



Sun StorEdge™ QFS and Sun StorEdge SAM-FS Release Notes

Version 4, Update 5

Sun Microsystems, Inc.
www.sun.com

Part No. 819-4335-10
April 2006, Revision A

Submit comments about this document at: <http://www.sun.com/hwdocs/feedback>

Copyright 2006 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, California 95054, U.S.A. All rights reserved.

Sun Microsystems, Inc. has intellectual property rights relating to technology that is described in this document. In particular, and without limitation, these intellectual property rights may include one or more of the U.S. patents listed at <http://www.sun.com/patents> and one or more additional patents or pending patent applications in the U.S. and in other countries.

This document and the product to which it pertains are distributed under licenses restricting their use, copying, distribution, and decompilation. No part of the product or of this document may be reproduced in any form by any means without prior written authorization of Sun and its licensors, if any.

Third-party software, including font technology, is copyrighted and licensed from Sun suppliers.

Parts of the product may be derived from Berkeley BSD systems, licensed from the University of California. UNIX is a registered trademark in the U.S. and in other countries, exclusively licensed through X/Open Company, Ltd.

Sun, Sun Microsystems, the Sun logo, AnswerBook2, docs.sun.com, Solaris, SunOS, SunSolve, Java, JavaScript, Solstice DiskSuite, and Sun StorEdge are trademarks or registered trademarks of Sun Microsystems, Inc. in the U.S. and in other countries.

All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. in the U.S. and in other countries. Products bearing SPARC trademarks are based upon an architecture developed by Sun Microsystems, Inc.

Mozilla is a trademark or registered trademark of Netscape Communications Corporation in the United States and other countries.

The OPEN LOOK and Sun™ Graphical User Interface was developed by Sun Microsystems, Inc. for its users and licensees. Sun acknowledges the pioneering efforts of Xerox in researching and developing the concept of visual or graphical user interfaces for the computer industry. Sun holds a non-exclusive license from Xerox to the Xerox Graphical User Interface, which license also covers Sun's licensees who implement OPEN LOOK GUIs and otherwise comply with Sun's written license agreements.

U.S. Government Rights—Commercial use. Government users are subject to the Sun Microsystems, Inc. standard license agreement and applicable provisions of the FAR and its supplements.

DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID.

Copyright 2006 Sun Microsystems, Inc., 4150 Network Circle, Santa Clara, Californie 95054, Etats-Unis. Tous droits réservés.

Sun Microsystems, Inc. a les droits de propriété intellectuelle relatants à la technologie qui est décrit dans ce document. En particulier, et sans la limitation, ces droits de propriété intellectuelle peuvent inclure un ou plus des brevets américains énumérés à <http://www.sun.com/patents> et un ou les brevets plus supplémentaires ou les applications de brevet en attente dans les Etats-Unis et dans les autres pays.

Ce produit ou document est protégé par un copyright et distribué avec des licences qui en restreignent l'utilisation, la copie, la distribution, et la décompilation. Aucune partie de ce produit ou document ne peut être reproduite sous aucune forme, par quelque moyen que ce soit, sans l'autorisation préalable et écrite de Sun et de ses bailleurs de licence, s'il y en a.

Le logiciel détenu par des tiers, et qui comprend la technologie relative aux polices de caractères, est protégé par un copyright et licencié par des fournisseurs de Sun.

Des parties de ce produit pourront être dérivées des systèmes Berkeley BSD licenciés par l'Université de Californie. UNIX est une marque déposée aux Etats-Unis et dans d'autres pays et licenciée exclusivement par X/Open Company, Ltd.

Sun, Sun Microsystems, le logo Sun, AnswerBook2, docs.sun.com, Solaris, SunOS, SunSolve, Java, JavaScript, Solstice DiskSuite, et Sun StorEdge sont des marques de fabrique ou des marques déposées de Sun Microsystems, Inc. aux Etats-Unis et dans d'autres pays.

Toutes les marques SPARC sont utilisées sous licence et sont des marques de fabrique ou des marques déposées de SPARC International, Inc. aux Etats-Unis et dans d'autres pays. Les produits portant les marques SPARC sont basés sur une architecture développée par Sun Microsystems, Inc.

Mozilla est une marque de Netscape Communications Corporation aux Etats-Unis et à d'autres pays.

L'interface d'utilisation graphique OPEN LOOK et Sun™ a été développée par Sun Microsystems, Inc. pour ses utilisateurs et licenciés. Sun reconnaît les efforts de pionniers de Xerox pour la recherche et le développement du concept des interfaces d'utilisation visuelle ou graphique pour l'industrie de l'informatique. Sun détient une licence non exclusive de Xerox sur l'interface d'utilisation graphique Xerox, cette licence couvrant également les licenciées de Sun qui mettent en place l'interface d'utilisation graphique OPEN LOOK et qui en outre se conforment aux licences écrites de Sun.

LA DOCUMENTATION EST FOURNIE "EN L'ÉTAT" ET TOUTES AUTRES CONDITIONS, DECLARATIONS ET GARANTIES EXPRESSES OU TACITES SONT FORMELLEMENT EXCLUES, DANS LA MESURE AUTORISEE PAR LA LOI APPLICABLE, Y COMPRIS NOTAMMENT TOUTE GARANTIE IMPLICITE RELATIVE A LA QUALITE MARCHANDE, A L'APTITUDE A UNE UTILISATION PARTICULIERE OU A L'ABSENCE DE CONTREFAÇON.



Sun StorEdge™ QFS and Sun StorEdge SAM-FS Release Notes, Version 4, Update 5

This document contains important information about the Sun StorEdge QFS and Sun StorEdge SAM-FS Version 4, Update 5 (4U5), release. This release incorporates design changes, feature changes, and function enhancements. The release also includes fixes to the software. System administrators and programmers who are familiar with these software products will see changes that can affect daily operations and automated scripts that were written to work with previous releases of this software. Study these release notes before upgrading to the Sun StorEdge QFS and Sun StorEdge SAM-FS 4U5 release.

If you are installing this product's base release and its software patches, study these release notes and the patch README files that are included with the software patches. The patch README files contain information that supplements the information in this document.

You can obtain a copy of the Sun StorEdge QFS and Sun StorEdge SAM-FS 4U5 software through Sun Microsystems or through your authorized service provider.

This document contains the following sections:

- "Features in This Release" on page 2
- "System Requirements" on page 10
- "Installing Packages and Patches" on page 12
- "Known Problems" on page 14
- "Release Documentation" on page 22
- "Service Contact Information" on page 23

Features in This Release

The following sections describe the new features in this release:

- “Sun Cluster Support for AMD64 Architecture” on page 2
- “Linux Support” on page 2
- “Changes to the ms File System Type” on page 3
- “Support of Forced Unmount” on page 3
- “Modified WORM Functionality” on page 3
- “Additional Archiving Options” on page 4
- “New cattr Mount Option” on page 7
- “Maximum Value for nstreams Changed” on page 7
- “Default Setting for metatimeo Changed” on page 7
- “Solaris Least Privilege Mechanism Added” on page 8
- “Newly Qualified Tape Drive” on page 8
- “File System Manager Changes” on page 8

Sun Cluster Support for AMD64 Architecture

The 4U5 release of the Sun StorEdge QFS software includes support for the Sun Cluster agent for Solaris 10 on the AMD64 platform. This provides all of the functionality that is already available for Sun Cluster and Sun StorEdge QFS on the SPARC platform.

Linux Support

The 4U5 release has added support for Red Hat Enterprise Linux 4 and SuSE 9 clients with shared Sun StorEdge QFS software. The following Linux versions are supported in the 4U5 software release:

- Red Hat Enterprise 3.0 (UD-4, UD-5, and UD-6) for x86/x64 platforms
- Red Hat Enterprise 4.0 (UD-2) for x64 platforms
- SuSE Enterprise Server 8 (service pack 4) for x64 platforms
- SuSE Enterprise Server 9 (service pack 2) for x64 platforms

Uninitialized sparse-file support was also added to the Linux client software.

For additional information about the Linux client software, see the README file on the Linux client software CD.

Changes to the ms File System Type

In the `ms` file system, both metadata and file data are written to the same device. The following changes have been made to the `ms` file system type in this software release:

- The default DAU size has been changed from 16 kilobytes to 64 kilobytes. This improves large file performance.
- The `qwrite` mount option is now supported in `ms` type file systems.
- `ms` type file systems are now supported as part of Sun StorEdge QFS shared file systems. With this option, general purpose workload performance and scalability are improved by distribution of metadata I/O across all devices, and file system administrators do not need to plan their metadata space needs in advance of using the file system.

Note – When using an `ms` type shared file system, set the stripe width mount option to a value greater than zero in order to stripe metadata I/O across all devices. The default setting for a stand-alone `ms` file system is `stripe=2`.

Support of Forced Unmount

Sun StorEdge QFS and Sun StorEdge SAM-FS file systems now support the forced unmount command `umount -f`. This forced unmount is identical in function to the UFS/NFS forced unmount command.

Note – Forced unmount is only supported on the Solaris Operating System (OS). It is not supported by Sun StorEdge QFS Linux clients.

Modified WORM Functionality

In the 4U5 software release the WORM-FS interface has two new features:

- The ability to apply a default retention period to a directory.
- A new format for describing the default retention period when it is provided as a mount option.

Setting a Retention Period for a Directory

When a retention period is set for a directory, that period becomes the default for any WORM files that are created in that directory. In addition, that period is inherited by any sub-directories that are created.

To set or change the retention period for a directory, use the `touch` command to change the access time. The difference between the current time and the access time specified becomes the directory's retention period. The directory's default retention period can be shortened as well as extended through this method.

If no retention period is specified when the WORM trigger is applied to a directory, the default specified in the `vfstab` file is used. If no retention period is specified in the `vfstab` file, the system default of 30 days is used.

New Retention Period Format

The new format for setting the default retention period as part of a mount option is as follows: `MyNdOhPm`. `M`, `N`, `O`, and `P` are non-negative integers and `y`, `d`, `h`, and `m` stand for years, days, hours, and minutes. Any combination of these units can be used. For example, `1y5d4h3m` indicates 1 year, 5 days, 4 hours, and 3 minutes; `30d8h` indicates 30 days and 8 hours; and `300m` indicates 300 minutes. The following is an example `/etc/vfstab` file entry using the new format:

```
samfs1 - /samfs1 samfs - no
bg,worm_capable,def_retention=1y5d4h3m
```

The new format is backward compatible with the format in previous software versions, in which the retention period was specified in minutes.

For more information on the WORM-FS package and creating WORM files, see the *Sun StorEdge QFS Configuration and Administration Guide* or the *Sun StorEdge SAM-FS File System Configuration and Administration Guide*.

Additional Archiving Options

The following sections describe the new options that were added for the archiving process in the 4U5 release.

New archiver.cmd Parameters

- `setarchdone`

The `setarchdone` parameter is a global directive that controls the changing of the state of the `archdone` flag for a file when the file is examined by `sam-arfind`.

When all archive copies for a file have been made, the `archdone` flag is set for that file to indicate that no further archive action is required. The `archdone` flag is used by the archiver only during an inodes scan to avoid looking up the path name for the inode. During directory scans, the `archdone` flag is also set for files that will never be archived. This can be a time-consuming operation and may impact performance when large directories are scanned. The `setarchdone` directive was added to give the user control over this activity. The default setting for the directive is `off` if the `examine` directive is set to `scandirs` or `noscan`. If you want to retain the behavior of the 4U4 software release, set the directive to `on`.

This option only controls the setting of the `archdone` flag only on files that are not archived. It does not affect setting the `archdone` flag when archive copies are made.

- `-after date_time`

The `-after date_time` parameter specifies that only files created or modified after the date indicated are included in the archive set.

The format of `date_time` is `YYYY-MM-DD[Thh:mm:ss] [Z]` (ISO 8601 format). If the time portion is not specified, it is assumed to be `00:00:00`. If the `Z` is present, the time is interpreted as Coordinated Universal Time (UTC). Otherwise it is interpreted as local time.

- `-rearch_stage_copy copy_number`

The new `-rearch_stage_copy copy_number` parameter allows staging for recycling to take place from a specified archive copy. When a file copy exists on a faster access volume, such as a disk archived copy, this directive may be used to specify a copy on the faster access volume. The `copy_number` variable indicates the copy to stage from when rearchiving the file copies that are associated with the Archive Set.

If this parameter is not used, the default behavior is to stage from the file copy being rearchived.

- `scanlist_squash`

The `scanlist_squash` parameter turns scanlist consolidation on or off. The default setting is `off`. This parameter can be either global or file-system-specific.

When this option is turned on, the scan list entries for files in two or more sub-directories with the same parent directory that need to be scanned by `sam-arfind` at a much later time are consolidated. This can cause a severe performance penalty, however, during archiving on a file system that has a large

number of changes to many sub-directories. When the scanlist is consolidated, these directories are combined upwards to a common parent, which results in a deep recursive scan over many sub-directories.

New Copy Number Option for the Archive Command

A new `-c copy_number` option was added for the `archive(1)` command, in which *copy_number* indicates an archive copy number. This option specifies which copy to archive immediately or wait for.

Specify 1, 2, 3, or 4 for *copy_number*. If the `-c` option is used with the `-r` option, archive copy *copy_number* is made immediately. If used with the `-w` option, with or without the `-r` option, the command waits for archive copy *copy_number* to be made.

New Default Settings for `examine=noscan`

If the `examine` directive is set to `noscan`, which is the default value, the following default settings are implemented:

- `startage`: 10 minutes
- `startsize`: 10 GB
- `startcount`: 10,000 files

These new default values have been put into place to help avoid excessively large archive requests.

Note – If the global archiving directive `interval` has been configured to be less than the default of 10 minutes in existing Sun StorEdge SAM-FS environments, and if you want to retain this shortened interval between the time at which an archive request is scheduled and the time at which it is processed, you must edit the `archiver.cmd` and set the `-startage` parameter for the `allsets` archive set to a value of less than 10 minutes.

`sam-arfind` Enhancements

The `sam-arfind` process will not unarchive file copies with `rearch` set if they cannot be rearchived. These files will now be placed in an unschedulable `ArchReq`, which will contain the message `Cannot archive - no rules`.

Disk Archiving Enhancements

Disk archiving now uses multiple volumes in round robin assignment when multiple streams are being scheduled. The volumes are selected from all possible volumes, and those with the highest percentage of remaining space are used first. However, if the parameter `-fillvsns` is selected, the volume with the smallest percentage of remaining space is selected first and filled. All streams being scheduled use this volume.

Change to `stager.cmd maxactive` Maximum

The `stager.cmd maxactive` maximum setting was changed from 2,147,483,647 to 500,000.

New `cattr` Mount Option

The `cattr` mount option forces the metadata server to request the current stat information (size and modified time) from the append lease client owner or the write lease client owner in order to prevent stale stat information when the metadata server gets a client `getattr` (stat) message. This mount option may impact performance, so use it only when running applications for which it is critical to get accurate current size and modification times. The updating of this information is triggered by the `meta_timeo` interval.

Maximum Value for `nstreams` Changed

The `nstreams=n` mount option sets the number of concurrent threads for the Sun StorEdge QFS shared file system. By default, `nstreams=256`. The maximum value for this mount option has been changed from 1024 to 2048.

Default Setting for `metatimeo` Changed

The `metatimeo` command sets the Sun StorEdge QFS shared file system metadata cache timeout value. The default setting for the `metatimeo` parameter was changed from 15 seconds to 3 seconds. This matches the NFS default setting for this parameter.

Solaris Least Privilege Mechanism Added

The Solaris 10 OS supports a "least privilege" security mechanism to avoid the potential problems inherent in an all-powerful UID 0 (root) user and to restrict and distribute authority. The Sun StorEdge QFS and SAM-QFS software has been updated to use the Solaris 10 OS least privilege policy functions.

Newly Qualified Tape Drive

The IBM LT03 tape drive has been qualified for use with Sun StorEdge SAM-FS version 4U5.

Note – ACSLS 7.1.0 with PUT0502S is required in order for ACSLS to recognize the IBM LTO3 drive.

File System Manager Changes

The File System Manager 2.1 user interface manages Sun StorEdge QFS and SAM-QFS servers running 4U4 or 4U5 software. The following items have been added in version 2.1:

- File System Manager can now control file systems in Sun Cluster environments. It recognizes and identifies cluster nodes and automatically prompts the user to add other cluster nodes when adding a server. Users have the option to create non-archiving HA (highly available) shared or stand-alone Sun StorEdge QFS file systems on nodes within a Sun Cluster configuration.
- The `/opt/SUNWfsmgr/bin/fsmgr_report` command generates the `/var/tmp/fsmgr.overall.log`, which contains useful information for troubleshooting File System Manager issues.
- Users can now execute `samexplorer` and view the resulting report from the Server Configuration tab in File System Manager. File system configuration files, such as the `mcf` file, can also now be viewed from the Server Configuration tab.
- Support for the discovery and configuration of ACSLS network attached libraries has been added to File System Manager. Users are no longer required to set up the parameters file before configuring the library in File System Manager.
- When importing volume serial names (VSNs), users can filter available VSNs based on a scratch pool, a range, a regular expression, a location in a library, or dates of use. They can then select the VSNs they want to use from the filtered results.

- File System Manager has also added support for the configuration of libraries with multiple media types.
- Staging can now be controlled from the File System Manager File System Summary or File System Details page. Users can browse the file system and see the status of individual files. They can use filters to view certain files, and can select specific files to stage. They can select which copy to stage from or let the system choose the copy.
- Users can now use File System Manager to create or modify the `hosts.fsname.local` files within a Sun StorEdge QFS shared file system.

The following sections describe some additional changes in File System Manager.

Login Changes

The `samadmin` and `samuser` login names are no longer automatically created when File System Manager is installed, and you no longer have to select a role when logging in to the software. However, if you are upgrading from a previous version of File System Manager to version 2.1, the existing `samadmin` user name and password will be preserved and will give you full control over all File System Manager functions. By default, the `root` user name and the root password for the management station on which File System Manager is installed will also give you full control of the software.

You may add additional File System Manager users and give them specific permissions within the software. See the *Sun StorEdge QFS Installation and Upgrade Guide* or the File System Manager Help file for instructions.

Metadata Snapshot Changes

Compressed metadata snapshots created by File System Manager can now be indexed without being uncompressed. In order to take advantage of this feature, you should edit any existing scheduled metadata snapshots and select the `gzip` compression method. If you have compressed snapshots already saved, you can use the `gznew` command to convert them to `gzip` format.

Indexing for metadata snapshots has also been improved. More information is now included in the index, including information about damaged or online files. To take advantage of this improvement, you should delete any existing indexes and re-create them.

Users can take metadata snapshots at any time, without having to specify a snapshot schedule. Users can also restore data from `samfsdump` files that were created from the command line, not through File System Manager.

Users can now specify a retention policy for metadata snapshots. Snapshots can be deleted after a specified number of months or marked for permanent retention.

During the restore process from a metadata snapshot, the status of the file at the time the snapshot was taken is provided and users can opt to restore files to the same state. Users can also select a replacement strategy for determining which files to keep in case a file of the same name already exists. The following options are available:

- Do not restore
- Replace with the restored version
- Keep the newer version

New Family Set Comments in the `mcf` File

A new type of `mcf` file comment has been added. If you want a comment in the `mcf` file to be associated with a specific family set, you can create a comment with the format: `#family-set-name`: just before the first device in that family set. Any comments that are added between that comment line and the last device in the family set are associated with that family set. If the family set is ever deleted with the File System Manager software, any related comments are also deleted from the `mcf` file.

System Requirements

This section describes some of the system requirements that must be met before you can use the Sun StorEdge QFS and Sun StorEdge SAM-FS 4U5 release.

Note – For more information about system requirements, see the *Sun StorEdge QFS Installation and Upgrade Guide* or the *Sun StorEdge SAM-FS Installation and Upgrade Guide*.

Operating System Requirements

The Sun StorEdge QFS and Sun StorEdge SAM-FS 4U5 releases require the following minimum operating system levels:

- Solaris 9 OS 04/03 or later for SPARC platforms

- Solaris 10 OS for SPARC or x64 platforms (See “Required Solaris OS Patches” on page 13 for additional requirements)
- Red Hat Enterprise 3.0 (UD-4) for x86/x64 platforms (Sun StorEdge QFS shared client only)
- Red Hat Enterprise 4.0 (UD-2) for x64 platforms (Sun StorEdge QFS shared client only)
- SuSE Enterprise Server 8 (service pack 4) for x64 platforms (Sun StorEdge QFS shared client only)
- SuSE Enterprise Server 9 (service pack 2) for x64 platforms (Sun StorEdge QFS shared client only)

Some features might require specific operating system support levels. For information, see the feature descriptions.

Sun Cluster Requirements

The Sun Cluster 3.1 08/05 release supports configuration of Sun StorEdge QFS highly available file systems. This version of Sun Cluster also supports shared Sun StorEdge QFS for the AMD64 and SPARC platforms. The required configurations are as follows:

- AMD64 Platforms: This configuration requires a minimum operating system level of Solaris 10 FCS for AMD platforms.
- SPARC Platforms: This configuration requires a minimum operating system level of Solaris 9 04/03 for SPARC platforms.

The Sun StorEdge QFS software supports ORACLE® Real Application Cluster (RAC) software. The required configurations are as follows:

- AMD64 Platforms: A minimum Oracle RAC software level of Oracle RAC 10g Release 2 (10.2.0.1) is supported.
- SPARC Platforms: A minimum Oracle RAC software level of Oracle RAC 9i Release 2 (9.2.0.1) or ORACLE 10g Release 1 (10.1.0.3) is supported. ORACLE 10g Release 2 (10.2.0.1) is also qualified.

Note – When Oracle 9i RAC databases are deployed on shared Sun StorEdge QFS using the support for Solaris Volume Manager for Sun Cluster, performance can be affected. Oracle 9i does not support the Oracle redo log files in ABR mode. If redo log files are deployed on Solaris Volume Manager with database system files, optimum performance can be affected by very high write activities to these files. To avoid this situation, use separate underlying Solaris Volume Manager mirrors for each set of the redo log files used by a given RAC instance.

File System Manager Requirements

File System Manager (previously called SAM-QFS Manager) has been tested only with the Sun Java Web Console version 2.2.5 applications. Installing this product with any older Sun Java Web Console version breaks both applications. This product might work on newer Sun Java Web Console versions, but this has not been tested.

Tivoli SANergy Requirements

If you plan to configure the Sun StorEdge QFS file system with SANergy, verify that you have Tivoli SANergy File Sharing software at release level 2.2.4 with fixpack 3.2.5.0 or later. This software is available through Sun when you order the Sun StorEdge Multiplatform Client Software 2.2.4 for QFS. The current fixpack for this software can also be obtained from SunSolve. For more information about the SAN-QFS file system, see the *Sun StorEdge QFS Configuration and Administration Guide*.

Note – The current Tivoli SANergy product is classified as SANergy version 2, release 2.4, rather than version 3, release 2.0, as indicated in the SANergy documentation.

Installing Packages and Patches

The *Sun StorEdge QFS Installation and Upgrade Guide* and the *Sun StorEdge SAM-FS Installation and Upgrade Guide* provide information about installing version 4U5 of the software. If you are installing a patch release, see the README file that is distributed with the patch.

This section contains information about installation packages.

Upgrading File System Manager

File System Manager (previously called SAM-QFS Manager) version 2.1 supports the Sun StorEdge QFS and Sun StorEdge SAM-FS 4U4 and 4U5 releases. To upgrade from an earlier version of File System Manager, run the `fsmgr_setup(1M)` command. The *Sun StorEdge QFS Installation and Upgrade Guide* and *Sun StorEdge SAM-FS Installation and Upgrade Guide* include instructions for using this command.

The `fsmgr_setup(1M)` command removes all the packages that pertain to the previous release and installs the new versions of the packages. If you are upgrading from 1.1 to 2.1 and if you have turned tracing on in 1.1, the `fsmgr_setup` script will automatically preserve the trace settings and return tracing to the same level in 2.1. If you are upgrading from 1.0 to 2.1 and you have tracing turned on in 1.0, you need to re-enable tracing in 2.1 by following the instructions in the *Sun StorEdge QFS Installation and Upgrade Guide* or *Sun StorEdge SAM-FS Installation and Upgrade Guide*.

Required Solaris OS Patches

Sun Microsystems provides patches for the Sun products that are described in this section. Go to the following web site for a list of recommended patches:

<http://sunsolve.sun.com>

The following patches are required for Sun StorEdge QFS and Sun StorEdge SAM-FS support:

This Product	Running With	Patch Requirement
Sun StorEdge QFS	Sun Cluster and Solaris Volume Manager (SVM) and Multi-Owner Disksets	SVM patches containing fixes for Multi-Owner Diskset bugs 6220234, 6240367, 6274840, 6281300, and 6290815.
Sun StorEdge QFS and Sun StorEdge SAM-FS	Fibre Channel devices with Solaris 9 on a SPARC platform	Patch 111847-08 for Sun StorEdge SAN Foundation Kit 4.4.x.
Sun StorEdge SAM-FS	The X6757A SBus Fibre Channel host bus adapter (HBA), used to access either tape drives or libraries	Patch 112244-04 for Solaris 9 on SPARC platform: Hardware/FCode: SBus Dual Fibre Channel Host Adapter.
Sun StorEdge SAM-FS	Solaris 10 on x64 platforms using fibre-attached or SCSI-attached tape drives	Solaris 10 x64 patch 120252-03 containing the fix for bug 6250131. This is included in the S10 1/06 release.
Sun StorEdge SAM-FS	Solaris 10 on x64 platforms using fibre-attached or SCSI-attached tape drives	Solaris 10 x64 patch 120252-04 containing the fix for bug 6299049. This is NOT included in the Solaris 10 1/06 release. It will be included in the next available Solaris 10 release.
Sun StorEdge SAM-FS	Solaris 10 on x64 platforms using SCSI-attached tape drives attached to Adaptec HBAs	Solaris 10 x64 patch 121264-01 for bug 6254081 and Solaris 10 x64 patch 120999-01 for bug 6290383. These are included in the S10 1/06 release. These are needed in addition to patch 120252-03 listed above.

This Product	Running With	Patch Requirement
Sun StorEdge QFS and Sun StorEdge SAM-FS	Solaris 10 on SPARC and x64 platforms	Solaris 10 SPARC patch 118822-18 or Solaris 10 x64 patch 118844-18 for bug 6264443. These are included in the S10 1/06 release.

Daylight Saving Time Adjustment

The U.S. Energy Policy Act of 2005 amends the start and end of daylight saving time (DST). Starting in 2007, clocks will be set ahead one hour on the second Sunday of March instead of the current first Sunday of April. Clocks will be set back one hour on the first Sunday in November, rather than the last Sunday of October.

Solaris OS maintains time zone information, and automatically adjusts for DST. Any systems not updated with the new DST information incorrectly reverts to standard time.

This issue has been addressed by Solaris 9 and 10 (SPARC) and Solaris 10 (x86) patches. The following patches became available on 1/31/06:

- Solaris 9: 113225-03
- Solaris 10 for SPARC: 122032-01
- Solaris 10 for x64: 122033-01

Known Problems

This section contains information about known software problems.

File System Manager Limitations

The Sun StorEdge QFS and Sun StorEdge SAM-FS 4U5 release includes File System Manager 2.1. File System Manager 2.1 does not interoperate with all Sun StorEdge QFS and Sun StorEdge SAM-FS 4U5 features. Specifically, File System Manager does not support the following features:

- Sun SAM-Remote software
- Linux clients
- Optical media
- WORM file system

In addition, File System Manager has the following limitations:

- In localized environments, File System Manager limits input text to ASCII text only.
- File System Manager supports Sun StorEdge QFS shared file systems with the following restrictions:
 - Before File System Manager can configure a new shared file system or collect information about an existing one, the participating hosts must be added on the Servers page.
 - You cannot create a shared file system that uses devices that are not SCSI compliant. File System Manager cannot identify these devices as available on multiple hosts.
 - You cannot configure archiving for a SAM-QFS shared file system through File System Manager. When you create a shared file system through File System Manager, the `nosam` mount option is enabled in the file system.
 - The number of clients (and potential metadata servers) that can be specified when the shared file system is created is limited to four. If more hosts are needed, they can be added at any time after the file system is created.

Note – You can use the Sun StorEdge QFS and Sun StorEdge SAM-FS command-line interface (CLI) to configure and monitor the features that File System Manager does not support.

File System Manager Problems

The following known problems exist in File System Manager:

- Do not close the pop-up window by clicking the X button in the upper left corner of the wizard screen in Internet Explorer or by clicking the hyphen (-) button in the Netscape™ or Mozilla™ browser. Always click the Cancel button to exit.
- The wizard button is sometimes incorrectly disabled. When this happens, click another tab in the application and then click the tab for the action that you want to perform. The wizard button should then be enabled.
- Each archiving file system on a Sun StorEdge SAM-FS server has a default archive copy that archives all files that are not explicitly members of an archive policy. If an `archiver.cmd(4)` file exists on the server, a VSN must be associated with each file system's default archive copy.

When you create a file system through the web browser and an `archiver.cmd(4)` file already exists, File System Manager automatically creates a VSN association to an available or valid media type for the default archive copy.

When you create a file system and an `archiver.cmd(4)` file does not exist on the server, the system does not explicitly create the VSN association, and the default archiving behavior is retained. The Default Policy Copy details page may show incorrect information. In this situation, you can create an archive policy from the Archive Management tab and apply the policy to the file system. This action creates an `archiver.cmd` file and creates the necessary VSN association for the file system's default archive copy.

To change these default copy definitions, go to the Archive Policies Summary page and click the link for the default archive policy for the file system (the default policy has the same name as the file system). Select copy 1 from the copy information table and configure disk archiving or VSNs for the copy.

- The following messages sometimes appear if you try to open the File System Manager in a browser:

```
Connect to hostname.domain:6789 failed (connection refused)
```

```
The connection was refused when attempting to contact  
hostname.domain:6789
```

The system generates these messages under the following conditions:

- You typed the wrong URL (such as the wrong host name, domain, or port).
- The web server is not running on the specified host.
- The Java Virtual Machine running the web server has become unavailable. When this happens, the `/var/log/webconsole/console_debug_log` file on the host that is running the web server (as specified by *hostname*) contains lines that are similar to the following.

```
#  
# The exception above was detected in native code outside the VM  
#  
# Java VM: Java HotSpot(TM) Server VM (1.4.1_03-b02 mixed mode)  
#  
# An error report file has been saved as /tmp/hs_err_pid24360.log.  
# Please refer to the file for further information.  
#
```

To remedy this problem, become superuser on the host that was supposed to run the web server (as specified in *hostname*) and issue the following command:

```
# /usr/sbin/smcwebserver restart
```

- Running software that blocks Internet pop-up windows while you are using File System Manager causes unpredictable and unexpected results. Disable such software.

- If you upgrade your Sun StorEdge QFS and Sun StorEdge SAM-FS software from a 4.0 release and you use File System Manager to make configuration changes, the software creates new versions of the `mcf`, `archiver.cmd`, and other configuration files. If you had comments in your existing files, they are removed in the new files. To retrieve these comments, see the configuration file backup copy in `/etc/opt/SUNWsamfs/cfg_backups`. The system retains the most recent 25 versions of each configuration file.
- To prevent script errors from popping up on your screen if you use the Internet Explorer browser, go to the Tools menu, select Internet Options, and then select Advanced. Turn off "Display a notification about every script error" and then click OK.
- If File System Manager runs extremely slowly, check whether two instances of the web server are running. To do this, run `ps -ef |grep noaccess`:

```
# ps -ef |grep noaccess
noaccess 21449      1  0 11:38:17 pts/1      2:31
/usr/j2se/bin/java -server -XX:+BackgroundCompilation
-Djava.security.manager -
```

If the system output shows more than one process, run `kill -9 <PID>` to kill all processes that are running by user `noaccess`. Then issue the command `smcwebserver start`.

- Opening a new tab or window by right-clicking on an HREF link is not supported within File System Manager. If you want to view two pages simultaneously, open a new window and navigate from the Server Selection page.

Sun StorEdge QFS and Sun StorEdge SAM-FS Limitations

- Segmented files are not supported on Sun StorEdge QFS shared file systems.
- Sun StorEdge QFS shared file system clients do not support the `stage(1) -n` command. The entire file is staged back to the disk cache.
- If you use Sun Storage Automated Diagnostic Environment to collect diagnostic information in Sun StorEdge SAM-FS environments, be aware that either you or the Sun StorEdge SAM-FS software can take a device down. Sun Storage Automated Diagnostic Environment initiates an alarm for devices that are down regardless of whether a user or the software took the device down.
- In SAM-QFS environments where the WORM-FS package is being used to create WORM files, the releaser function could cause the data associated with a file to be stored on non-WORM media. To avoid this, one of the following methods should be used:

- Use the `-release -n` archive directive in the `archiver.cmd` file. The `-release -n` directive prevents the release of disk cache blocks. Alternatively, use the `release` command with the `-n` option on specific files or directories.
- Use WORM media (for example, VolSafe) as the archive destination.
- When using large tape block sizes (generally above 128 kilobytes) on x64 platforms with less than 4 gigabytes of memory, you may get tape write failures with any of the following messages:

```
Aug 16 22:20:55 amur-mn scsi: [ID 107833 kern.warning]
WARNING:
/pci@0,0/pci1022
,7450@b/pci1077,10a@1,1/fp@0,0/tape@w500507630061fa00,0 (st5):
Aug 16 22:20:55 amur-mn alloc contig_mem failure: not enough
mem
Aug 19 14:33:09 amur-mn scsi: [ID 107833 kern.warning]
WARNING:
/pci@0,0/pci1022
,7450@b/pci1077,10a@1,1/fp@0,0/tape@w500507630061fa00,0 (st5):
Aug 19 14:33:09 amur-mn Cannot alloc contig buf for I/O for
2097152 blk size
Aug 19 14:33:09 amur-mn rootnex: [ID 561485 kern.warning]
WARNING: fp: coding error detected, the driver is using
ddi_dma_attr(9S) incorrectly. There is a small risk of data
corruption in particular with large I/Os. The driver should
be replaced with a corrected version for proper system
operation. To disable this warning, add 'set
rootnex:rootnex_bind_warn=0' to /etc/system(4).
Aug 19 14:33:09 amur-mn scsi: [ID 107833 kern.warning]
WARNING:
/pci@0,0/pci1022
,7450@b/pci1077,10a@1,1/fp@0,0/tape@w500507630061fa00,0 (st5):
Aug 19 14:33:09 amur-mn transport rejected
```

This will cause the tape to be marked with the `f` flag in the volume catalog. There is nothing wrong with the tape, and you can clear the `f` flag with the `chmed(1M)` command. A system reboot may be necessary if you continually encounter this problem.

The current workaround is to increase the system memory to at least 4 gigabytes.

This problem is being tracked under Solaris bug 6334803.

- When you are using Fibre Channel tape libraries on SPARC or x64 platforms with `MPxIO` enabled and you try to remove the `SUNwsamfsr` package, the `samst` driver module may fail to unload. A system reboot is required before you can successfully remove the package. This problem is being tracked under Solaris bug 6300113.

- Remote file serving (NFS) of Sun StorEdge QFS file systems is not supported from Linux clients.

Note – For more information about the Linux client, see the README file that is included on the Linux client software CD.

Linux OS Problems

- Sun StorEdge QFS Linux clients running SuSE 8 SP4 do not support `mdadm` path failover due to device naming issues. In addition, `mdadm` is not failing over to an alternate path on Linux Red Hat 4 UD-2 clients.

Customers interested in multi-pathing support for SUSE 8 SP4 clients or Red Hat 4 UD2 clients should use QLogic HBA failover.

- Unexpected results may occur when you run the Sun StorEdge QFS Linux client software on a system with SELinux enabled, depending on your site's specific SELinux configuration. For example, the `df` command may return `Permission denied` when you run it as a non-root user.

If you encounter a similar error, check to see whether the security label of the user allows access to the `/dev/samsys` object.

Patch Bug Fixes

The following list of problems had fixes available in time for the Sun StorEdge QFS and Sun StorEdge SAM-FS 4.4-03 official patch release (patches 120971-03 through 120976-03), but not in time for the Sun StorEdge QFS and Sun StorEdge SAM-FS 4 Update 5 release. These issues are, however, all targeted to be addressed in the first official patch for 4U5 (patches 122803-01 through 122809-01).

- 6382565 – Synopsis: Linux 2.4 deadlock between truncate thread and writer.
- 6389562 – Synopsis: `sam-archiverd` gets an SEGV error when two threads are accessing the `diskvols` database at the same time.
- 6388680 – Synopsis: File System Manager does not handle multiple VSN assignments for the same set correctly.
- 6391540 – Synopsis: Sun StorEdge QFS 4.4 patch 120974-02 incorrectly deletes some entries in `/etc/inittab`.
- 6377015 – Synopsis: `patchrm` fails with a “prebackout script exited with return code 1” error if `fsmadm` is running.
- 6372041 – Synopsis: Qualify the Titanium drive with SAM-QFS.
- 6386888 – Synopsis: Qualify the C4 libraries with SAM-QFS.

- 6380911 – Synopsis: Staging with the copy 1 disk archive offline marks the copy damaged.

Tivoli SANergy File-Sharing Problems

The following problems can arise with SANergy:

- System panics can occur when you do either of the following:
 - Uninstall SANergy while using a fused mountpoint
 - Stop SANergy services while SANergy is in use
- Read operations on files that are marked with the `stage(1) -n` staging attribute, which suppresses staging, sometimes hang.
- During writes from a SANergy client, the software does not adhere to the `segment(1)` file attribute.
- Read operations on files that are marked with `release(1) -p`, which specifies partial staging, sometimes fail.
- An `ftruncate(3C)` operation does not always properly extend a file when issued from a SANergy client.
- An `mmap(2)` system call, if issued over SANergy during the use of the LAN option, sometimes aborts.

Localization Limitations

In localized environments, be aware of the following product limitations:

- Sun StorEdge QFS and Sun StorEdge SAM-FS software does not support message displays in more than one language.
- Configuration files do not accept non-ASCII names or descriptions.

Note – No localized packages are available for the version 4U5 release.

Bugs

TABLE 1 shows the bugs that are known to exist in the Sun StorEdge QFS and Sun StorEdge SAM-FS software. TABLE 2 shows the bugs that are known to exist in the File System Manager software.

TABLE 1 Known Bugs in Sun StorEdge QFS and SAM-FS Software

Bug Number	Description
6262945	<p>Synopsis: The <code>scshutdown</code> command can cause a shared file system to hang while the file system is active.</p> <p>Related bugs:</p> <ul style="list-style-type: none">• 6403835 – Synopsis: Update the Sun Cluster Sun StorEdge QFS agent to use <code>-f</code> and <code>-o await_clients=</code> umount options.• 6395943 – Add control over unmounting file systems with mounted clients is desirable.• 4996460 – Add forced unmount for Sun StorEdge QFS. <p>Status: In configurations with Sun Cluster installed, performing a cluster shutdown using the <code>scshutdown</code> command can cause the system to get in a hung state. This issue exists on both SPARC and AMD platforms.</p> <p>User Action:</p> <ol style="list-style-type: none">1. Identify the current metadata server, by using the <code>samsharefs <fs></code> command or <code>scstat</code> on the Sun StorEdge QFS metadata server resource.2. On each metadata client, shut down the node using the following command: <code>shutdown -y -g0 -i0</code>3. Perform the following command on the metadata server: <code>shutdown -y -g0 -i0</code>
6366625	<p>Disk archive recycling will not take place if only pools are defined in the <code>vsns</code> section of the <code>archiver.cmd</code> file.</p> <p>Status: Issue resolved in patch 122803-01 through 122809-01.</p> <p>User Action: Explicitly define each disk archive volume at least once in the <code>vsns</code> section for that volume to be selected for recycling.</p>
6369828	<p>Data from <code>fstest</code> stops after <code>sharedfs</code> failover. Will not fail back over to the primary <code>md</code> server.</p> <p>Description: Server failover issues have occurred on a shared file system with six nodes running a heavy load (approximately 1000 I/O generating processes). Failovers hang and do not complete.</p> <p>User Action: Run using lighter loads.</p>
6378565	<p>Synopsis: Fatal error during uninstall on RH4U2.</p> <p>Status: LINUX USERS ONLY. Users may see the following error during an uninstall on RH4U2: <code>FATAL: Module SUNWqfs_ki.custom not found.</code></p> <p>User Action: You can safely ignore this error. The OS is just reporting that you are trying to unload a module that may or may not exist. The issue will be resolved in patch 122803-01 through 122809-01</p>

TABLE 1 Known Bugs in Sun StorEdge QFS and SAM-FS Software (Continued)	
Bug Number	Description
6379954	Synopsis: A Sun StorEdge QFS <code>ms</code> -type standalone file system cannot be converted to shared file system. Status: The issue will be resolved in patch 122803-01 through 122809-01.
6383034	The Sun StorEdge SAM-FS archiver is not archiving both copies of files. Status: The issue will be resolved in patch 122803-01 through 122809-01.
6390233	Synopsis: Archiver initialization problems result in file systems not being scanned or in <code>arfind</code> operations that abort with an error. Status: To avoid this problem, do not use the <code>mount -a</code> command.
6391660	Synopsis: Solaris 9 32-bit kernels panic on all QFS file system mounts. Status: The issue will be resolved in patch 122803-01 through 122809-01.

TABLE 2 Known Bugs in File System Manager Software	
Bug Number	Description
6382265	An incomplete list of VSNs is displayed in the "Import VSN" table.
6388680	File System Manager does not handle multiple VSN assignments for the same set correctly. Status: The issue will be resolved in patch 122803-01 through 122809-01.

Release Documentation

Information on the version 4U5 release is available from the following sources, in addition to these Release Notes:

TABLE 3 Sun StorEdge QFS and Sun StorEdge SAM-FS Documentation	
Title	Part Number
<i>Sun StorEdge SAM-FS Installation and Upgrade Guide</i>	819-4330-10
<i>Sun StorEdge SAM-FS File System Configuration and Administration Guide</i>	819-4333-10
<i>Sun StorEdge SAM-FS Storage and Archive Management Guide</i>	819-4329-10
<i>Sun StorEdge SAM-FS Troubleshooting Guide</i>	819-4331-10

TABLE 3 Sun StorEdge QFS and Sun StorEdge SAM-FS Documentation (*Continued*)

Title	Part Number
<i>Sun StorEdge QFS Configuration and Administration Guide</i>	819-4332-10
<i>Sun StorEdge QFS Installation and Upgrade Guide</i>	819-4334-10
Sun StorEdge QFS Linux client README file (on the Linux client software CD)	

Service Contact Information

To contact Sun technical support, go to the following web site:

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

For installation and configuration services, please contact Sun Global Customer Service at 1-800-USA4SUN, or contact your local Sun sales representative.

