Sun StorEdge™ 5210 and 5310 NAS Appliance and Gateway System Release Notes

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Contents

Sun StorEdge 5210 and 5310 NAS Appliance and Gateway System Release Notes

These release notes contain information for the Sun StorEdge™ 5210 and 5310 NAS Appliance and Gateway system software version 4.10 as well as subsequent qualifications to the release. The software is backward compatible with previous versions of Sun StorEdge 5210 and 5310 NAS Appliance software.

When installing the Sun StorEdge 5310 Cluster, use these release notes with the *Sun StorEdge 5310 NAS Appliance and Gateway System Getting Started Guide*, 819-3237-10.

These release notes contain the following sections:

Important – The Web Administrator supports only a single login at a time. A best practice would thus be to have only one person administering the system at a time to avoid command conflicts. In a cluster configuration, you must log in to each server separately to manage that server.

System Requirements

The Sun StorEdge 5210 and 5310 NAS Appliance system ships with the Web Administrator software already installed. You do not need to install any software to manage the Sun StorEdge 5210 and 5310 NAS Appliance.

To access the Web Administrator management interface, you must have a network-attached computer running one of the following browsers. You must use a Java™ technology-enabled browser with Java Plug-In 1.3.1 (minimum version).

- Internet Explorer
- Mozilla™
- Netscape Navigator™

Note – To download the latest Java Plug-in software, go to `http://java.com`.

▼ To Determine NAS OS Software and Build Versions

Perform one of the following procedures.

- Access the Web Administrator navigation panel and select System Operations → Update Software.
- Type `version`, on the command-line interface (CLI), and, for example, build 18 will display:

```
4.10 M0 (build 18)
```

▼ To Determine Firmware Revision Levels

Use the `raidctl profile` command to determine and record the current firmware revision level of each RAID controller unit, expansion unit, controller NVSRAM, and drive.

See "How to Capture `raidctl` Command Output" on page 36 for details.

Software Updates

Please upgrade your system by downloading the latest version of NAS software from `http://sunsolve.sun.com`. Select the Patchfinder link, and then enter the patch number that is appropriate for your system.

- 118216 Software for the Sun StorEdge 5210 Appliance
- 119351 Software for the Sun StorEdge 5310 Appliance

Note – If you are upgrading a Sun StorEdge 5210 NAS Appliance to software version 4.10 from a release prior to version 4.05, FCO 257 is required. Contact Sun Service to get FCO 257 applied prior to upgrading your software. Any Sun StorEdge 5210 NAS Appliance with software version 4.05 (or greater) does not need the FCO applied.

New Features

The following new enhancements are provided with release 4.10:

- The Sun StorEdge 5310 NAS Gateway system provides Network File System (NFS) and Common Internet File System (CIFS) file services for the following systems:
  - Sun StorEdge 9970, 9980, 9985, and 9990 systems
  - Sun StorEdge 6920 system, version 2.0.5
  - Sun StorEdge 6130 array. See "Connecting the Gateway System to the Sun StorEdge 6130 Array" on page 21 for installation instructions.
- The Sun StorEdge 5310 NAS Gateway system is qualified with the following Fibre Channel (FC) switches:
  - Brocade SilkWorm 3250, 3850, 3900, 4100, 200E, 24000, and 48000
  - Sun StorEdge 2 Gb 8, 16, and 64 port
  - McData Intrepid 6064, 6164, and Sphereon 4500
  - Qlogic 5200 and 5602
- The Sun StorEdge 5310 NAS Appliance and Gateway system are qualified with the following FC tape libraries when connected to an unused FC port on the Sun StorEdge 5310 NAS server. Disks and tape libraries cannot be attached to the same FC port.

- Sun StorEdge L180/500/700
- Sun StorEdge L25/100
- Sun StorEdge LTO 3 drives
- Sun StorEdge LTO 2 drives
- Sun StorEdge SDLT 320 drives
- StorageTek 9940B and 9840C drives

If all FC ports are in use for disk storage, you can add a FC switch to the configuration to consolidate disk connectivity to two FC ports. This will free up the remaining FC ports for exclusive FC tape use.

Tape units can operate in both cluster and gateway configurations, but are available only to the NAS server to which they are connected. There is no clustering support for tape units. Tape units always function as if they are connected to a single NAS server.

- The Sun StorEdge 5310 NAS Appliance is qualified with mixed expansion units. The firmware revision levels listed in TABLE 1 are required for each component.

TABLE 1 Required Array Firmware Levels

Component	File Name
RAID controller	`SNAP_288X_06120910.dlp`
RAID controller NVSRAM	`N2882-612843-503.dlp`
Fibre Channel expansion unit (EU)	`esm9631.s3r`
SATA expansion unit (EU)	`esm9722.dl`

See "Upgrading Array Firmware (No Reboot Required)" on page 16 for information about how to upgrade controller units, expansion units, and drives to the latest firmware revision level.

Mixed Serial Advanced Technology Attachment (SATA) and Fibre Channel expansion unit (EU) configurations are now supported with the following stipulations.

- Full EUs must consist of all Fibre Channel drives or all SATA drives. Mixing of drive types within an EU is not supported.
- The controller tray can contain Fibre Channel drives even if the EUs contain SATA drives. The controller tray cannot contain SATA drives.
- A unique hot-spare must be available for both SATA and Fibre Channel in the same capacity as used in the array.
- LUNs cannot include both SATA and Fibre Channel drives.

- Expansion trays connected to RAID controllers must be at the same firmware level as the controllers. For example, if you add an expansion tray of SATA drives at firmware level 1.2 to a NAS server with RAID controllers at firmware level 1.0, you must upgrade the entire system to revision level 1.2.

- The Sun StorEdge 5310 NAS Appliance is qualified with 300 GB Fibre Channel (FC) drives. The minimum drive firmware level for the 300 GB FC drive is 055A. If you are adding these drives to an existing controller unit, firmware on the array controller will need to be updated. (See "Upgrading Array and Drive Firmware Revision Levels" on page 13.)
- The Sun StorEdge 5210 and 5310 NAS Appliance provides In-Band RAID Management (IBRM). With release 4.10, the management of LUNs and RAID configurations is now included in the user interface for the. Previously, LUN management was only available for Sun StorEdge 5210 NAS Appliance configurations. (IBRM is not supported for Gateway configurations.)
- The Sun StorEdge 5310 NAS Gateway system now supports RAID 0+1.
- The product includes a new documentation set consisting of the following:
  - *Sun StorEdge 5310 NAS Appliance and Gateway System Getting Started Guide* which provides initial installation and initial setup information.
  - *Sun StorEdge 5310 NAS Appliance and Gateway System Administration Guide* which describes how to use the Web Administrator software to set up and monitor the system. It also includes instructions on using the command-line interface (CLI).
- CATIA V4/V5 products (developed by Dessault Systemes) now interoperate with the Sun StorEdge 5210 and 5310 NAS Appliance and Gateway systems.

  See "CATIA V4/V5 Interoperability Support" on page 29 for information about character translations and how to enable CATIA V4/V5 interoperability support.

Resolved Issues

The following issues have been resolved with this release.

- When a Sun StorEdge 6920 is used as storage for the Sun StorEdge 5310 Gateway system, LUN and volume information will now display properly in the Web Administrator.
- A backup and restore of a directory of hard links should now work correctly. Previously the filesystem became read-only in certain circumstances.
- After a LUN failover was initiated from one head to another in a cluster system occasionally a LUN would not failback correctly resulting in incorrect head ownership and I/O failure. All LUNs will now failback to ownership by the correct head.

- The system can now process detached LUNs. In the previous release, the system would enter a panic state when processing detached LUNs.
- The system now allows you to create multiple LUNs. In the previous release, the server crashed when attempting to create multiple LUNs.
- ISO8859 code pages with extended (8-bit) ASCII characters now display properly.
- It is now possible to correctly mount a `/vol*.chkpnt` volume at the root level. Mounting a checkpoint volume using the following command will no longer cause a `pwd` command malfunction.

```
mount -F nfs se5k:/vol01.chkpnt   /z/vlcp
```

- The Simple Network Management Protocol (SNMP) attribute `system.sysDescr.0` is now set correctly.
- All checkpoints now list the Backup option.
- The Environmental Monitoring Unit (EMU) boards in the Sun StorEdge 5210 NAS Appliance expansion unit are now properly instrumented and monitored.
- The network-attached storage (NAS) head no longer sends false battery errors under any circumstances.
- The File Transfer Protocol (FTP) module in the NAS operating system now loads automatically at startup but remains disabled by default.
- The graphical user interface (GUI) now has no limit to the number of external expansion units it will display.
- The console now displays all file volumes, even if more than 50 were created.
- Create and Delete bonding (port aggregate) occasionally caused an unresponsive system; this has been fixed.
- Large Network Data Management Protocol (NDMP) backup will not fill up `/dvol` with NDMP job files.
- SNMP attribute `se5210RaidBBUStatus` is set to “normal.”
- On a Common Storage Module (CSM) redundant array of independent disks (RAID) controller hardware failure, pulling out the controller with active I/O no longer causes volumes to go Read-Only.
- Occasional disk or Fibre Channel errors while running I/Os no longer cause some volumes to be marked Read-Only.
- A RAID volume will now automatically start rebuilding on an Expansion Unit Fibre (EU F (with a space between the U and F)) expansion unit during use of existing hot-spares.
- NDMP Direct Access Restore (DAR) recovery will work with Backup Type set to “tar.”
- Web Administrator will indicate read-only volumes if there is a LUN failure.

- There are no longer inconsistencies between setting the time zone from the Telnet Menu/CLI and setting if from the Web Administrator.
- In-Band RAID management is now supported as of release 4.10, therefore the help topics are now valid.
- Old exports should no longer appear when there are no associated volumes.
- When a cluster is in failover mode, if a volume is created from the Alone head on a Logical Unit Number (LUN) that was originally owned by the Quiet head, applications accessing that volume should no longer get an EACCESS error during the cluster recovery process.
- If you add a new tray, you can assign ownership of an unowned LUN with the Web Administrator.
- When a mirrored volume is Promoted using the Web Administrator, a status message is now displayed on the GUI.
- The cluster should not lose time and get out of sync when under extreme load.

Known Issues

The following issues are not resolved at this time.

- The user information in Windows Active Directory Servers (ADS) may be deleted during use of the NAS autohome feature.

  Workaround: Do not use the predefined "Users" container to publish the autohome share. Alternatively, if a user does not access the autohome share from the directory, it is not necessary to specify an ADS container in the autohome setup.

  It is recommended that administrators create a new organization unit (container) for all the published shares. If there are multiple Sun StorEdge NAS systems in the domain, use a separate container for each Sun StorEdge NAS system to prevent the share published by one system from being overwritten by another system.

- The alternate path is not available after a restore for a LUN whose primary path is set after a Fibre Channel cable pull.

  Workaround: After physical changes to the back-end configuration, a user-initiated rescan is required. Using the Web Administrator, go to Volume Operations → Create File Volumes and click Scan for New Disks.

- Upgrading CRM firmware using In-Band RAID Management (IBRM) might cause all LUNs on the Sun StorEdge 6130 array to failover to a single RAID controller.

  Workaround: Place the *LUNS* back on the *primary* path by using the Web Administrator.

- An NDMP recover has mismatch on timestamp for the intermediate directories

  An NDMP recover may restore the mid-level directories with an incorrect "creation" timestamp. However, the target directories and files will be recovered with the correct timestamp.

- If the Sun StorEdge 5210 or 5310 NAS Appliance is shut down in a method other than the Web Administrator, or if the Web Administrator loses contact with the Sun StorEdge 5310 NAS Appliance, the browser may stop working.

  Workaround: Close all instances of the Web Administrator and web browsers. After the system reboots, reopen a web browser and relaunch the Java browser interface.

- The Notification Email URL field shows the hostname URL. You might not be able to connect to the Web Administrator by clicking this URL.

  Workaround: If the Domain Naming System (DNS) does not resolve the hostname, use the IP address to connect to the Sun StorEdge 5210 or 5310 NAS Appliance. Ensure that the host name defined in the Sun StorEdge 5210 or 5310 NAS Appliance is registered in a name server (for example, DNS or Network Information System (NIS)).

- High Availability and Port aggregation bond IP address may not restore properly after you delete a bond.

  Workaround: Select a different IP address for the bond.

- Poor RX/TX optical signal strength may result in degraded performance.

  Workaround: If there are no other critical hardware errors and you see significant performance degradation, this degradation could be related to Fibre Channel link errors. Contact Sun Service for assistance. (See "Service Contact Information" on page 47.)

- When you choose Configure NFS → Setup Hosts → Add User, the window contents don't refresh, and the system appears to stop working because of many entries in the NIS/NIS+ mappings.

  Wait for the system to finish processing and repaint the screen. Do not reboot your system.

- The Apply button becomes unusable when you attempt to create a LUN with more than six SATA drives from the Manage Raid option of the Web Administrator.

  Workaround: When reconfiguring SATA drives using the Web Administration tools, be sure to not go over the 2.0 Terabyte LUN maximum size limit of the RAID controller.

- The Web Administrator stops receiving input from the keyboard. The mouse input continues to work.

  Workaround:

1. **On UNIX systems, close your browser and end the `java_vm` process. On Windows systems, quit your browser, open the Windows Task Manager, and select the Process tab.**
2. **Ensure that all browser processes have ended.**
3. **Restart your browser to start a new Java virtual machine (JVM) process and resume normal operation.**

   This is an issue between certain JVMs and browsers.

- Attempts to log in to a system with an offline LUN using the Web Administrator results in an error of "Login rejected." Attempting to delete a volume from an offline LUN results in the server not responding.

  Workaround: This can occur when an offline LUN caused by a double fault is followed by a deletion of a file system from that LUN. A reboot is required.

Cluster-Specific Issues (Sun StorEdge 5310 Cluster Only)

The following cluster-specific issues are not resolved at this time.

- The Alone head could become stuck in the transition state while the Quiet head is in the Quiet state.

  Workaround: Perform another recover from the Alone head to ensure that your clusters are in Normal mode before doing any upgrades.

- In a cluster system using In-Band RAID Management (IBRM), it is important that the HBA ports on head 2 link to the same RAID Controller as the ports on head 1 using the same sequence. The setup needs to be mirrored.

  For example, if HBA port 2 on Head 1 is connected to Controller A, then HBA port 2 on Head 2 must be connected to Controller A on the same array controller. See FIGURE 1 for an example.

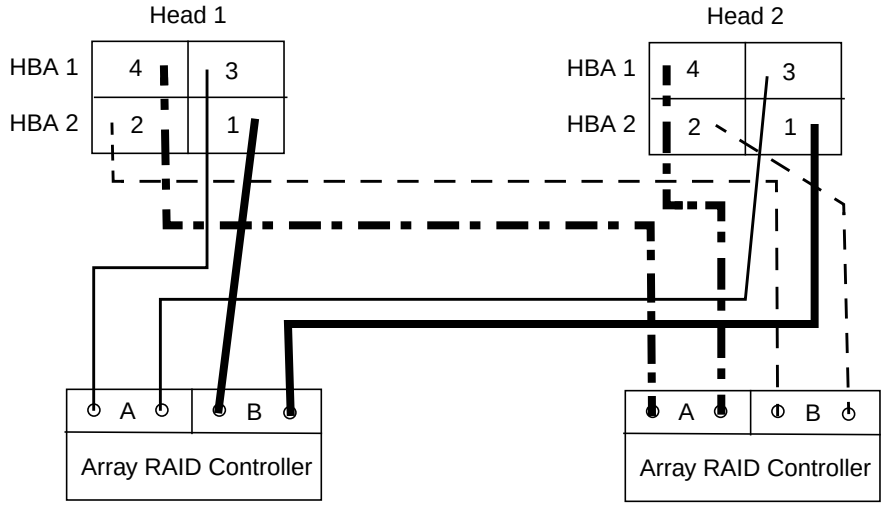

FIGURE 1 Relationship of HBA Ports to RAID Controllers

- Manual movement of LUNs between heads results in a zero capacity reading. This occurs during initial cluster setup or when you add new trays.

  Workaround: Run a manual disk scan from either the Web Administrator or the Telnet Menu/CLI and the head will refresh the LUN capacity.

- In a cluster configuration, if the Quiet head experienced system problems during recovery, some of its volumes may fail to mount on the Alone head.

  Workaround: Using the Telnet Menu / CLI, type the following command:

```
mount -f /volume-name
```

- In a cluster configuration, before doing a recovery, check the partner head using the LCD to see if the head is in Quiet mode. Then do the recovery from the Web Administrator or Telnet Menu of the Alone head.

  If physical access to the system is not available, you should Telnet to the cluster system. You will be logged into the Alone head. From there you can either check the log to ensure that the Quiet head has finished booting, or ping the Quiet head's heartbeat. By default the heartbeat IP is 10.10.10.1 for head 1 and 10.10.10.2 for head 2.

- In a cluster configuration, a head should only modify file permissions on file systems owned by that head and not those owned by the partner head.

- Attempting to log in to the Web Administrator fails with a long delay and the message "Login rejected."

  Workaround: Close all the browser instances, then restart the Web Administrator. This appears to occur with Mozilla variants of web browsers and not Internet Explorer.

- A new LUN created from cluster heads displays with owner as "Unowned."

  Workaround: Assign LUN ownership using the Web Administrator GUI or Telnet/CLI.

File Replicator-Specific Issues

The following replicator-specific issues are not resolved at this time.

- During creation of a new mirror, if the target/mirror system does not have enough space and partitions, then the source/master system continuously retries until enough space and partitions are available.

  Workaround: You can break the mirror. Then recreate the mirror after enough space and partitions are available on the target system.

- If there is a system failure (such as a power failure) within 10 seconds of the start of a change role process, both systems may be set as the TARGET and there will be no MASTER, causing loss of the mirror.

  Workaround: Contact Sun Technical Support for help in re-establishing your mirror.

- If you do a Change Role operation while there is heavy I/O activity on the master volume, the master might time out, and you might lose CIFS access to the volume.

  Workaround: Do a manual remount of the file volume from the CLI. For example, if the volume name is `volx`, type the following:

```
nas-5310> umount /volx
nas-5310> mount /volx
```

- The RESYNC option is not available in the Web Administrator.

  Workaround: This option is available via the Telnet menu.

- During mirroring with heavy I/O activity, or during mirroring with cluster systems, you might see the following messages in the logs of the target/mirror server:

```
nmir: deseq_recv: The mirror log appears to be full
```

Workaround: These messages are for informational purposes and the mirrors will continue with the normal operation. These messages can be safely ignored.

Gateway-Specific Issues (Sun StorEdge 5310 Gateway System Only)

The following gateway-specific issues are not resolved at this time.

- A Gateway system does not support heterogeneous systems attached to the head. Only one storage system per Sun StorEdge 5310 Gateway system configuration, single head or cluster, is supported. You may not attach multiple storage systems.
- In a Gateway-clustered system, each head must have two Fibre Channel connections to a SAN storage unit. One Fibre Channel connection is insufficient for proper funtionality.
- After you remap a LUN from other SAN hosts to the NAS Gateway system, the LUN may appear to be inaccessible.

  Workaround: Run the CLI `disk` *disk-name* command. If the owner of the LUN is listed as "noDPMGR," then the disk has residual data.

  Run the following CLI command to clear the data and make the LUN usable.

```
disk disk_name,partition-number zap
```

Caution – The `zap` command reformats the LUN. The disk table will be deleted.

Addenda to the Documentation

This section includes information that is additional to or overrides information in the documentation. It contains the following topics.

Upgrading Array and Drive Firmware Revision Levels

This section explains how to determine current array and drive firmware revision levels and how to upgrade your firmware. It contains the following topics:

Determining If You Need to Upgrade the Firmware

Before you begin a firmware upgrade, decide if an upgrade is required by determining the current firmware revision level for each array component.

You can use the `raidctl profile` command to capture and record the current firmware revision level of each RAID controller unit, expansion unit, controller NVSRAM, and drive. See "How to Capture `raidctl` Command Output" on page 36 for more information.

Upgrading Array and Drive Firmware (Reboot Required)

Use this procedure to upgrade RAID array and drive firmware. This procedure requires you to reboot the NAS server.

If you cannot reboot the NAS server and need to upgrade only array firmware, refer to "Upgrading Array Firmware (No Reboot Required)" on page 16.

The amount of time required to complete a firmware upgrade will vary depending on your configuration. For example, it takes approximately 50 minutes to upgrade and reboot a single NAS server with two RAID controllers, one FC expansion unit, and one SATA expansion unit. See TABLE 1 to determine how much time to allow for your configuration.

Note – Upgrading drive firmware always requires a reboot of the NAS server.

Note – All drives of each drive type will be upgraded including those that are already at the firmware level of the current firmware file.

Caution – Do not perform this procedure if a drive has failed and is in the rebuilding state. You can see this information in the system log or from the Web Administrator RAID page.

Before you begin this procedure, make sure that the NAS server software version 4.10 Build 18 (minimum) is installed. Do not attempt to upgrade array and drive firmware for a NAS server that has a previous OS version.

1. **Download the latest patch from `www.sunsolve.sun.com` and unzip the file.**
2. **Review the patch `readme` file to determine which firmware revision levels are associated with the patch.**
3. **From a NAS client, enable `ftp`.**

   Refer to the *Sun StorEdge 5310 NAS Appliance and Gateway System Administration Guide* for information about how to enable `ftp` using the Web Administrator GUI or CLI.
4. **Change to the directory to which you downloaded the patch.**
5. **Use `ftp` to connect to the NAS server, and log in as the admin user.**
6. **Enter `bin` for binary mode.**
7. **At the `ftp` prompt, create the following directories on `/cvol` by entering these commands:**

```
mkdir /cvol/firmware
mkdir /cvol/firmware/2882
mkdir /cvol/firmware/2882/ctlr
```

```
mkdir /cvol/firmware/2882/nvsram
mkdir /cvol/firmware/2882/jbod
mkdir /cvol/firmware/2882/drive
```

8. **Change to the directory you created for the firmware and copy the firmware file (see** TABLE 4**) using the** `put` **command.**

   For example, to load firmware for the RAID controller enter:

```
cd /cvol/firmware/2882/ctlr
put SNAP_288X_06120910.dlp
```

9. **Continue to load each firmware file to the appropriate directory.**

   TABLE 2 lists the directory and example firmware file for each component.

TABLE 2 Component Firmware Directories and Files

Component	Directory	Example File Name
RAID controller	`/cvol/firmware/2882/ctlr`	`SNAP_288X_06120910.dlp`
RAID controller NVSRAM	`/cvol/firmware/2882/nvsram`	`N2882-612843-503.dlp`
Fibre Channel EU	`/cvol/firmware/2882/jbod`	`esm9631.s3r`
SATAEU	`/cvol/firmware/2882/jbod`	`esm9722.dl`
Drive types:		
Seagate ST314680	`/cvol/firmware/2882/drive`	`D_ST314680FSUN146G_0407.dlp`
Seagate 10K	`/cvol/firmware/2882/drive`	`D_ST314670FSUN146G_055A.dlp`
Hitachi 400GB HDS724040KLSA80	`/cvol/firmware/2882/drive`	`D_HDS7240SBSUN400G_AC7A.dlp`
Fujitsu MAT3300F 300GB	`/cvol/firmware/2882/drive`	`D_MAT3300FSUN300G_1203.dlp`
Seagate 10K 300GB	`/cvol/firmware/2882/drive`	`D_ST330000FSUN300G_055A.dlp`

10. **Log out of the FTP session.**

11. **Telnet to the NAS server, and log in to a user account with admin privileges.**

12. **Reboot the system. For a cluster configuration, reboot both servers.**

    TABLE 3 provides the approximate time needed to upgrade the firmware for each component.

TABLE 3 Firmware Upgrade Time

Component	Time to Complete Upgrade
RAID controller	Reboot plus 15 minutes
RAID controller NVSRAM	Reboot plus 5 minutes
FC or SATA EU	Reboot plus 5 minutes
Drives	Reboot plus 1.5 minutes per drive

13. **Verify that the new firmware has been loaded by entering this command:**

    `raidctl get type=lsi target=profile ctlr=0`

    You can also check the system log for failures.

Upgrading Array Firmware (No Reboot Required)

This procedure upgrades RAID array firmware without requiring a reboot of the NAS server.

Before you begin this procedure, keep the following in mind:

- NAS server software version 4.10 Build 18 (minimum) must be installed. Do not attempt to upgrade firmware to a NAS server that has a previous OS version.
- This procedure is best performed with limited I/O activity. The controller will quiesce I/O during this procedure.

Caution – Do not perform this procedure if a drive has failed and is in the rebuilding state. You can see this information in the system log.

1. **Download the latest patch from `www.sunsolve.sun.com` and unzip the file.**
2. **Review the patch `readme` file to determine which firmware revision levels are associated with the patch.**
3. **Change to the directory to which you downloaded the patch.**
4. **From a NAS client, enable `ftp`.**

   Refer to the *Sun StorEdge 5310 NAS Appliance and Gateway System Administration Guide* for information about how to enable `ftp` using the Web Administrator GUI or CLI.

5. **Use `ftp` to connect to the NAS server, and log in to a user account with admin privileges.**

6. **Enter `bin` for binary mode.**

7. **At the `ftp` prompt, create the following directories on `/cvol` by entering:**

```
mkdir /cvol/firmware
mkdir /cvol/firmware/2882
mkdir /cvol/firmware/2882/ctlr
mkdir /cvol/firmware/2882/nvsram
mkdir /cvol/firmware/2882/jbod
```

8. **Change to the directory you created for the firmware and copy the firmware file (see** TABLE 4**) using the `put` command.**

   For example, to load firmware for the RAID controller enter:

```
cd /cvol/firmware/2882/ctlr
put SNAP_288X_06120910.dlp
```

9. **Continue to load each firmware file to the appropriate directory.**

   TABLE 4 lists the directory and example firmware file for each component.

TABLE 4 Component Firmware Directories and Files

Component	Directory	Example File Name
RAID controller	`/cvol/firmware/2882/ctlr`	`SNAP_288X_06120910.dlp`
RAID controller NVSRAM	`/cvol/firmware/2882/nvsram`	`N2882-612843-503.dlp`
Fibre Channel EU	`/cvol/firmware/2882/jbod`	`esm9631.s3r`
SATA EU	`/cvol/firmware/2882/jbod`	`esm9722.dl`

10. **Log out of the FTP session.**

11. **Use Telnet to connect to the NAS server, and log in to a user account with admin privileges.**

12. **Use the `raidctl download` command to load each file to the target directory.**

    For example, to load the controller firmware from the `ctlr` directory to controller 0 and 1, enter this command:

raidctl download type=lsi target=ctlr ctlr=0

This command downloads the firmware file to both controllers and removes the file from the directory.

Note – The `raidctl download` command deletes the firmware file after each invocation of the command. Therefore, you must re-copy the firmware file after upgrading each component (controller unit, controller NVSRAM, expansion unit, drives).

To download the firmware located in the `jbod` directory to expansion enclosure 0, enter this command:

raidctl download type=lsi target=jbod ctlr=0

13. **Monitor the progress of each download from the Telnet session.**

The approximate time needed to complete each upgrade is as follows:

Component	Minutes per component
RAID controller EU	15 minutes
RAID controller NVSRAM	5 minutes
FC or SATA EU	5 minutes

Note – After the upgrades complete, the `telnet` cursor can take up to 5 minutes to return. Wait during this time until the cursor is displayed.

---

14. **Before continuing to the next component, verify in the system log that the download is complete.**

    The following example shows output from the system log:

```
Ctrl-

Firmware Download  90% complete
Firmware Download  95% complete
Firmware Download 100% complete
Waiting for controllers to become ACTIVE
Controller 0 - now ACTIVE
Controller 1 - now ACTIVE
Controllers are now active
nvsram-

raidctl download type=lsi target=nvsram ctlr=0
Flashing C0 NVSRAM: /cvol/nf2/../firmware/2882/nvsram/n2882-
61.dlp (48068)
Firmware Download 100% complete
Waiting for controllers to become ACTIVE
Controller 0 - now ACTIVE
Controller 1 - now ACTIVE
Controllers are now active
ESM-
>> raidctl download type=lsi target=jbod ctlr=0 tray=1

Flashing C0 JBOD 1 with
/cvol/nf1/../firmware/2882/jbod/esm9631.s3r (663604)
Firmware Download  20% complete
Firmware Download  30% complete
Firmware Download  50% complete
Firmware Download  60% complete
Firmware Download  90% complete
Firmware Download 100% complete
Waiting for controllers to become ACTIVE
Controller 0 - now ACTIVE
Controller 1 - now ACTIVE
Controllers are now active
```

FIGURE 2 Sample System Log Output

```
Drive-
10/26/05 10:57:42 I Firmware Download  20% complete
10/26/05 10:57:46 I Firmware Download  30% complete
10/26/05 10:57:50 I Firmware Download  40% complete
10/26/05 10:57:54 I Firmware Download  50% complete
10/26/05 10:57:58 I Firmware Download  60% complete
10/26/05 10:58:03 I Firmware Download  70% complete
10/26/05 10:58:08 I Firmware Download  80% complete
10/26/05 10:58:13 I Firmware Download  90% complete
10/26/05 10:58:18 I Bytes Downloaded: 628224 (2454 256 chunks),
imageSize=62804
                  8
10/26/05 10:59:01 I Flashed OK - drive in tray 2 slot 12
10/26/05 10:59:01 I Downloaded firmware version 0407 to 27 drives
```

Upgrading Drive Firmware (Reboot Required)

Use this procedure to upgrade only drive firmware. This procedure requires you to reboot the NAS server.

Note – Upgrading drive firmware always requires a reboot of the NAS server.

Note – All drives of each drive type will be upgraded including those that are already at the firmware level of the current firmware file.

The amount of time required to complete a firmware upgrade will vary depending on the number of drives that are installed plus the time to reboot the NAS server. See TABLE 1 to determine how much time to allow for your configuration.

Caution – Do not perform this procedure if a drive has failed and is in the rebuilding state. You can see this information in the system log.

Before you begin a drive firmware upgrade make sure that the NAS server software 4.10 Build 18 (minimum) is installed. Do not attempt to upgrade firmware to a NAS server that has a previous OS version.

1. **Download the latest patch from `www.sunsolve.sun.com` and unzip the file.**
2. **Review the patch readme file to determine which firmware revision levels are associated with the patch.**

3. **Change to the directory to which you downloaded the patch.**
4. **From a NAS client, enable FTP.**

   Refer to the *Sun StorEdge 5310 NAS Appliance and Gateway System Administration Guide* for information about how to enable `ftp` using the Web Administrator GUI or CLI.
5. **Use FTP to connect to the NAS server and log in as the admin user.**
6. **Enter `bin` for binary mode.**
7. **At the `ftp` prompt, create the following directory on `/cvol` by entering this command:**

   ```
   mkdir /cvol/firmware/2882/drive
   ```
8. **Change to the directory you created for the drive firmware and copy the drive firmware files (see** TABLE 2**) using the `put` command.**

   For example, to load firmware for the Seagate ST314680 drive enter:

   ```
   cd /cvol/firmware/2882/drive
   put D_ST314680FSUN146G_0407.dlp
   ```
9. **Log out of the FTP session.**
10. **Use Telnet to connect to the NAS server and log in as the admin user.**
11. **Reboot the system. For a cluster configuration, reboot both servers.**

    The approximate time to complete the upgrade is reboot time plus 1.5 minutes for each drive.
12. **Verify that the new firmware has been loaded by entering this command:**

    ```
    raidctl get type=lsi target=profile ctlr=0
    ```

    You can also check the system log for failures.

Connecting the Gateway System to the Sun StorEdge 6130 Array

This section provides instructions for connecting and configuring the Sun StorEdge 5310 NAS Gateway system to the Sun StorEdge 6130 array. The procedure assumes that you have already done the following:

- Installed and configured the gateway system as described in the *Sun StorEdge 5310 NAS Appliance and Gateway System Getting Started Guide*.

- Installed and configured the array as described in the *Sun StorEdge 6130 Array Getting Started Guide* (part number 819-0032-*nn*).

Cabling the Gateway System to the Sun StorEdge 6130 Array

You can connect the Gateway system directly to the Sun StorEdge 6130 array or through a single or dual Fibre Channel switches. A minimum of one port must be available on the NAS server and the 6130 array.

- Refer to the *Sun StorEdge 5310 NAS Appliance and Gateway System Getting Started Guide* for information about the NAS server ports and general installation instructions.
- Refer to the *Sun StorEdge 6130 Array Getting Started Guide* for information about the array ports and general installation instructions.

Required Software and Firmware

The Sun StorEdge 5310 NAS Gateway system requires software version 4.10 (minimum) for gateway support.

The Sun StorEdge 6130 array requires the following software and firmware to interoperate with the gateway system:

TABLE 5 Required Sun StorEdge 6130 Array Software and Firmware

Software	Version (minimum)	Patch ID
Sun StorEdge 6130 array management software	1.3	118164-06
Controller CRM-F firmware	06.12.09.10	117856-18
Array firmware installer		118185-14

Upgrading the Sun StorEdge 5310 NAS Gateway System

1. **If your Gateway system does not have software version 4.10 (minimum), download the latest version from** `http://sunsolve.sun.com`**.**
2. **Install the update as described in the** `install.txt` **file provided with the patch.**

Upgrading the Sun StorEdge 6130 Array Management Software

If the Sun StorEdge 6130 array is currently at version 1.2, upgrade the management software to version 1.3 before installing the patches.

If the Sun StorEdge 6130 array is currently at version 1.3, install the patches as described in "Upgrading the Sun StorEdge 6130 Array Firmware" on page 23.

To upgrade the management software:

1. **From the Sun StorEdge 6130 array management interface.**
2. **Log in to the Sun Storage Automated Diagnostic Environment and clear all existing alarms.**
3. **Log in to the management host as** `root`**.**
4. **Download the latest Sun StorEdge 6130 host software package v1.3 for Solaris from** `http://sunsolve.sun.com` **to any working directory on the management host.**
5. **Unzip the distribution file and untar the file.**
6. **Enter the following command:**

   ```
   ./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.

   When the installation is complete, a confirmation is displayed followed by the date and time that the upgrade finished.

   You can now install the patches as described in the next section.

Upgrading the Sun StorEdge 6130 Array Firmware

The Sun StorEdge 6130 array management software requires version 1.3 firmware before you can install the required patches.

To upgrade the firmware for the Sun StorEdge 6130 array:

1. **Download the required patches (see** TABLE 5**) from** `http://sunsolve.sun.com/`**.**
2. **Stop all I/O to the disk drives.**
3. **Log in to the management host as** `root`**.**
4. **Change to the directory to which you downloaded the software.**

5. **Install each patch by following the instructions in the patch `README` file.**
6. **Verify that the latest patches are installed:**
   a. **Open a supported browser.**
   b. **Enter the IP address of the management host using this format:**
      `https://host_IP:6789`
   c. **Log in to the management software.**
   d. **Click Sun StorEdge 6130 Configuration Service.**
      The Array Summary page is displayed.
   e. **Verify that the Firmware Version column displays 06.12.09.10 (or greater).**

Verifying the Array

To verify that the array is seen by the Sun StorEdge 6130 host software, use automatic discovery or manual registration.

▼ To Automatically Verify the Array

If the array is on the same subnet as the management host, you can automatically verify the array.

1. **Open a supported browser.**
2. **Enter the IP address of the management host using this format:**
   `https://`*host-IP*`:6789`**
3. **Log in to the management software.**
4. **Click Sun StorEdge 6130 Configuration Service.**
   The Array Summary page is displayed.
5. **On the Array Summary page, click Auto Discover to display arrays that are on the same subnet as the management host.**

   Note – It takes approximately 2 minutes for the software to discover each array.

6. **Verify that the array is listed on the Array Summary page.**

▼ To Manually Register the Array

If the array is not on the same subnet as the management host, you must manually register the array.

1. **Open a supported browser.**
2. **Enter the IP address of the management host using this format:**

   `https://`*host-IP*`:6789`**

3. **Log in to management software.**
4. **Click Sun StorEdge 6130 Configuration Service.**

   The Array Summary page is displayed.

5. **On the Array Summary page, click Register Array.**

   The Array Registration page is displayed.

6. **Enter the IP address of the controller and click OK.**
7. **Verify that the array is listed on the Array Summary page.**

Making the Sun StorEdge 6130 Array SAN Storage Available

To make the Sun StorEdge 6130 SAN storage available to the NAS Gateway system, do the following:

1. Create an initiator on the Sun StorEdge 6130 array
2. Define a new volume on the Sun StorEdge 6130 array
3. Define a NAS volume on the NAS server

▼ To Create an Initiator

1. **Log in to the Sun StorEdge 6130 Configuration Service software, and click Physical Storage > Initiators.**

   The Initiator Summary page is displayed.

2. **Click New.**

   The New Initiator Summary page is displayed.

3. **Enter a name for the new initiator, using a maximum of 30 characters.**
4. **Select an existing world wide name (WWN), or enter a new one.**

5. **Select the host name for the new initiator.**
6. **Select the Sun StorEdge host type for the initiator.**
7. **Click OK.**

   The Initiator Summary page displays the initiator name, host name, host type, and WWN of the new initiator.

▼ To Define a Sun StorEdge 6130 Volume

1. **In the Sun StorEdge 6130 Configuration Service interface, click Logical Storage > Volumes.**

   The Volume Summary page is displayed.
2. **Click New.**

   The New Volume wizard is displayed.
3. **Enter a name and capacity for the volume.**
4. **Select the virtual disk you want to use for this volume.**
5. **Map the volume to the Sun StorEdge 5310 NAS Gateway host.**

   The new volume is displayed on the Volume Summary page.

▼ To Define a NAS 5310 Volume

1. **From a client of the NAS server, log in to the Web Administrator.**
2. **Create a NAS volume on the Sun StorEdge 6130 volume and format it:**

   a. **Open the File Volume Operations menu.**

   b. **Select Create File Volumes.**

   c. **Click Scan New Disks.**

      The newly created 6130 LUN is displayed on the left side of the center pane.

   d. **Name the volume, enter the required parameters, and click Apply.**

      See the *Sun StorEdge 5310 NAS Appliance and Gateway System Administration Guide* for information about the required parameters.

Cluster Power On Procedure

The cluster power-on procedure on page 78 of the *Sun StorEdge 5310 NAS Appliance and Gateway System Getting Started Guide* instructs you to power on server H1 first. To determine the H1 server, look for the software serial number (ending in -H1) on the label that is affixed to the back panel of the NAS server. If the label is not located at the back of the server, check the sheet metal on left side of the NAS server.

Mounting File Systems

After multiple continuous reboots, one or more file systems may become unmounted. To mount the file systems, issue the following command:

```
mount -f volume-name
```

Drive Letter Assignments to File Systems

During file system creation, the NAS will automatically assign a drive letter to file systems accessible by way of SMB/CIFS. It is possible to run out of drive letters, after which you may see the following log message:

```
No drive letter available
```

This message is for informational purposes only. The file system will be created but, to assign it a drive letter, you must reassign a drive letter that is currently used by another file system.

Adding Drives to the Sun StorEdge 5210 and 5310 NAS Appliance

The Sun StorEdge NAS Appliance supports hot-plugging of drives. However, to add or remove expansion units, you must shut down the system.

Compliance Feature

The following information applies to the Sun StorEdge 5310 Appliance and Cluster configurations.

- The compliance feature of worming a file through Microsoft Windows software is turned off by default.

  To turn the Windows trigger on, use the following CLI command:

```
fsctl compliance wte on
```

- When a compliance license expires or is removed, the system will maintain compliance rules, but no new compliance volumes can be created.

Online Help

Check Rate Field

The Set Up NIS panel is missing a description for the Check Rate field. The description of the Check Rate field is as follows:

Check Rate - Enter the frequency in minutes you want the NIS information to be refreshed. The default is five minutes.

Locate Drive and Locate Drive Tray

The Locate Drive and Locate Drive Tray pages are missing from the online help. To determine these parameters, bring up the Web Administrator GUI navigation panel and select RAID → Manage RAID. The Manage RAID Panel is displayed. Then click the Locate Drive or Locate Drive Tray button. This causes the LCD indicator for the drive or drive tray to flash.

Upgrade to 4.10 Requires Resetting the Timezone

When upgrading to 4.10, you will be asked to re-enter timezone information, even though it was previously entered. This is due to a changed implementation that offers additional timezone locations.

Reintroduction of a LUN Requires a Reboot

A reboot is required when a LUN is deleted and then reintroduced to the NAS using a method other than In-Band RAID Management.

A server reboot is not required for the gateway system. You can unmap and remap the LUN as described in "LUN Unmapping and Remapping Procedures for the Gateway System" on page 34.

CATIA V4/V5 Interoperability Support

CATIA V4 is a UNIX-only product, whereas CATIA V5 is available on both UNIX and Windows platforms. CATIA V4 may use certain characters in file names that are invalid in Windows. When CATIA customers migrate from V4 to V5, V4 files may become inaccessible in Windows if their file names contain invalid Windows characters. Therefore, a character translation option is provided for CATIA V4/V5 UNIX/Windows interoperability. The translation table is shown in TABLE 6:

TABLE 6 CATIA Character Translation Table

CATIA V4 UNIX Character	CATIA V5 Windows Character	CATIA V5 Character Description
Curved open double quotation (not shown)	¨	Dieresis
*	¤	Currency sign
/	ø	Latin small letter O with stroke
:	÷	Division sign
<	«	Left-pointing double angle quotation mark
>	»	Right-pointing double angle quotation mark
?	¿	Inverted question mark
\	ÿ	Latin small letter Y with dieresis
|	Broken bar (not shown)	Broken bar

CATIA V4/V5 interoperability support is disabled by default. You can enable the feature either manually through the CLI or automatically after a system boot.

▼ To Enable CATIA Using the CLI

Issue the following CLI command, `load catia`. When using this method, you must re-enable CATIA support after each system reboot.

▼ To Enable CATIA Automatically On Reboot

1. **Edit `/dvol/etc/inetload.ncf` to add the word `catia` on a separate line within the file.**
2. **Issue the following two CLI commands to restart the `inetload` service:**
   - `unload inetload`
   - `load inetload`
3. **If CATIA V4/V5 support was successfully enabled, an entry similar to the following is displayed in the system log:**

```
07/25/05 01:42:16 I catia: $Revision: 1.1.4.1
```

Offline LUNs Cannot Be Deleted

LUNs or volumes that are offline cannot be deleted. A LUN must be brought online before it or its volumes can be deleted.

Do Not Manually Mount `/CVOL`

The `/cvol` file system should not be manually shared or mounted. Do not make modifications to `/cvol` using any method other than the Web Administrator or Telnet/CLI.

Note – Sun Support Engineers are authorized to perform a manual mount.

`raidctl` Command

The `raidctl` command enables you to manage the Sun StorEdge 5310 NAS Appliance RAID controllers from the CLI. To get help on the `raidctl` subcommands, enter the `raidctl help` command.

Controlling LEDs

Use the `raidctl locate` command to control the LEDs in a tray.

To cause all LEDS in the tray to blink, enter:

```
raidctl locate type=lsi target=tray ctlr=0..n tray=0..n
```

To cause a specified drive's LED to blink, enter:

```
raidctl locate type=lsi target=drive ctlr=0..n tray=0..n slot=1..n
```

To stop blinking LEDs for a specified controller, enter:

```
raidctl locate type=lsi action=stop ctlr=0..n
```

Getting Events and Configuration Information

Use the `raidctl get` command to get RAID controller events and configuration information.

To get all events for a specified controller, enter:

```
raidctl get type=lsi target=events ctlr=0..n
```

The log of all events will be written to `/cvol/log/2882ae.log` file. If the file already exists, you will be prompted to overwrite the file, specify a new file name, or cancel the operation.

To get critical events for a specified controller, enter:

```
raidctl get type=lsi target=events ctlr=0..n etype=critical
```

The log of critical events will be written to `/cvol/log/2882ce.log` file. If the file already exists, you will be prompted to overwrite the file, specify a new file name, or cancel the operation.

To get configuration information for a specified controller, enter:

```
raidctl get type=lsi target=profile ctlr=0..n
```

Setting the Controller Time and Battery Age

Use the `raidctl set` command to set the time and battery age of a RAID controller.

To reset a specified controller's battery age, enter:

```
raidctl set type=lsi target=battery-age ctlr=0..n
```

To synchronize a controller's time with the server's time, enter:

```
raidctl set type=lsi target=ctlr_time-age ctlr=0..n
```

Downloading Firmware

Use the `raidctl download` command to download firmware. Download the firmware to the following directories:

Component	Directory
RAID controller	`/cvol/firmware/2882/ctlr/`
RAID controller NVSRAM	`/cvol/firmware/2882/nvsram/`
FC or SATA EU	`/cvol/firmware/2882/jbod/`
Disk	`/cvol/firmware/2882/drive/`

See "Upgrading Array and Drive Firmware Revision Levels" on page 13 for procedures.

To download firmware to a specified controller, enter:

```
raidctl download type=lsi target=ctlr ctlr=0..n
```

To download firmware to a specified controller's NVSRAM, enter:

```
raidctl download type=lsi target=nvsram ctlr=0..n
```

To download firmware to a specified EU, enter:

```
raidctl download type=lsi target=jbod ctlr=0..n tray=1..n
```

To download firmware to a specified drive, enter:

```
raidctl download type=lsi target=drive ctlr=0..n tray=0..n slot=1..n
```

File Replication Using Clusters

Do not perform mirror operations such as Change Role when a cluster is in a degraded state. Please refer to the *Sun StorEdge 5310 NAS Appliance and Gateway System Administration Guide*, 819-3238-10, for information on best practices.

Exporting a File Volume

You can export a file volume only to a set of hosts with root permission (like Sun Solaris or UNIX) by adding the hosts to the "trusted group" using the Set Up Hosts window.

Another way of doing this is to add the set of hosts to a host group and then export the required file volume against this group using the "with Map Root User set to Root User" option.

MIB Files

The Management Information Base (MIB) files are installed with the image in the *boot-directory*`/www/data/mib` directory; for example, `/cvol/nf1/www/data/mib`.

The MIB files can also be found in the release software download from `http://sunsolve.sun.com`.

NAS System Log Messages

If your system log contains error messages stating "Unowned SFS2" volumes, call Technical Support for assistance.

Identification of Specific Disks for Replacement

This section applies only to non-Gateway systems.

If you have a disk drive failure, use the log entry to help you identify the specific disk (you can interpret disk locations in both the system log and diagnostic reports the same way). The following is a log entry example.

```
Controller 0  enclosure 0  row 0  column 6
```

To interpret such log entries, keep the following points in mind:

- Ignore any channel and target numbers.
- Controller numbering starts at 0. For example, the controllers in the first array are 0 (slot A) and 1 (slot B), and the controllers in the second array are 2 and 3.
- Enclosure numbering starts at 0 and is relative to the array to which it belongs. For example, if the first array has 2 enclosures they are identified as enclosure 0 and 1.
- Row numbering is always 0 for the Sun StorEdge 5310 Cluster System.
- Column numbering starts at 0 and specifies the slot number in the enclosure.

Thus, you can interpret the example as indicating slot 7 of the first enclosure in the first array.

Note – There is no standard way to identify which array is the first one and which is the second one. Typically, the first HBA port is connected to the first array, the second HBA port is connected to the second array, and so on.

Scheduling Multiple Checkpoints Per Volume

Scheduled checkpoints per volume are limited to 5, but multiple checkpoints may be specified per schedule. The following is an example:

```
                                Days      Hours AM      Hours PM        Keep
    Enabled  Description    SMTWTFS   M1234567890E  M1234567890E  Days + Hours
1.      Y    MTWTF5am5pm    -*****-   -----*------  -----*------  1       0
2.      Y    SunWed1pm      *--*---   ------------  -*----------  0       12
3.      Y    MWFmidnight    -*-*-*-   *-----------  ------------  0       3
4.      Y    Weekend        *-----*   *-----*-----  *-----*-----  0       6
5.      Y    FriEvery2hrs   -----*-   *-*-*-*-*-*-  *-*-*-*-*-*-  0       2
```

LUN Unmapping and Remapping Procedures for the Gateway System

This procedure explains how to unmap a SAN storage LUN associated with the StorEdge 5310 NAS Gateway system. It also describes how to remap a LUN if you need to access the data in the future.

A summary of the unmapping and remapping procedure is as follows:

1. Unmapping a LUN
   a. Unmount the volumes that reside on the LUN you want to unmap.
   b. Unmap the LUN using the SAN management host software.
   c. Rescan the Gateway system LUNs.
2. Remapping a LUN
   a. Remap the LUN using the SAN management host software.
   b. Rescan the Gateway system LUNs.

c. Remount the volumes you want to access.

The following procedures use the Sun StorEdge 6130 array as an example.

▼ To Unmap a LUN

1. **Unmount the volume at the Gateway system:**

   a. **Use Telnet to connect to the NAS Gateway system.**

   b. **At the first prompt, type `admin` to start the CLI.**

   c. **Type `mount` to list the volumes that are mounted on the LUN to be unmapped. The "Origin" column displays the name of the raw devices that contains the volumes. Note the names of the volumes (listed in the leftmost column) you want to unmount.**

   d. **Unmount all volumes that reside on the LUN to be unmapped using the `umount` command. Type `mount` and verify that none of the volumes that belong to the LUN are mounted.**

2. **From the Sun StorEdge 6130 management host, unmap the LUN from the backend array.**

   a. **Open a browser to `https://<hostname>:6789` and log in to the management software.**

   b. **Click Sun StorEdge 6130 Configuration Service.**

   c. **Click the array whose LUN you want to unmap.**

   d. **Click the name of the LUN you want to unmap.**

   e. **Click the Unmap button.**

   f. **Click OK on the pop-up window to confirm that you want to delete the LUN.**

3. **Rescan at the Gateway system.**

   a. **Identify the LUN you want to unmap.**

   b. **Use Telnet to connect to the NAS Gateway system.**

   c. **At the first prompt, type `menu` to start the character-based menu interface.**

   d. **Enter the letter `d` to display the Disks and Volumes menu.**

   e. **From the Disks and Volumes menu, enter `9` to scan for new disks (or LUNs). Wait for the message "Scanning for new disks, please wait..." to clear.**

▼ To Remap a LUN

1. **From the Sun StorEdge 6130 management host, remap the LUN at the backend array.**
   a. **Open a browser to `https://<hostname>:6789` and log in to the management software.**
   b. **Click Sun StorEdge 6130 Configuration Service.**
   c. **Click the array whose LUN you want to remap.**
   d. **Check the box next to the name of the LUN you want to remap.**
   e. **Press the Map button.**
      The Map Volumes window is displayed.
   f. **Check the host to which you want to map the LUN.**
2. **Rescan the LUNs at the Gateway system:**
   a. **Use Telnet to connect to the Gateway system.**
   b. **At the first prompt, type `menu` to start the character-based menu interface.**
   c. **Enter the letter `d` to display the Disks and Volumes menu.**
   d. **From the Disks and Volumes menu, enter `9` to scan for new disks (or LUNs). Wait for the message "Scanning for new disks, please wait..." to clear.**
3. **Remount the volumes at the Gateway system.**
   a. **Use Telnet to connect to the Gateway system.**
   b. **At the first prompt, type `admin` to start the CLI.**
   c. **Mount all volumes that reside on the LUN that was remapped.**
   d. **Type `mount` to verify that all of the volumes are remapped.**

How to Capture `raidctl` Command Output

You can use the `raidctl profile` command to determine the current firmware revision level of each RAID controller unit, expansion unit, controller NVSRAM, and drive. The following procedures are provided:

- "To Capture `raidctl` Command Output From a Solaris Client" on page 37
- "To Capture `raidctl` Output From a Windows Client" on page 46

▼ To Capture `raidctl` Command Output From a Solaris Client

1. **From a Solaris client, type the `script` command and a file name. For example,**

   > **`script raidctl`**

2. **Use Telnet to connect to the NAS server.**

3. **Type the following `raidctl` command to collect the output.**

   `raidctl get type=lsi target=profile ctlr=0`

4. **Type `exit` to close the Telnet session.**

5. **Type `exit` again to close the file named `raidctl`.**

   The following example shows command output with firmware levels highlighted in bold:

```
telnet 10.8.1xx.x2
Trying 10.8.1xx.x2...
Connected to 10.8.1xx.x2.
Escape character is '^]'.
connect to (? for list) ? [menu] admin
password for admin access ? *********
5310 > raidctl get type=lsi target=profile ctlr=0

SUMMARY--------------------------------
Number of controllers: 2
Number of volume groups: 4
Total number of volumes (includes an access volume): 5 of 1024 used
   Number of standard volumes: 4
   Number of access volumes: 1
Number of drives: 28
Supported drive types: Fibre (28)
Total hot spare drives: 2
   Standby: 2
   In use: 0
Access volume: LUN 31
Default host type: Sun_SE5xxx (Host type index 0)
Current configuration
   Firmware version: PkgInfo 06.12.09.10
   NVSRAM version: N2882-612843-503
Pending configuration
```

```
CONTROLLERS --------------------------------
Number of controllers: 2

Controller in Tray 0, Slot B
   Status: Online
   Current Configuration
      Firmware version: 06.12.09.10
         Appware version: 06.12.09.10
         Bootware version: 06.12.09.10
      NVSRAM version: N2882-612843-503
   Pending Configuration
      Firmware version: None
         Appware version: None
         Bootware version: None
      NVSRAM version: None
      Transferred on: None
   Board ID: 2882
   Product ID: CSM100_R_FC
   Product revision: 0612
   Serial number: 1T44155753
   Date of manufacture: Sat Oct 16 00:00:00 2004
   Cache/processor size (MB): 896/128
   Date/Time: Thu Nov  2 19:15:49 2006
   Associated Volumes (* = Perferred Owner):
      lun4* (LUN 3)
Ethernet port: 1
      Mac address: 00.A0.B8.16.C7.A7
      Host name: gei
      Network configuration: Static
      IP address: 192.168.128.106
      Subnet mask: 255.255.255.0
      Gateway: 192.168.128.105
      Remote login: Enabled
   Drive interface: Fibre
      Channel: 2
      Current ID: 124/0x7C
      Maximum data rate: 200 MB/s
      Current data rate: 200 MB/s
      Data rate control: Fixed
      Link status: Up
      Topology: Arbitrated Loop - Private
      World-wide port name: 20:02:00:A0:B8:16:C7:A7
      World-wide node name: 20:00:00:A0:B8:16:C7:A7
      Part type: HPFC-5400      revision 6
```

```
 Drive interface: Fibre
      Channel: 2
      Current ID: 124/0x7C
      Maximum data rate: 200 MB/s
      Current data rate: 200 MB/s
Data rate control: Fixed
      Link status: Up
      Topology: Arbitrated Loop - Private
      World-wide port name: 20:02:00:A0:B8:16:C7:A7
      World-wide node name: 20:00:00:A0:B8:16:C7:A7
      Part type: HPFC-5400      revision 6
   Host interface: Fibre
      Channel: 2
      Current ID: 255/0x3
      Maximum data rate: 200 MB/s
      Current data rate: 200 MB/s
      Data rate control: Auto
      Link status: Down
      Topology: Unknown
      World-wide port name: 20:07:00:A0:B8:16:C6:FB
      World-wide node name: 20:06:00:A0:B8:16:C6:F9
      Part type: HPFC-5400      revision 6
   Host interface: Fibre
      Channel: 2
      Current ID: 255/0x3
      Maximum data rate: 200 MB/s
      Current data rate: 200 MB/s
      Data rate control: Auto
      Link status: Down
      Topology: Unknown
      World-wide port name: 20:07:00:A0:B8:16:C6:FB
      World-wide node name: 20:06:00:A0:B8:16:C6:F9
      Part type: HPFC-5400      revision 6

Controller in Tray 0, Slot A
   Status: Online
   Current Configuration
      Firmware version: 06.12.09.10
         Appware version: 06.12.09.10
         Bootware version: 06.12.09.10
      NVSRAM version: N2882-612843-503
   Pending Configuration
      Firmware version: None
         Appware version: None
         Bootware version: None
      NVSRAM version: None
      Transferred on: None
```

```
 Board ID: 2882
   Product ID: CSM100_R_FC
   Product revision: 0612
   Serial number: 1T44155741
   Date of manufacture: Sun Oct 10 00:00:00 2004
   Cache/processor size (MB): 896/128
   Date/Time: Thu Nov  2 19:15:45 2006
   Associated Volumes (* = Perferred Owner):
lun1* (LUN 0), lun2* (LUN 1), lun3* (LUN 2)
   Ethernet port: 1
      Mac address: 00.A0.B8.16.C6.F9
      Host name: gei
      Network configuration: Static
      IP address: 192.168.128.105
      Subnet mask: 255.255.255.0
      Gateway: 192.168.128.105
      Remote login: Enabled
   Drive interface: Fibre
      Channel: 1
      Current ID: 125/0x7D
      Maximum data rate: 200 MB/s
      Current data rate: 200 MB/s
      Data rate control: Fixed
      Link status: Up
      Topology: Arbitrated Loop - Private
      World-wide port name: 20:01:00:A0:B8:16:C6:F9
      World-wide node name: 20:00:00:A0:B8:16:C6:F9
      Part type: HPFC-5400      revision 6
Drive interface: Fibre
      Channel: 1
      Current ID: 125/0x7D
      Maximum data rate: 200 MB/s
      Current data rate: 200 MB/s
      Data rate control: Fixed
      Link status: Up
      Topology: Arbitrated Loop - Private
      World-wide port name: 20:01:00:A0:B8:16:C6:F9
      World-wide node name: 20:00:00:A0:B8:16:C6:F9
      Part type: HPFC-5400      revision 6
Host interface: Fibre
      Channel: 1
      Current ID: 255/0x0
      Maximum data rate: 200 MB/s
      Current data rate: 200 MB/s
      Data rate control: Auto
```

```
 Link status: Down
      Topology: Unknown
      World-wide port name: 20:06:00:A0:B8:16:C6:FA
      World-wide node name: 20:06:00:A0:B8:16:C6:F9
      Part type: HPFC-5400      revision 6
   Host interface: Fibre
      Channel: 1
      Current ID: 255/0x0
      Maximum data rate: 200 MB/s
      Current data rate: 200 MB/s
      Data rate control: Auto
      Link status: Down
      Topology: Unknown
World-wide port name: 20:06:00:A0:B8:16:C6:FA
      World-wide node name: 20:06:00:A0:B8:16:C6:F9
      Part type: HPFC-5400      revision 6

VOLUME GROUPS--------------------------
   Number of volume groups: 4
   Volume group 1 (RAID 5)
      Status: Online
      Tray loss protection: No
      Associated volumes and free capacities:
         lun1 (681 GB)
      Associated drives (in piece order):
      Drive at Tray 0, Slot 7
      Drive at Tray 0, Slot 6
      Drive at Tray 0, Slot 5
      Drive at Tray 0, Slot 4
      Drive at Tray 0, Slot 3
      Drive at Tray 0, Slot 8
Volume group 2 (RAID 5)
      Status: Online
      Tray loss protection: No
      Associated volumes and free capacities:
         lun2 (681 GB)
      Associated drives (in piece order):
      Drive at Tray 0, Slot 14
      Drive at Tray 0, Slot 13
      Drive at Tray 0, Slot 12
      Drive at Tray 0, Slot 11
      Drive at Tray 0, Slot 10
      Drive at Tray 0, Slot 9
```

```
 Volume group 3 (RAID 5)
      Status: Online
      Tray loss protection: No
      Associated volumes and free capacities:
         lun3 (817 GB)
      Associated drives (in piece order):
      Drive at Tray 11, Slot 5
      Drive at Tray 11, Slot 4
      Drive at Tray 11, Slot 3
      Drive at Tray 11, Slot 2
      Drive at Tray 11, Slot 1
      Drive at Tray 11, Slot 7
      Drive at Tray 11, Slot 6
   Volume group 4 (RAID 5)
      Status: Online
      Tray loss protection: No
      Associated volumes and free capacities:
         lun4 (817 GB)
      Associated drives (in piece order):
      Drive at Tray 11, Slot 13
Drive at Tray 11, Slot 12
      Drive at Tray 11, Slot 11
      Drive at Tray 11, Slot 10
      Drive at Tray 11, Slot 9
      Drive at Tray 11, Slot 8
      Drive at Tray 11, Slot 14

STANDARD VOLUMES---------------------------

SUMMARY
   Number of standard volumes: 4
   NAME    STATUS    CAPACITY  RAID LEVEL  VOLUME GROUP
   lun1    Optimal   681   GB    5           1
   lun2    Optimal   681   GB    5           2
   lun3    Optimal   817   GB    5           3
   lun4    Optimal   817   GB    5           4
```

```
DETAILS

   Volume name: lun1
      Volume ID: 60:0A:0B:80:00:16:C6:F9:00:00:23:B4:43:4B:53:3A
      Subsystem ID (SSID): 0
      Status: Optimal
      Action: 1
      Tray loss protection: No
      Preferred owner: Controller in slot A
      Current owner: Controller in slot B
      Capacity: 681 GB
      RAID level: 5
      Segment size: 64 KB
      Associated volume group: 1
      Read cache: Enabled
      Write cache: Enabled
      Flush write cache after (in seconds): 8
      Cache read ahead multiplier: 1
      Enable background media scan: Enabled
      Media scan with redundancy check: Disabled
DRIVES------------------------------

SUMMARY

   Number of drives: 28
      Supported drive types: Fiber (28)
   BASIC:
CURRENT    PRODUCT      FIRMWARE
   TRAY,SLOT  STATUS  CAPACITY   DATA RATE     ID          REV
      0,1     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      0,7     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      0,6     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      0,5     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      0,4     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      0,3     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      0,2     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      0,14    Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      0,13    Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      0,12    Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      0,11    Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      0,10    Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      0,9     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      0,8     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
```

```
 11,5     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      11,4     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      11,3     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      11,2     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      11,1     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      11,13    Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      11,12    Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      11,11    Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      11,10    Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      11,9     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      11,8     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      11,7     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      11,6     Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307
      11,14    Optimal  136 GB    2 Gbps   ST314680FSUN146G 0307

   HOT SPARE COVERAGE:

      The following volume groups are not protected:

      Total hot spare drives: 2
         Standby: 2
         In use: 0

   DETAILS:

      Drive at Tray 0, Slot 1 (HotSpare)
         Available: 0
         Drive path redundancy: OK
         Status: Optimal
         Raw capacity: 136 GB
         Usable capacity: 136 GB
         Product ID: ST314680FSUN146G
         Firmware version: 0307
         Serial number: 3HY90HWJ00007510RKKV
Vendor: SEAGATE
         Date of manufacture: Sat Sep 18 00:00:00 2004
         World-wide name: 20:00:00:11:C6:0D:BA:3E
         Drive type: Fiber
         Speed: 10033 RPM
         Associated volume group: None
         Available: No
```

```
 Vendor: SEAGATE
         Date of manufacture: Sat Sep 18 00:00:00 2004
         World-wide name: 20:00:00:11:C6:0D:CA:12
         Drive type: Fiber
         Speed: 10033 RPM
         Associated volume group: 3
         Available: No

      Drive at Tray 11, Slot 1
         Drive path redundancy: OK
         Status: Optimal
         Raw capacity: 136 GB
         Usable capacity: 136 GB
         Product ID: ST314680FSUN146G
         Firmware version: 0307
         Serial number: 3HY90JEW00007511BDPL
         Vendor: SEAGATE
         Date of manufacture: Sat Sep 18 00:00:00 2004
         World-wide name: 20:00:00:11:C6:0D:C8:8B
         Drive type: Fiber
         Speed: 10033 RPM
         Associated volume group: 3
         Available: No
Drive Tray 1 Overall Component Information
      Tray technology: Fibre Channel
      Minihub datarate mismatch: 0
      Part number: PN 54062390150
      Serial number: SN 0447AWF011
      Vendor: VN SUN
      Date of manufacture: Mon Nov  1 00:00:00 2004
      Tray path redundancy: OK
      Tray ID: 11
Tray ID Conflict: 0
      Tray ID Mismatch: 0
      Tray ESM Version Mismatch: 0
      Fan canister: Optimal
      Fan canister: Optimal
      Power supply canister
         Status: Optimal
         Part number: PN 30017080150
         Serial number: SN A6847502330F
         Vendor: VN SUN
         Date of manufacture: Sun Aug  1 00:00:00 2004
```

```
 Power supply canister
         Status: Optimal
         Part number: PN 30017080150
         Serial number: SN A6847502330F
         Vendor: VN SUN
         Date of manufacture: Sun Aug  1 00:00:00 2004
      Power supply canister
         Status: Optimal
         Part number: PN 30017080150
         Serial number: SN A68475023N0F
         Vendor: VN SUN
         Date of manufacture: Sun Aug  1 00:00:00 2004
      Temperature: Optimal
Temperature: Optimal
      Esm card
         Status: Optimal
         Firmware version: 9631
         Maximum data rate: 2 Gbps
         Current data rate: 2 Gbps
         Location: A (left canister)
         Working channel: -1
         Product ID: CSM100_E_FC_S
         Part number: PN 37532180150
         Serial number: SN 1T44462572
         Vendor: SUN
         FRU type: FT SBOD_CEM
         Date of manufacture: Fri Oct  1 00:00:00 2004
      Esm card
         Status: Optimal
         Firmware version: 9631
         Maximum data rate: 2 Gbps
         Current data rate: 2 Gbps
         Location: B (right canister)
         Working channel: -1
```

▼ To Capture `raidctl` Output From a Windows Client

1. **Click Start > Run and type** `cmd`**. Click OK.**
2. **Right click at the top of the window and choose Properties.**

   The Properties dialog is displayed.
3. **Change the Screen Buffer size (height) to 3000.**
4. **Click the Options tab and uncheck Insert Mode.**

5. **Telnet to the NAS server and type the following `raidctl` command to collect the output.**

   ```
   raidctl get type=lsi target=profile ctlr=0
   ```

6. **Copy the text to a file using any text editor. For example:**

   a. **Select the output text and enter Control-C to copy the data.**

   b. **Open Wordpad by clicking Start > Programs > Accessories > Wordpad.**

   c. **Click in the window and press Control-V to paste the text.**

   d. **Save the file.**

7. **Open the file and search for the current firmware version for each component.**

Release Documentation

The following documentation is posted on the documentation Web site at:
`http://www.sun.com/hwdocs/Network_Storage_Solutions/nas.`

Title	Part Number
Sun StorEdge 5310 NAS Gateway System Poster	819-3240-10
Sun StorEdge 5310 NAS Appliance and Gateway System Getting Started Guide	819-3237-10
Sun StorEdge 5310 NAS Appliance and Gateway System Administration Guide	819-3238-10
Sun StorEdge 5310 NAS Appliance Safety and Compliance Guide	819-0881-10
Sun StorEdge 5300 RAID Expansion Unit and Sun StorEdge 5300 Expansion Unit Safety and Compliance Guide	819-0882-10

Service Contact Information

If you need help installing or using this product, call 1-800-USA-4SUN, or go to:

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