



Sun StorageTek™ 5000 NAS OS Software Release Notes

Software Release 4.12

Sun Microsystems, Inc.
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Sun StorageTek 5000 NAS OS Software Release Notes

These release notes contain information for the Sun StorageTek™ 5000 NAS OS version 4.12. The software is backward-compatible with previous versions of the Sun StorEdge™ 5210 NAS Appliance, Sun StorEdge 5310 NAS family of products, and the Sun StorageTek 5320 NAS family of products.

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Note – There is no means to upgrade a Sun StorEdge 5310 NAS Appliance to a Sun StorageTek 5320 NAS Appliance. At a later date an upgrade package and support services will be available to allow the upgrade of a Sun StorEdge 5310 NAS Appliance to a Sun StorageTek 5320 NAS Appliance.

New Features

The Sun StorageTek NAS operating system (OS) 4.12 provides support for the following items:

- Sun StorageTek 5320 NAS family of products
- Gateway support for the Sun StorageTek FlexLine 210, 240, 280, 380 storage systems
- Support for the following FC tape libraries:
 - Sun StorageTek C2 Tape Autoloader
 - Sun StorageTek C4 Tape Library
- Cisco Systems, Inc. MDS-9216 and MDS-9502 FC switches
- Enhanced remote replication performance improvements
- 2007 Daylight Savings Support
- Worm tape support for remote Network Data Management Protocol (NDMP) with Symantec (VERITAS) NetBackup 6.0
- Microsoft Corporation SQL application support

With the release of Sun StorageTek NAS OS 4.12, Sun Microsystems, Inc. has chosen to re-brand the 5000 NAS Family software with the Sun StorageTek brand to reflect our continued and increased commitment to the storage market. Sun StorageTek NAS OS 4.12 along with the StorageTek File Replicator and StorageTek Compliance Archiving Software options provide support for the following platforms:

- Sun StorageTek 5320 NAS Appliance
- Sun StorageTek 5320 NAS Cluster Appliance
- Sun StorageTek 5320 NAS Gateway System
- Sun StorageTek 5320 NAS Cluster Gateway System
- Sun StorEdge 5310 NAS Appliance
- Sun StorEdge 5310 NAS Cluster Appliance
- Sun StorEdge 5310 NAS Gateway System
- Sun StorEdge 5310 NAS Cluster Gateway System
- Sun StorEdge 5210 NAS Appliance

Note – For simplicity, all future releases of the Sun StorageTek NAS OS will refer to the above hardware systems by using the StorageTek brand.

System Requirements

The Sun StorageTek NAS OS is pre-installed on all supported platforms. You do not need to install any software to manage the Sun StorageTek 5320 NAS Appliance or Sun StorageTek 5320 NAS Gateway System.

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 1.4.0 (minimum version).

- Internet Explorer
- Mozilla™
- Netscape Navigator™

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

▼ To Determine Sun StorageTek NAS OS Software 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, 4.12 will display.

```
hostname> version
StorageTek Model 5320C NAS S/N 1234567 Version 4.12 M0 (Build 20)
```

▼ To Determine Firmware Revision Levels

Use the `raidctl get type=lsi target=profile ctrl=0..N` command to determine and record the current firmware revision level of each RAID controller unit, expansion unit, controller NVSRAM, and drive.

For more information, see:

- *Sun StorEdge 5310 NAS Appliance and Gateway System Administration Guide*, 819-3238-11
- *Sun StorageTek 5320 NAS Appliance and Gateway System Administration Guide*, 819-6388-10

Software Updates

Please upgrade your system by downloading the latest version of Sun StorageTek NAS OS software from <http://sunsolve.sun.com>. This requires a valid service contract. 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
- 119352 Software for the Sun StorageTek 5320 Appliance

Note – If you are upgrading a Sun StorEdge 5210 NAS Appliance to software version 4.12 from a release prior to version 4.05, Field Change Order (FCO) 257 is required. Contact SunSM 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.

Software Downgrades

Downgrading to an earlier version of the Sun StorageTek NAS OS other than what is loaded on your system, as indicated on the Shutdown the Server screen of the Web Administrator GUI, is not supported. If required, contact Sun service. When the software is upgraded the previous release remains on the system. So you can reboot to the previous release.

Resolved Issues

The following issues have been resolved with this release. The numbers in the parentheses indicate the Change Request.

- The Web Administrator interface will not go blank if left open and idle for more than 15 minutes. (6356459)
- Retained files can no longer be removed on Advisory Compliance volumes by Microsoft Windows non-administrator domain users. (6361605)
- During mirroring with heavy I/O activity, or during mirroring with cluster systems, you will no longer find the following messages filling up the logs of the target/mirror server in a short period of time. (6176236)

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

Resolved Issues From Previous Releases

The numbers in the parenthesis indicate the Change Request.

- A new LUN created from cluster heads displays the proper owner. (6287381)
- The Lightweight Directory Access Protocol (LDAP) search has been modified such that user information in a Microsoft Windows Active Directory Server (ADS) will not be deleted when the Sun StorageTek 5320 NAS Appliance autohome feature is used. (6310891)
- The timestamps on intermediate directories will be restored during a Network Data Management Protocol (NDMP) recover operation. (6259093)
- When a Sun StorEdge 6920 system is used as storage for the Sun StorEdge 5310 Gateway system, logical unit number (LUN) and volume information will now display properly in the Web Administrator. (6318244)
- When a Sun StorEdge 6920 system is used as storage for the Sun StorEdge 5310 Gateway system, LUN and volume information will now display properly in the Web Administrator. (6318244)
- A backup and restore of a directory containing hard links now works correctly. Previously the file system became read-only in certain circumstances. (6324643)
- After a LUN failover was initiated from one head to another in a cluster system, occasionally a LUN would not fail back correctly resulting in incorrect head ownership and I/O failure. All LUNs will now fail back to ownership by the correct head. (6327065)

- The system can now process detached LUNs. In the previous release, the system would enter a panic state when processing detached LUNs. (6328165)
- The 5310 and 5320 systems now allow you to create multiple LUNs. In the previous release, the server crashed during attempts to create multiple LUNs. (6305831)
- ISO8859 code pages with extended (8-bit) ASCII characters now display properly. (6299983)
- 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. (5100110)

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

- The Simple Network Management Protocol (SNMP) attribute `system.sysDescr.0` is now set correctly. (5062965)
- All checkpoints now list the Backup option. (5079000)
- The Environmental Monitoring Unit (EMU) boards in the Sun StorEdge 5210 NAS Appliance expansion unit are now properly instrumented and monitored. (5092547)
- The network attached storage (NAS) head no longer sends false battery errors. (5101253)
- The File Transfer Protocol (FTP) module in the Sun StorageTek NAS OS software now loads automatically at startup but remains disabled by default. (5106379)
- The graphical user interface (GUI) now has no limit to the number of external expansion units it will display. (6184256)
- The console now displays all file volumes, even if more than 50 were created. (6180031)
- The Create and Delete port bonding features (port aggregate) occasionally caused an unresponsive system; this has been fixed. (5108956/5109029)
- Large Network Data Management Protocol (NDMP) backup will not fill up `/dvol` with NDMP job files. (6252667)
- SNMP attribute `se5210RaidBBUStatus` is set to “normal.” (5064730)
- 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. (6215728)
- Occasional disk or Fibre Channel errors while running I/Os no longer cause some volumes to be marked Read-Only. (6213003/6214237)
- RAID volumes on Fibre Expansion Units will now automatically rebuild using available hot-spares. (6221965)

- NDMP Direct Access Restore (DAR) recovery will work with Backup Type set to “tar.” (6259024)
- Web Administrator will indicate read-only volumes if there is a LUN failure. (6222888)
- There are no longer inconsistencies between setting the time zone from the Telnet Menu/CLI and setting it from the Web Administrator. (6234042)
- In-band RAID management (IBRM) is now supported as of release 4.11. Therefore the help topics are now valid. (6215325)
- Old exports should no longer appear when there are no associated volumes. (6197943)
- When a cluster is in failover mode and, 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. (6236671)
- If you add a new tray, you can assign ownership of an unowned LUN with the Web Administrator. (6227823)
- When a mirrored volume is promoted using the Web Administrator, a status message is now displayed on the GUI. (6233969)
- The cluster should not lose time and get out of sync when under extreme load. (6235662)

Known Issues

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.

The following issues are not resolved at this time. The numbers in the parenthesis indicate the Change Request.

- The CPU utilization reaches 100% when trying to run the `raidctl get` command using an rsh connection. (6376034)

Workaround: Run the `raidctl get` command on the local system. The command will save it's output to a file. Then send the file over a network using ftp, email, or some other method

- The system log can report a controller temperature sensor as being in an unknown state. (6388993)

Workaround: This might be due to a controller error that causes the controller to reboot. After it has finished rebooting the system log should report that the temperature sensor is fine within five minutes.

- High Availability (HA) bonding of more than seven ports causes a failover to not complete successfully. (6411374)

Workaround: Do not create HA bonds of more than seven ports.

- When enabling anti-virus protection for the first time, existing client connections to Common Internet File System (CIFS) mapped shares will be exempt from scanning and are not protected. (6417994.)

Workaround: Before enabling Anti-Virus protection, make sure there are no client connections to CIFS-mapped shares, or reboot the system after enabling anti-virus protection to force all client connections to reconnect.

- When the Symantec Anti-Virus Scan Engine detects that a file might contain a virus and it cannot clean the file, the file will be quarantined. As part of the quarantine process, if the scan engine provides log information pertaining to its inspection of the file, the file is over-written with this log information and thus the original file data is lost. This can happen in cases where the file is not actually infected; if the scan engine detects that the containing message is malformed, or if it reaches or exceeds one of its configuration parameters while scanning the file. (6418443)

Workaround: Configure the anti-virus scan engine to allow access to all malformed containers, and allow access to files when a processing limit is met (or exceeded). Note that files actually infected with viruses will still be overwritten.

- High Availability → Set LUN Path → Auto Assign LUN Paths will not work on new LUNs. (6397065)

Workaround: Set LUN paths manually. Alternatively, initialize a new LUN by creating a file volume.

- The Sun StorageTek 5320 NAS Appliance head fan identification and numbering are inconsistent. (6393245)

Workaround: Following are the three different ways that fans are identified. Email notification uses the same method as the syslog.

TABLE 1 Sun StorageTek 5320 NAS Appliance Server Fan Identification

Physical label on Fan	syslog/remote syslog	GUI
FT0/FM0	0	1
FT0/FM1	1	2
FT0/FM2	2	3
FT1/FM0	3	4
FT1/FM1	4	5
FT1/FM2	5	6

- On a Sun StorageTek 5320 NAS Appliance system, email notification due to a fan fault may give the incorrect course of action. The course of action will notify the user to “Check the fan connection.” However the fans are inside the power supply. (6388065)

Workaround: Evaluate the power supply LEDs. Then check the enclosure section of the diagnostic info from the CLI. If a fan failure has occurred contact Technical Support.

- Due to timing issues it may be possible to create multiple bonds with the same NICs and IPs. (6383186)

Note – Never try to create more than one bond per NIC pair.

- The raidctl profile can incorrectly report “Battery Status: Near Expiration.” (6387411)

Workaround: Refer to the “Days until replacement:” information in the raidctl profile for a more accurate report of battery replacement needs.

- The In-Band RAID Management (IBRM) GUI screen may display phantom tray instances with ID 0. (6396234/6398799)

Workaround: The system will work correctly and this may be ignored. To fix the system must go through the recovery process.

- When creating an High Availability (HA) bond between 2 NIC ports, the IP address of the “partner IP address” was given as the same as that of the “IP address” field. Communication was lost. (6399042)

Workaround: You must login to the console of the Sun StorageTek 5320 NAS Appliance head and manually delete and reassign the incorrectly assigned ip addresses.

- When configuring a bond in “Networking Configuration → Configure Network Adapters.” IPs can only be added to the bottom of the list. That is, if there is a blank IP field at the top of the list you cannot enter an IP using the Web Administrator GUI. (6401617)

Workaround: You must delete all the IPs and recreate the list from the top field. Another option is to use the CLI.

- When editing the Internet Small Computer system Interface (iSCSI) Configuration Menu → Configure iSCSI LUN in the CLI/Telnet Menu, select an existing iSCSI LUN and then choosing “option 1) Edit” results in not being able to cancel the edit or escape from the menu. (6362767)

Workaround: Finish editing. You will then be able to cancel the edit session.

- SCSI errors might occur during writing to direct-attached SCSI LTO3 tape drives.

Workaround: Use the on-board Fibre Channel / SCSI bridge on the robot to connect to a Fibre Channel port on the network attached storage (NAS). (6347059)

- On newly purchased systems, or when you add a new controller or expansion unit, some LUNs may be offline. (6337658)

Workaround: This may be caused by duplicate SSIDs on the EUs. To bring the LUNs online, do the following.

1. Turn off all the storage arrays.
2. Turn on the controller array.
3. Wait for the array to complete power up.
4. Power on each drive module, waiting for each to complete power up before powering the next.

- When LUN creation requires several minutes to complete, the Web Administrator might provide ambiguous information. (6273163/6273171/6276198)

Workaround: Close the Web Administrator and browser. After restarting the Web Administrator the information provided should be correct.

- There is no current method provided by the Web Administrator to bring volumes shown as offline in the screen RAID → Manage RAID online. (6331263)

Workaround: Contact SUN service.

- After restoring a LUN's primary path due to a physical path failure, the alternate path is not available. (6309701)

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. (6283300)

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

- 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. (6209231)

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. (6217684)

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. (6212483)

Workaround: Select a different IP address for the bond.

- Poor RX/TX optical signal strength may result in degraded performance. (6207069)

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 30.](#))

- 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. (5054655)

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 Serial Advanced Technology Attachment (SATA) drives from the Manage Raid option of the Web Administrator. (6277449)

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.

- 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. (6282749)

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

The following cluster-specific issues are not resolved at this time. The numbers in the parenthesis indicate the Change Request.

- When a cluster is initially setup using the configuration wizard by enabling failover on one head, failover may not be enabled on the partner head (6387567).

Workaround: Enable failover on the partner head by logging into the partner head using the Web Administrator GUI.

- Under an extremely heavy load during a head recovery, there is a possibility that some LUNs might not be fully restored. (6402960)

Workaround: Repeat the head recovery process and check for the LUN to be returned to the appropriate head. The head recovery process can be initiated from the WEB or Telnet menu. This process can be repeated as many times as needed while the heads are in any failover state.

- Upgrading Array Firmware of cluster with dual Head and dual controllers may fail with the “No-Reboot” method. (6375669)

Workaround: Copy the Array Firmware, non-volatile static random access memory (NVS RAM), and Just a Bunch of Disks (JBOD) code to the Sun StorageTek 5320 NAS Appliance head. Manually load the NVSRAM and JBOD code (not the Array Firmware code) using the “No-reboot” instructions. Then reboot the Sun StorageTek 5320 NAS Appliance head. Please refer to the system log to verify that the firmware upgrade succeeded.

- It is possible to create a High Availability (HA) bond where a NIC was not assigned an IP. However, this will result in the non-assigned NIC assuming the IP of the bond, causing the partner head to become inaccessible. (6406749/6409899)

Workaround: Deleting the bond from the Web Administrator GUI may not properly clean up the duplicate IP addresses. Delete the bond from the CLI. Then make sure all NICs have been assigned IPs before recreating the bond.

- Installing new NICs will cause existing PA bonds to change roles which cannot then be deleted. (6407988)

Workaround: Remove existing PA bonds before installing new NICs. After the NIC installation is completed, and the system has rebooted, create new PA bonds.

If the bond was already created before installing the NICs go to the CLIs Host Name & Network menu and edit the IP addresses of the NICs. Then on the CLI on either of heads: (considering the bond is called bond1) perform the following.

```
hostname> unset ifenslave.*
hostname> unset bond1.*
hostname> savevars
```

- Using the LCD or the reboot command to reboot one head of a cluster will also cause the other head to reboot. (6389192)

Workaround: Use the Web Administrator GUI or the CLI/Telnet Menu to reboot a single head only.

- The Alone head could become stuck in the transition state while the Quiet head is in the Quiet state. (6240366)

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

- Manual movement of LUNs between heads results in a zero capacity reading. This occurs during initial cluster setup or when you add new trays. (6239025)

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. (6214772)

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

```
hostname> 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. (6229943)

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. (6262339, 6222886)
- Attempting to log in to the Web Administrator fails with a long delay and the message “Login rejected.” (6278471)

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.

Sun StorageTek File Replicator-Specific Issues

The following replicator-specific issues are not resolved at this time. The numbers in the parenthesis indicate the Change Request.

- An attempt to promote a volume created with multiple segments in a mirror after the mirror is broken fails. (6387400)

Workaround: This problem can be avoided by unmounting and remounting the volume after renaming or attaching segments. The volume can be replicated after it has been remounted. Alternatively, the head can be rebooted instead of unmounting/remounting the volume. The target system (mirror) is not affected and does not need to be rebooted.

- A mirror is not able to be created even though an NBD partition was created. (6388364)

Workaround: Do not attempt mirroring without a valid File Replication license.

- If you don’t have a valid mirroring license, attempts at mirroring might result in invalid messages. (6332950)
- 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. (6197388)

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. (6198655)

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. (6248243)

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

```
hostname> umount /volx
hostname> mount /volx
```

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

Workaround: This option is available via the Telnet menu. (6198789)

Gateway-Specific Issues

The following gateway-specific issues are not resolved at this time. The numbers in the parenthesis indicate the Change Request.

- Performing a firmware upgrade on a Sun StorEdge 6130 backend to a gateway cluster may cause a controller array to reboot and go quiet. (6339825)

Workaround: Perform a recovery operation.

- 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. (6315936)

- After you remap a LUN from other SAN hosts to the NAS Gateway system, the LUN may appear to be inaccessible. (6272080)

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.

```
hostname> 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.

- [“Connections for HA Functionality on Cluster Gateway Systems” on page 16](#)
- [“Cabling on IBRM Cluster Systems” on page 16](#)
- [“Assigning LUN Paths for Gateway Cluster Systems” on page 17](#)
- [“Adding Storage to the Sun StorEdge 5310 NAS Appliance and Sun StorageTek 5320 NAS Appliance” on page 18](#)
- [“iSCSI LUN Performance” on page 21](#)
- [“Cluster Power-On Procedure” on page 21](#)
- [“Mounting File Systems” on page 21](#)
- [“Management GUI Fault Tolerance vs. High Availability” on page 21](#)
- [“Drive Letter Assignments to File Systems” on page 22](#)
- [“Compliance Feature” on page 22](#)
- [“Upgrade to 4.10 or Higher Requires Resetting the Timezone” on page 22](#)
- [“Connecting the Gateway System to the Sun StorEdge 6130 Array” on page 23](#)
- [“Making the Sun StorEdge 6130 Array SAN Storage Available” on page 27](#)
- [“Reintroduction of a LUN Requires a Reboot” on page 28](#)
- [“Offline LUNs Cannot Be Deleted” on page 28](#)
- [“Do Not Manually Mount /CVOL” on page 29](#)
- [“File Replication Using Clusters” on page 29](#)
- [“Exporting a File Volume” on page 29](#)
- [“MIB Files” on page 29](#)
- [“NAS System Log Messages” on page 29](#)

Connections for HA Functionality on Cluster Gateway Systems

In a NAS Cluster Gateway System, each head must have two Fibre Channel connections to a SAN storage unit. One Fibre Channel connection is insufficient for proper High Availability (HA) functionality.

Cabling on IBRM Cluster Systems

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 configured identically.

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.

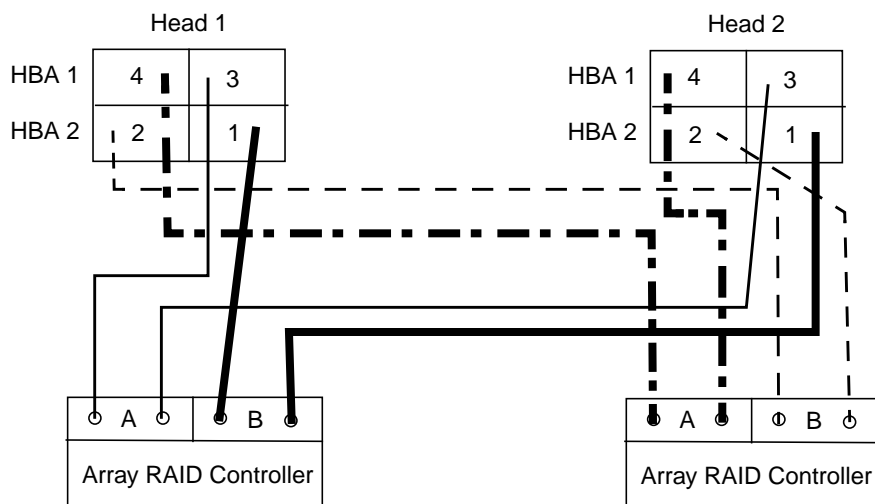


FIGURE 1 Relationship of HBA Ports to RAID Controllers

Assigning LUN Paths for Gateway Cluster Systems

When you assign a LUN to each server in a gateway cluster configuration, you must manually scan the disk on both servers to pick up the new LUNs. You can scan for new disks using Web Admin in one of two ways:

- Right-click System Manager in the navigation pane and choose Scan for New Disks
- Go to File Volume Operations → Create File Volumes in the navigation panel and click Scan for New Disks on the Create File Volumes panel

Adding Storage to the Sun StorEdge 5310 NAS Appliance and Sun StorageTek 5320 NAS Appliance

This procedure describes how to add a new Sun StorEdge 5300 EU Expansion Enclosure to an existing Sun StorEdge 5310 NAS Appliance or Sun StorageTek 5320 NAS Appliance without shutting down the system.

Adding an Expansion Enclosure

The Sun StorEdge 5310 NAS Appliance must be at version 4.11 or the Sun StorageTek 5320 NAS Appliance must be at version 4.12 before you start the upgrade. If not, download and install the latest version of the Sun StorageTek 5000 NAS OS from <http://sunsolve.sun.com>.

If you are not familiar with how to access the Console Administrator, refer to Appendix A of the *Sun StorEdge 5310 NAS Appliance and Gateway System Administration Guide* or the *Sun StorageTek 5320 NAS Appliance and Gateway System Administration Guide*.

▼ To Prepare for the Upgrade

- **Disable Sysmon.**
 - a. Use Telnet to connect to the Sun StorEdge 5310 NAS Appliance or Sun StorageTek 5320 NAS Appliance.
 - b. At the CLI, type:

```
hostname> set sysmon.test.enable yes
hostname> set raidmon.test.enable yes
```

▼ To Install the Expansion Enclosure

1. **Install the new expansion enclosure in an available slot in the cabinet.**

Refer to the *Sun StorEdge 5310 NAS Appliance and Gateway System Getting Started Guide* or the *Sun StorageTek 5320 NAS Appliance and Gateway System Getting Started Guide* for rackmount installation procedures.

2. **Set the new expansion enclosure to a unique ID.**

Refer to the *Sun StorEdge 5310 NAS Appliance and Gateway System Getting Started Guide* or the *Sun StorageTek 5320 NAS Appliance and Gateway System Getting Started Guide* for information about setting the tray ID.

3. **Connect the power cable to the new expansion enclosure.**

4. **Power on the new expansion enclosure.**

▼ To Connect the Cables

Connect the new expansion enclosure to the existing RAID controller enclosure one data cable path at a time.

1. **Connect data cable from port 2, Channel A of the last enclosure to port 1, Channel A of new expansion enclosure.**
2. **Remove data cable from port 2, Channel B of the last enclosure and connect to port 2 Channel B of the new expansion enclosure.**
3. **Connect data cable from port 2 Channel B of the last enclosure and connect to port 1 Channel B of the new expansion enclosure.**

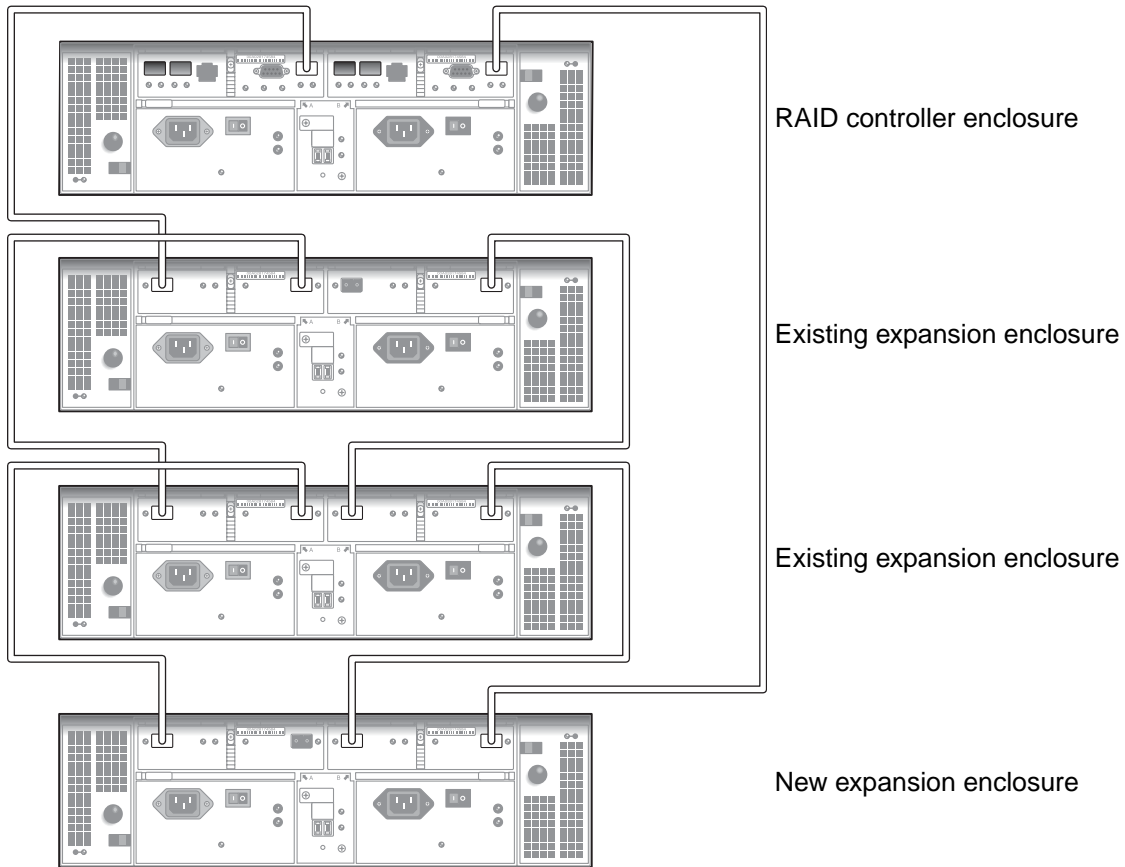


FIGURE 2 Cable Connections for a New Expansion Enclosure

▼ To Scan the Expansion Enclosure and Drives

1. At the main menu, select **D. Disks and Volumes**.
2. Type **9** to scan for the new disk drives (and LUNs).
3. Verify that the new expansion enclosure, drives, and LUNs are detected.
4. Enable Sysmon, by entering the following commands.

```
hostname> unset sysmon.test.enable yes
hostname> unset raidmon.test.enable yes
```

iSCSI LUN Performance

iSCSI LUNs will provide optimal performance if the volumes they reside on are used exclusively for iSCSI LUNs. If these volumes also contain Common Internet File System (CIFS) shares or Network File System (NFS) mounts, the performance of the iSCSI LUNs might not be optimal (depending on the I/O traffic of each protocol).

Cluster Power-On Procedure

The cluster power-on procedure in 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 Sun StorageTek 5310 NAS Appliance server. If the label is not located at the back of the server, check the sheet metal on left side of the Sun StorageTek 5310 NAS Appliance 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: (6306480)

```
hostname> mount -f volume-name
```

Management GUI Fault Tolerance vs. High Availability

The Sun StorEdge 5310 NAS Appliance Version 4.5 documentation set does not reflect the Web Administrator GUI change from Fault Tolerance to High Availability. Therefore, when a step instructs you to select Fault Tolerance, select High Availability instead. For example, to initiate a recovery from failover, select High Availability → Recover. (6301656)

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 letter. (6315946)

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.

Compliance Feature

The following information applies to the Sun StorageTek Compliance Archiving software.

- The compliance feature of worming a file through Microsoft Windows software is turned off by default. (6227484)

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

```
hostname> 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. (6229562)

Upgrade to 4.10 or Higher Requires Resetting the Timezone

When upgrading to a release that is 4.10 or higher, from a release earlier than 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.

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 Sun StorageTek 5310 NAS Appliance 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.

Sun StorEdge 6130 array requires the following software and firmware listed in [TABLE 2](#).

TABLE 2 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

▼ To Upgrade 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.

▼ To Upgrade the Sun StorEdge 6130 Array Management Software

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

If the Sun StorEdge 6130 Array Management Software is currently at version 1.3, install the patches as described in [“To Upgrade the Sun StorEdge 6130 Array Firmware” on page 25](#).

To upgrade the management software:

1. From the Sun StorEdge 6130 array management interface, log in to the Sun Storage Automated Diagnostic Environment and clear all existing alarms.
2. Log in to the management host as `root`.
3. Go to <http://sunsolve.sun.com> and download the latest Sun StorEdge 6130 host software package for Solaris from to any working directory on the management host.
4. Unzip the distribution file and untar the file.
5. 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.

To Upgrade 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 2](#)) 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. **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. **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 for the new initiator.**
6. **Select the 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.

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 (6281673).

A server reboot is not required for the gateway system. You can unmap and remap the LUN as described in the *Sun StorEdge 5310 NAS Appliance and Gateway System Administration Guide*.

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 (6282821).

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. (6280955)

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

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 (6291398,6218561,6233839,6234948).

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 (6222556).

MIB Files

The Management Information Base (MIB) files are installed with the image in the boot-directory/www/data/mib directory; for example, /cvol/nfl/www/data/mib. The MIB files are available via Web Admin in the mib sub-directory, for example; <http://hostname/mib>, where *hostname* is the appropriate system hostname or IP address.

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. (6186842)

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
<i>Sun StorageTek 5320 NAS Appliance [poster]</i>	819-6229- <i>nn</i>
<i>Sun StorageTek 5320 NAS Gateway System [poster]</i>	819-4286- <i>nn</i>
<i>Sun StorageTek 5320 NAS Appliance and Gateway System Getting Started Guide</i>	819-6387- <i>nn</i>
<i>Sun StorageTek 5320 NAS Appliance and Gateway System Administration Guide</i>	819-6388- <i>nn</i>
<i>Sun StorageTek 5320 NAS Server Regulatory and Safety Compliance Manual</i>	819-4281- <i>nn</i>
<i>Sun StorEdge 5310 NAS Gateway System Poster</i>	819-3240- <i>nn</i>
<i>Sun StorEdge 5310 NAS Appliance and Gateway System Getting Started Guide</i>	819-3237- <i>nn</i>
<i>Sun StorEdge 5310 NAS Appliance and Gateway System Administration Guide</i>	819-3238- <i>nn</i>
<i>Sun StorEdge 5310 NAS Appliance Safety and Compliance Guide</i>	819-0881- <i>nn</i>
<i>Sun StorEdge 5210 NAS Appliance Administration Guide</i>	819-5376- <i>nn</i>
<i>Sun StorEdge 5210 NAS Hardware Installation, Configuration, and User Guide</i>	817-6660- <i>nn</i>
<i>Sun StorEdge 5210 Expansion Unit Safety, Regulatory, and Compliance Manual</i>	817-7515- <i>nn</i>
<i>Sun StorEdge 5300 RAID Expansion Unit and Sun StorEdge 5300 Expansion Unit Safety and Compliance Guide</i>	819-0882- <i>nn</i>

Service Contact Information

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

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