

Veritas Storage Foundation™ and High Availability Solutions Getting Started Guide

AIX

5.1

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Technical Support

Symantec Technical Support maintains support centers globally. Technical Support's primary role is to respond to specific queries about product features and functionality. The Technical Support group also creates content for our online Knowledge Base. The Technical Support group works collaboratively with the other functional areas within Symantec to answer your questions in a timely fashion. For example, the Technical Support group works with Product Engineering and Symantec Security Response to provide alerting services and virus definition updates.

Symantec's maintenance offerings include the following:

- A range of support options that give you the flexibility to select the right amount of service for any size organization
- Telephone and Web-based support that provides rapid response and up-to-the-minute information
- Upgrade assurance that delivers automatic software upgrade protection
- Global support that is available 24 hours a day, 7 days a week
- Advanced features, including Account Management Services

For information about Symantec's Maintenance Programs, you can visit our Web site at the following URL:

www.symantec.com/techsupp/

Contacting Technical Support

Customers with a current maintenance agreement may access Technical Support information at the following URL:

www.symantec.com/techsupp/

Before contacting Technical Support, make sure you have satisfied the system requirements that are listed in your product documentation. Also, you should be at the computer on which the problem occurred, in case it is necessary to replicate the problem.

When you contact Technical Support, please have the following information available:

- Product release level
- Hardware information
- Available memory, disk space, and NIC information
- Operating system

- Version and patch level
- Network topology
- Router, gateway, and IP address information
- Problem description:
 - Error messages and log files
 - Troubleshooting that was performed before contacting Symantec
 - Recent software configuration changes and network changes

Licensing and registration

If your Symantec product requires registration or a license key, access our technical support Web page at the following URL:

www.symantec.com/techsupp/

Customer service

Customer service information is available at the following URL:

www.symantec.com/techsupp/

Customer Service is available to assist with the following types of issues:

- Questions regarding product licensing or serialization
- Product registration updates, such as address or name changes
- General product information (features, language availability, local dealers)
- Latest information about product updates and upgrades
- Information about upgrade assurance and maintenance contracts
- Information about the Symantec Buying Programs
- Advice about Symantec's technical support options
- Nontechnical presales questions
- Issues that are related to CD-ROMs or manuals

Maintenance agreement resources

If you want to contact Symantec regarding an existing maintenance agreement, please contact the maintenance agreement administration team for your region as follows:

Asia-Pacific and Japan	customercare_apac@symantec.com
Europe, Middle-East, and Africa	semea@symantec.com
North America and Latin America	supportsolutions@symantec.com

Additional enterprise services

Symantec offers a comprehensive set of services that allow you to maximize your investment in Symantec products and to develop your knowledge, expertise, and global insight, which enable you to manage your business risks proactively.

Enterprise services that are available include the following:

Symantec Early Warning Solutions	These solutions provide early warning of cyber attacks, comprehensive threat analysis, and countermeasures to prevent attacks before they occur.
Managed Security Services	These services remove the burden of managing and monitoring security devices and events, ensuring rapid response to real threats.
Consulting Services	Symantec Consulting Services provide on-site technical expertise from Symantec and its trusted partners. Symantec Consulting Services offer a variety of prepackaged and customizable options that include assessment, design, implementation, monitoring, and management capabilities. Each is focused on establishing and maintaining the integrity and availability of your IT resources.
Educational Services	Educational Services provide a full array of technical training, security education, security certification, and awareness communication programs.

To access more information about Enterprise services, please visit our Web site at the following URL:

www.symantec.com

Select your country or language from the site index.

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Product overview

This chapter includes the following topics:

- [Veritas Storage Foundation product suites](#)
- [About Veritas Storage Foundation and High Availability products](#)

Veritas Storage Foundation product suites

Veritas Storage Foundation and High Availability is a licensed product. Refer to the End User License Agreement (EULA) on the product disc for terms and conditions that govern the use of this product.

The following table lists the Symantec products and optionally licensed features available with each Veritas Storage Foundation product suite.

In the 5.1 release of Storage Foundation, the database utilities are included in the Storage Foundation release, rather than as options.

Table 1-1 Contents of Veritas Storage Foundation products

Storage Foundation version	Products and features
Storage Foundation Basic	Veritas File System Veritas Volume Manager
Storage Foundation Standard	Veritas File System Veritas Volume Manager Veritas Quick I/O option Veritas Extension for Oracle Disk Manager option Optionally licensed features: Veritas Volume Replicator

Table 1-1 Contents of Veritas Storage Foundation products (*continued*)

Storage Foundation version	Products and features
Storage Foundation Standard HA	Veritas File System Veritas Volume Manager Veritas Cluster Server Veritas Quick I/O option Veritas Extension for Oracle Disk Manager option Optionally licensed features: Veritas Volume Replicator Veritas Global Cluster Option
Storage Foundation Enterprise	Veritas File System Veritas Volume Manager Veritas Quick I/O option Veritas Extension for Oracle Disk Manager option Veritas Database Storage Checkpoint option Veritas Database Flashsnap Veritas Database Dynamic Storage Tiering Optionally licensed features: Veritas Volume Replicator
Storage Foundation Enterprise HA	Veritas File System Veritas Volume Manager Veritas Cluster Server Veritas Quick I/O option Veritas Extension for Oracle Disk Manager option Veritas Database Storage Checkpoint option Veritas Database Flashsnap Veritas Database Dynamic Storage Tiering Optionally licensed features: Veritas Volume Replicator Veritas Global Cluster Option

Table 1-1 Contents of Veritas Storage Foundation products (*continued*)

Storage Foundation version	Products and features
Storage Foundation Cluster File System	Veritas Storage Foundation Cluster File System Veritas Cluster Volume Manager Veritas Cluster Server Veritas Quick I/O option Veritas Extension for Oracle Disk Manager option Veritas Database Storage Checkpoint option Veritas Database Flashsnap Veritas Database Dynamic Storage Tiering Optionally licensed features: Veritas Volume Replicator
Storage Foundation Cluster File System HA	Veritas Storage Foundation Cluster File System Veritas Cluster Volume Manager Veritas Cluster Server Veritas Quick I/O option Veritas Extension for Oracle Disk Manager option Veritas Database Storage Checkpoint option Veritas Database Flashsnap Veritas Database Dynamic Storage Tiering Optionally licensed features: Veritas Volume Replicator Veritas Global Cluster Option

Table 1-1 Contents of Veritas Storage Foundation products (*continued*)

Storage Foundation version	Products and features
Storage Foundation for Oracle RAC	Veritas Storage Foundation Cluster File System Veritas Cluster Volume Manager Veritas Cluster Server Veritas Quick I/O option Veritas Extension for Oracle Disk Manager option Veritas Database Storage Checkpoint option Veritas Database Flashsnap Veritas Database Dynamic Storage Tiering Optionally licensed features: Veritas Volume Replicator Veritas Global Cluster Option

About Veritas Storage Foundation and High Availability products

The following sections describe the products and component software available in this Veritas Storage Foundation and High Availability Solutions release.

Component software

The following component software is available in this Veritas Storage Foundation and High Availability Solutions release.

Symantec Product Authentication Service

The Symantec Product Authentication Service is a common Symantec feature. This feature validates the identities that are based on existing network operating system domains (such as NIS and NT) or private domains. The authentication service protects communication channels among Symantec application clients and services through message integrity and confidentiality services.

Refer to the *Symantec Product Authentication Service* guides in the following directory:

`authentication_service/docs`

Storage Foundation Management Server

Storage Foundation Management Server (SF Management Server) provides a centralized management console for Veritas Storage Foundation products. You can use SF Management Server to monitor, visualize, and manage storage resources and generate reports about those resources. You are prompted to set up an optional SF Management Server managed host during every Storage Foundation product installation. SF Management Server is not available on the Storage Foundation and High Availability Solutions release and must be obtained separately. For information on ordering SF Management Server, visit the following URL:

www.symantec.com/enterprise/sfms

Veritas Cluster Server Management Console

The Veritas Cluster Server Management Console (VCSMC) enables administration and analysis of all clusters in an enterprise from a single console. The console uses any supported Web browser.

VCS Management Console (formerly CMC) is available for download externally at the following link:

<http://www.symantec.com/business/cluster-server>

Click on **Learn > Utilities > Veritas Cluster Server Management Console**

Documentation for VCSMC is at the following link:

<http://www.symantec.com/business/support/documentation.jsp?language=english&view=manuals&pid=54608>

Veritas Cluster Server

Before you install this product, complete the following tasks:

- Read the product release notes.
- Review the preliminary information.
- Follow the instructions in the *Veritas Cluster Server Installation Guide*.

These documents are located at the following directory in the release media.

```
cluster_server/docs/vcs_notes.pdf
```

```
cluster_server/docs/vcs_install.pdf
```

Installation overview

Cluster Server is included in all Veritas high availability (HA) products. If you have purchased a Veritas product suite that includes Cluster Server, it is installed

and updated as part of that product suite. Do not install or update it as an individual component.

About this product

Veritas Cluster Server by Symantec (VCS) is an open systems clustering solution that provides the following benefits:

- Eliminates the downtime
- Facilitates the consolidation and the failover of servers
- Effectively manages a wide range of applications in heterogeneous environments

Veritas high availability agents

Before you install this product, review the preliminary information and follow the instructions in the relevant agent installation and configuration guide.

The high availability agents are in the `cluster_server` directory. Before you install the agents, read the relevant agent installation and configuration guide.

These documents are located at the following directory in the release media.

```
cluster_server/docs/vcs_notes.pdf  
cluster_server/docs/vcs_install.pdf
```

Installation overview

Agents are typically installed as part of a Storage Foundation product.

For example, the high availability agent for Oracle is installed with the Storage Foundation for Oracle RAC product.

About this product

Veritas agents provide high availability for specific resources and applications. Each agent manages resources of a particular type. For example, the Oracle agent manages Oracle databases. Typically, agents start, stop, and monitor resources and report state changes.

In addition to the agents that are provided in this release, other agents are available through an independent Symantec offer. The independent Symantec offer is called the Veritas Cluster Server Agent Pack. The agent pack includes the currently shipping agents and is re-released quarterly to add the new agents that are now under development.

Contact your Symantec sales representative for the following details:

- The application agents and the replication agents that are included in the agent pack
- Agents under development
- Agents available through Symantec consulting services

Supported VCS agents

Veritas agents support a specified application version on AIX if the application vendor supports that version on AIX.

See the *Veritas Cluster Server Release Notes* for the supported VCS agents.

Veritas Volume Replicator

Before you install this product, complete the following tasks:

- Read the product release notes.
- Review the preliminary information.
- Follow the instructions in the *Storage Foundation Installation Guide*.

These documents are located at the following directories in the release media.

```
storage_foundation/docs/sf_notes.pdf  
storage_foundation/docs/sf_install.pdf
```

About this product

Veritas Volume Replicator by Symantec is an optional, separately-licensable feature of Veritas Volume Manager. Volume Replicator is a fully integrated component of Veritas Volume Manager. This component replicates data to remote locations over any standard IP network to provide continuous data availability.

The Volume Replicator option is available with Veritas Storage Foundation Standard and Enterprise products.

Veritas Storage Foundation

Before you install this product, complete the following tasks:

- Read the product release notes.
- Review the preliminary information.
- Follow the instructions in the *Storage Foundation Installation Guide*.

These documents are located at the following directories in the release media.

`storage_foundation/docs/sf_notes.pdf`

`storage_foundation/docs/sf_install.pdf`

For HA installations, also read the following documents.

`cluster_server/docs/vcs_notes.pdf`

`cluster_server/docs/vcs_install.pdf`

About this product

Veritas Storage Foundation by Symantec includes Veritas File System by Symantec (VxFS) and Veritas Volume Manager by Symantec (VxVM) with various feature levels.

Veritas File System is a high performance journaling file system that provides easy management and quick-recovery for applications. Veritas File System delivers scalable performance, continuous availability, increased I/O throughput, and structural integrity.

Veritas Volume Manager removes the physical limitations of disk storage. You can configure, share, manage, and optimize storage I/O performance online without interrupting data availability. Veritas Volume Manager also provides easy-to-use, online storage management tools to reduce downtime.

You add high availability functionality to Storage Foundation HA by installing Veritas Cluster Server software.

VxFS and VxVM are included in all Veritas Storage Foundation products. If you have purchased a Veritas Storage Foundation product, VxFS and VxVM are installed and updated as part of that product. Do not install or update them as individual components.

Veritas Storage Foundation has the following products:

- Storage Foundation Standard
- Storage Foundation Standard HA
- Storage Foundation Enterprise
- Storage Foundation Enterprise HA

The Veritas products table lists the optionally licensed features available with each Storage Foundation version.

See [“Veritas Storage Foundation product suites”](#) on page 9.

Veritas Storage Foundation Basic

Veritas Storage Foundation Basic by Symantec (SF Basic) is a special product that is available on a separate Storage Foundation Basic disc. Also, SF Basic is available by download from the Symantec Web site. SF Basic is not part of the Storage Foundation and High Availability Solutions product suite. For complete information on ordering this product, licensing, and technical support, visit the following URL:

www.symantec.com/enterprise/sfbasic

Use SF Basic with Veritas Storage Foundation Management Server to set up a centrally managed host to monitor, visualize, and manage storage resources across multiple installations. SF Management Server is a separately available product.

For information on ordering SF Management Server, visit the following Symantec Web site:

www.symantec.com/enterprise/sfms

About this product

Storage Foundation Basic supports all Storage Foundation Standard features, however, there are deployment and technical support limitations.

Limited deployment

Storage Foundation Basic has a limited set of configurations.

SF Basic deployment is limited to the following configurations:

- Maximum four VxVM volumes per physical server (excludes the system volumes that are required for starting the system from root disks)
- Maximum four VxFS file systems per physical server (excludes root file systems)
- Maximum server capacity of two CPU sockets

Technical support

Technical support is self-service only, available from the Veritas Support Web site. You can purchase additional support corresponding to the terms of the Storage Foundation Basic license. To access the self-service knowledge base, go to the following URL:

<http://entsupport.symantec.com>

Installation overview

The Veritas Storage Foundation software is on the Veritas Storage Foundation Basic disc. You cannot install Storage Foundation Basic if another Veritas Storage Foundation product is installed unless that product is first removed from the system.

Before you install this product, complete the following tasks:

- Read the product release notes.
- Review the preliminary information.
- Follow the instructions in the *Storage Foundation Installation Guide*.

`storage_foundation/docs/sf_install.pdf`

Upgrade paths

Storage Foundation Basic offers several upgrade paths.

Storage Foundation Basic provides the following upgrade paths:

- Upgrade from SF Basic to Storage Foundation Standard or Storage Foundation Enterprise.
- Upgrade from SF Basic to Storage Foundation Enterprise plus Veritas Volume Replicator by installing the appropriate products.
- Upgrade from SF Basic to any other Storage Foundation product by uninstalling SF Basic and by installing the new product.

To determine the release level of any Storage Foundation product on your system, run the `vxlicrep` command.

See the *Storage Foundation Installation Guide* for more information on upgrades.

Storage Foundation Cluster File System

Before you install this product, complete the following tasks:

- Read the product release notes.
- Review the preliminary information.
- Follow the instructions in the *Storage Foundation Cluster File System Installation Guide*.

These documents are located at the following directories in the release media.

`storage_foundation_cluster_file_system/docs/sfcfs_notes.pdf`

`storage_foundation_cluster_file_system/docs/sfcfs_install.pdf`

`cluster_server/docs/vcs_notes.pdf`

About Veritas Storage Foundation Cluster File System

Veritas Storage Foundation Cluster File System by Symantec extends Veritas File System and Veritas Volume Manager to support shared data in a storage area network (SAN) environment. Using Storage Foundation Cluster File System, multiple servers can concurrently access shared storage and files transparently to applications.

Storage Foundation Cluster File System HA adds the failover functionality of Veritas Cluster Server. This functionality can protect everything from a single critical database instance to very large multiple-application clusters in networked environments. Veritas Storage Foundation Cluster File System also provides increased automation and intelligent management of availability and performance.

The Veritas Volume Replicator feature, which replicates data to remote locations over an IP network, can also be licensed with this product.

Storage Foundation for Oracle RAC

Before you install this product, review the preliminary information.

Before you start the installation, read the component product release notes and installation guide.

These documents are located at the following directories in the release media.

```
storage_foundation_for_oracle_rac/docs/sfrac_notes.pdf
storage_foundation/docs/sf_notes.pdf
cluster_server/docs/vcs_notes.pdf
storage_foundation_for_oracle_rac/docs/sfrac_install.pdf
```

About Veritas Storage Foundation for Oracle® RAC by Symantec

Veritas Storage Foundation for Oracle® RAC by Symantec is an integrated suite of Veritas storage management and high-availability software. The software is engineered to improve performance, availability, and manageability of Real Application Cluster (RAC) environments. Certified by Oracle Corporation, Veritas Storage Foundation for Oracle RAC delivers a flexible solution that makes it easy to deploy and manage RAC.

The Veritas Volume Replicator feature, which replicates data to remote locations over an IP network, can also be licensed with this product.

How the discs are organized

This chapter includes the following topics:

- [Contents of the software discs in the media kit](#)
- [Disc directory structure](#)

Contents of the software discs in the media kit

The Veritas Storage Foundation and High Availability Solutions media kit includes multiple software discs. The contents of each disc is shown on the disc label.

Find the location of the Getting Started Guide and Release Notes for each product in the corresponding product sections. Read the Getting Started Guide and release notes for your product before you begin an installation procedure.

You can use the `vxkeyless` command only for temporary installation and configuration of the Storage Foundation and High availability 5.1 software products.

Refer to the product Release Notes for more information on Veritas keyless licensing.

Veritas Storage Foundation and High Availability is a licensed product. Refer to the End User License Agreement (EULA) on the product disc for terms and conditions that govern the use of this product.

Contents of the product disc

The following products are on the product disc:

- Veritas Cluster Server
- Veritas File System
- Veritas Volume Manager

- Veritas Storage Foundation
- Veritas Storage Foundation Cluster File System
- Veritas Storage Foundation for Oracle RAC (Real Application Clusters)
- Symantec Product Authentication Service

Disc directory structure

[Table 2-1](#) lists the directory and contents of the Veritas Storage Foundation and High Availability Solutions 5.1 disc.

Table 2-1 Storage Foundation and High Availability Solutions disc directories

Directory name or file name	Contents
3rdpartyattributions.pdf	The third-party legal notices documentation
authentication_service	Symantec Authentication Services packages and documentation
cluster_server	Veritas Cluster Server packages, scripts, and documentation
copyright	The Copyright (c) file
file_system	Veritas File System packages and scripts
getting_started.pdf	The Veritas Storage Foundation and High Availability Solutions Getting Started Guide
installer	Product installation script
perl	Perl language binaries and library functions
pkgs	Veritas product packages
EULA.pdf	The end user license agreement documentation
readme_first.txt	The Veritas Storage Foundation read me first file
scripts	Veritas scripts
sfcfs	Veritas Storage Foundation Cluster File System packages, scripts, and documentation
sfrac	Veritas Storage Foundation for Oracle RAC packages, scripts, and documentation

Table 2-1 Storage Foundation and High Availability Solutions disc directories
(continued)

Directory name or file name	Contents
storage_foundation	Veritas Storage Foundation, Veritas File System, and Veritas Volume Manager packages, scripts, and documentation
volume_manager	Veritas Volume Manager and Veritas Volume Replicator packages and scripts
webinstaller	GUI Web-based installer
windows	Volume Replicator advisor Windows clients, VCS Windows installers, VCS Cluster Server Centralized Management installers, Symantec Product Authentication Services installer
xprtl	xprtld binaries used by the Web-based installer

Installation overview

This chapter includes the following topics:

- [Documentation references, before you install](#)
- [Performing preinstallation checks and configuration](#)
- [About the Web-based installer](#)
- [About the common product installer](#)
- [About Veritas Operations Services](#)

Documentation references, before you install

Before you install this product, become familiar with the following 5.1 documentation:

- Review the product release notes and getting started guide
- Review the preliminary information

Performing preinstallation checks and configuration

This installation guide is designed for system administrators who already have a knowledge of basic UNIX system and network administration. Basic knowledge includes commands such as `tar`, `mkdir`, and simple shell scripting. Also required is basic familiarity with the specific platform and operating system where Storage Foundation is installed.

If you already have an earlier version of any of the Veritas products installed, refer to the upgrade procedures.

Only users with superuser privileges can install and initialize Storage Foundation.

Review the preinstallation requirements and system requirements. Install the operating system, before installing the Veritas software.

The product documentation is available on the web at the following location:

<http://www.symantec.com/business/support/index.jsp>

To produce a report of the preinstallation requirements, run the installer with the `precheck` option.

```
# ./installer -precheck
```

See the product *Release Notes* for last minute information on recommended patches.

For remote installation, or installation on multiple systems, set up `remsh` or `ssh`.

Mount the Veritas software disc, or download and uncompress the Storage Foundation software.

Veritas products are installed under the `/opt` directory on the specified host systems. Ensure that the directory `/opt` exists and has read/write/execute permissions for root before you start an installation procedure.

About the Web-based installer

The Web-based installer is a convenient GUI method to install the Veritas products. The Web-based installer also enables you to configure the product and verify preinstallation requirements.

The `webinstaller` script is used to start and stop the Veritas XPortal Server `xprtld` process. The `webinstaller` script can also be used to check the status of the XPortal Server.

When the `webinstaller` script starts the `xprtld` process, the script displays a URL. Use this URL to access the Web-based installer from a Web browser such as Internet Explorer or FireFox.

The Web installer creates log files whenever the Web installer is operating. While the installation processes are operating, the log files are located in a session-based directory under the `/var/tmp` directory. After the install process completes, the log files are located in the `/opt/VRTS/install/logs` directory. It is recommended that you keep the files for auditing, debugging, and future use.

The location of the Veritas XPortal Server configuration file is `/var/opt/webinstaller/xprtld.conf`.

About the common product installer

The product installer is the recommended method to license and install the Veritas products. The installer also enables you to configure the product, verify preinstallation requirements, and view the product's description.

If you obtained a standalone Veritas product from an electronic download site, the single product download files do not contain the general product installer. Use the product installation script to install the product.

At most points during an installation, you can type `b` (back) to return to a previous section of the installation procedure. The back feature of the installation scripts is context-sensitive, so it returns to the beginning of a grouped section of questions. If an installation procedure hangs, use `Control-C` to stop and exit the program. After a short delay, the script exits. You can also enter `q` to quit the installer or `?` to display help information.

Default responses are in parentheses. Press Return to accept the defaults.

Additional options are available for the common product installer.

About Veritas Operations Services

Veritas Operations Services (VOS) is a Web-based application that is designed specifically for Veritas CommandCentral and Veritas Storage Foundation and High Availability products. VOS increases operational efficiency and helps improve application availability.

VOS automates and simplifies administrator tasks, including:

- Determining if systems are ready to install or upgrade Veritas products
- Gathering deployment and usage information on Veritas products
- Receiving notifications about the latest updates for:
 - Patches
 - Hardware Compatibility Lists (HCLs)
 - Array Support Libraries (ASLs)
 - Array Policy Modules (APMs)
- Determining whether your Veritas product configurations conform to best practices
- Managing server and environmental configuration data from a single Website
- Interpreting Unified Message Identifier (UMI) codes and their solutions

- Identifying and downloading patches for Veritas products

To access VOS, go to:

<http://vos.symantec.com/>

Where to find more information

This chapter includes the following topics:

- [Documentation](#)
- [Service and support](#)

Documentation

Veritas documents are in Adobe Portable Document Format (PDF) on the product discs or downloaded software.

You can access product documentation in the following ways:

- The product documentation is available on the Web at the following URL:
<http://www.symantec.com/business/support/overview.jsp?pid=15107>
- Mount the appropriate product software disc and go to the `product_name/docs` directory for the product guides.

Service and support

To access the self-service knowledge base, go to the following URL:

<http://entsupport.symantec.com>

