

# Veritas Storage Foundation<sup>TM</sup> Cluster File System Release Notes

Solaris

5.0

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# Veritas Storage Foundation Cluster File System Release Notes

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Storage Foundation Cluster File System 5.0

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## Technical support

For technical assistance, visit <http://support.veritas.com> and select phone or email support. Use the Knowledge Base search feature to access resources such as TechNotes, product alerts, software downloads, hardware compatibility lists, and our customer email notification service.



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# Storage Foundation Cluster File System Release Notes

## Introduction

Veritas Storage Foundation Cluster File System (SFCFS) and Storage Foundation Cluster File System High Availability (SFCFS HA) compose the clustering functionality of Veritas File System (VxFS) and are separately licensed features of Storage Foundation. Failover capabilities, such as monitoring system and application services and restarting them on a different system when hardware or software fails, are not required for the operation of SFCFS, but can be added to the cluster after installing and configuring SFCFS HA.

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**Note:** Read the following Veritas Technical Support TechNote for the latest information on updates, patches, and software issues for this release:

<http://support.veritas.com/docs/283282>

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## New features

Veritas Storage Foundation Cluster File System provides the following new features:

### Concurrent I/O Support

This feature extends current support for concurrent I/O to cluster file systems. Semantics for concurrent read/write access on a file in a cluster file system matches those for a local mount.

### Delaylog supported

The `-o delaylog` mount option is supported with cluster mounts.

### Disk layout version supported

Disk layout version 7 is now supported on SFCFS. Disk layout version 6 is also supported.

### Nested mount support

This allows mounts of a VxFS file system on any VxFS mount point. There is no requirement to allow mounts of non-VxFS file system on a shared VxFS mount point. A directory on a shared VxFS file system may be used as a mount point for a VxFS file system, enabling nested mounts of shared file systems. The SFCFS and Veritas Cluster Server (VCS) administration interface is enhanced to support nested mounts.

### Multiple transaction servers—a new major architectural enhancement to SFCFS

With this feature, SFCFS moves from a primary/secondary architecture, where only one node in the cluster processes metadata operations (file creates, deletes, grow, etc.) to a symmetrical architecture, where all nodes in the cluster can simultaneously process metadata operations. This allows SFCFS to handle significantly higher metadata loads.



# System requirements

## Hardware compatibility

For information on servers, network controllers, and disk subsystems that support SFCFS, see the hardware compatibility list available at <http://support.veritas.com>.

## Required patches

Patch requirements and versions are determined at the time of product release. See the *Veritas Storage Foundation Release Notes*.

Contact your vendor for the most current patch version and information.

## No longer supported and future support issues

This section lists functions that are either:

- not supported in 5.0
- may not be supported in future releases

## seconly mount option

The `seconly mount` option might not be supported in the next release of Veritas Storage Foundation Cluster File System.

## Version 4 and Version 5 file system disk layouts

VxFS disk layout Version 4 and 5 are not supported in this release. Maintenance patches for the 4.1 release of SFCFS will continue to support previous disk layouts. Use the `vxupgrade` or `vxfsconvert` command to upgrade to disk layout Version 6 or 7.

See the *Veritas File System Administrator's Guide*.

## I/O error mount options

In this and future releases, only `ioerror=disable` and `ioerror=mdisable` mount options are supported for cluster-mounted file systems. Other `ioerror` mount options are not supported.

## License package not completely removed from local zones

Some files from the Veritas licensing package (`VRTSvlic`) may not be removed from a local zone that was created after `VRTSvlic` was originally installed. An error message is displayed if all files are not removed. If the error was encountered, after the package removal process ends, run the following command from the global zone to remove any remaining `VRTSvlic` files:

```
# rm -rf zonepath/root/var/sadm/pkg/VRTSvlic
```

If you are upgrading a product, and local zones are configured, instead of selecting the installer upgrade procedure (or running the script from the command line), perform the upgrade in steps: Uninstall the product, uninstall the infrastructure packages (`uninstallinfr` script), then reinstall the product.

## Issues with node crashes and joins after the FCL is activated

If a node crashes or joins the cluster within 60 seconds of the FCL (File Change Log) being turned on, the FCL does not correctly record data.

[608169]

## Fixed issues

The following issues have been fixed in this release of SFCFS:

Incident	Description
498024	<code>vxsvc</code> dumped core after upgrading disk layout Version 4 to Version 6.
498031	<code>qioadmin</code> file settings were not persistent after a reboot.
506593	<code>df</code> reported incorrect information on an unmounted block device.
526434	<code>vxrepquota</code> was missing a space between <code>hardlimit</code> and <code>timeleft</code> values.
526436	<code>open()</code> with <code>O_CREAT</code> and a long file name returned the <code>EIO</code> error.
568260	<code>vx_isnfs()</code> would sometimes cause a panic.
586928	<code>fcntl()</code> had poor performance in a clustered file system.

## Known issues

The following incident was reported for this release.

### Running fsck before upgrading to 5.0

Before upgrading to SFCFS 5.0, make sure that all the file systems are clean by running the `fsck` command.

See the `fsck(1M)` manual page.

The `fsck` command replays the intent log to complete any outstanding transactions, then marks the file system as clean.

---

**Warning:** You must run `fsck` before upgrading an existing cluster file system to 5.0. If you upgrade to 5.0, and then run the `fsck` command, it will fail due to the incompatibility of older `fsck` binaries with the new kernel.

---

See the *Veritas Storage Foundation Cluster File System Installation Guide*.

### fsck may abort when applied to unclean file systems from Veritas File System 4.0 or 4.1

Due to an incompatibility in the VxFS `fsck` utility between the 5.0 and 4.0 and 4.1 releases, `fsck` may abort during intent log replay if run on older file systems. This only affects file systems that were previously running under VxFS 4.0 or 4.1 that are CVM-shared volumes or multi-volume file systems, and that were not cleanly unmounted prior to use in VxFS 5.0.

If you encounter this situation, perform a full `fsck` to bring the file system to a consistent, clean state that is ready to be mounted.

See the `fsck_vxfs(1M)` manual page.

### Issues with node crashes and joins after the FCL is activated

If a node crashes or joins the cluster within 60 seconds of the FCL (File Change Log) being turned on, the FCL does not correctly record data.

[608169]

## Software disc cannot be ejected during installation

During installation, if any of the products were configured and started, the software disc cannot be ejected. This may prevent installation from continuing in following circumstances:

- If the language pack disc needs be loaded so that the associated packages can be installed.
- A product was installed that did not require a system reboot to complete the installation.

This problem is not an issue if a product was installed or upgraded that required a system reboot to complete the installation.

### To avoid this problem at install time

- 1 Specify the `-installonly` option to the `installer` script in addition to any other options.
- 2 Eject the software disc.
- 3 Run the `installer` script with the `-configure` option specified.

### If a software disc cannot be ejected

- 1 Stop the event source daemon:

```
# /usr/sbin/vxddladm stop eventsource
```
- 2 Kill the `vxcached`, `vxrelocd` and `vxnotify` processes by using the `kill -9` command with their process IDs as reported by the `ps` command.
- 3 Eject the software disc.
- 4 Restart the VxVM daemon processes:

```
# /usr/sbin/vxddladm start eventsource
# /etc/vx/bin/vxcached
# /etc/vx/bin/vxrelocd
```

[622442]

## Support for SFCFS configurations larger than 16 nodes

SFCFS 5.0 is capable of supporting cluster file systems with up to 32 nodes. Symantec has tested and qualified SFCFS 5.0 cluster file system configurations of up to 16 nodes at product release time. Support can be contacted for their approval and recommendations on cluster file system deployments larger than 16 nodes, based on the application workload. For the latest information on SFCFS support issues, see the following TechNote:

<http://support.veritas.com/docs/283282>

## Software limitations

Quick I/O, ODM, mount -o cio, and the VX\_CONCURRENT advisory are mutually exclusive

The VX\_CONCURRENT advisory cannot be set on a file that is actively open by Quick I/O or ODM. A file that has the VX\_CONCURRENT advisory set may not be concurrently opened by Quick I/O or ODM. Quick I/O and ODM access are not allowed for any files on a file system that is mounted with the `-o cio` mount option.

### Compatibility with previous versions of VxFS

A disk layout Version 7 file system created with VxFS 5.0 software will not be accessible if the VxFS 5.0 file system software is removed and the system is reverted to VxFS 4.1.

In addition, if a disk layout Version 7 file system exists on a boot disk and VxFS 5.0 is removed, the host will not reboot successfully and will remain at the `bcheckrc` prompt. To reboot the host successfully, first edit the `fstab` file and comment out disk layout Version 7 file system

See the *Veritas Storage Foundation Release Notes*.

### Consistent distribution and kernel version for Storage Foundation Cluster File System

Cluster nodes must run the same distribution and kernel version. You cannot mix 32-bit and 64-bit kernels in the same cluster. Cluster nodes must run 64-bit kernels.

### Storage Foundation Cluster File System agents cannot support Japanese mount points

None of the SFCFS agents (for example, `cfsmntadm` and `cfsmount`) work on a Japanese mount point. These commands fail on a Japanese operating system because the SFCFS agents require VCS and VCS currently does not support non-ASCII input.

### Fencing

If during the SFCFS installation procedure you chose to enable fencing but have yet to configure the coordinator disks, Cluster Volume Manager will not join the cluster. If you choose to disable fencing, or if fencing cannot be supported in the

current configuration, the following steps will disable fencing and allow shared disk groups to join:

- 1 Create the file `/etc/vxfenmode` on each node (if it does not already exist).
- 2 Add the string `vxfen_mode=disabled` to the file.

## Required upgrade for Cluster Volume Manager protocol

The Cluster Volume Manager (CVM) protocol must be upgraded before upgrading the disk group from previous versions.

### To upgrade the CVM protocol

- 1 Check the existing cluster protocol version:  

```
# vxdctl protocolversion
```
- 2 To upgrade the cluster protocol version to version 70 for the entire cluster, use the following command on the master node:  

```
# vxdctl upgrade
```

## NIC detection during installation

Operating system limitations may affect the detection of valid network interconnect cards (NICs) during SFCFS/SFCFS HA installation. Specifically, more NICs for heartbeat links may be listed than are actually available. Verify which NICs are valid on your system before proceeding with the install.

To verify which NICs are valid, use the following command:

```
# ifconfig -a
```

## Caching advisories

Caching advisories are set with the `mount` command on individual file systems, but are not propagated to other nodes of a cluster.

To work around this issue, set the required cache advisories with the `vxtunefs` command instead.

## Cached Quick I/O

This Quick I/O for Databases feature that caches data in the file system cache is not supported.

## Quotas

When using quotas, the UID and GID for a user must be the same on each node in the cluster.

## Local scope for named pipes

Named pipes created on a cluster-mounted file system have only a local scope pertaining to the local node.

Devices other than named pipes cannot be created using the `mknod` command.

## Do not define LD\_LIBRARY\_PATH to contain Storage Foundation Cluster File System mounted directories

If SFCFS-mounted directories are present in the `LD_LIBRARY_PATH` environment variable, the system may hang in circumstances such as a forced unmount.

## Turn off Veritas Cluster Server volume-level resource monitoring before deleting a volume

If you are using VCS volume-level resource monitoring and you want to delete a volume, you must turn off monitoring for that volume before deleting it. If monitoring for the volume is not turned off, the VCS monitor disables access to the disk group in which the volume resided by changing the activation mode to off. Failure to turn off monitoring will require intervention to change the disk group activation mode back to its original setting.

See the `vxdg(1M)` manual page.

## Swap files not supported

Swap files are not supported on cluster-mounted file systems.

## Documentation errata

The following section describe Veritas Storage Foundation Cluster File System documentation errata for the 5.0 release.

## Veritas Storage Foundation Cluster File System Installation Guide errata

If you are installing SFCFS using JumpStart, use the Storage Foundation Installation Guide instructions.

See the *Veritas Storage Foundation Installation Guide*.

## Available documentation

After the installation procedure is complete, documents are available online under the `/opt/VRTS/docs` directory. Documents are provided as Adobe Portable Document Format (PDF) files and in a searchable HTML-based format. To view or print PDF documents, you must have the Adobe Acrobat Reader installed.

Installing documentation and online manual pages is optional.

## Veritas documentation disc

The Veritas documentation disc provides searchable, HTML documentation for each product in this release. Printable PDF documents are also included on the disc.

All documentation is organized by product groups.

## Release Notes and Installation guides

Release notes and installation guides are not installed by any packages. Veritas recommends that you copy them from the software disc to the `/opt/VRTS/docs` directory on your system after product installation so that they are available for future reference.

Release notes for component products of SFCFS are located under `storage_foundation_cluster_file_system/release_notes`.

Installation guides for component products of SFCFS are located under `storage_foundation_cluster_file_system/docs`.

Read the following installation guide and component product release notes before starting the installation:

- *Veritas Storage Foundation Cluster File System Installation Guide* (`sfdfs_install.pdf`)
- *Veritas Storage Foundation Release Notes* (`sf_notes.pdf`)
- *Veritas Cluster Server Release Notes* (`vcs_notes.pdf`)



## Veritas Storage Foundation Cluster File System guides

The following guides comprise the Veritas Storage Foundation Cluster File System documentation set:

Guide Title	Filename
<i>Veritas Storage Foundation Cluster File System Release Notes (this document)</i>	<code>sfcfs_notes.pdf</code>
<i>Veritas Storage Foundation Cluster File System Installation Guide</i>	<code>sfcfs_install.pdf</code>
<i>Veritas Storage Foundation Cluster File System Administrator's Guide</i>	<code>sfcfs_admin.pdf</code>

## Related documentation

The following manuals, along with the online help, provide important information about the software components for SFCFS/SFCFS HA.

## Veritas Storage Foundation guides

Guide Title	Filename
<i>Veritas Storage Foundation and High Availability Getting Started Guide</i>	<code>getting_started.pdf</code>
<i>Veritas Storage Foundation Release Notes</i>	<code>sf_notes.pdf</code>
<i>Veritas Storage Foundation Installation Guide</i>	<code>sf_install.pdf</code>
<i>Veritas Storage Foundation Intelligent Storage Provisioning Administrator's Guide</i>	<code>sf_isp_admin.pdf</code>
<i>Veritas Storage Foundation Cross-Platform Data Sharing Administrator's Guide</i>	<code>sf_cds_admin.pdf</code>
<i>Veritas Enterprise Administrator User's Guide</i>	<code>veax6x_users.pdf</code>
<i>Veritas Volume Manager Administrator's Guide</i>	<code>vxvm_admin.pdf</code>
<i>Veritas Volume Manager Troubleshooting Guide</i>	<code>vxvm_tshoot.pdf</code>
<i>Veritas Volume Manager Hardware Notes</i>	<code>vxvm_hwnotes.pdf</code>

Guide Title	Filename
<i>Veritas FlashSnap Point-In-Time Copy Solutions Administrator's Guide</i>	flashsnap_admin.pdf
<i>Veritas File System Administrator's Guide</i>	vxfs_admin.pdf

## Veritas Cluster Server documentation

The following Veritas Cluster Server documentation is available with Veritas Storage Foundation Cluster File System HA:

Guide Title	Filename
<i>Veritas Cluster Server Release Notes</i>	vcs_notes.pdf
<i>Veritas Cluster Server Installation Guide</i>	vcs_install.pdf
<i>Veritas Cluster Server User's Guide</i>	vcs_users.pdf
<i>Veritas Cluster Server Agent Developer's Guide</i>	vcs_agent_dev.pdf
<i>Veritas Cluster Server Bundled Agents Reference Guide</i>	vcs_bundled_agents.pdf
<i>VCS Enterprise Agent for Oracle Installation and Configuration Guide</i>	vcs_oracle_install.pdf

## Veritas Volume Replicator documentation

The following Veritas Volume Replicator documentation is available with the Veritas Volume Replicator option:

<b>Guide Title</b>	<b>Filename</b>
<i>Veritas Volume Replicator Release Notes</i>	vvr_notes.pdf
<i>Veritas Volume Replicator Installation Guide</i>	vvr_install.pdf
<i>Veritas Volume Replicator Administrator's Guide</i>	vvr_admin.pdf
<i>Veritas Volume Replicator Planning and Tuning Guide</i>	vvr_planning.pdf
<i>Veritas Volume Replicator Web Console Administrator's Guide</i>	vvr_web_admin.pdf
<i>Veritas Volume Replicator Advisor User's Guide</i>	vvr_advisor_users.pdf
<i>Veritas Cluster Server Agents for Veritas Volume Replicator Configuration Guide</i>	vvr_agents_config.pdf



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Apache Commons-Collections

Apache Commons-dbc

Apache Common Logging

Apache Jakarta Commons

Apache Lucene

Apache Portable Runtime

Apache Snmp4j - The Object Oriented SNMP API for Java

Apache Spring Framework

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