Veritas Storage Foundation™ and High Availability Solutions Getting Started Guide

HP-UX

5.0.1

symantec™

Veritas Storage Foundation™ and High Availability Solutions Getting Started Guide

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Product version 5.0.1

Document version 5.0.1.0

Legal Notice

Symantec Corporation
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www.symantec.com/business/support/assistance_care.jsp

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- 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

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Customer service information is available at the following URL:

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

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clustering_docs@symantec.com

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

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

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Select your country or language from the site index.

Contents

Product overview

This chapter includes the following topics:

■ About Veritas Storage Foundation and High Availability products

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 softwares are 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.

Before you install the authentication service, read the Storage Foundation and High Availability Solutions appendix in the *Symantec Product Authentication Service Installation Guide*.

This document is located at the following directory in the release media.

```
authentication_service/docs/vxat_install.pdf
```

Before you select this method of setting up the authentication service, also read the product installation guide and release notes.

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. 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. Review the following guide for detailed installation information.

VCSMC (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. You cannot install or configure agents using the product installer. Before you start the installation, read the relevant agent installation and configuration guide.

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

```
cluster_server/docs/vcs_oracle_install.pdf
cluster_server/docs/vcs_sybase_install.pdf
cluster_server/docs/vcs_db2_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 database 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 HP-UX if the application vendor supports that version on HP-UX.

Table 1-1 lists the agents for enterprise applications and the software that the agents support.

Table 1-1   Supported software for the VCS agents for enterprise applications

Agent	Agent version	VCS version	Application	Application version	OS version
DB2	5.0.1	5.0 and later	DB2 Enterprise Server Edition	9.5	HP-UX 11i v3
Oracle	5.2	5.0 and later	Oracle Database Enterprise Edition	9i 10g R1 10g R2 11g R1	HP-UX 11i v2 HP-UX 11i v3
Sybase	5.0.1	5.0 and later	Sybase Adaptive Server Enterprise	12.5.x, 15.0.x	HP-UX 11i v2 HP-UX 11i v3

See the Installation and Configuration Guide for the agents for more details.

For a list of the VCS application agents and the software that the agents support, see the Veritas Cluster Server Agents Support Matrix at Symantec website.

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.

Veritas Storage Foundation for Oracle

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 refer to the following documents.

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

About Veritas Storage Foundation for Oracle®

Veritas Storage Foundation for Oracle® by Symantec is an integrated set of system software enhancements and configuration guidelines. The enhancements and guidelines help Oracle database administrators configure a database system with high performance, availability, manageability, and reliability.

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

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 Installation Guide*.

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

```
storage_foundation/docs/sf_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 install only the Symantec software products for which you have purchased a license. Other products are included on the enclosed software discs but are not available.

Contents of the product disc

The following products are on the product disc:

- Veritas Cluster Server
- Veritas File System
- Veritas Volume Manager
- Veritas Volume Replicator
- Veritas Storage Foundation
- Veritas Storage Foundation Cluster File System
- Veritas Storage Foundation Cluster File System for Oracle RAC

■ Symantec Product Authentication Service

Disc directory structure

Table 2-1 lists the directory and contents of the Veritas Storage Foundation and High Availability Solutions 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 scripts and documentation
`cluster_server`	Veritas Cluster Server scripts and documentation
`cluster_server_agents`	Copyrights for DB2, Oracle, and Sybase
`depot`	Veritas product packages
`file_system`	Veritas File System 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
`README_EULA`	The read me end user license agreement documentation
`readme_first.txt`	The Veritas Storage Foundation read me first file
`storage_foundation`	Veritas Storage Foundation, Veritas File System, and Veritas Volume Manager tools, scripts, and documentation
`storage_foundation_cluster_file_system`	Veritas Storage Foundation Cluster File System tools, scripts, and documentation

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

Directory name or file name	Contents
storage_foundation_for_oracle	Veritas Storage Foundation for Oracle tools, scripts, and documentation
storage_foundation_for_oracle_rac	Veritas Storage Foundation for Oracle RAC tools, scripts, and documentation
volume_manager	Veritas Volume Manager scripts
volume_replicator	Veritas Volume Replicator tools, scripts, and documentation
windows	Volume Replicator advisor Windows clients, VCS Windows installers, VCS Cluster Server Centralized Management installers, Symantec Product Authentication Services installer

Installation overview

This chapter includes the following topics:

- Documentation references, before you install
- Performing preinstallation checks and configuration
- Configuring secure shell (ssh) or remote shell before installing products
- Mounting a software disc
- Downloading the Storage Foundation and High Availability software
- Copying and unzipping the downloaded release
- About Veritas Operations Services

Documentation references, before you install

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

- Review the product release notes and getting started guide
- Review the preliminary information
- Read the instructions in the *Storage Foundation Installation Guide*.

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.

Note: Upgrades are not supported in this RU3 release.

Only users with superuser (root) privileges can install, upgrade, or initialize Veritas Storage Foundation on HP-UX.

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.

If ssh is configured, use the following command:

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

If rsh is configured, use the following command:

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

If patches to the HP-UX operating system are required, the patches should be applied prior to installing the Veritas products. Patches may be required to resolve HP-UX kernel, product performance, or other issues. Patches may be required for Veritas, HP-UX, or Oracle software.

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

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

You must obtain new licenses to use all of the features in the Veritas Storage Foundation software. Any Veritas licenses for the previous releases that are currently installed allow you to use only a limited subset of these features.

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

See "Configuring secure shell (ssh) or remote shell before installing products" on page 23.

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

See "Mounting a software disc" on page 28.

See "Downloading the Storage Foundation and High Availability software" on page 29.

Configuring secure shell (ssh) or remote shell before installing products

Establishing communication between nodes is required to install Veritas software from a remote system, or to install and configure a cluster. The node from which the installation utility is run must have permissions to run `remsh` (remote shell) or `ssh` (secure shell) utilities. These utilities must run as `root` on all cluster nodes or remote systems.

You can install products to remote systems using either secure shell (ssh) or remote shell (remsh).Using ssh is the default, and is recommended, to configure a secure shell environment before you install any Veritas product.

This section contains an example of how to set up ssh password free communication. The example sets up ssh between a source system (system1) that contains the installation directories, and a target system (system2). This procedure also applies to multiple target systems.

Configuring and enabling ssh

The ssh program enables you to log into and execute commands on a remote system. ssh enables encrypted communications and an authentication process between two untrusted hosts over an insecure network.

In this procedure, you first create a DSA key pair. From the key pair, you append the public key from the source system to the authorized_keys file on the target systems.

Figure 3-1 illustrates this procedure.

Figure 3-1   Creating the DSA key pair and appending it to target systems
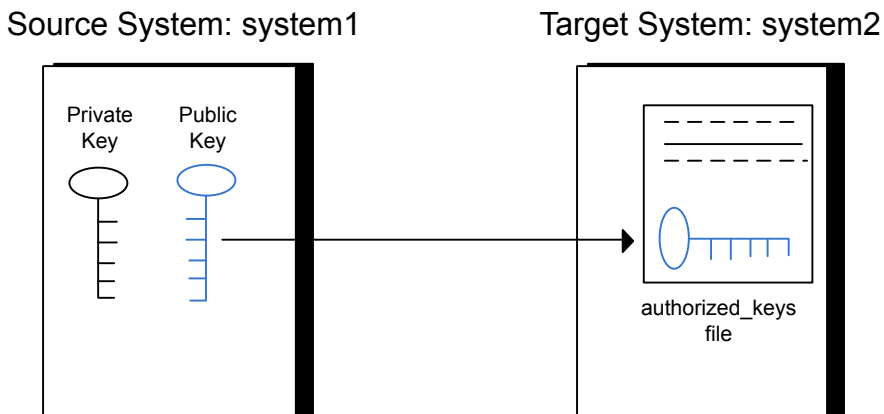
Read the ssh documentation and online manual pages before enabling ssh. Contact your operating system support provider for issues regarding ssh configuration.

Visit the OpenSSH website that is located at: http://openssh.org to access online manuals and other resources.

To create the DSA key pair

1   On the source system (system1), log in as root, and navigate to the root directory.

```
system1 # cd /
```

2   To generate a DSA key pair on the source system, type the following command:

```
system1 # ssh-keygen -t dsa
```

System output similar to the following is displayed:

```
Generating public/private dsa key pair.
Enter file in which to save the key (//.ssh/id_dsa):
```

3   Press Enter to accept the default location of /.ssh/id_dsa.

4   When the program asks you to enter the passphrase, press the Enter key twice.

```
Enter passphrase (empty for no passphrase):
```

Do not enter a passphrase. Press Enter.

```
Enter same passphrase again:
```

Press Enter again.

5   Make sure the `/.ssh` directory is on all the target installation systems (system2 in this example). If that directory is not present, create it on all the target systems and set the write permission to root only:

```
system2 # cd /
system2 # mkdir /.ssh
```

Change the permissions of this directory, to secure it.

```
system2 # chmod go-w /.ssh
```

To append the public key from the source system to the authorized_keys file on the target system, using secure file transfer

1   Make sure the secure file transfer program (SFTP) is enabled on all the target installation systems (system2 in this example).

To enable SFTP, the `/opt/ssh/etc/sshd_config` file must contain the following two lines:

```
PermitRootLogin           yes
  Subsystem           sftp   /opt/ssh/libexec/sftp-server
```

2   If the lines are not there, add them and restart ssh:

```
system1 # /sbin/init.d/secsh start
```

3   From the source system (system1), move the public key to a temporary file on the target system (system2).

Use the secure file transfer program.

In this example, the file name `id_dsa.pub` in the root directory is the name for the temporary file for the public key.

Use the following command for secure file transfer:

```
system1 # sftp system2
```

If the secure file transfer is set up for the first time on this system, output similar to the following lines is displayed:

```
Connecting to system2 ...
The authenticity of host 'system2 (10.182.00.00)'
can't be established. DSA key fingerprint is
fb:6f:9f:61:91:9d:44:6b:87:86:ef:68:a6:fd:88:7d.
Are you sure you want to continue connecting (yes/no)?
```

4   Enter `yes`.

Output similar to the following is displayed:

```
Warning: Permanently added 'system2,10.182.00.00'
(DSA) to the list of known hosts.
root@system2 password:
```

5   Enter the root password of system2.

6   At the `sftp` prompt, type the following command:

```
sftp> put /.ssh/id_dsa.pub
```

The following output is displayed:

```
Uploading /.ssh/id_dsa.pub to /id_dsa.pub
```

7   To quit the SFTP session, type the following command:

```
sftp> quit
```

8   To begin the `ssh` session on the target system (system2 in this example), type the following command on system1:

```
system1 # ssh system2
```

Enter the root password of system2 at the prompt:

```
password:
```

9   After you log in to system2, enter the following command to append the `id_dsa.pub` file to the authorization key file:

```
system2 # cat /id_dsa.pub >> /.ssh/authorized_keys
```

10 After the `id_dsa.pub` public key file is copied to the target system (system2), and added to the authorized keys file, delete it. To delete the `id_dsa.pub` public key file, type the following command on system2:

```
system2 # rm /id_dsa.pub
```

11 To log out of the `ssh` session, type the following command:

```
system2 # exit
```

12 When you install from a source system that is also an installation target, also add the local system `id_dsa.pub` key to the local `authorized_keys` file. The installation can fail if the installation source system is not authenticated.

To add the local system `id_dsa.pub` key to the local `authorized_keys` file, enter the following command:

```
system1 # cat /.ssh/id_dsa.pub >> /.ssh/authorized_keys
```

13 Run the following commands on the source installation system. If your ssh session has expired or terminated, you can also run these commands to renew the session. These commands bring the private key into the shell environment and make the key globally available for the user `root`:

```
system1 # exec /usr/bin/ssh-agent $SHELL
system1 # ssh-add

  Identity added: //.ssh/id_dsa
```

This shell-specific step is valid only while the shell is active. You must execute the procedure again if you close the shell during the session.

To verify that you can connect to a target system

1   On the source system (system1), type the following command:

```
system1 # ssh -l root system2 uname -a
```

where system2 is the name of the target system.

2   The command should execute from the source system (system1) to the target system (system2) without the system requesting a passphrase or password.

3   Repeat this procedure for each target system.

Enabling remsh

Remote shell functionality is enabled automatically after installing an HP-UX system.

Typically, the only requirement to enable remote installations is to modify the .rhosts file. A separate .rhosts file is in the $HOME directory of each user. You must modify this file for each user who remotely accesses the system using remsh. Each line of the .rhosts file must contain a fully qualified domain name or IP address for each remote system that has access to the local system. For example, if the root user must remotely access system1 from system2, add an entry for system2.*companyname*.com to the /.rhosts file on system1.

```
# echo "system2.companyname.com" >> $HOME/.rhosts
```

After you complete an installation procedure, delete the .rhosts file from each user's $HOME directory to ensure security:

```
# rm -f $HOME/.rhosts
```

See the operating system documentation and the remsh(1M) manual page for more information on configuring remote shell.

Mounting a software disc

Veritas software is provided on a DVD format disc. If you have the media kit, then get the software disc from the media kit.

To mount the software disc

1 Place the Veritas software disc into a DVD drive connected to your system and log in as superuser.

2 Determine the block device file for the DVD drive:

    ```
    # ioscan -fnC disk
    ```

    Make a note of the device file as it applies to your system.

3 Create a directory in which to mount the software disc and mount the disc using the appropriate drive name. For example:

    ```
    # mkdir -p /mnt/dvdrom
    # /usr/sbin/mount -F cdfs /dev/dsk/c3t2d0 /mnt/dvdrom
    ```

4 Verify that the disc is mounted:

    ```
    # mount
    ```

5 Change to the appropriate directory and product subdirectory to view the product release notes and installation guides, or install the products.

Downloading the Storage Foundation and High Availability software

One method of obtaining the Storage Foundation and High Availability software is to download it to your local system from the Symantec Web site.

If you download a stand-alone Veritas product, the single product download files do not contain the general product installer. Use the installation script for the specific product to install the product.

To download the software

1 Verify that you have enough space on your filesystem to store the downloaded software.

    If you plan to install the software on the same system, make sure that you also have enough space for the installed software.

2   To see the space available, you can use the df command with the name of the local file system where you intend to download the software.

```
# df -b filesystem
```

Caution: When you select a location to download files, do not select a directory that contains Veritas products from a previous release or maintenance pack. You must download the Veritas 5.0 software and the Veritas software into separate directories.

---

3   Download the software, specifying the file system with sufficient space for the file.

Copying and unzipping the downloaded release

Before you can install the release, you must unzip the downloaded file, and extract the installation and products from the downloaded file.

To unzip the release

1   Create a new directory on a file system with sufficient space to store the installation software after the files are uncompressed. Let *parent_directory* be the name of the new directory to store the files for this release.

This directory must be clean, with no files present from previous installations or versions of any products.

```
# mkdir /parent_directory/install
```

2   Copy the compressed files from your download area to the installation directory as needed. This copy might be necessary if the area into which releases are downloaded is not on the system or area used for installations.

3   Go to the installation directory and unzip the compressed files.

```
# cd /parent_directory/install
# gunzip *.gz
```

To untar the downloaded file

◆ Untar the downloaded file to your new installation directory.

```
# cd /parent_directory/install
# tar xf filename1.tar
# tar xf filename2.tar
# tar xf filename3.tar
  .
  .
```

About Veritas Operations Services

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

VOS automates and simplifies the following administrator tasks:

- Determining if systems are ready to install or upgrade Storage Foundation and High Availability products

- Gathering deployment and usage information on Storage Foundation and High Availability products

- Receiving notifications about the latest updates for:

    - Patches

    - Hardware Compatibility Lists (HCLs)

    - Array Support Libraries (ASLs)

    - Array Policy Modules (APMs)

- Determining whether your Storage Foundation and High Availability product configurations conform to best practices

- Managing server and environmental configuration data from a single Web site

- Interpreting Unified Message Identifier (UMI) codes and their solutions

- Identifying and downloading patches for Storage Foundation and High Availability products

To access VOS, go to:

http://go.symantec.com/vos

Where to find more information

This chapter includes the following topics:

- Documentation
- Service and support

Documentation

You can access product documentation in the following ways:

- Veritas documents are in Adobe Portable Document Format (PDF) on the product discs or downloaded software.
- The product documentation is available on the Web at the following URL: http://www.symantec.com/business/support/index.jsp

Service and support

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

http://entsupport.symantec.com