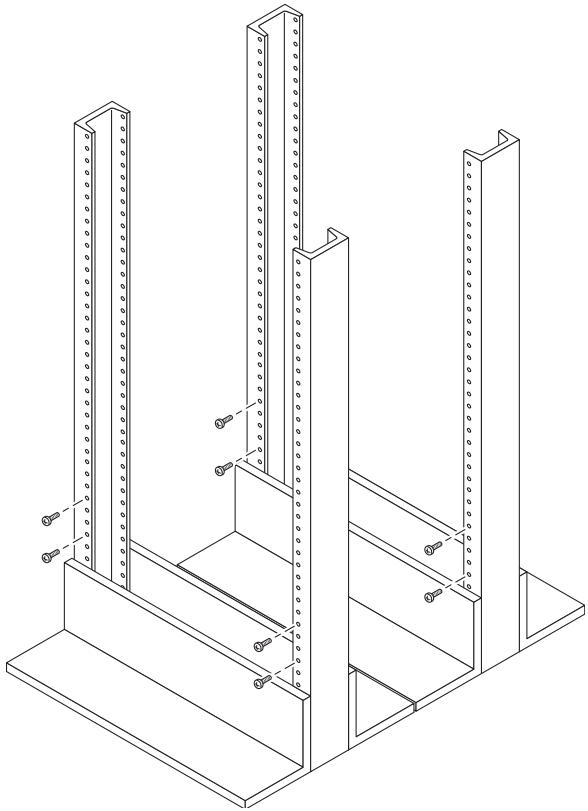

**FIGURE 11** Inserting Screws in the Front and Back Mounting Holes of the Telco 4-Post Rack

2. **Loosen, but do not remove, the two hand knobs on the adjustable bracket at the rear of the left rail. Adjust the rear bracket of the left mounting rail to fit against the rear post, and then tighten the two knobs (FIGURE 12). Repeat for the right rail.**

3. **Align the open slot of the left mounting rail over the front and back screws of the left post, and press the rail down until it is seated over the screws (FIGURE 12). Repeat for the right rail.**

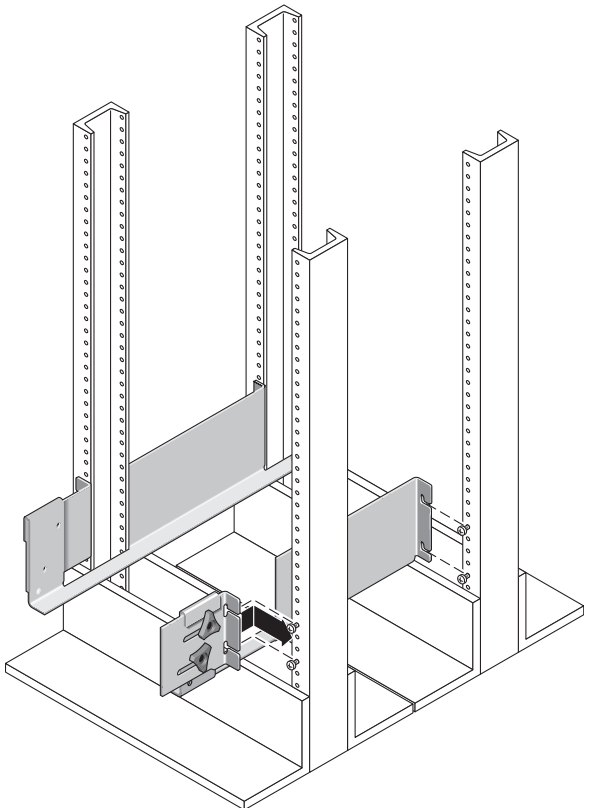

**FIGURE 12** Installing the Mounting Rail onto the Front and Back Posts of the Telco 4-Post Rack

4. **Tighten the eight screws (four per side) at the front and back of both mounting rails to secure each rail to its post (**FIGURE 13**).**

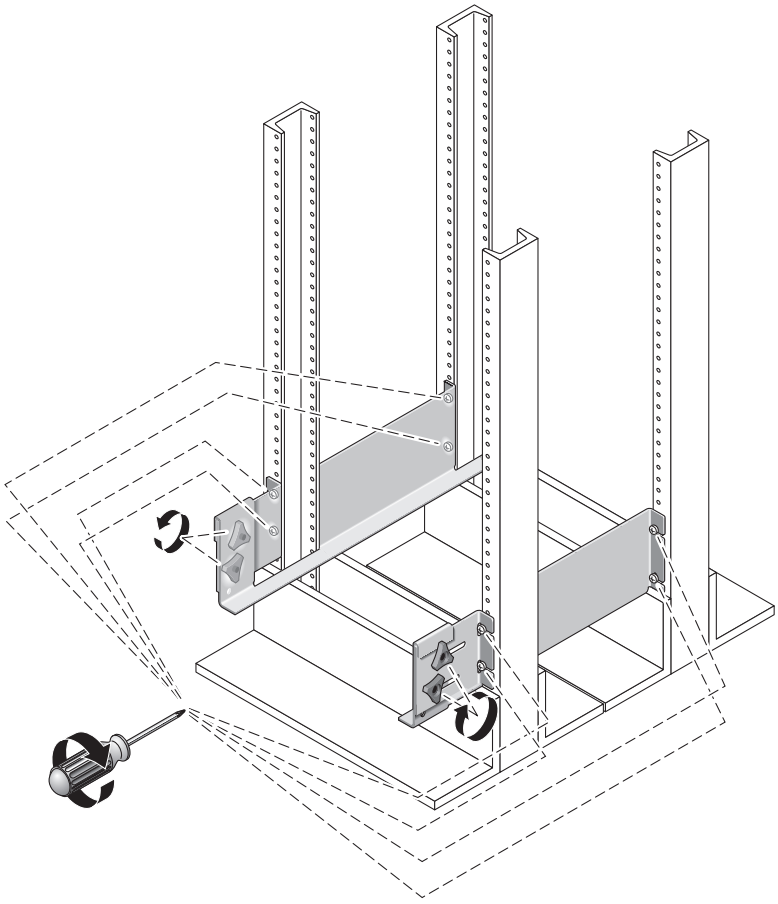

**FIGURE 13** Tightening the Screws on the Left and Right Rails of the Telco 4-Post Rack

# Installing an Array Module

Install the controller module in the first empty slot at the bottom of the cabinet. If you are installing expansion modules, continue installing the modules from the bottom up.

After installing each module, you must connect its power cables and set its tray ID.

1. **Unsnap and remove the left and right end caps on the array module to permit access to the screw mounting holes (**FIGURE 14**).**

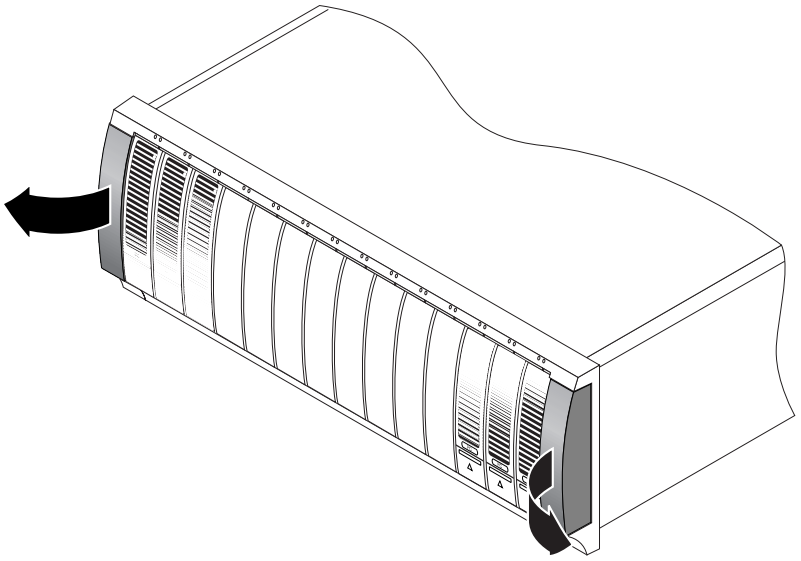

**FIGURE 14** Removing the End Caps on the Array Module

2. **Using two people, one at each side of the array module, carefully lift and rest the module on the bottom ledge of the left and right rails (**FIGURE 15**).**

**Caution –** Use care to avoid injury. An array module can weigh up to 95 pounds (45 kg).

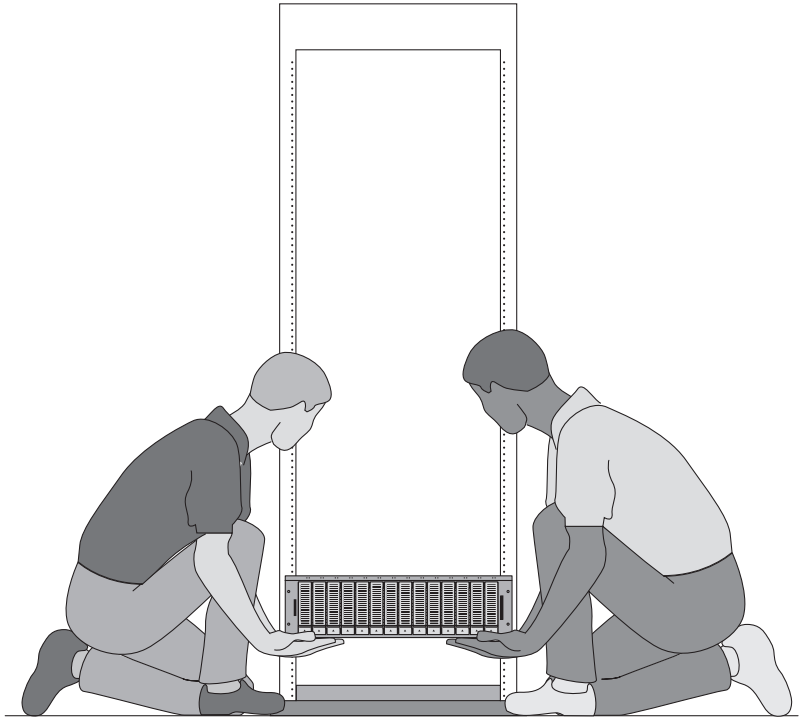

**FIGURE 15** Positioning the Array Module in the Telco 4-Post Rack

3. **Carefully slide the array module onto the mounting rails until the front bezel of the module contacts the rail flange on each side (**FIGURE 16**).**

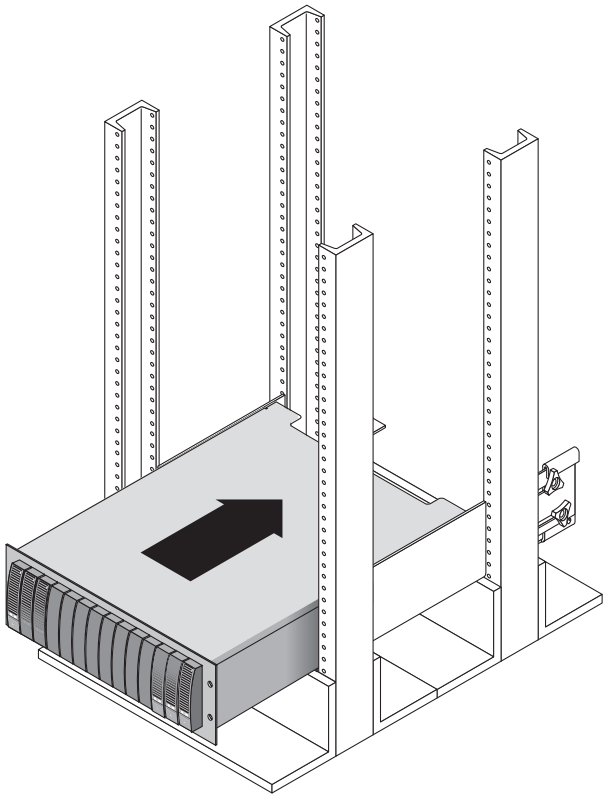

**FIGURE 16** Sliding the Array Module Into the Telco 4-Post Rack

4. **Use the #2 Phillips screwdriver to insert and tighten four 10-32 screws (two per side) to secure the module to the front of the rack (FIGURE 17).**

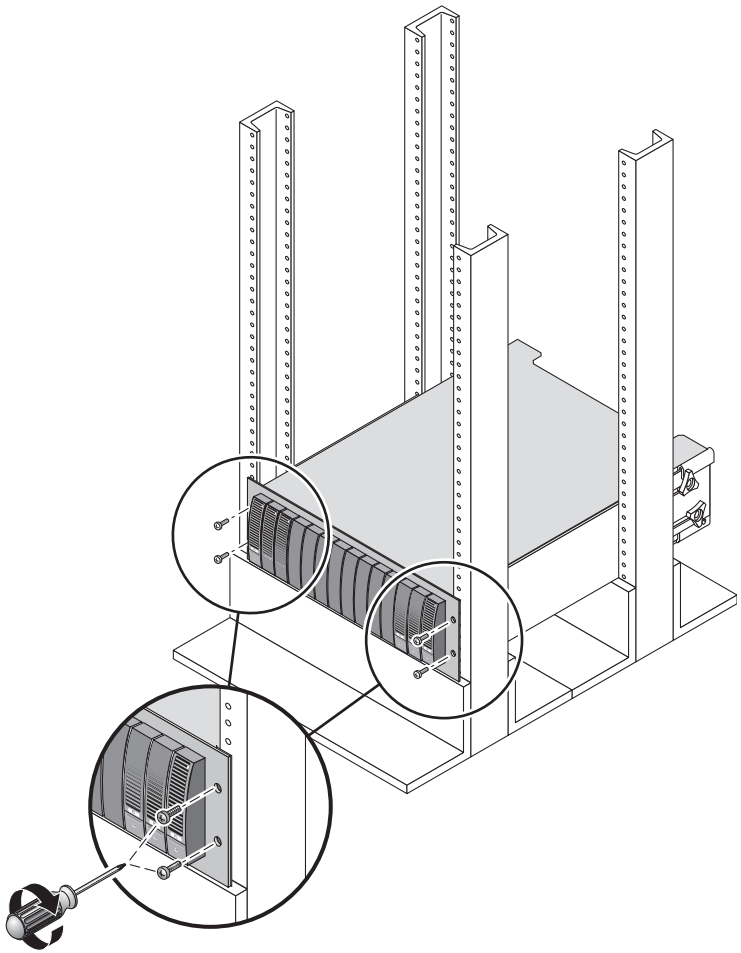

**FIGURE 17** Securing the Array Module to the Front of the Telco 4-Post Rack

5. **Replace the left and right end caps to hide the front mounting screws.**
   The end caps snap onto the front bezel of the array module.

6. **At the back of the array module, use the #2 Phillips screwdriver to install and tighten two 8-32 screws (one per side) through the rear mounting points (FIGURE 18).**

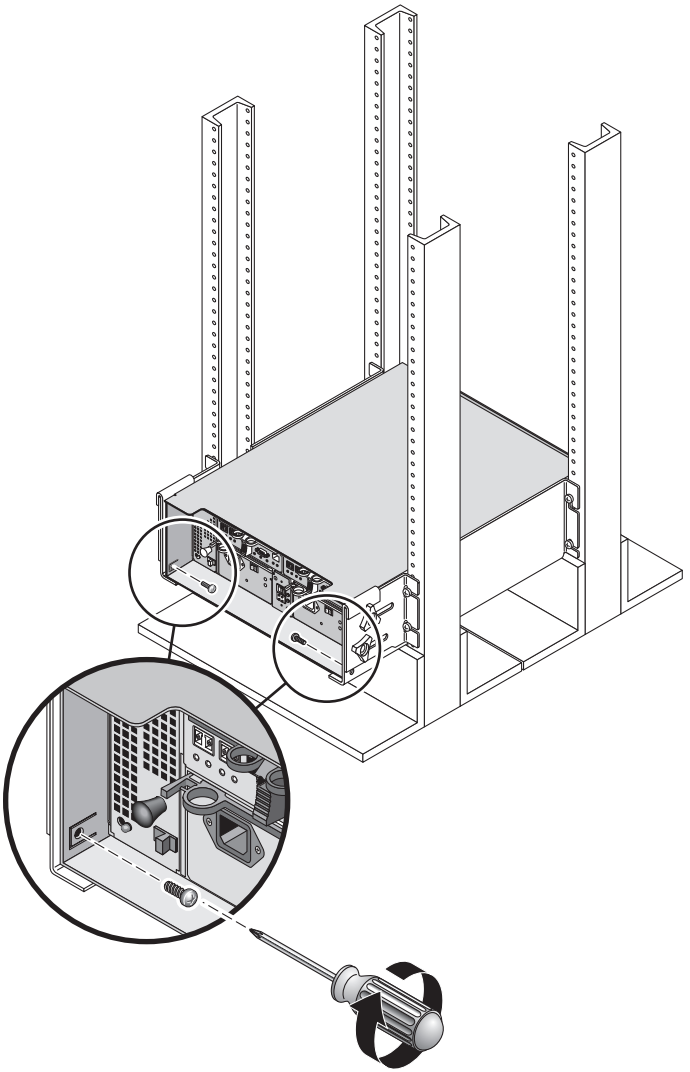

**FIGURE 18** Securing the Array Module to the Back of the Telco 4-Post Rack

# Next Steps

After you have installed all of the modules in the rack, you are ready to:

- Connect the module interconnecting cables (see Chapter 2 of the *Sun StorEdge 6130 Array Getting Started Guide*)
- Connect the power cables (see Chapter 3 of the *Sun StorEdge 6130 Array Getting Started Guide*)
- Set the tray ID of each module (see Chapter 3 of the *Sun StorEdge 6130 Array Getting Started Guide*)