

VERITAS Foundation Suite™ and Foundation Suite HA 3.5

Release Notes

Solaris

Maintenance Pack 1

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VERITAS Foundation Suite Release Notes

This guide provides information on the VERITAS Foundation Suite™ (FST) and Foundation Suite HA (FST HA) 3.5 release with Maintenance Pack 1 (3.5 MP1).

Note This release includes important patch fixes for VERITAS Volume Manager™ (VxVM), VERITAS File System™ (VxFS), and VERITAS Cluster Server™ (VCS). See [“Upgrading from 3.5 to 3.5 MP1”](#) on page 11 for patch installation information.

Foundation Suite and Foundation Suite HA are sets of VERITAS products activated by a single license key, or features installed with the product packages and licensed separately. The 3.5 MP1 release of FST and FST HA operates on the following Solaris operating systems:

- Solaris 2.6
- Solaris 7 (32-bit and 64-bit)
- Solaris 8 (32-bit and 64-bit)
- Solaris 9 (32-bit and 64-bit)

The Foundation Suite is comprised of the following products:

- VERITAS Volume Manager
- VERITAS File System
- VERITAS SANPoint Control™ (SPC) QuickStart

Foundation Suite HA is comprised of the above products and:

- VERITAS Cluster Server

The following feature is automatically licensed with FST/FST HA:

- VERITAS QuickLog



The following separately licensable features are installed with FST/FST HA:

VERITAS Volume Replicator™

VERITAS FlashSnap™

VERITAS Storage Mapping

There is also a limited-feature version of FST called VERITAS Foundation Suite QuickStart.

Review this entire document before installing VERITAS Foundation Suite components. Also read the individual product release notes for important information, such as required patches and software issues, specific to those products (see “[Component Product Release Notes](#)” on page 15).

Topics in this guide include:

- ◆ [Getting Help](#)
- ◆ [Installing FST/ FST HA](#)
 - [Component Product Licensing](#)
 - [VERITAS Licensing Commands](#)
- ◆ [Foundation Suite](#)
- ◆ [Foundation Suite HA](#)
- ◆ [Foundation Suite QuickStart](#)
- ◆ [SANPoint Control QuickStart](#)
- ◆ [Separately Licensable Features](#)
- ◆ [End of Product Support](#)
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 - [FST, FST HA, and Foundation Suite QuickStart Documentation](#)
 - [Foundation Suite HA Documentation Only](#)
 - [SANPoint Control QuickStart Documentation](#)
 - [Volume Replicator Documentation](#)
 - [Component Product Release Notes](#)
- ◆ [Software Issues for VERITAS FST/FST HA](#)



Getting Help

For assistance with any of the VERITAS products, contact VERITAS Technical Support:

- ◆ U.S. and Canadian Customers: 1-800-342-0652
- ◆ International: +1-650-527-8555
- ◆ Email: support@veritas.com

For license information:

- ◆ Phone: 1-925-931-2464
- ◆ Email: license@veritas.com
- ◆ Fax: 1-925-931-2487

For software updates:

- ◆ Email: swupdate@veritas.com

For information on purchasing VERITAS products:

- ◆ Phone: 1-800-258-UNIX (1-800-258-8649) or 1-650-527-8000
- ◆ Email: vx-sales@veritas.com

For additional information about VERITAS and VERITAS products, visit the website at:

<http://www.veritas.com>

For software updates and additional technical support information, such as TechNotes, product alerts, and hardware compatibility lists, visit the VERITAS Technical Support website at:

<http://support.veritas.com>



The VRTSexplorer Diagnostic Program

The VRTSexplorer program is available to assist VERITAS Customer Support engineers in diagnosing technical problems associated with VERITAS products. You can download this program from the VERITAS FTP site or install it from a VERITAS software disc. For more information about the VRTSexplorer program, consult the README file located in the `product_name/support` directory.

Downloading VRTSexplorer from the Web

1. Use a web browser or the `ftp` program to download the VRTSexplorer program from the following URL:

```
ftp://ftp.veritas.com/pub/support/vxexplore.tar.Z
```

Save the file to a temporary directory, such as `/tmp`, as shown in the example session below.

2. Log in as `root` on the system that is experiencing the problem. Extract the contents of the downloaded file to the directory `/tmp/VRTSexplorer`:

```
# cd /tmp
# zcat vxexplore.tar.Z | tar xvf -
```

3. Run the VRTSexplorer program located in the VRTSexplorer directory:

```
# /tmp/VRTSexplorer/VRTSexplorer
```

4. When VRTSexplorer prompts for a destination directory for the information that it collects, press Return to accept the default directory `/tmp`, or enter an alternative path name of your own choice. VRTSexplorer writes the results of its analysis to a compressed tar file named `VRTSexplorer_casenumbe_r_hostname.tar.Z` in the specified directory.

5. Use the file upload facility of your web browser, or the `ftp` program, to transfer the VRTSexplorer output file to the VERITAS Customer Support anonymous FTP site:

```
ftp://ftp.veritas.com/incoming
```

6. Telephone VERITAS Technical Support at the number listed under “Getting Help” on page 3. Tell them that you have run VRTSexplorer and provide the name of the file that you transferred to the FTP site.

Alternatively, if you have already been assigned a call ID number by Customer Support, send email to `support@veritas.com` and include your case ID number in the subject line.



Installing VRTSexplorer from the VERITAS Software Disc

The `VRTSspt` package is included on the VERITAS software discs under the `product_name/support` directory. To load the software from a software disc:

1. Log in as superuser.
2. Place the VERITAS Foundation Suite software disc into a CD-ROM drive connected to your system.
3. If Solaris volume management software is running on your system, when you insert the VERITAS software disc it is automatically mounted as `/cdrom/cdrom0`.
4. If Solaris volume management software is not available to mount the VERITAS software disc automatically, you must mount it manually. After inserting the disc, enter:

```
# mount -F hsfs -o ro /dev/dsk/c0t6d0s2 /cdrom
```

where `c0t6d0s2` is the default address for the CD-ROM drive.

5. Move to the `support` directory and install the `VRTSspt` package:

```
# cd /cdrom/cdrom0/foundation_suite/support
# pkgadd -d . VRTSspt
```

6. The program is installed in the `/opt/VRTSspt` directory and takes approximately 500 KB of disk space. To run the program, enter:

```
# /opt/VRTSspt/VRTSexplorer/VRTSexplorer
```

7. Use the file upload facility of your web browser, or the `ftp` program, to transfer the `VRTSexplorer` output file to the VERITAS Customer Support anonymous FTP site:

```
ftp://ftp.veritas.com/incoming
```

8. Telephone VERITAS Customer Support at the number listed under “[Getting Help](#)” on page 3. Tell them that you have run `VRTSexplorer` and provide the name of the file that you transferred to the FTP site.

Alternatively, if you have already been assigned a call ID number by Customer Support, send email to `support@veritas.com` and include your case ID number in the subject line.

9. To remove the `VRTSspt` package, enter:

```
# pkgrm VRTSspt
```



Installing FST/ FST HA

There are multiple software discs in the VERITAS product distribution. Foundation Suite is on *VERITAS Storage Solutions 3.5 MP1 for Solaris* Disc 5. VERITAS Cluster Server, which provides the high availability functionality of FST HA, is on *VERITAS Storage Solutions 3.5 MP1 for Solaris* Disc 2.

The VERITAS software discs have an automated installation and licensing procedure that lets you install packages using an Installation Menu instead of installing from the command line. The *Product License and Installation Guide*, included with the VERITAS software discs, provides complete information on using the Installation Menu. Review the *Product License and Installation Guide* before installing FST or FST HA.

To make a Foundation Suite installation highly available, perform the following procedure:

1. Complete the VERITAS Foundation Suite installation.
2. Reboot the system.
3. Complete the VERITAS Foundation Suite configuration.
4. Repeat [step 1](#) through [step 3](#) on all systems in the cluster.
5. Insert and mount the VERITAS Cluster Server software disc on any system in the cluster.
6. Run the installer:

```
    /cdrom/installer
```
7. Enter 2 for the installation menu.
8. Enter 6 to initiate the VERITAS Cluster Server installation.

Review the individual product installation guides before starting the installation.



Component Product Licensing

A Foundation Suite key licenses VxVM, VxFS, QuickLog, and SPC QuickStart.

A Foundation Suite HA key licenses VxVM, VxFS, SPC QuickStart, and VCS.

A Foundation Suite QuickStart key licenses a limited version of VxVM and VxFS.

During an individual product installation, you are prompted for the license key. When you enter a Foundation Suite or Foundation Suite HA key, it automatically licenses the other products. This means you do not have to re-enter a license key when you install another Foundation product.

The Foundation Suite QuickStart product lets you upgrade to the full feature set with the addition of an FST license key.

Some Foundation Suite features require a separate license key (see “[Separately Licensable Features](#)” on page 10).

License Upgrades

License keys valid for Foundation Suite, Foundation Suite HA 3.5, and Foundation Suite QuickStart are also valid for 3.5 MP1. If you are upgrading from VxFS or VxVM releases older than 3.5, you must obtain a new license key for Foundation Suite. If you have any questions concerning licensing, contact VERITAS at the license information numbers listed under “[Getting Help](#)” on page 3.

VERITAS Licensing Commands

The VERITAS licensing commands are provided in the `VRTSvlic` package. You must install `VRTSvlic` for the licensing process to work. There are three licensing commands:

`vxlicinst`—Installs a VERITAS license key.

`vxlicrep`—View currently installed licenses.

`vxlictest`—Retrieves features that are encoded in a license key along with their descriptions.

You can review the descriptions and available options for these commands in the online manual pages installed with the `VRTSvlic` package.



Foundation Suite

The Foundation Suite consists of the VERITAS File System, VERITAS Volume Manager, and the SANPoint Control QuickStart products, plus the VERITAS QuickLog feature. A Foundation Suite key licenses VxFS, VxVM, SPC QuickStart, and the QuickLog feature.

VxFS is a quick-recovery, journaling file system that provides high performance and online management capabilities.

VxVM is a storage management tool that manages physical disks as logical device volumes, removing the limitations of physical disk storage partitions.

The QuickLog feature enhances file system performance for metadata intensive applications such as mail serving. Although QuickLog can improve file system performance, VxFS does not require QuickLog to operate effectively.

See “[SANPoint Control QuickStart](#)” on page 10 for information on SPC QuickStart.

Foundation Suite HA

Foundation Suite HA adds application failover support provided by the VERITAS Cluster Server. A Foundation Suite HA key licenses VCS in addition to VxFS, VxVM, SPC QuickStart, and the QuickLog feature.

Foundation Suite QuickStart

Foundation Suite QuickStart is a limited feature set of VERITAS File System and VERITAS Volume Manager functionality. Foundation Suite QuickStart provides high performance and data integrity for environments with less stringent availability and management requirements. FST QuickStart uses the same binaries as FST, so upgrading to the full functionality of VERITAS Foundation Suite requires only the installation of an FST license key—no product installation or reboot is needed. To enable Foundation Suite options, such as FlashSnap and VERITAS Storage Mapping, you must first upgrade to VERITAS Foundation Suite.

The following features are available in Foundation Suite, but are not included with Foundation Suite QuickStart.



VERITAS Base File System Features (not available in FST QuickStart)

- ◆ Online file system resize
- ◆ Online file system defragment
- ◆ Online disk layout upgrade
- ◆ Snapshot file systems
- ◆ Group quotas
- ◆ Forced unmount
- ◆ DMAPI (Data Management API, used with hierarchical storage management (HSM))
- ◆ Space reservation and setting extent sizes
- ◆ Caching advisories
- ◆ The `mount` command options `remount`, `mincache` and `convosync` (including direct and Discovered Direct I/O, and I/O error handling)

VERITAS Base Volume Manager Features (not available in FST QuickStart)

- ◆ Striping
- ◆ Mirroring of user-data disks (QuickStart does include root mirroring)
- ◆ Striping + mirroring (RAID 0+1)
- ◆ Mirrored stripes (RAID 1+0)
- ◆ RAID-5
- ◆ RAID-5 with logging
- ◆ Log-based mirror recovery (dirty region logging)
- ◆ SmartSync (Oracle resilvering)
- ◆ Hot-sparing/hot relocation
- ◆ Dynamic multipathing (DMP)
- ◆ Online data migration
- ◆ Snapshots
- ◆ Task monitoring
- ◆ Online relayout



SANPoint Control QuickStart

SANPoint Control lets you monitor and visualize Storage Area Network configurations. SANPoint Control QuickStart is a limited feature set of SANPoint Control. The features listed below are available in SANPoint Control, but are not included with SANPoint Control QuickStart.

VERITAS Base SANPoint Control Features (not available in SANPoint Control QuickStart)

- ◆ Disk array management (LUN masking and array port binding)
- ◆ Switch management (zone and zone alias creation/modification)
- ◆ Policy-based management (performance graphs/reports)
- ◆ SANPoint Control Server command line interface

Note See the *VERITAS SANPoint Control QuickStart Release Notes* for information on supported Solaris operating system versions for SANPoint Control features.

Separately Licensable Features

The following features are installed with FST/FST HA, but require a separate product license key.

VERITAS Volume Replicator (VVR) is a data-replication software designed to contribute to an effective disaster recovery plan by maintaining an exact or consistent copy of application data at one or more remote locations.

VERITAS FlashSnap provides various point-in-time copy applications on enterprise systems. FlashSnap implements flexible solutions to efficiently manage multiple point-in-time copies of data and reduce resource contention on critical data servers.

VERITAS Storage Mapping enables applications to visualize the storage virtualization stack—through VxFS and VxVM—from a VxFS file down to the physical disk drive. VERITAS Storage Mapping does not provide visualization itself, but supplies an interface for other applications, such as VERITAS SANPoint Control, to do so.

End of Product Support

This is the last release to support the QuickLog statistic gathering functionality provided by the `qlogstat` command. Also, future releases of QuickLog will support only one VxFS file system per QuickLog device instead of the current 32 file systems per QuickLog device.

Upgrading from 3.5 to 3.5 MP1

There are patches available in this release for both Foundation Suite and Foundation Suite HA.

Foundation Suite Patches

The following patches are available for VxFS (`VRTSvxfs`):

- 113204-03 (for Solaris 2.6)
- 113205-03 (for Solaris 7)
- 113206-03 (for Solaris 8)
- 113207-03 (for Solaris 9)

The following patches are available for VERITAS File System provider (`VRTSfspro`):

- 113208-02 (for Solaris 2.6)
- 113209-02 (for Solaris 7)
- 113210-02 (for Solaris 8)
- 113211-02 (for Solaris 9)

In addition to these patches, there are patches available for other components of the VERITAS Volume Manager and VERITAS Enterprise Administrator (VEA) GUI that VERITAS recommends you install. The patches are:

- 112392-04 (for `VRTSvxvm`—VERITAS Volume Manager)
- 113203-02 (for `VRTSob`—VERITAS Enterprise Administrator Service)
- 113595-02 (for `VRTSobgui`—VERITAS Enterprise Administrator)
- 113596-02 (for `VRTSvmpro`—VERITAS Volume Manager Services Provider)



All of the above patches are located under the `foundation_suite/patches` directory of the VERITAS Foundation Suite software disc. Patch README files with detailed installation information accompany each patch.

It is advisable to install the patches (or their revisions if superseded) in the following order:

112392-04 (VRTSvxvm patch)

11320x-03 (VRTSvxfs patch where x is for the appropriate Solaris version)

113203-02 (VRTSob patch)

113595-02 (VRTSobgui patch)

113596-02 (VRTSvmpro patch)

1132xx-02 (VRTSfspro patch where xx is for the appropriate Solaris version)

Foundation Suite HA Patches

Refer to the VERITAS Cluster Server 3.5 Installation Guide for instructions on how to install VCS 3.5 and how to upgrade to VCS 3.5 from earlier versions. To upgrade to the latest VCS patch release, go to the `cluster_server/patches` directory on the *VERITAS Storage Solutions 3.5 Maintenance Pack 1 Disc 2*. Review the instructions for installation of patch 113702-01 in the accompanying README file.



Documentation

User guides related to the VERITAS Foundation Suite are available on the *VERITAS Storage Solutions 3.5 Maintenance Pack 1* Disc 8 under the `foundation_suite` directory. User guides related to the VERITAS Foundation Suite HA (VERITAS Cluster Server) are located on *VERITAS Storage Solutions 3.5 Maintenance Pack 1* Disc 8 under the `cluster_server` directory. After the installation procedure is complete, documents are available online under the `/opt/VRTSpackage_name/doc` directories. Documents are provided as Adobe Portable Document Format (PDF) files. To view or print PDF documents, you must have the Adobe Acrobat Reader installed.

FST, FST HA, and Foundation Suite QuickStart Documentation

VRTSfdoc—VERITAS File System documentation.

VERITAS File System Installation Guide (includes QuickLog information)

VERITAS File System Administrator's Guide

VRTSvmDOC—VERITAS Volume Manager documentation.

VERITAS Volume Manager Installation Guide

VERITAS Volume Manager Administrator's Guide

VERITAS Volume Manager User's Guide – VERITAS Enterprise Administrator

VERITAS FlashSnap Point-In-Time Copy Solutions Administrator's Guide

VERITAS Volume Manager Troubleshooting Guide

VERITAS Volume Manager Hardware Notes



Foundation Suite HA Documentation Only

VRTSVCSDC—VERITAS Cluster Server documentation.

VERITAS Cluster Server User's Guide

VERITAS Cluster Server Installation Guide

VERITAS Cluster Server Bundled Agents Reference Guide

VERITAS Cluster Server Agent Developer's Guide

VERITAS Cluster Server Application Note: Sun StorEdge 3x00 Disk Array

VERITAS Cluster Server Application Note: Sun StorEdge 5000 Disk Array

VERITAS Cluster Server Application Note: Sun Enterprise 10000 Dynamic Reconfiguration

VERITAS Cluster Server Application Note: Replicated Data Cluster for VCS

SANPoint Control QuickStart Documentation

VRTSSPC—The SANPoint Control QuickStart manuals.

Administering SANPoint Control QuickStart

The Architecture of VERITAS SANPoint Control

Configuring Your SAN and Installing SANPoint Control QuickStart

Analyzing SAN Inventory and Performance With SANPoint Control QuickStart

SANPoint Control HW/ SW Support Matrix

Viewing Your SAN With SANPoint Control QuickStart



Volume Replicator Documentation

VRTSvrdoc—VERITAS Volume Replicator documentation.

Volume Replicator Administrator's Guide

Volume Replicator Configuration Notes

Volume Replicator Web Console Administrator's Guide

Component Product Release Notes

The VERITAS Foundation Suite and Foundation Suite HA product release notes are located under the `foundation_suite/release_notes` directory of the VERITAS Foundation Suite disc or the `cluster_server/release_notes` directory of the VERITAS Cluster Server disc. It is important that you read the relevant product release notes before installing FST, FST HA, or FST QuickStart:

VERITAS File System Release Notes (`vxfs_notes.pdf`)

VERITAS Volume Manager Release Notes (`vxvm_notes.pdf`)

VERITAS Volume Replicator Release Notes (`vvr_notes.pdf`)

VERITAS Cluster Server Enterprise Agent for Volume Replicator Release Notes (`vcsvvr_notes.pdf`)

VERITAS SANPoint Control QuickStart Release Notes (`spcqs_notes.pdf`)

VERITAS Volume Replicator Web Console Release Notes (`vrw_notes.pdf`)

VERITAS Cluster Server Release Notes (`vcs_notes.pdf`)

Because product release notes are not installed by any packages, VERITAS recommends that you copy them to the `/opt/VRTSproduct_name/doc` directory after the product installation so that they are available for future reference.



Software Issues for VERITAS FST/FST HA

▼ Do Not Use Solaris 8 Patch 110934-10 or Solaris 9 Patch 113713-01

Solaris 8 patch 110934-10 and Solaris 9 patch 113713-01 prevent the installation of VCS and VxVM patches.

Use the `showrev` command to determine whether these patches are installed:

```
# showrev -p | grep 110934
# showrev -p | grep 113713
```

If patch 110934-10 (Solaris 8) or patch 113713-01 (Solaris 9) is installed, remove it using the `patchrm` command:

```
# patchrm 110934-10
# patchrm 113713-01
```

For Solaris 8, use patch 110934-08 or lower. If you do not have or cannot obtain patch 110934-08, do not install 110934-10. You can successfully install VERITAS packages without either patch.

To obtain the latest information on the status of patch 110934-10 or patch 113713-01 for use with specific VERITAS products, visit the VERITAS Technical Support website at:

<http://support.veritas.com>

▼ Cannot Create a Storage Checkpoint on a Very Fragmented File System

On a VxFS file system that is fragmented such that there are fewer than eight contiguous file system blocks, a Storage Checkpoint cannot be created (`fsckptadm -n create`). You can use the `fsadm -E` command to display available free extents. If there are insufficient free extents, use the `fsadm -e` command to defragment the file system before trying to create a Storage Checkpoint.

▼ Converting from Solstice Disk Suite to VERITAS Volume Manager

For information on the Solstice Disk Suite (SDS) to VxVM conversion package (`vxvmconvert`), see the VERITAS Support TechNote at:

<http://seer.support.veritas.com/docs/251080.htm>



▼ Unwanted vxassist Authentication Messages Generated When Accessing SAL

If the `vxassist` command is run on a host that has the VERITAS SAN Access Layer (SAL) installed, warning messages may be displayed when `vxassist` tries to contact SAL. For example, if `vxassist` recognizes the version of SAL being used, or detects an error in the SAL output, the following message may be displayed:

```
WARNING: Error while retrieving information from SAL.
```

If SAL rejects the credentials supplied by `vxassist`, an authentication message may be displayed as in the following example:

```
# vxassist make voltest 100m
vxvm:vxassist: WARNING: SAL authentication failed. Username "root"
not found in password file
```

If you actually want to connect to SAL, you must set a valid user name and password using the `vxspcshow` command (see the `vxspcshow(1M)` manual page for more information).

If you do not want to connect to SAL, you can suppress all messages and communication between `vxassist` and SAL by adding the following line to the `vxassist` defaults file, `/etc/defaults/vxassist`:

```
salcontact=no
```

See the `vxassist(1M)` man page for more information.

▼ Large File System Backup Issues

Carefully consider backup options before implementing very large file systems. Many file system backup applications, including VERITAS NetBackup 3.4 and 4.5, do not support backing up file systems larger than one terabyte. Also, backup and restore times for very large file systems may be greater than required at your site. If you are implementing a hierarchical storage management (HSM) solution, make sure that your HSM vendor specifies support for very large file systems. Consider trying to organize and backup directory hierarchies in sizes less than a terabyte.

▼ Solaris 2.6 EOSL

Sun Microsystems has announced the End of Support Life for Solaris 2.6. Contact Sun customer support for more information.

▼ Cannot Mirror Root Disk Using the VERITAS Enterprise Administrator GUI

If a system is licensed only for Foundation Suite QuickStart, the VEA GUI cannot be used to mirror the root disk. The alternative is to run the Volume Manager `vxdiskadm` command from the command line. The `vxdiskadm` command invokes a menu-driven interface. Select Option 6, Mirror volumes on a disk, to perform the root disk mirroring procedure.



