



# Sun StorEdge™ 6320 System 1.1 Release Notes

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Release 1.1.1

Version 3.0.6 Firmware and Sun StorEdge  
Configuration Service Software Version 2.1.1

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Adobe PostScript

# Sun StorEdge 6320 System 1.1 Release Notes

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The Sun StorEdge™ 6320 systems are complete, preconfigured storage solutions.

These Release Notes apply to Release 1.1.1 and Release 1.1 for the Sun StorEdge 6320 System 1.1 release. The Release 1.1.1 patch corrects problems with the localized online help in Release 1.1.

The Release Notes consists of the following sections:

- “Release 1.1.1 Changes” on page 2
- “Release 1.1 Features” on page 3
- “Product Changes” on page 4
- “System Requirements” on page 5
- “Required Software Packages and Patches” on page 5
- “Known Issues and Bugs” on page 11
- “Release Documentation” on page 33
- “Additional Documentation” on page 19
- “Documentation Of Release Features” on page 36
- “Service Contact Information” on page 40

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# Release 1.1.1 Changes

The following information applies to Release 1.1.1.

## 1. Localized Help

This release adds a patch to install the localized help from Sun StorEdge Configuration Service Software Version 2.1.0 release. It corrects most of the incorrect links found in the localized help for Release 1.11. The new features in this release are documented only in the English version of online help. The localized help does not contain information about the new features. The English text of the online help for new features is included in “Documentation Of Release Features” on page 36.

## 2. Profile Tab

The patch corrects a tab label that links to the Profiles function in the user interface of Sun StorEdge Configuration Service.

## 3. User Interface

The user interface for Sun StorEdge Configuration Service has not been localized for this release.

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# Release 1.1 Features

Following are the new features in this release:

- “Storage Profiles” on page 3
- “Access Matrix” on page 3
- “Administrative Information” on page 3
- “Initialize Pool Functionality” on page 3
- “Volume Group Parameters” on page 4

## Storage Profiles

Configuration Service adds the following functionality to the storage profiles:

- Ten new profile templates.
- Additional profile details such as RAID settings, read-ahead, and segment size.
- Specific array types to use in the profile.
- All profiles that match the array appear in the Change Profile wizard.

## Access Matrix

Configuration Service adds an Array Access Management page that lists the read and write permissions for each initiator, initiator group, volume, and volume group.

## Administrative Information

Configuration Service adds additional administrative information, including the system’s model and vendor.

## Initialize Pool Functionality

The Configuration Service software and the CLI command **modify pool** can now initialize Configuration Service software and the CLI command **modify pool** can now initialize an offline pool.

# Volume Group Parameters

Configuration Service's online help and the man pages have been updated to show that a volume can only be a member of one volume group.

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## Product Changes

The following changes have been made to this product but are not yet updated in the product documentation:

- “Array Configuration Changes” on page 20
- “Thin-Scripting Client” on page 23
- “Adding Host Ports to the 6320 System” on page 24
- “Storage Service Processor USB Flash Disk” on page 31

The documentation for these changes is included in “Additional Documentation” on page 19.

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# System Requirements

For information about the Sun StorEdge 6320 hardware and software platform requirements, and other supported software, refer to the Sun StorEdge 6320 Series 1.0 Installation Guide.

For information on the required software packages and patches for management and data host software, refer to the next section.

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## Required Software Packages and Patches

This section documents the software packages and patches for management and data host software that are required for this release.

The tasks *must* be completed in the following order:

- 1. Install software packages, if needed.**
- 2. Install data host patches, if needed.**
- 3. Install management software patches.**

## Management Software Packages

The 6320 system is shipped with the Sun StorEdge 6000 Family Host software installed on the Service Processor. You can use one of the following software packages to manage the 6320:

- Sun StorEdge 6000 Family Host Installation Software

This package includes the Configuration Service software, Storage Automated Diagnostics Environment (StorADE) software and the Remote Configuration CLI (SSCS). You can install the Remote Configuration CLI (SSCS) on a remote host. The software is available by download from <http://www.sun.com/download> or from the product CD.

Refer to the *Sun StorEdge 6000 Family Host Installation Software Guide* (817-1739-10) for additional information.

- VERITAS Array Support Library

This is required if you have VERITAS Volume Manager support with the array.

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**Note** – You must install any management software packages the host needs *before* you install the patches.

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## ▼ To Install the Management Software Package

1. **To install management software like the Remote Configuration CLI (sscs) on a host:**

<http://www.sun.com/download>

2. **In the Browse By Category window, click the Search tab.**
3. **In the Search window, enter 6000.**
4. **Click the Sun StorEdge 6000 Family Host software link.**
5. **Follow the instructions on the site to download the software package.**
6. **Run the installation procedure described in the *Sun StorEdge 6000 Family Host Installation Software Guide*.**

## Data Host Software Patches

TABLE 1 lists the minimum level of the software patches required on the data host.

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

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TABLE 1 Data Host Software Patches

Platform	Patch Number	Patch Description
Solaris 9 operating system, first release or later and Solaris 8 operating system, Update 4 or later	Refer to web site	Sun StorEdge SAN Foundation 4.2 software: Refer to the <i>Sun StorEdge SAN Foundation 4.2 Installation Guide</i> at <a href="http://www.sun.com/storage/san">http://www.sun.com/storage/san</a> for patch and product information.
	112392-04 or later	VERITAS VxVM 3.5 general patch*
	113698-02	VERITAS VxVM 3.5 supplemental general patch <sup>1</sup> <ul style="list-style-type: none"> <li>• VERITAS VxVM patches must be installed in the order listed.</li> <li>• If you install a later version of patch of 112392, such as the -05 revision, the supplemental patch (113698-02) is not required.</li> </ul>
Microsoft Windows NT operating systems	Available from Microsoft	Microsoft Windows NT Service Pack, SP 6A  Sun StorEdge Traffic Manager 3.0 NT
Microsoft Windows 2000 Server and Advanced Server	Available from Microsoft	Microsoft Windows 2000 Service Pack, SP 3  Sun StorEdge Traffic Manager 3.0 Windows 2000
IBM AIX 4.3.3	Available from IBM	ML 10  Sun StorEdge Traffic Manager 3.0 AIX
IBM AIX 5.1 32 and 64 bit	Available from IBM	ML 03  Sun StorEdge Traffic Manager 3.0 AIX
HP-UX 11.00 and 11.i	Available from Hewlett-Packard	Patch set, September 2002  Sun StorEdge Traffic Manager 3.0 HP-UX
Red Hat Linux 7.2 (single-path support only)	Available from Red Hat Linux	Version 2.4.7-10

\* Required only for systems running VERITAS Volume Manager with the array.

## ▼ To Install the Data Host Software Patches

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**Note** – Due to a problem that disables a 6320 when attempting to use PatchPro to retrieve upgrades, you must first reboot the Service Processor before downloading the patches.

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1. **Determine the required data host software patches listed in** TABLE 1.
  2. **Reboot the Service Processor.**
  3. **Go to** <http://www.sunsolve.sun.com>.
  4. **Navigate to PatchPro** → Network Storage Products.
  5. **Download the required patches.**
  6. **Use the `patchadd(1M)` command in a CLI session to install the data host software patches in** TABLE 1.
- Refer to the README files for more patch information.

## Management Software Patches

The following lists the management software patches needed to meet the baseline requirements for Release 1.1 and Release 1.1.1.

### Release 1.1.1

114960-03 - Configuration Services, Storage Profiles, Internationalization, Localization for SE6320.

### Release 1.1

114960-02 - Configuration Services, Storage Profiles, Internationalization, Localization for SE6320.

114285-07 - SE6120 FW v3.0.6 -Firmware

113193-02 - PatchPro Patch

114591-16 - StorADE SUNWstads Support Patch (Service Processor Only)

114596-01 - SSRR MIRE 28 OPIE Patch

115589-01 - Sun StorEDGE 6320 Service Processor Patch

115704-01 - (SUNWstads patch from baseline 1.0.4)

## ▼ To Install the Management Software Patches

Use the Storage Automated Diagnostics Environment (StorADE) software installed on the Service Processor to automatically determine and install the baseline patches.

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**Note** – Install any needed management software packages and data host patches before you install the baseline patches.

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### 1. Sign on to the StorADE software on the 6320 Services Processor.

For example, enter:

```
https:// [host_name] :7443  
Login: storage  
Password: !storage
```

2. If the system has Release 1.1 installed and you are installing only the release 1.1.1 patch, proceed to Step 8
3. Select Monitor → Monitor Devices to view devices that can be monitored.
4. Check for alerts on monitored devices by clicking on the storage arrays (for example, sp0-array0).
5. If the arrays are not healthy, DO NOT proceed any further.
6. Select Diagnose → Diagnostic Tests → Test from List → 6120-VolVerify.
7. If VolVerify is running, turn it off before proceeding.
8. Create a new system inventory snapshot.
  - a. Select Manage → Service → Inventory Maintenance and click Generate New Inventory. This generates an up-to-date system inventory list.
  - b. Click Save New Inventory.
9. Determine and apply the required patches.
  - a. Select Revision Maintenance from the side menu and click Create New Patch Report.
  - b. Click Select Patches. A list displays the available patches for each device (arrays and the Service Processor).

**c. Click the device(s) that you want to update, then click Apply Selected. The Patch Installation Report generates a log of the changes that are applied.**

**10. Rerun Step 8 and Step 9.**

If the system is at baseline 1.0.3 (RR/GA version) or at baseline 1.0.4, then you need to run Step 8 and Step 9 two times. The first time you run Step 8 and Step 9, the 113193-02 patch is installed. The second time all other patches are installed.

If baseline 1.1 is installed, you DO NOT need to rerun these steps.

**11. Click “Move to History” to save the installation report.**

For more information about StorADE, refer to *Storage Automated Diagnostics Environment 2.2 User's Guide* (817-0192).

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# Known Issues and Bugs

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

- “Known Issues” on page 11
- “Bugs” on page 15

## Known Issues

This section includes known issues about this product that are not associated with a Sun bug ID number. This section contains the following topics:

- “General Issues” on page 11
- “Sun StorEdge Configuration Service Issues” on page 12
- “Documentation Issues” on page 13
- “Multiplatform Issue” on page 14
- “Online Help Bugs” on page 17

## General Issues

### *Secure Shell*

Secure shell (SSH) through a Sun StorEdge Remote Response/Point-to-Point Protocol interface is supported. LAN SSH connections, however, are not allowed.

### *Authenticated Proxy Server*

You cannot use an authenticated proxy server, which requires a proxy user name and password, to connect to the Internet and access the Sun external patch distribution server.

### *6320 Service Processor Accessory Tray Cabling*

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**Caution** – To reduce the risk of fire, use only No. 26 AWG or larger UL Listed or CSA Certified Telecommunication Line Cord.

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## *Updating StorADE Drops the Connection*

After installing a StorADE patch, the application restarts automatically, which enables the changes to take effect. You cannot access the StorADE GUI for a brief period. Thereafter, you must refresh the StorADE screen to reestablish the connection.

## Sun StorEdge Configuration Service Issues

### *Netscape Version 4.79*

There is an issue with Netscape™ Version 4.79. Double clicking the top bar of the browser or resizing the window causes loss of context on the screen. If this happens, bring up the window menu and select Reload.

### *Managing Sun StorEdge 6320 systems*

The Sun StorEdge 6320 systems can be managed through either a browser-based GUI or a native host thin-scripting client that provides a command line interface. To use the thin scripting client, the Sun StorEdge Configuration Service host CD-ROM must be installed on a supported host system on the Customer LAN.

### *Older Browser Versions*

If you are managing the Sun StorEdge 6320 system using an older generation (HTTP 1.0-based) Web browser such as Netscape 4.x or earlier, you could experience time-out conditions from the browser when configuring large Sun StorEdge 6320 systems. In large configurations, older browsers need more time to calculate capacities and can time out before those calculations are complete. In this case, you might need to reload the browser page to continue working with the system.

If time outs become an issue, update your browser to a version that supports HTTP 1.1 (Netscape 6 or higher). This issue affects browser-based administration only and does not affect the Sun StorEdge Configuration Service command-line administration using the thin scripting client.

### *Pool Initialization Warning Message*

The following message will come up whenever a user is about to initialize a pool. This message is not localized at this time.

```
System detected volumes created in the selected pool(s).
Initializing a pool will destroy any data in these volumes. The
table shows the affected volumes. To continue, click "Initialize,"
otherwise click "Cancel."
```

## Documentation Issues

Several commands were added to the Sun StorEdge Configuration Service that were not listed in the documentation, as cited here.

### *Listing the Array Status*

This command displays the status information about arrays. The `sscs list arraypower` command-line syntax is shown below.

```
# sscs list -a array-name arraypower
```

TABLE 2 describes the arguments associated with the `list arraypower` subcommand.

**TABLE 2** `sscs list arraypower` Command-Line Arguments

Argument	Description
<code>-a, --array array-name</code>	Specifies an <i>array-name</i> up to 40 characters long.

### *Modifying Power for an Array*

This command modifies power for an individual array. The `sscs modify arraypower` command-line syntax is shown below.

```
# sscs modify -a array-name arraypower { off | restart | rad }
```

TABLE 3 describes the arguments associated with the `modify arraypower` subcommand.

**TABLE 3** `sscs modify arraypower` Command-Line Arguments

Argument	Description
<code>-a, --array array-name</code>	Specifies an <i>array-name</i> up to 40 characters long.
<code>arraypower value</code>	Where <i>value</i> can be either <code>off</code> (shutdown the array), <code>restart</code> (restart the array), or <code>rad</code> (restore the array default values).

## Modifying Tray

This command disables, enables, or unconfigures a controller. The `sscs modify tray` command-line syntax is shown below.

```
# sscs modify -a array-name -d tray-name
```

TABLE 4 describes the arguments associated with the `modify tray` subcommand.

**TABLE 4** `sscs modify tray` Command-Line Arguments

Argument	Description
<code>-a, --array array-name</code>	Specifies an <i>array-name</i> up to 40 characters long.
<code>-u, --unconfigure tray-name</code>	Unconfigures a tray.
<code>-d, --disable tray-name</code>	Disables a tray.
<code>-e, --enable tray-name</code>	Enables a tray.

## Multiplatform Issue

### *Qlogic Host Bus Adapters*

Qlogic host bus adapters (HBAs) require host-specific flash code. Sun supported Qlogic HBAs could require a flash image update, depending on the platform.

TABLE 3 lists the Flash image required for each supported platform.



# Bugs

Following is a list of bug categories associated with Sun StorEdge 6320 systems and associated software and hardware. The bug ID numbers follow the bug descriptions.

- “Sun StorEdge Configuration Service Issues” on page 12
- “Sun StorEdge 6120 Array Bugs” on page 16
- “Online Help Bugs” on page 17

## Sun StorEdge Configuration Service Bugs

### *Sun StorEdge Configuration Service Wizards*

The Sun StorEdge Configuration Service wizards instruct you to add or remove expansion trays in a storage array. The wizard then directs you to physically remove or add the required expansion trays, then recable and power on the newly configured storage array. You must allow enough time for the storage array to boot completely before clicking the Next button. Otherwise, if you proceed to the next screen before the newly configured storage array boots completely, the wizard can time out because it cannot communicate with the storage array. When a timeout occurs, this indicates that the storage array was not ready to communicate over the Ethernet connection. #4863467

#### *Workaround*

If the wizard times out before the array boots, click the Retry button in the wizard to reattempt communication with the array. If the wizard is unable to communicate with the storage array, and you do not initiate a retry, eventually the wizard will log off. If the wizard logs off during a tray addition procedure, and if storage pools existed in the original configuration, those pools will not be placed online automatically by the wizard. You must then manually place the storage pools online using the Sun StorEdge Configuration Service tool *after* the array has booted completely.

### *Loopcard Boot Message*

While booting the system, in a master and slave loopcard environment, you might see the following message:

```
"Unable to obtain mid-plane serial number"
```

This is caused by an inadequate timeout to allow the master loopcard to boot before the slave loopcard. This condition, however, should have no bearing on the operation of your system. #4845755

## Sun StorEdge 6120 Array Bugs

### *Adding an Array with the Add Expansion Tray Wizard*

When adding an expansion array with the Add Expansion Tray wizard (Administration → General → Array Power → Management → *array\_name* → Add Expansion), the online help does not properly clarify the consequences of placing the existing pools online. #486615

The online help should read:

(Optional) Select the Online Existing Pools option to place the existing storage pools online.

If you do not selected this option, the existing storage pools remain offline.

If you place the existing storage pools online, then storage arrays are available.

If you do not place the storage pools online, the storage arrays are unavailable.

You can also place storage pools online later, as described in the section, To Place a Storage Pool Online or Offline.

### *Copy-Back Reconstruction Rates*

Reconstructing data from a standby drive to a replaced drive is performed at a high reconstruction rate, regardless of the array's global reconstruction rate setting. This results in increased host latency during the copy-back from the standby drive as the array conducts this operation in the shortest amount of time. When the copy-back operation is complete, the array response to host I/Os resumes to normal performance levels. Reconstruction of data on the array to the standby disk (after the initial drive failure is detected), responds correctly to the reconstruction rate tunables that are configured on the array. #4862463

#### *Workaround*

Schedule a drive replacement procedure during an array maintenance period to avoid impacting array performance during normal operations.

## Online Help Bugs

### *Blank Localized Help Page for Access Matrix*

When clicking help from the Access Matrix page, a pop-up help window displays a blank page.

#### *Workaround*

Refer to the help in “Viewing the Access Matrix” on page 39.

### *Incorrect Localized Help Information for Profiles*

When selecting help from the Array Profiles page, a pop-up help window shows irrelevant information regarding Array Registration.

#### *Workaround*

Refer to the written help in “Managing Profiles” on page 37.

### *Wrong Profile Features in Help*

The online help documents two Profile features that are not implemented in Release 1.1:

- Profile Management button
- Profile Filter button

### *Localized Help PDF Unavailable*

In the localized versions of the Sun StorEdge Configuration Service software, the link “Help in Adobe Acrobat PDF Format” to the file `help.pdf` is unavailable. #4863940

### *Localized Help Search Facility*

The localized online help search function does not work correctly. The search fails when a keyword is non-ASCII. If the keyword is in English, the search results are displayed in English, and the corresponding contents are localized. #4842713

### *Localized Help Index*

The localized online help index does not work properly. For example, in Japanese and the Simplified Chinese environment, unnecessary English characters are displayed on the Index tab. #4866283

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# Release Documentation

TABLE 6 lists the documentation for the 6320 and related products. Documents that cite the suffix *nn*, imply that you should use the most current version. This documentation is available online at:

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

**TABLE 5** Sun StorEdge 6320 Array and Related Documentation

<b>Application</b>	<b>Title</b>	<b>Part Number</b>
Installation and documentation overview	<i>Start Here for the Sun StorEdge 6320 System</i>	816-7875- <i>nn</i>
Release information	<i>Sun StorEdge 6320 System 1.1 Release Notes</i>	816-7880-13
Site preparation	<i>Sun StorEdge 6320 Series 1.0 Site Prep Guide</i>	816-7877- <i>nn</i>
Safety requirements	<i>Sun StorEdge 6320 Series 1.0 Regulatory and Compliance Guide</i>	816-7876- <i>nn</i>
6320 installation procedures	<i>Sun StorEdge 6320 Series 1.0 Installation Guide</i>	816-7878- <i>nn</i>
Overview, service, reference, and CLI administration	<i>Sun StorEdge 6320 Series 1.0 Reference and Service Manual</i>	816-7879- <i>nn</i>
Management software installation	<i>Sun StorEdge 6000 Family Host Installation Software Guide</i>	817-1739- <i>nn</i>
Management and configuration help	<i>Sun StorEdge Configuration Service online help</i>	n/a
	<i>Sun StorEdge SSCS (1M) man page</i>	n/a
6120 installation and documentation overview	<i>Sun StorEdge 6120 Array Start Here</i>	817-0198- <i>nn</i>
6120 release information	<i>Sun StorEdge 6120 Array Release Notes</i>	817-0201-13
6120 site preparation	<i>Sun StorEdge 6120 Array Site Preparation Guide</i>	817-0960- <i>nn</i>

**TABLE 5** Sun StorEdge 6320 Array and Related Documentation (*Continued*)

<b>Application</b>	<b>Title</b>	<b>Part Number</b>
6120 safety requirements	<i>Sun StorEdge 6120 Array Regulatory and Safety Compliance Manual</i>	817-0961- <i>nn</i>
6120 array installation	<i>Sun StorEdge 6120 Array Installation Guide</i>	817-0199- <i>nn</i>
6120 overview, service, reference, and CLI administration	<i>Sun StorEdge 6020 and 6120 Arrays System Manual</i>	817-0200- <i>nn</i>
StorADE troubleshooting and diagnostics	<i>Storage Automated Diagnostic Environment 2.2 User's Guide,</i>	817-0822- <i>nn</i>
	<i>Storage Automated Diagnostic Environment 2.2 Release Notes,</i>	817-0823- <i>nn</i>
SAN Foundation	<i>Sun StorEdge SAN Foundation 4.2 Release Notes</i>	817-1246- <i>nn</i>
	<i>Sun StorEdge SAN Foundation 4.2 Installation Guide</i>	817-1244- <i>nn</i>
Multipathing support	<i>Sun StorEdge Traffic Manager Software Release Notes</i>	817-0385- <i>nn</i>
Cabinet information	<i>Sun StorEdge Expansion Cabinet Installation and Service Manual</i>	805-3067- <i>nn</i>
Sun Rack information (6120 only)	<i>Sun Rack Installation Guide</i>	816-6386- <i>nn</i>

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## Additional Documentation

The following section documents the following product features that have not yet been added to the product documentation or online help:

- “Array Configuration Changes” on page 20
- “Thin-Scripting Client” on page 23
- “Adding Host Ports to the 6320 System” on page 24
- “Storage Service Processor USB Flash Disk” on page 31

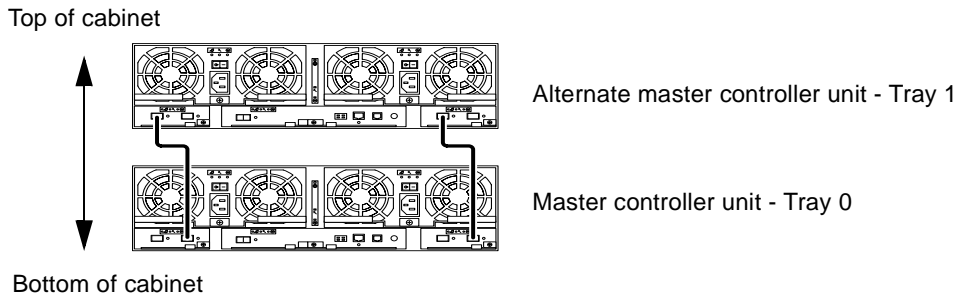
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# Array Configuration Changes

Sun StorEdge Configuration Service software supports adding and removing expansion units (that is, trays that do not contain controller cards) on existing array configurations using graphical-user-interface (GUI) wizards. This software supports the following array configuration changes:

- Adding expansion units to an existing array 2x2 or 2x4 HA configuration.
- Removing expansion units from an existing array 2x4 or 2x6 HA configuration.

Figure 1 illustrates the HA configurations and the corresponding tray number in the Sun StorEdge Configuration Service software.



**FIGURE 1** 2x2 HA Configuration and Corresponding Tray Numbers

FIGURE 2 illustrates a Sun StorEdge 6120 array 2x4 HA Configuration and Corresponding tray numbers.

Top of cabinet

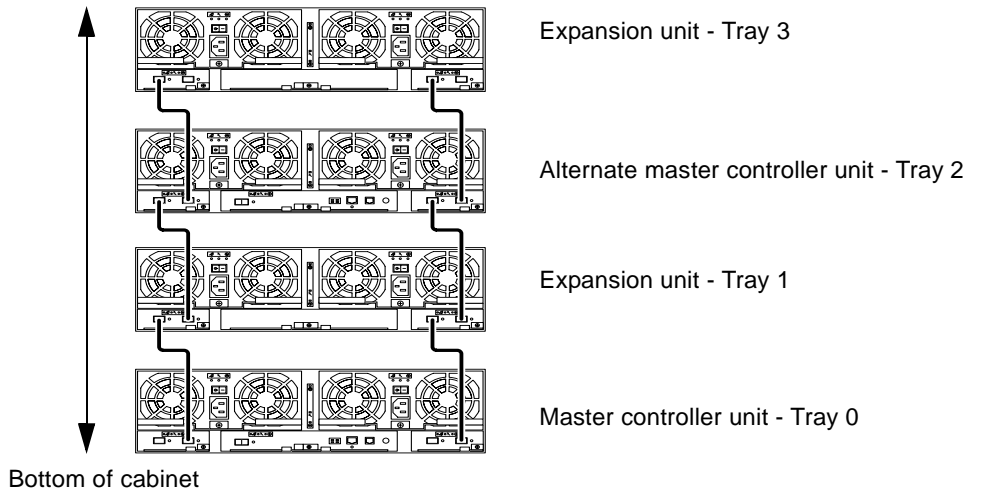


FIGURE 2 2x4 HA Configuration and Corresponding Tray Numbers

FIGURE 3 illustrates a Sun StorEdge 6120 array 2x6 HA Configuration and Corresponding Tray Numbers.

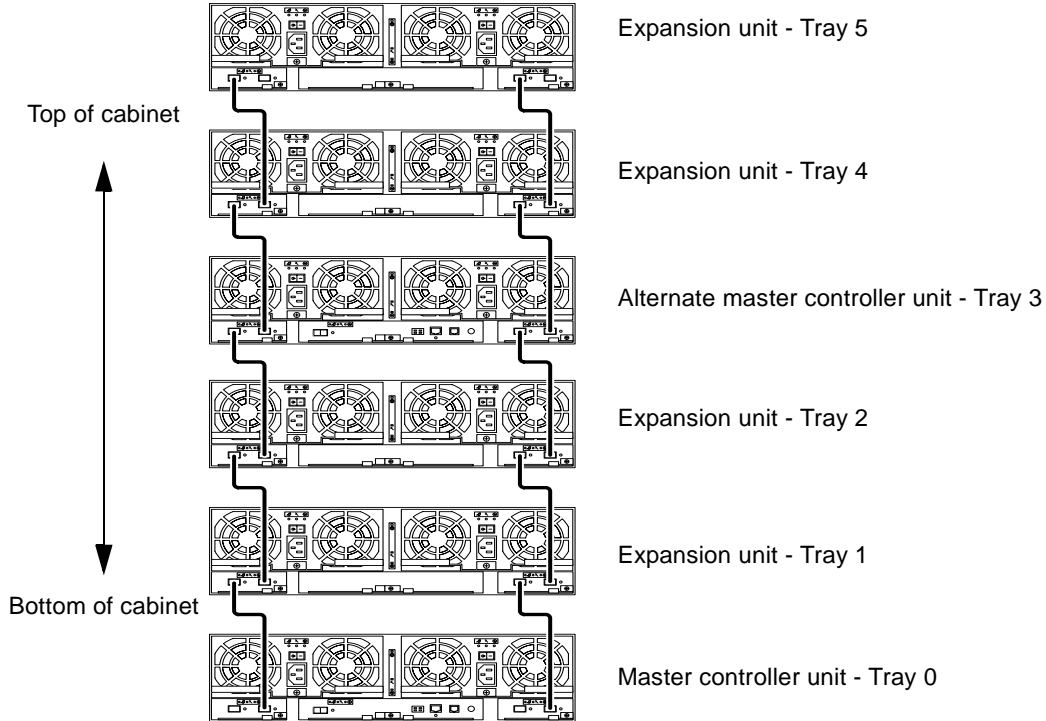


FIGURE 3 2x6 HA Configuration and Corresponding Tray Numbers

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**Note** – If you use the management software to change the array configuration, make sure that the master controller unit is identified as Tray 0 before you begin. If the master controller unit has failed over, the alternate master controller unit assumes the master controller unit status. When this happens, the master controller unit tray number updates to the tray number of the alternate master controller unit. To change back to the original configuration and tray numbering, you must reset the array controller.

---



## ▼ To View the Expansion Unit Online Help

To review instructions about adding and removing expansion units, access the online help as follows:

1. **Click the online help link in the Sun StorEdge Configuration Service browser.**
2. **Navigate to Administering Your System → Array Details and Tray Reconfiguration.**
3. **Select one of the following options:**
  - To Add an Expansion Unit to an Array
  - To Remove an Expansion Unit from an Array

---

## Thin-Scripting Client

A thin-scripting client is available for the Solaris operating environment as well as other hosts. The thin-scripting client provides a command-line interface (CLI) that enables access to Sun StorEdge 6320 system and management facilities. The client is available for download from:

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

You can navigate to the site that contains the scripting client files using either of the following methods:

## ▼ To Retrieve the Client from the Sun Download Center

1. **Go to the <http://www.sun.com> home page and click Downloads.**
2. **Go to Browse Downloads by Category and click System Administration.**
3. **Go to Storage Management and click Sun StorEdge 6320 System Software products (the “download” listing appears to be for the Windows platform but actually links you to downloads for all platforms).**
4. **Provide the user name and password to log in.**
5. **Download the appropriate files for your operating system.**

For example, the files for the Linux operating system are:

- `linux_se6x20.tar`
- `linux_README.txt`

The README file contains the client installation instructions.

## ▼ To Retrieve the Client from the Sun Storage Site

1. Go to the <http://www.sun.com> home page, click **Product & Services**.
2. Go to **Browse Products** and click **Storage**.
3. Go to **Hardware Storage** and click **Midrange Storage**.
4. Select **Sun StorEdge 6000 Family** and click **Sun StorEdge 6300 Series**.
5. Click **Sun StorEdge 6320 Series**.
6. Go to **Software Download** and click **Sun StorEdge 6000 Family Storage Products**.
7. Provide the user name and password to log in.
8. Download the appropriate files for your operating system.

For example, the files for the Linux operating system are:

- `linux_se6x20.tar`
- `linux_README.txt`

The README file contains the client installation instructions.

---

# Adding Host Ports to the 6320 System

This procedure allows you to add additional host ports to the 6320 System. The default number of host ports is five.

## Overview

This section describes key considerations for understanding the process of adding host ports to the 6320 System.

The 6320 System rack uses two 16-port switches to provide Fibre Channel connectivity to hosts that are outside of the racks, and 6020 storage arrays that are inside the racks.

The base assumption is that you have two 6020 storage devices that require a master connection and an alternate master connection. Connections that are removed will be recabled to the patch panel to provide additional host connections.

The top switch is called Switch 1 and it connects the master path Fibre Channel connections. The bottom switch is called Switch 2 and it connects alternate master path Fibre Channel connections.

The Fibre Channel ports are labeled 0 to 15. The default wiring scheme follows:

- Ports 0 to 4 are for direct connections to the patch panel for host connections.
- Ports 5 to 9 are for connections to internal 6020 storage inside the master rack.
- Ports 10 to 15 are
  - connected to the switch for internal storage in an expansion rack.

The patch panel ports are labeled 1 to 14 A and B. There will be mismatches in port numbers. The patch panel has 28 total Fibre Channel ports while the switches have 30 total ports; so there are two ports on each switch that you cannot allocate to hosts.

This procedure removes the connections for internal storage in the expansion rack (Ports 10 to 15) and reduces the number of internal storage connections (Ports 7 to 9). Ports 5 and 6 cannot be allocated to a host port.

---

**Note** – Eliminating the expansion storage connections through implementation of this procedure negates the ability to add an expansion rack in the future. Additionally, removing of the expansion cable (530-1058-01) can damage it and render it unusable.

---

### *Total Number of Ports You Can Add*

The maximum number of additional host ports that can be added is nine master path connections and nine alternate master path connections.

### *Sample 6320 System Fibre Channel Connections*

This section provides a sample of the 6320 System Fibre Channel connections.

## Patch Panel-to-Switches

### *LC-to-LC Cables (5pcs) Patch Panel to Switches (host connections) - (537-1057-01 LC-LC .8M)*

- Patch Panel 1A to SW1 Port 0
- Patch Panel 2A to SW1 Port 1
- Patch Panel 3A to SW1 Port 2
- Patch Panel 4A to SW1 Port 3
- Patch Panel 5A to SW1 Port 4

*LC-to-LC Cables (5pcs) Patch Panel to Switches (host connections) - (537-1057-01 LC-LC .8M)*

- Patch Panel 1B to SW2 Port 0
- Patch Panel 2B to SW2 Port 1
- Patch Panel 3B to SW2 Port 2
- Patch Panel 4B to SW2 Port 3
- Patch Panel 5B to SW2 Port 4

## Switches-to-Master Rack T4s

*LC-to-LC Cables (5pcs) Switches to T4 in Master Rack (Masters) - (537-1041-01 LC-LC 2M)*

- SW1 Port 5 to (T400) Master
- SW1 Port 6 to (T401) Master
- SW1 Port 7 to (T402) Master
- SW1 Port 8 to (T403) Master
- SW1 Port 9 to (T404) Master

*LC-to-LC Cables (5pcs) Switches to T4 in Master Rack (Alt. Master's) - (537-1041-01 LC-LC 2M)*

- SW2 Port 5 to (T400) Alternate Master
- SW2 Port 6 to (T401) Alternate Master
- SW2 Port 7 to (T402) Alternate Master
- SW2 Port 8 to (T403) Alternate Master
- SW2 Port 9 to (T404) Alternate Master

## Switches to Patch Panel (for connections to T4s in the Expansion Rack):

Master Breakout Cable (1pc) - (537-1058-01 MPT TO FANOUT, MASTER (70cm [40cm ruggedized])

- Cable connect 1A-1B to SW1 Port 10
- Cable connect 2A-2B to SW1 Port 11
- Cable connect 3A-3B to SW1 Port 12
- Cable connect 4A-4B to SW1 Port 13
- Cable connect 5A-5B to SW1 Port 14
- Cable connect 6A-6B to SW1 Port 15
- MPT-to-Patch Panel EXP FC 1A

Master Breakout Cable (1pc) - (537-1058-01 MPT TO FANOUT, MASTER (70cm [40cm ruggedized])

- Cable connect 1A-1B to SW2 Port 10

- Cable connect 2A-2B to SW2 Port 11
- Cable connect 3A-3B to SW2 Port 12
- Cable connect 4A-4B to SW2 Port 13
- Cable connect 5A-5B to SW2 Port 14
- Cable connect 6A-6B to SW2 Port 15
- MPT-to-Patch Panel EXP FC 1B

FIGURE 4 shows the 6320 System patch panel details.

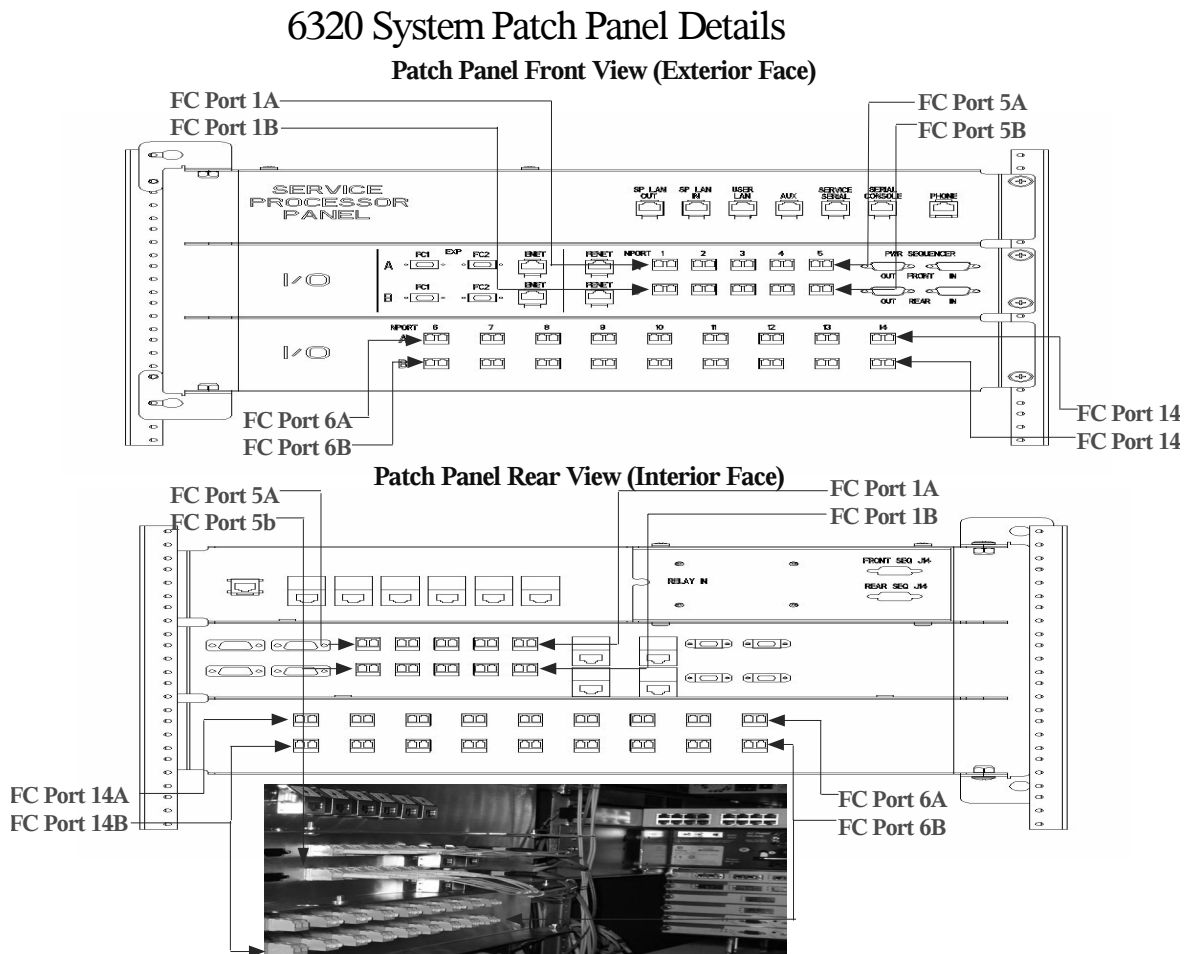


FIGURE 4 6320 System Patch Panel Details

FIGURE 5 shows a 16-port Fibre Channel Switch details.

## 6320 System 16-Port Fibre Channel Switch Details

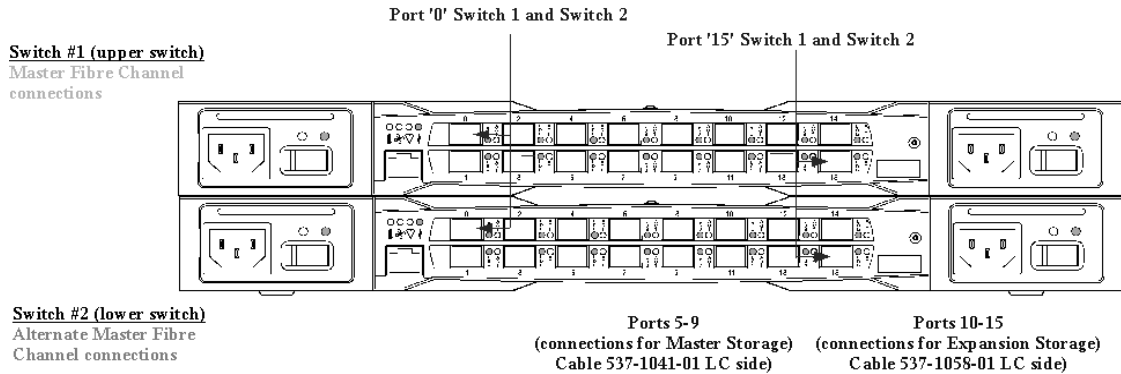


FIGURE 5 16-port Fibre Channel Switch Details

## Removing and Replacing Connections to add Host Ports to the 6320 System

The steps provided here describe the logical sequence remove and then replace the connections to add hosts to the 6320 System. Refer to FIGURE 4 for switch and port references.

1. Remove the following connections from Switch 1 that use the MPT-to-Fanout cable (537-1058-01).
  - LC connector 1A-1B to Switch 1 Port 10
  - LC connector 2A-2B to Switch 1 Port 11
  - LC connector 3A-3B to Switch 1 Port 12
  - LC connector 4A-4B to Switch 1 Port 13
  - LC connector 5A-5B to Switch 1 Port 14
  - LC connector 6A-6B to Switch 1 Port 15

2. Remove the following connections from Switch 2 that use the MPT-to-Fanout cable (537-1058-01).
  - LC Connector 1A-1B to Switch 2 Port 10
  - LC Connector 2A-2B to Switch 2 Port 11
  - LC Connector 3A-3B to Switch 2 Port 12
  - LC Connector 4A-4B to Switch 2 Port 13
  - LC Connector 5A-5B to Switch 2 Port 14
  - LC Connector 6A-6B to Switch 2 Port 15

Steps 1 and 2 Notes:

- Removing the MTP connection to the Patch Panel for the MPT-to-Fanout cable (537-1058-01) is optional.
- Tie off the MPT-to-Fanout cable (537-1058-01) securely when you remove the connections. This cable is fragile and can be damaged or rendered nonoperational during implementation of this procedure.

3. Add the following master path host connections between the patch panel and Switch Number 1 using cable 537-1057-01 (0.8M, LC-LC) (6 pcs).
  - LC connector to Switch 1 Port 10, opposite LC connector to Patch Panel Port 9A
  - LC connector to Switch 1 Port 11, opposite LC connector to Patch Panel Port 10A
  - LC connector to Switch 1 Port 12, opposite LC connector to Patch Panel Port 11A
  - LC connector to Switch 1 Port 13, opposite LC connector to Patch Panel Port 12A
  - LC connector to Switch 1 Port 14, opposite LC connector to Patch Panel Port 13A
  - LC connector to Switch 1 Port 15, opposite LC connector to Patch Panel Port 14A

4. Add the following alternate master path host connections between the Patch Panel and Switch 2 using cable 537-1057-01 (0.8M,LC-LC)(6 pcs).
  - LC connector to Switch 2 Port 10, opposite LC connector to Patch Panel Port 9B
  - LC connector to Switch 2 Port 11, opposite LC connector to Patch Panel Port 10B
  - LC connector to Switch 2 Port 12, opposite LC connector to Patch Panel Port 11B
  - LC connector to Switch 2 Port 13, opposite LC connector to Patch Panel Port 12B
  - LC connector to Switch 2 Port 14, opposite LC connector to Patch Panel Port 13B
  - LC connector to Switch 2 Port 15, opposite LC connector to Patch Panel Port 14B

Steps 3 and 4 Notes:

- Steps 3 and 4 add six master and alternate master host connections.
  - Do not stretch or pinch routing cable 537-1057-01 (0.8M, LC-LC).
  - Tie off the cables 537-1057-01 (0.8M, LC-LC) securely to other cables in the bundle.
5. Remove the following Master Storage connections from Switch 1 that use cable 2M, LC-LC (537-1041-01).

The cable specified for removal should not be already connected to a 6020 in the Master rack. If the cable is connected to a 6020 skip disconnecting this cable.

- LC Connector to Switch 1 Port 7, other LC connector connected to (T402) Master (if not populated in the rack)
- LC Connector to Switch 1 Port 8, other LC connector connected to (T403) Master (if not populated in the rack)
- LC Connector to Switch 1 Port 9, other LC connector connected to (T404) Master (if not populated in the rack)

6. Remove the following Alternate Master Storage connections from Switch 2 that use cable 2M LC-LC (537-1041-01).

The cable specified for removal should not be connected already to a 6020 in the Master rack. If the cable is connected to a 6020 *skip* disconnecting this cable.

- LC Connector to Switch 2 Port 7, other LC connector connected to (T402) Alt-Master (if not populated in the rack)
- LC Connector to Switch 2 Port 8, other LC connector connected to (T403) Alt-Master (if not populated in the rack)
- LC Connector to Switch 2 Port 9, other LC connector connected to (T404) Alt-Master (if not populated in the rack)

7. Add the following master path host connections between the Patch Panel and Switch 1 using cable 537-1057-01 (0.8M,LC-LC)(3 pcs).

- LC Connector to Switch 1 Port 7, other LC connector connected to Patch Panel Port 6A
- LC Connector to Switch 1 Port 8, other LC connector connected to Patch Panel Port 7A
- LC Connector to Switch 1 Port 9, other LC connector connected to Patch Panel Port 8A

8. Add the following alternate master path host connections between the Patch Panel and Switch 2 using cable 537-1057-01 (0.8M,LC-LC)(3 pcs).

- LC Connector to Switch 2 Port 7, other LC connector connected to Patch Panel Port 6B
- LC Connector to Switch 2 Port 8, other LC connector connected to Patch Panel Port 7B
- LC Connector to Switch 2 Port 9, other LC connector connected to Patch Panel Port 8B

Steps 7 and 8 Notes:

- Steps 7 and 8 add up to four master and alternate master host connections, depending on how many 6020s were already populated in the rack.
- Steps 7 and 8 add three master and alternate master host connections.
- Do not stretch or pinch routing cable 537-1057-01 (0.8M, LC-LC).
- Tie off the cables 537-1057-01 (0.8M, LC-LC) securely to other cables in the bundle.



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# Storage Service Processor USB Flash Disk

The Sun StorEdge 6320 System ships with a universal serial bus (USB) flash disk to backup the storage service processor (SP) configuration files (for example, /etc/ethers). In the Sun StorEdge 6320 System, the Sun Fire™ V100 server is the storage service processor. In the event of an SP failure, Field Service personnel can use the flash to restore the original configuration to a replacement SP.

This procedure instructs users in how to install the USB flash, which is shipped in a box with the system.

---

**Note** – Do not connect a USB flash disk with an image that you want to restore to a working SP or any other USB port as the image on the flash disk could be overwritten.

---

---

**Note** – The flash disk is formatted for the Solaris operating system. Do not connect it to a PC as Windows will not recognize it and will ask if you want to format the disk.

---

## ▼ To Install The USB Drive

9. **If your USB has a write protection switch on the side of the USB flash disk, verify that it is set to the unlock symbol.**
10. **Insert the USB flash disk into USB Port 1 on the rear panel of the storage service processor.**

If your flash disk has an LED green light, it displays when the flash disk connects correctly.

11. **Use a web browser to sign into Configuration Service, the management software on the SP.**

`https://hostname:9443`

12. **From the Administration/General menu, select Logs.**

If the system has failed in an attempt to backup to the USB flash, the following message will appear in the log every two minutes:

```
IO Error accessing persistence file on flash disk
```

If the error messages do not stop within three minutes after installing the flash disk, refer to the following site to contact support:

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

## Restoring Configuration Files

In the event of a services processor failure, contact support as noted above.

All restoration procedures must be performed by Customer Support personnel only. They can use the USB drive with a Restore CD to restore the configuration on a new SP.

---

# Release Documentation

TABLE 6 lists the documentation for the 6320 and related products. Documents that cite the suffix *nn*, imply that you should use the most current version. This documentation is available online at:

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

**TABLE 6** Sun StorEdge 6320 Array and Related Documentation

<b>Application</b>	<b>Title</b>	<b>Part Number</b>
Installation and documentation overview	<i>Start Here for the Sun StorEdge 6320 System</i>	816-7875- <i>nn</i>
Release information	<i>Sun StorEdge 6320 System 1.1 Release Notes</i>	816-7880-13
Site preparation	<i>Sun StorEdge 6320 Series 1.0 Site Prep Guide</i>	816-7877- <i>nn</i>
Safety requirements	<i>Sun StorEdge 6320 Series 1.0 Regulatory and Compliance Guide</i>	816-7876- <i>nn</i>
6320 installation procedures	<i>Sun StorEdge 6320 Series 1.0 Installation Guide</i>	816-7878- <i>nn</i>
Overview, service, reference, and CLI administration	<i>Sun StorEdge 6320 Series 1.0 Reference and Service Manual</i>	816-7879- <i>nn</i>
Management software installation	<i>Sun StorEdge 6000 Family Host Installation Software Guide</i>	817-1739- <i>nn</i>
Management and configuration help	<i>Sun StorEdge Configuration Service online help</i>	n/a
	<i>Sun StorEdge SSCS (1M) man page</i>	n/a
6120 installation and documentation overview	<i>Sun StorEdge 6120 Array Start Here</i>	817-0198- <i>nn</i>
6120 release information	<i>Sun StorEdge 6120 Array Release Notes</i>	817-0201-13
6120 site preparation	<i>Sun StorEdge 6120 Array Site Preparation Guide</i>	817-0960- <i>nn</i>

**TABLE 6** Sun StorEdge 6320 Array and Related Documentation (*Continued*)

<b>Application</b>	<b>Title</b>	<b>Part Number</b>
6120 safety requirements	<i>Sun StorEdge 6120 Array Regulatory and Safety Compliance Manual</i>	817-0961- <i>nn</i>
6120 array installation	<i>Sun StorEdge 6120 Array Installation Guide</i>	817-0199- <i>nn</i>
6120 overview, service, reference, and CLI administration	<i>Sun StorEdge 6020 and 6120 Arrays System Manual</i>	817-0200- <i>nn</i>
StorADE troubleshooting and diagnostics	<i>Storage Automated Diagnostic Environment 2.2 User's Guide,</i>	817-0822- <i>nn</i>
	<i>Storage Automated Diagnostic Environment 2.2 Release Notes,</i>	817-0823- <i>nn</i>
SAN Foundation	<i>Sun StorEdge SAN Foundation 4.2 Release Notes</i>	817-1246- <i>nn</i>
	<i>Sun StorEdge SAN Foundation 4.2 Installation Guide</i>	817-1244- <i>nn</i>
Multipathing support	<i>Sun StorEdge Traffic Manager Software Release Notes</i>	817-0385- <i>nn</i>
Cabinet information	<i>Sun StorEdge Expansion Cabinet Installation and Service Manual</i>	805-3067- <i>nn</i>
Sun Rack information (6120 only)	<i>Sun Rack Installation Guide</i>	816-6386- <i>nn</i>

# Sun StorEdge 6320 System Terminology

The Storage Networking Industry Association (SNIA) is currently developing a standard terminology list. Sun Microsystems is adopting the SNIA terms now. The Sun StorEdge 6320 system is the first storage product to use the new SNIA terminology list.

TABLE 7 shows a comparison (mapping) of the terms used by the Sun StorEdge 6120 arrays to the SNIA terms used by the Sun StorEdge 6320 system.

**TABLE 7** Sun StorEdge 6320 Terminology

Sun StorEdge 6120 Terminology <sup>1</sup>	Sun StorEdge 6320 Terminology
Volume	Storage Pool
Slice	Volume
LUN	Volume
Administrative Domain	Storage Array
Partner Group	Storage Array
Array	Tray
Enclosure	Tray
Expansion Unit	Expansion Unit

<sup>1</sup>—This is the Telnet-based terminology used on the Sun StorEdge 6120 arrays.

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# Documentation Of Release Features

This section lists the English text from the Configuration Service online help for the release features. The help topics are:

- “Array Management” on page 36
- “Managing Profiles” on page 37
- “To Change an Array Disk Profile” on page 38
- “Viewing the Access Matrix” on page 39
- “To Place a Storage Pool Online or Offline” on page 39

## Array Management

---

**Caution** – Do not configure the Sun StorEdge 6000 Family arrays by using the array command-line interface and this web browser user interface at the same time. Use the command-line interface **or** web browser user interface.

Do not use more than one instance of the software at a time to access or configure the same storage arrays or systems. For example, two storage users using the software from two different machines cannot add the same volumes to a volume group each user is creating or modifying.

---

The Array Management main menu is the default page that is displayed after you log into the software. From this page, you can:

- Configure specific storage arrays
- Configure multiple arrays by duplicating an existing array’s settings to another array

This page also enables you to check detailed system and device health status by launching the Storage Automated Diagnostic Environment application. (This application is installed by default on the Sun StorEdge 6300 Storage Service Processor. It must be installed on the local Solaris host for the Sun StorEdge 6100 arrays to be able to launch it from this page.)

See also Array Details and Tray Reconfiguration.

- Configuring An Array
- Managing Storage Pools
- Array Registration (Sun StorEdge 6120)

- Express Array Configuration
- Managing Profiles
- Custom Array Configuration
- Duplicating Array Settings
- Managing Volumes

## Managing Profiles

Clicking the Array Management Profile tab displays the Profile Management page. You can choose a pre-configured profile or create a new one. Filter the profiles to display with the following information:

- Name - The profile name
- Raid - RAID level 0, 1, or 5 configured across all disks within a virtual disk  
Segment size- A segment size of 4 Kbytes, 8 Kbytes, 16 Kbytes, 32 Kbytes, or 64 Kbytes. In a RAID-5 configuration, the segment size is the size of the data striped across volumes.
- Readahead - The read-ahead cache.status (on/off)
- Array Type - Determines the specific array type to use:
  - 1) Exact Match – IOPS (1x2, 2x4 array)
  - 2) Exact Match – Bandwidth (1x1, 2x2 array)
  - 3) Exact Match – Capacity (1x3, 2x6 array)
  - 4) Best Available Match – IOPS
  - 5) Best Available Match – Bandwidth
  - 6) Best Available Match - Capacity

Types 1 to 3 match only one array configuration (1x1, 1x2, 1x3, 2x2, 2x4, 2x6). If a profile has one of these three parameter settings and the specific array is not available, then the profile cannot be applied.

Types 4 to 6 attempt to match the best available array based on the environment (IOPs, Bandwidth, Capacity). For example, Best Available Match – Capacity will search for 2x6s, then 2x4s, then 2x2s. The following rules apply to the three Best Available Match settings for the listed models:

- (SE6120: MR-1) IOPS: 1x2 - 1x1 - 1x3
- (SE6120: MR-1) Bandwidth: 1x1 - x2- 1x3
- (SE6120: MR-1) Capacity: 1x3 - 1x2 - 1x1
- (SE6120: MR-2, SE6320) IOPS: 2x4 - 2x2 - 2x6
- (SE6120: MR-2, SE6320) Bandwidth: 2x2 - 2x4 - 2x6

- (SE6120: MR-2, SE6320) Capacity: 2x6 - 2x4 - 2x2

Note: that for the last three choices, the array or system determines the best available match.

Also see To Change an Array Disk Profile.

## ▼ To Change an Array Disk Profile

---

**Note** – Before you reconfigure an existing array, note that any information you enter here overwrites the existing information for the array.

---

- 1. Select the Array Management Individual Configuration tab.**
- 2. Select an array in the Array Selection table and click Express Configuration.**

The Express Configuration page displays showing array details. You can update the array description.
- 3. Click Change Profile.**

The Change Profile Wizard displays, showing the current profile and new profiles to select. The page lists profile details such as raid settings, read-ahead status, and segment size.
- 4. Select a profile from the Profile List.**
- 5. Click next.**
- 6. Select a tray from the table.**

You can add all drives or a specific number of drives in the array to the profile.

---

**Note** – If the number of available drives is less than number of total drives plus a hotspare drive, all drives must be selected for maximum utilization.

---

- 7. Select the number of drives to allocate from the drives to add from the Allocate pull-down menu.**
- 8. Click next.**

The Confirm Selection page appears with a list of the affected volumes and trays that will be affected by a changed profile.
- 9. Press the next button to save the profile changes or press the Back or Cancel button to not change the profile.**



# Viewing the Access Matrix

Select Storage Access tab>Access Matrix button to display the Array Access Management page. The page lists the read/write permissions for each initiator by volume and the following fields:

- Volume Name.
- LUN - The logical unit number of the volume. The default LUN is the first one available.
- Group - The volume group name. A volume can only belong to one volume group.
- Initiator WWN - The World Wide Name (wwn) of the initiator. For example, 210000e08b047212.
- Group - The initiator group name.
- Permissions Default - Default read/write permissions on the volume. The permissions apply to all initiators unless mapped otherwise.
- Group - Group permissions between the volume group and this initiator group.
- Effective - Actual permission that the initiator has on the volume.

## ▼ To Place a Storage Pool Online or Offline

1. Click **Individual Configuration** at the **Array Management** page.
2. Select a storage array in the table and click **Custom Configuration**.
3. Click **Manage Pools**.
4. Select one or more pools in the table.
5. Click one of the following buttons:
  - Click **Online** to place the storage pool volumes online, making the storage available
  - Click **Offline** to place the storage pool volumes offline. Note - you can initialize a pool that is offline.
6. Click **Refresh** to update the storage pool status in the table.

---

**Note** – As noted in “Documentation Issues” on page 13, the following message will come up whenever a user is about to initialize a pool. This message is not localized at this time.

---

System detected volumes created in the selected pool(s).  
Initializing a pool will destroy any data in these volumes. The  
table shows the affected volumes. To continue, click "Initialize,"  
otherwise click "Cancel."

---

## Service Contact Information

Contact Sun Customer Service if you need additional information on the Sun  
StorEdge 6320 System or any other Sun products:

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