

Veritas Storage Foundation[™] Management Server Release Notes

AIX, HP-UX, Linux, Solaris

1.0 MP1



Veritas Storage Foundation Management Server Release Notes

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SF Management Server 1.0 MP1

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Overview of this release

This chapter provides a brief description of Veritas Storage Foundation Management Server and describes what is new in this release.

This chapter contains the following topics:

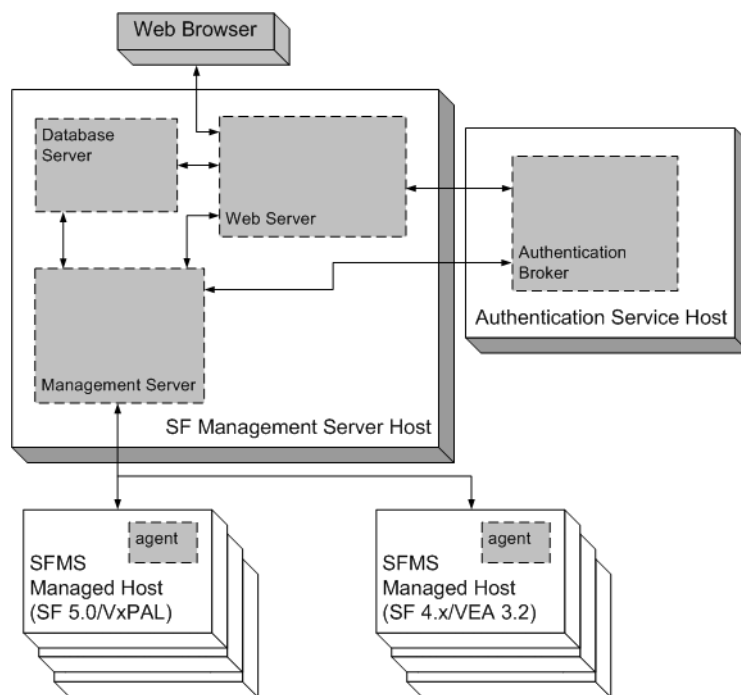
- [“Introduction to SF Management Server”](#) on page 9
- [“SF Management Server Installation Options”](#) on page 11
- [“What’s new in version 1.0 MP1”](#) on page 11
- [“Veritas Provider Access Layer agents”](#) on page 12

Introduction to SF Management Server

Veritas Storage Foundation Management Server (SF Management Server) provides the infrastructure and a single console for administrators and operators to monitor, visualize, and manage their Storage Foundation products and generate reports about storage resources.

A centrally managed deployment consists of the Veritas Storage Foundation Management Server and one or more managed hosts.

Figure 1-1 SF Management Server architecture (high-level)



The Management Server collects and manages information pertaining to the Storage Foundation products on the managed hosts. In a centrally managed deployment, users can connect to the Management Server via a Web browser to manage a heterogeneous environment of Storage Foundation 5.0 and legacy (4.x) hosts.

Existing Storage Foundation software products, such as Veritas Volume Manager, Veritas File System, Veritas Volume Replicator, and infrastructure components that are running on legacy hosts can participate in the centrally administered deployment.

SF Management Server provides the following:

- **Collection and centralization of Storage Foundation product information:** The Management Server collects information about the state of storage resources deployed throughout the network. You can generate various reports, analyze performance, and study storage utilization.
- **Single Sign-on:** You can log on to the Management Server and view information pertaining to Storage Foundation products on all the hosts in the centralized management domain. You can perform management operations on the hosts to which you have access privileges.

- **Secure Communication Channels:** All communication between any two hosts is conducted over a secure channel that is monitored by the Symantec Product Authentication Service.

If you do not choose a centrally managed deployment, the host is configured as a standalone host, responsible for all of the agents installed on that host. In this traditional, single host mode, users can connect using either a Java console or a Web browser.

SF Management Server Installation Options

You can install SF Management Server in the following ways:

- If you choose to implement centralized management, then a typical full installation of SF Management Server consists of the following:
 - A single Management Server host
 - A Symantec Product Authentication Service host
 - Multiple managed hosts
 - Any number of Web Consoles (client machines running Web browsers)
- If you prefer to implement single, non-centralized host management, then you have two options:
 - Install a "thick" client, the Java-based Veritas Enterprise Administrator
 - Install a light-weight Web Server and connect to it via a standard Web browser

Only the Java Console supports single host management of both 5.0 and legacy (4.x) hosts.

With each installation option, you can establish user credentials that allow authorized users to perform sensitive management tasks while other users can perform only a more basic set of functions.

What's new in version 1.0 MP1

SF Management Server 1.0 MP1 contains and builds upon SF Management Server 1.0 functionality, providing several enhancements.

Scalability

The Management Server has been enhanced to support up to 1500 hosts

Database and management domain maintenance

Users can now permanently remove hosts that are no longer part of the management domain. This ensures that the hosts no longer reside in the product's database and will no longer appear as faulted hosts in the dashboard

Performance

SF Management Server 1.0 MP1 now includes real-time updates when changes are made to a managed host outside of SF Management Server. For example, if an administrator uses Veritas Volume Manager (VxVM) to rename a volume, that change is reflected immediately in the Storage Foundation Management Console

Supportability and maintainability

Enhancements have been made to the packaging and registry to support patches; obsolete packages were removed

Veritas Provider Access Layer agents

The following table provides a list of the VxPAL agents shipping with SF Management Server:

Table 1-1 VxPAL agents that ship with SF Management Server

Agent name	Description
actionagent	Runs on the Management Server and provides the end-user with the ability to create rules triggered by VxPAL alerts. (Also known as the Rule Manager.)
DBEDAgent	Runs on managed hosts and performs Oracle and DB2 database discovery and management.
gridcentral	Runs on the Management Server and is a central coordinator responsible for distribution of requests and collecting results.
gridnode	Runs on managed hosts and is responsible for file I/O and forking (or spawning) commands.
StorageAgent	Runs on managed hosts and provides management and monitoring for Storage Foundation products.
StorageManager	Runs on the Management Server and coordinates the management and monitoring of StorageAgents in a domain.
VailAgent	Runs on managed hosts and used by DBEDAgent to perform deep mapping (mapping LUNs to their physical disks).

System requirements

This chapter lists requirements to run Veritas Storage Foundation Management Server.

This chapter contains the following topics:

- [“Operating system requirements”](#) on page 13
- [“Required libraries”](#) on page 15
- [“System resource requirements”](#) on page 16
- [“Supported hardware”](#) on page 16
- [“SF Management Server Web browser requirements”](#) on page 17

Operating system requirements

The following table provides operating system requirements for SF Management Server hosts. For more information on platforms and architectures supported for Storage Foundation managed hosts, refer to Storage Foundation product release notes.

Table 2-1 SF Management Server operating system requirements

Component	Operating Systems supported
Management Server	Red Hat Enterprise Linux 4.0 ^a Solaris 8, 9, 10 SPARC
Managed hosts ^{b c}	AIX 5.2, 5.3 HP-UX 11.23 Red Hat Enterprise Linux 3.0, 4.0 Solaris 7, 8, 9, 10 SPARC SUSE Enterprise Linux 9

- a. Management Server supported on x86 64-bit platforms only. Management Server does not support IA64 or x86 32-bit platforms.
- b. Storage Foundation 5.0 is supported only on 64-bit Xeon and Opteron for both Red Hat 4 and SUSE 9 (no Itanium).
- c. Storage Foundation 4.1 is supported on: x86; Xeon (32- and 64-bit); Opteron (64-bit) for Red Hat 4 and SUSE 9 (no Itanium). Storage Foundation 4.0 is supported only on x86 (32-bit) for Red Hat 3.0.

Operating system updates required

This section lists operating system updates required to run SF Management Server. In addition to the operating system updates listed here, refer to Storage Foundation product release notes.

- Solaris—The following version of the Sun Workshop Compilers Bundled libC is required by VEA 3.3:
SUNWlibC (sparc), version 5.10,REV=2004.11.22
- Solaris 10—120182-02
- HP-UX 11.23—PHSS_31855 and PHSS_32228
- The Symantec Web Server relies on the Java Runtime Engine (JRE) 1.5. Make certain that your operating system has the necessary patches to run the JRE. For more information, visit your operating system vendor's Web site.

Increasing semaphore limits on Solaris

The Veritas Provider Access Layer (VxPAL) and the Veritas Enterprise Administrator Service require more operating system semaphores than is usually set by default on Solaris.

To increase semaphore limits on Solaris

- 1 Open a UNIX console and log in as root on the target host.
- 2 Using a text editor, open: `/etc/system`
- 3 Locate a line similar to the following. If the line is not there, add it:
`set semsys:seminfo_semmni=0x10`
- 4 Make sure that the value is something larger than what is currently there. For example, set `seminfo_semmni` to `0x10`.
- 5 Save the file and reboot the host.

HP-UX Node and Host Name Expansion

The HP-UX Node and Host Name Expansion feature is not supported on Symantec products.

Required libraries

This section lists third-party libraries required to run SF Management Server:

- “Veritas Array Support Library (ASL)” on page 15
- “32-bit SNIA Common HBA API” on page 15

Veritas Array Support Library (ASL)

SF Management Server requires that the Veritas Array Support library be installed on legacy managed hosts (Storage Foundation 4.x centrally-managed hosts).

For more information, see: <http://support.veritas.com/docs/249446>

32-bit SNIA Common HBA API

For proper discovery of Fibre Channel attached devices—including discovery of HBA and its target ports—SF Management Server requires installation of the 32-bit SNIA Common HBA API on all managed hosts running HBA controllers.

The Common HBA API would be typically available as part of your HBA vendor’s driver kit. Refer to the following table for more information:

Table 2-2 Notes for SNIA Common HBA API

Operating System	Notes
AIX	The SNIA Common HBA API is not required on AIX.
HP-UX	For HP OEM HBA cards, the Common HBA API is installed by default on HP-UX.
Solaris	On Solaris 9 and 10, the SNIA Common HBA API is installed by default; however, the SUNWsan package is required. The SNIA Common HBA API is installed as part of Solaris only for SUN OEM HBA cards. For other HBA cards, you must explicitly download them from your HBA vendor.

Follow these steps to determine if the SNIA Common HBA API is already present on your host.

To verify that the 32-bit SNIA Common HBA API is installed

- 1 Open a console and log on to the managed host that is running an HBA controller.
- 2 Type the following command:

cat /etc/hba.conf

hba.conf should show an entry for each type of HBA controller that is installed. On 64-bit platforms, SF Management Server requires 32-bit libraries installed as a pre-requisite. For more information, see your HBA vendor documentation.

System resource requirements

The table below provides memory and disk space specifications for SF Management Server components. The amounts of memory and disk space are in addition to the resources already consumed by other software on the host.

Read the following Symantec Technical Support TechNote for the latest information on updates, patches, and software issues regarding this release:

<http://support.veritas.com/docs/286571>

Table 2-3 System resources SF Management Serverhosts

Component	CPU Required	Memory Required	Disk Space Required
Management Server ^a	Dual processor (Less than 50 managed hosts)	2GB (Less than 50 managed hosts)	Database only: 19GB (for 750 hosts including DB backup)
	Quad processor (Over 50 managed hosts)	4GB (Over 50 managed hosts)	Database only: 6GB (for 100 hosts)
Managed host	See Storage Foundation documentation	See Storage Foundation documentation	1GB (in /var/opt for discovery state files)
SF 4.x managed host	See Storage Foundation documentation	See Storage Foundation documentation	50MB on /var
	See Storage Foundation documentation	See Storage Foundation documentation	50MB on /opt

a.Requires additional swap space of at least 8G-16G.

Supported hardware

The following TechNote contains the Hardware Compatibility List (HCL) for Veritas Storage Foundation Management Server and Storage Foundation products:

<http://support.veritas.com/docs/283161>

SF Management Server Web browser requirements

The Storage Foundation Management Console supports the following Web browsers:

Table 2-4 Web browsers and their supported platforms

Operating System	Firefox 1.0.7 (or later)	Internet Explorer 6.0 (or later)	Mozilla 1.6 (or later)	Netscape Navigator 7.2 (or later)
AIX			✓	
HP-UX			✓	
Red Hat	✓		✓	✓
Solaris			✓	
SuSE	✓		✓	✓
Windows	✓	✓ ^a	✓	✓

a. At the time of this release, Internet Explorer 7.0 was not qualified as a supported browser.

If you are using Internet Explorer, you must:

- Enable JScript 5.5 support
- Enable Secure Sockets Layer (SSL) 3.0 ActiveX scripting
- Apply patch Q832894 to Internet Explorer 6 service pack 1
- Set the default Intranet zone security level to MEDIUM or lower for Internet Explorer 6.0 on Windows 2003 (Server and Advanced Server)

If you are using Netscape Navigator 7.x, you must:

- Enable JavaScript 1.2 support

If you are using pop-up blockers (for example, Yahoo Toolbar or Google Toolbar), you must:

- Disable them or configure them to accept pop-ups from the Web Server to which you will connect. (Note that pop-up blocking is enabled by default in Netscape 7.2.)

Software limitations

This chapter contains important notes about limitations in this release of Veritas Storage Foundation Management Server 1.0 MP1.

This chapter contains the following topics:

- [“Compatibility between versions of SF Management Server”](#) on page 19
- [“Installation and configuration issues”](#) on page 19
- [“Considerations for legacy managed hosts”](#) on page 20
- [“Graphical user interface issues”](#) on page 20

Compatibility between versions of SF Management Server

A version 1.0 MP1 Management Server is required for managing version 1.0 MP1 legacy managed hosts, or 5.0 MP1 managed hosts. However, the 1.0 MP1 Management Server can interact with managed hosts running both version 1.0 and version 1.0 MP1.

When upgrading your system, therefore, we recommend that you upgrade the Management Server first and then upgrade the managed hosts.

Installation and configuration issues

The following notes pertain to issues you might encounter installing or configuring SF Management Server.

Remote Authentication Broker must have Private Branch Exchange (VxPBX)

The Management Server should not be configured to use a remote Authentication Broker (AB) on which Veritas Private Branch Exchange (VxPBX) is not installed.

For example, the Management Server should share an AB with another Veritas product, such as NetBackup, only when the other product's AB has VxPBX installed.

Workaround

Configure a separate AB that points to the existing root broker, and install VxPBX on the new AB.

Considerations for legacy managed hosts

Keep these points in mind when centrally managing Storage Foundation 4.x hosts:

- On Storage Foundation 4.x hosts, the earlier generation of the Rule Manager (VRTSaa) is installed. The Action Provider can continue to be used, even when centrally managed with SF Management Server.
- Action Provider can manage alerts and task execution for the local host only; however, the Rule Manager can manage alerts and task execution from any host in the Management Server domain.
- Only the Rule Manager can provide central administration of rules. Otherwise, Action Provider must be managed on each host, independently.
- Managing and creation of rules for the Veritas Action Provider or Action Agent for a standalone host is available only through the Veritas Enterprise Administrator (Java Console).

Graphical user interface issues

Storage Utilization shows file system usage is zero for: NTFS, FAT, FAT32, and RAW. Only Veritas File System types are supported.

Known issues

This chapter describes known issues with Veritas Storage Foundation Management Server 1.0 MP1 and provides instructions for working around many of these issues.

This chapter contains the following topics:

- [“Install and uninstall issues”](#) on page 21
- [“Management Console display issues”](#) on page 23
- [“Monitoring issues”](#) on page 26
- [“Resource configuration issues”](#) on page 26
- [“Other issues”](#) on page 26

Install and uninstall issues

The following issues relate to SF Management Server installation and uninstallation.

SF Management Server must be installed in /opt (579111)

In UNIX, the SF Management Server program code must be installed in the /opt partition. If /opt contains insufficient space or does not exist, SF Management Server cannot be installed.

Workaround

Ensure that /opt exists and has sufficient disk space (see [“System resource requirements”](#) on page 16).

Authentication Service update on cluster cannot be reversed by uninstall (609644)

In UNIX, when Veritas Storage Foundation 4.x Host Management is installed on a Veritas Cluster Server (VCS) 4.x host in secure mode, the installation process will update the Authentication Service (VRTS`at`). If you subsequently uninstall Veritas Storage Foundation 4.x Host Management on this host, it is not possible to revert to the previous (4.x) version of the Authentication Service shipped with VCS 4.x.

SF Management Server 1.0 MP1 does not require a clustered configuration. However, if you use a clustered configuration, we strongly recommend that you upgrade VCS to version 5.0 before installing SF Management Server on the host.

Host name may need to be entered manually on clustered host (621161)

When installing SF Management Server on a clustered UNIX host on which the Domain Name Service (DNS) is not configured, the installer will be prompted to manually enter the fully-qualified host name in order to proceed with the installation.

When installing on a host with slow DNS responses, the installer may be prompted to manually enter the fully-qualified host name in order to proceed with the installation.

Permissions on the `/etc` directory change during product installation

Because of a Solaris issue in the `pkgadd` command, the permissions on the `/etc` directory may change during the installation of Symantec product packages. Check after an installation procedure to see if this occurred. Use the `chmod` command to reset the permissions.

Web Server installation fails because of missing directory (615620)

When you select installation option 12 (Web Server for Storage Foundation Host Management) on a Solaris host where no other Storage Foundation products are currently installed, the installation fails to complete because the `/opt/VRTSob` directory does not exist.

Workaround

Manually create the `/opt/VRTSob` directory before beginning the installation.

Messages display when installing VRTSmusfm over Telnet (848984)

When installing the VRTSmusfm package on a Solaris host through a Telnet session, you may receive the following error messages:

```
## Executing postinstall script.  
couldn't set locale correctly  
couldn't set locale correctly  
couldn't set locale correctly  
couldn't set locale correctly
```

These messages are associated with the way in which the Telnet client handles text encoding. They can safely be ignored.

Management Console display issues

The following issues relate to displays in the Management Console.

“Duplicate lookup key” message for saved query (363027)

When you save a shared search query in standalone mode, the message “Duplicate lookup key” might display. This message means that the shared query you are trying to save has the same name as an existing query.

Workaround

Save the shared query with a different name.

Management Console does not display each HBA connection (854632)

When HBAs on an HP-UX host are connected to multiple disk arrays, Veritas Storage Foundation displays a separate instance of the HBA for each array connection. However, SF Management Server displays each HBA only once.

For example, suppose an HP-UX host has four HBAs, and each one is connected to two different disk arrays. Storage Foundation, using the `vxdisplay` command, displays eight HBAs (four physical HBAs times two connections each). However, SF Management Server displays only the four HBAs that are physically present on the host.

There is no workaround.

Column sorting results in old data being displayed (595193, 599053)

On Microsoft Internet Explorer 6.0, clicking column headers to sort data can result in problems like the following:

- Click a column header; recently-modified data in the column reverts to its old value
- Click another column header; data in the previous column reverts back to the newer value
- Click any column header; data no longer sorts in the correct order

Workaround

- 1 In the Internet Explorer browser window, click **Tools > Internet Options**.
- 2 Select the **General** tab.
- 3 In the Temporary Internet Files section, click **Settings**.
- 4 Set **Check for newer versions of stored pages** to **Every visit to the page**. Do *not* set this value to **Automatically**.

CVM state not displayed for clusters (595876)

In UNIX, SF Management Server version 1.0 MP1 displays the state of VCS clusters (for example RUNNING). However, it does not display the Cluster Volume Manager (CVM) state for these clusters (either ACTIVE or INACTIVE).

Workaround

- ◆ To view the CVM state for a closet, issue this command:

```
# /usr/sbin/vxdctl -c mode
```

The output typically will look like this (where *hostname* is the name of the CVM master node):

```
mode: enabled: cluster active - MASTER
```

```
master: hostname
```

Navigation path disrupted when refreshing multiple windows (604681)

This problem can occur when you are using the Management Console simultaneously in multiple browser windows, and at least one of the windows is displaying a view accessed through the **Administer** link. In this situation, the navigation path for the window accessed through the **Administer** link can become disrupted when you use the browser's Refresh feature to refresh both windows. (The navigation path will be replaced with the navigation path from the first window.)

Workaround

Use the browser's **Back** button to navigate to previously visited views.

When a host in an application groups is removed, VCS/VM/VVR types display incorrectly (607224)

When a UNIX host in an application group is removed, the host remains part of the application group. In the summary view for the application group, its VCS, VM, and VVR types will display as *MIXED*—regardless of what the types really are.

Workaround

Remove the host from the application group using the **Edit Group Contents** link in the task pane.

Empty application groups not displayed (608991)

If a user creates an application group and subsequently edits the group to remove all base objects, the group will not be included in:

- Counts on the Dashboard and Inventory Summary views
- Filters on the Application Groups view

Therefore, we recommend that you not create empty application groups (those with no base objects).

Search with filtering and groups returns additional results (617711, 617716)

When you perform a search using both filtering criteria and the name of a group, the search results should return the *intersection* of the two sets: objects in the group that satisfy the filtering criteria. Instead, the results show the *union* of the two sets: objects that meet the filtering criteria, plus objects in the group.

Workaround

There is no workaround.

Search results display appears to allow adding array ports to custom groups (807832)

In the search results display, it is possible to check the name of an array port and select it for inclusion in an **Add to Existing Custom Group** operation. However, array ports cannot be included in custom reports and this operation is not allowed.

Monitoring issues

The following issues relate to the collection and display of alerts and to the Action Agent.

Resource configuration issues

The following issues relate to the use of SF Management Server to configure and administer resources.

Use VCS to manage VCS resources (614093)

SF Management Server detects whether Veritas Cluster Server (VCS) is configured on a system. Using SF Management Server to change the configuration on systems running VCS can cause unpredictable behavior in VCS.

We recommend using VCS to manage objects that are configured as VCS resources. In this context, the term “manage” refers to tasks such as renaming and recovering disk groups.

Other issues

Web Server hangs (620384)

When users attempt to log in to SF Management Server on UNIX (using `http://hostname:8181/VEAWeb/Login`) and the browser window remains blank, it could indicate that the Web Server is hung.

To verify the status of the Web Server, issue the following command:

```
/opt/VRTSweb/bin/webgui dump
```

The trace output is displayed in the operator console and written to the `_vrtsweb0.0.log` file located in `/var/VRTSweb/log`.

The trace shows the state of all threads. If the details for a thread show it to be blocked and “deadlocked” on `java.util.logging.FileHandler.publish` (Unknown Source), this is an indication that the Web Server is hung and needs to be restarted.

Workaround

If you find that the Web Server is hung, stop and restart it using the following commands:

```
/opt/VRTSob/webgui/veaw stop
```

```
/opt/VRTSob/webgui/veaw start
```

Characters appear incorrectly in archived report email (859361)

When the contents of an archived report are sent by email, recipients may report that some Japanese characters appear as boxes and that character strings are garbled.

Workaround

Log out from SF Management Server and set the system locale to ja_JP.UTF-8. Then restart the VEA Web Server using the following command:

```
/opt/VRTSob/webgui/veaw restart
```

You will now be able to send reports that use Japanese characters.

Documentation Addenda and Errata

This chapter contains additions and corrections to the SF Management Server documentation.

This chapter contains the following topics:

- [“Addenda and errata for the SF Management Server Administrator’s Guide”](#) on page 29
- [“Addenda and errata for SF Management Server Online Help”](#) on page 30

Addenda and errata for the *SF Management Server Administrator’s Guide*

This section contains errata and additional information not included in the *Veritas Storage Foundation Management Server Administrator’s Guide*.

Access rights

The following table shows how the SF Management Server access rights (or product features) are mapped to its security roles.

Table 5-1 Mappings between product features and security roles

Product feature	Administrator	Operator	Guest
Alert log settings	✓		
Task log settings	✓		
Create rules	✓		

Table 5-1 Mappings between product features and security roles (Continued)

Product feature	Administrator	Operator	Guest
(All other SF Management Server functionality)	✓	✓	✓

Migrating hosts to and from managed hosts

A step is missing in the following topics:

- Migrating standalone hosts to managed hosts
- Migrating managed hosts to a different Management Server
- Migrating managed hosts to standalone hosts

For each of the three topics, a second step should be inserted that reads:

Change to the managed host `bin` directory. For example:

```
cd /opt/VRTSmh/bin
```

Disregard clusterize.pl manual page

The `clusterize.pl` manual page, included in the Command and configuration file reference (Appendix A), is not valid and should be disregarded.

cmsf_ctl.pl manual page missing family names

The `cmsf_ctl.pl` manual page inadvertently leaves out valid values for the `family_name` variable.

`family_name` is the name of the family such as: GCS, HOST, RT, SF, VCS.

Addenda and errata for SF Management Server Online Help

This section contains errata and additional information not included in the Online Help for SF Management Server.

Standalone host

On standalone hosts, the Web Server component is intended for use with the Veritas Volume Replicator (VVR) product. Therefore, the first two paragraphs in the “Standalone host” topic in the Installation Guide portion of Online Help should read as follows:

A standalone (unmanaged) host is a Storage Foundation host that has been configured not to belong to a central management domain. This type of host is essentially what all Storage Foundation hosts have been prior to the 5.0 release, because there has not previously been a central management option.

For standalone hosts, you have two management options. To manage individual 5.0 and/or 4.x hosts, you can install and use the Java-based Veritas Enterprise Administrator. This console enables you to perform management operations via the Storage Foundation products that are installed on the host. For 5.0 hosts only, you have an additional install option. You can install a Web Server on a managed host where Veritas Volume Replicator (VVR) is also installed and then connect to the host via a Web browser. For more information about installing the Web Server, see the Veritas Volume Replicator Installation Guide.

Standalone management of Storage Foundation 5.0 hosts only

Figure 1-6 should be disregarded.

Because the Web Server component on standalone hosts is intended for use with VVR, the “Standalone management of Storage Foundation 5.0 hosts only” topic in the Installation Guide portion of Online Help should read as follows:

The Web-based Management Console is new in Storage Foundation 5.0. You can use it to perform traditional, single-host management operations for Veritas Volume Replicator (VVR) as well. Though more light-weight than the Java-based Console, it does require you to install a Web Server on the managed host. For more information about installing the Web Server, see the Veritas Volume Replicator Installation Guide.

Viewing hosts

Replace step 6 in the “To remove an inactive host” procedure in this help topic with the following:

6. To remove the inactive host, do the following:
 - Check the box adjacent to the host name.
 - From the Tasks drop-down list, select **Delete Faulted Host** and click **Go**. If the host is not inactive, a message appears indicating that the host cannot be removed.
 - At the confirmation message, click **Yes**.

Viewing a host’s details

Replace the procedure in this help topic with the following:

To view a host's details

- 1 Select **Managing > Servers**.
- 2 Click the Hosts tab.
- 3 To perform a task with a specific resource, check the box adjacent to the resource name and select the task from the **Tasks** drop-down list just above the table.
For instructions about each task in the task's dialog box click **Help**.
- 4 Click the host name.
- 5 On the host's Overview view, review the data.
For descriptions of these tables, see *Viewing hosts*.
 - **Faulted Objects:** Displays faulted objects, such as volumes and disk groups, associated with the host.
 - **Group Membership:** Displays the application or custom group (created in SF Management Server) to which this resource belongs, if any. SF Management Server includes the ability to group objects in the SF Management Server environment that are of interest to you, letting you retrieve information in the most efficient way. See *Managing groups*.
 - **Annotations:** Displays annotations defined for the host along with their values, if any.
- 6 To manage a host's properties, click **Administer**.

Note: If the associated managed host is enabled, the Administer icon appears as [green up-arrow icon]. If the associated managed host is disabled, the Administer icon appears as [red down-arrow icon].

The host's data appears across several products, including Veritas File System, Veritas Volume Replicator, and Veritas Cluster Server. See *Viewing a host's summary across multiple products*.

- 7 From the local product, to return to the centralized management view, click the resource's navigation path.

Disregard clusterize.pl manual page

The `clusterize.pl` manual page, included in the Online Help, is not valid and should be disregarded.

Accessibility features

Veritas Storage Foundation Management Server complies with industry-standard accessibility requirements. You can access fields and buttons in windows and dialog boxes using either the keyboard or mouse.

This chapter contains the following topics:

- [“Navigating the Storage Foundation Management Console”](#) on page 35
- [“Accessibility features in dialog boxes”](#) on page 36

Navigating the Storage Foundation Management Console

In the Storage Foundation Management Console window, you can use your keyboard to view information and perform operations by selecting a variety of different controls.

Examples of selectable controls include:

- Tabs and subtabs
- Navigational links at the top of the content pane
- Column headings in tables
- Hyperlinked objects in tables
- Areas, such as bars in a graph, in graphical reports
- Alert categories in the alerts list
- Controls in the header such as **Logout** and **Help**

The current active control is enclosed with a rectangle formed by dotted lines. This area has focus. Use the Tab key to move focus from one control to another.

Following are general rules for navigating the Management Console and performing operations:

- Press Tab to move the focus to the next active area, field, or control.
- Press Shift+Tab to move the focus to the previous active area. In effect, Shift+Tab is the reverse of Tab.
- Press Ctrl+Tab to move the focus to the top of the browser window.
- Press Enter to activate the item that has focus. For example, after pressing Tab to select a host in the Hosts summary pane, press Enter to display the object view for that host.
- In a drop-down list, press the arrow keys to move up and down the list.
- When a checkbox has focus, press the Spacebar to select or deselect the box.
- Normal accessibility features for your Web browser apply. In many browsers, for example, press Shift+F10 to display a context menu with which you can move back to the previous page, print the current page, and perform other operations.

Accessibility features in dialog boxes

In Storage Foundation Management Console dialog boxes, the current active control has focus. As in the Management Console window, you can use the Tab key to move focus from one control to another.

When a radio button has focus, use the up and down arrow keys to move focus to a different radio button. For example, in the following figure, **Create New** is selected and has focus. To select **Edit Existing**, press the down arrow key.

Figure 6-1 Example of radio button with focus

Specify the name and type for the enclosure.

Server: len.veritas.com

Create New Edit Existing

Display name:

Vendor name (optional):

Model number (optional):

< Back Next > Finish Cancel Help

When a button has focus, press Enter to activate or select the button. In the example above, press the Tab key to move focus to the Next button and then press **Next** to move to the next dialog box.

When a drop-down list has focus, use the up and down arrow keys to move among the selections and then press Enter to make your selection.

When a checkbox has focus, press the Spacebar to select or deselect the box.

When a text box has focus, use the keyboard to type text in the box.

With tree controls, the following accessibility features apply:

- Use the Tab key to move from one tree node to another.
- Press the Space key to expand and collapse tree nodes.

Getting help

This appendix contains the following topics:

- [“Available documentation”](#) on page 39
- [“Displaying online help”](#) on page 40
- [“Understanding how to troubleshoot SF Management Server”](#) on page 40
- [“Contacting Symantec”](#) on page 41

Available documentation

The following guides provide information about SF Management Server:

Veritas Storage Foundation Management Server Administrator’s Guide
(sfms_admin.pdf)

Veritas Storage Foundation Management Server Getting Started Guide
(sfms_getstart.pdf)

Veritas Storage Foundation Management Server Installation Guide
(sfms_install.pdf)

Veritas Storage Foundation Management Server Release Notes
(sfms_notes.pdf)

By default, guides install to the following locations on any SF Management Server host:

```
/opt/VRTS/docs
```

The SF Management Server documentation contains complete instructions for installing the product and configuring authentication for it.

The documentation package in `/opt/VRTS/docs` includes some Symantec Product Authentication Service (VxAT) documents because the SF Management Server product contains VxAT program code. However, it is not necessary to use

the VxAT documents when installing and configuring the SF Management Server.

Displaying online help

SF Management Server provides online help as well as UNIX manual pages.

To display online help

- ◆ Do one of the following:
 - In the Console, click the appropriate **Help** link or menu item.
 - In any dialog window, click the **Help** button.

On UNIX systems, you can use manual pages to find reference and usage information about product-specific commands. When you install the product, the `pkgadd` command installs the nroff-tagged manual pages in the appropriate directories under `/opt/VRTS/man`. However, the install does not update the `windex` database.

To ensure that new manual pages display correctly, update your:

- `MANPATH` environment variable to point to `/opt/VRTS/man`
- `windex` database

Refer to the `catman(1M)` manual page for more information about updating `windex`.

Understanding how to troubleshoot SF Management Server

If an issue arises while you are using SF Management Server, use the following information to pinpoint the problem and, if necessary, report it to Symantec.

Error messages

If you encounter a product error message, record the exact error message text. When contacting Veritas Technical Support, either by telephone or by visiting the Veritas Technical Support Web site, be sure to provide this information. Veritas Technical Support will use the message text or number to determine whether TechNotes or other information are available.

Other troubleshooting steps

If an issue arises while you are using SF Management Server, look at these resources:

- Check the TechNotes and other resources on the Veritas Support Web site at <http://support.veritas.com>.

Contacting Symantec

You can contact Symantec on the Web, by email, or by telephone.

Using the support Web site

For technical assistance with any Symantec product, visit the Symantec Support Web site at <http://support.veritas.com>.

From there you can:

- Contact the Symantec Support staff and post questions to them
- Get the latest software patches, upgrades, and utilities
- View updated hardware and software compatibility lists
- View Frequently Asked Questions (FAQ) pages for the products you are using
- Search the knowledge base for answers to technical support questions
- Receive automatic notice of product updates
- Find out about training in the Storage Foundation products
- Read current white papers related to the Storage Foundation products

Subscribing to email notification service

Subscribe to the Symantec Email notification service to be informed of software alerts, newly published documentation, Beta programs, and other services.

Go to <http://support.veritas.com>. Select a product and click **E-mail Support** at the bottom of the page. Your customer profile ensures that you receive the latest Symantec technical information pertaining to your specific interests.

Accessing telephone support

Telephone support is available with a valid support contract. To contact Symantec for technical support, dial the appropriate phone number listed on the Support Guide included in the product box and have your product license information ready for quick navigation to the proper support group.

Obtaining support by email

Licensed customers can use the following email address to obtain help with technical questions: support@veritas.com

To obtain software updates by email, send your requests to the following email address: swupdate@veritas.com

Obtaining license information

To obtain license information, contact Symantec in one of the following ways:

- U.S. and Canada telephone: 1-800-634-4747 option 3
- Worldwide fax: +1-650-527-0952
- Email: amercustomer care@veritas.com

Purchasing products

For help with purchasing Symantec products, visit the Symantec Web site, <http://www.symantec.com>, where you can chat with product experts or link to information about the products.

You can also contact a Symantec product representative by email at the following address: sales.mail@veritas.com

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- [“ACE and TAO”](#) on page 43
- [“Apache Portable Runtime \(APR\) and Apache Xerces C++”](#) on page 44
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- [“Log::Dispatch perl module, Logfile::Rotate perl module, Params::Validate perl module, Perl, Time::ZoneInfo”](#) on page 52
- [“OpenSSL”](#) on page 54
- [“Sysdep.c, Sysdep.h, UUID.c, and UUID.h”](#) on page 55

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