

Veritas Storage Foundation™ and High Availability Solutions Getting Started Guide

Linux

5.1 Service Pack 1



Veritas Storage Foundation™ and High Availability Solutions Getting Started Guide

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

www.symantec.com/business/support/index.jsp

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Contacting Technical Support

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

www.symantec.com/business/support/contact_techsupp_static.jsp

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/business/support/

Customer service

Customer service information is available at the following URL:

www.symantec.com/business/support/

Customer Service is available to assist with non-technical questions, such as 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 support contracts
- Information about the Symantec Buying Programs
- Advice about Symantec's technical support options
- Nontechnical presales questions
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Support agreement resources

If you want to contact Symantec regarding an existing support agreement, please contact the support 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 [supportolutions@symantec.com](mailto:supportsolutions@symantec.com)

Documentation

Product guides are available on the media in PDF format. Make sure that you are using the current version of the documentation. The document version appears on page 2 of each guide. The latest product documentation is available on the Symantec website.

<http://www.symantec.com/business/support/overview.jsp?pid=15107>

Your feedback on product documentation is important to us. Send suggestions for improvements and reports on errors or omissions. Include the title and document version (located on the second page), and chapter and section titles of the text on which you are reporting. Send feedback to:

docs@symantec.com

About Symantec Connect

Symantec Connect is the peer-to-peer technical community site for Symantec's enterprise customers. Participants can connect and share information with other product users, including creating forum posts, articles, videos, downloads, blogs and suggesting ideas, as well as interact with Symantec product teams and Technical Support. Content is rated by the community, and members receive reward points for their contributions.

<http://www.symantec.com/connect/storage-management>

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Product overview

This chapter includes the following topics:

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

About Veritas Storage Foundation and High Availability products

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

Veritas Storage Foundation

Veritas Storage Foundation by Symantec includes Veritas File System (VxFS) and Veritas Volume Manager (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.

Veritas File System (VxFS) and Veritas Volume Manager (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 VxFS or VxVM as individual components.

Storage Foundation includes the dynamic multi-pathing functionality.

Storage Foundation and High Availability products include Veritas Cluster Server, which adds high availability functionality to Storage Foundation products.

Before you install the product, read the *Storage Foundation Release Notes*.

To install the product, follow the instructions in the *Storage Foundation Installation Guide*.

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

```
<distribution>/storage_foundation/docs/
```

For HA installations, also read the *Veritas Cluster Server Release Notes*.

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

```
<distribution>/cluster_server/docs/
```

where *<distribution>* is the architecture directory.

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.

Veritas Storage Foundation Cluster File System also provides increased automation and intelligent management of availability and performance.

Storage Foundation Cluster File System HA includes Veritas Cluster Server, which adds high availability functionality to the product.

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

Before you install the product, read the *Storage Foundation Cluster File System Release Notes*.

To install the product, follow the instructions in the *Storage Foundation Cluster File System Installation Guide*.

For information on high availability environments, read the Veritas Cluster Server documentation.

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

```
cluster_server/docs
```

```
<distribution>/storage_foundation_cluster_file_system/docs/  
<distribution>/cluster_server/docs/
```

where *<distribution>* is the architecture directory.

Veritas Storage Foundation for Oracle® RAC

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.

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.

```
cluster_server/docs  
  
<distribution>/storage_foundation_for_oracle_rac/docs/  
<distribution>/storage_foundation/docs/  
<distribution>/cluster_server/docs/
```

Veritas Storage Foundation Cluster File System for Oracle RAC

Before you install this product, read the *Storage Foundation Cluster File System for Oracle RAC Release Notes*

To install the product, follow the instructions in the *Storage Foundation Cluster File System for Oracle RAC Installation Guide*.

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

```
<distribution>/storage_foundation_cluster_file_system_for_oracle_rac/docs/  
<distribution>/storage_foundation_cluster_file_system_for_oracle_rac/docs/
```

where *<distribution>* is the architecture directory.

Veritas Volume Replicator

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 Storage Foundation for Oracle RAC, Storage Foundation Cluster File System, and Storage Foundation Standard and Enterprise products.

Before installing Veritas Volume Replicator, read the *Storage Foundation Release Notes*.

To install the product, follow the instructions in the *Storage Foundation Installation Guide*.

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

```
<distribution>/storage_foundation/docs/
```

where *<distribution>* is the architecture directory.

Veritas Cluster Server

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

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

Before you install the product, read the *Veritas Cluster Server Release Notes*.

To install the product, follow the instructions in the *Veritas Cluster Server Installation Guide*.

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

```
<distribution>/cluster_server/docs/
```

where *<distribution>* is the architecture directory.

Installation overview

Veritas Cluster Server is available as a standalone product. It is also included in all Veritas Storage Foundation product suites that include high availability functionality. If you have purchased a product suite that includes high availability functionality, VCS is installed and updated as part of that product suite; do not install or update VCS as an individual component.

Veritas Cluster Server agents

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.

The high availability agents are in the `cluster_server` directory.

Before you install this product, review the agent configuration guide.

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

```
<distribution>/cluster_server/docs/
```

where *<distribution>* is the architecture directory.

In addition to the agents that are provided in this release, other agents are available through an independent Symantec offering 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

You can download the latest agents from the Symantec Operations Readiness Tools website:

sort.symantec.com/agents

Installation overview

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

Symantec VirtualStore

Symantec VirtualStore serves as a highly scalable, highly available NAS solution optimized for deploying and hosting virtual machines. VirtualStore is built on top of Veritas Storage Foundation Cluster File System, which provides high availability and linear scalability across the cluster.

Read the *Storage Foundation Cluster File System Release Notes*.

Follow the instructions in the *Symantec VirtualStore Installation and Configuration Guide*.

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

```
<distribution>/virtualstore/docs/
```

where *<distribution>* is the architecture directory.

Veritas Dynamic Multi-Pathing

Veritas Dynamic Multi-Pathing (DMP) provides multi-pathing functionality for the operating system native devices configured on the system. DMP creates DMP metadevices (also known as DMP nodes) to represent all the device paths to the same physical LUN. In previous Veritas releases, DMP was only available as a feature of Veritas Volume Manager (VxVM). DMP supported VxVM volumes on DMP metadevices, and Veritas File System (VxFS) file systems on those volumes.

This release extends DMP metadevices to support OS native logical volume managers (LVM). You can create LVM volumes and volume groups on DMP metadevices.

Note: Veritas Dynamic Multi-Pathing is a standalone product. Support for dynamic multi-pathing is also included in Veritas Storage Foundation products.

Before you install this product, review the *Veritas Dynamic Multi-Pathing Release Notes*.

To install the product, follow the instructions in the *Veritas Dynamic Multi-Pathing Installation Guide*.

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

```
<distribution>/dynamic_multipathing/docs
```

Symantec Product Authentication Service

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.

```
<distribution>/authentication_service/docs
```

where *<distribution>* is the architecture directory.

Related products

This section describes related products for Storage Foundation and High Availability Solutions.

Veritas Storage Foundation Basic

Veritas Storage Foundation Basic by Symantec (SF Basic) is a special product that is available for 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:

<http://www.symantec.com/business/storage-foundation-basic>

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

Veritas Operations Manager

Symantec recommends use of Veritas Operations Manager to manage Storage Foundation and Cluster Server environments.

The Veritas Enterprise Administrator (VEA) console is no longer packaged with Storage Foundation products. If you wish to continue using VEA, a version is available for download from http://go.symantec.com/vcsm_download. Veritas Storage Foundation Management Server is no longer supported.

If you wish to manage a single cluster using Cluster Manager (Java Console), a version is available for download from http://go.symantec.com/vcsm_download. Veritas Cluster Server Management Console is no longer supported.

Veritas Operations Manager provides a centralized management console for Veritas Storage Foundation and High Availability products. You can use Veritas Operations Manager to monitor, visualize, and manage storage resources and generate reports. Veritas Operations Manager is not available on the Storage Foundation and High Availability Solutions release. You can download Veritas Operations Manager at no charge at <http://go.symantec.com/vom>.

Refer to the Veritas Operations Manger documentation for installation, upgrade, and configuration instructions.

How the discs are organized

This chapter includes the following topics:

- [Contents of the software discs in the media kit](#)
- [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 are shown on the disc label.

Read the Getting Started Guide and Release Notes for your product before you begin an installation procedure.

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.

Directory structure

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

These are contained in directories for each supported architecture.

- `sles10_x86_64`
- `sles11_x86_64`
- `rhel5_x86_64`

Table 2-1 Storage Foundation and High Availability Solutions directories

Directory name	Contents
authentication_service	Symantec Authentication Services packages and documentation
cluster_server	Veritas Cluster Server packages, scripts, and documentation
file_system	Veritas File System packages and scripts
dynamic_multipathing	Veritas Dynamic Multi-Pathing packages, scripts, and documentation
installer	Product installation script
perl	Perl language binaries and library functions
storage_foundation	Veritas Storage Foundation, Veritas File System, and Veritas Volume Manager packages, scripts, and documentation
storage_foundation_cluster_file_system	Veritas Storage Foundation Cluster File System packages, scripts, and documentation
storage_foundation_for_oracle_rac	Veritas Storage Foundation for Oracle RAC packages, scripts, and documentation
storage_foundation_cluster_file_system_for_oracle_rac	Veritas Storage Foundation Cluster File System for Oracle RAC packages, scripts, and documentation
virtualstore	Symantec VirtualStore packages, scripts, and documentation
volume_manager	Veritas Volume Manager packages and scripts
webinstaller	GUI Web-based installer
windows	Volume Replicator advisor Windows clients
xprtl	xprtl binaries used by the Web-based installer

Installation overview

This chapter includes the following topics:

- [Performing preinstallation checks and configuration](#)
- [About the Veritas installer](#)
- [About the Web-based installer](#)

Performing preinstallation checks and configuration

This document is designed for system administrators who already have a basic knowledge of 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.

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

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

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

If patches to the Linux operating system are required, the patches should be applied prior to installing the Veritas products. Patches may be required to resolve Linux kernel, product performance, or other issues.

The system should be in a quiescent state before adding patches.

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.

About the Veritas installer

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 the installation you can type the following characters for different actions:

- Use `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.
- Use `Control-c` to stop and exit the program if an installation procedure hangs. After a short delay, the script exits.
- Use `q` to quit the installer.
- Use `?` to display help information.
- Use the Enter button to accept a default response.

Additional options are available for the installer.

About the Web-based installer

You use the `webinstaller` script to start and stop the Veritas XPortal Server `xprt1wid` process. The `webinstaller` script can also be used to check the status of the XPortal Server.

When the `webinstaller` script starts the `xprt1wid` process, the script displays a URL. Use this URL to access the Web-based installer from 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 for future use.

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

Where to find more information

This chapter includes the following topics:

- [Documentation](#)
- [Service and support](#)
- [About Symantec Operations Readiness Tools](#)

Documentation

Product documentation is available Adobe Portable Document Format (PDF) on the product discs or with the downloaded software.

The documentation is available in the *product_name/docs* directory.

Make sure that you are using the current version of documentation. The document version appears on page 2 of each guide. The latest product documentation is available on the Symantec website.

<http://www.symantec.com/business/support/overview.jsp?pid=15107>

Service and support

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

<http://entsupport.symantec.com>

About Symantec Operations Readiness Tools

Symantec™ Operations Readiness Tools (SORT) is a set of Web-based tools and services that lets you proactively manage your Symantec enterprise products. SORT automates and simplifies administration tasks, so you can manage your data center more efficiently and get the most out of your Symantec products. SORT lets you do the following:

- Collect, analyze, and report on server configurations across UNIX or Windows environments. You can use this data to do the following:
 - Assess whether your systems are ready to install or upgrade Symantec enterprise products
 - Tune environmental parameters so you can increase performance, availability, and use
 - Analyze your current deployment and identify the Symantec products and licenses you are using
- Upload configuration data to the SORT Web site, so you can share information with coworkers, managers, and Symantec Technical Support
- Compare your configurations to one another or to a standard build, so you can determine if a configuration has "drifted"
- Search for and download the latest product patches
- Get notifications about the latest updates for:
 - Patches
 - Hardware compatibility lists (HCLs)
 - Array Support Libraries (ASLs)
 - Array Policy Modules (APMs)
 - High availability agents
- Determine whether your Symantec enterprise product configurations conform to best practices
- Search and browse the latest product documentation
- Look up error code descriptions and solutions

Note: Certain features of SORT are not available for all products.

To access SORT, go to:

<http://sort.symantec.com>