Veritas™ Operations Manager 4.0 Installation Guide
Veritas™ Operations Manager Installation Guide

The software described in this book is furnished under a license agreement and may be used only in accordance with the terms of the agreement.

Product version: 4.0
Documentation version: 4.0.0

Legal Notice

Copyright © 2011 Symantec Corporation. All rights reserved.

Symantec, the Symantec logo, Veritas, and Veritas Storage Foundation are trademarks or registered trademarks of Symantec Corporation or its affiliates in the U.S. and other countries. Other names may be trademarks of their respective owners.

This Symantec product may contain third party software for which Symantec is required to provide attribution to the third party (“Third Party Programs”). Some of the Third Party Programs are available under open source or free software licenses. The License Agreement accompanying the Software does not alter any rights or obligations you may have under those open source or free software licenses. Please see the Third Party Legal Notice Appendix to this Documentation or TPIP ReadMe File accompanying this Symantec product for more information on the Third Party Programs.

The product described in this document is distributed under licenses restricting its use, copying, distribution, and decompilation/reverse engineering. No part of this document may be reproduced in any form by any means without prior written authorization of Symantec Corporation and its licensors, if any.

THE DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID. SYMANTEC CORPORATION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE FURNISHING, PERFORMANCE, OR USE OF THIS DOCUMENTATION. THE INFORMATION CONTAINED IN THIS DOCUMENTATION IS SUBJECT TO CHANGE WITHOUT NOTICE.

The Licensed Software and Documentation are deemed to be commercial computer software as defined in FAR 12.212 and subject to restricted rights as defined in FAR Section 52.227-19 "Commercial Computer Software - Restricted Rights" and DFARS 227.7202, "Rights in Commercial Computer Software or Commercial Computer Software Documentation", as applicable, and any successor regulations. Any use, modification, reproduction release, performance, display or disclosure of the Licensed Software and Documentation by the U.S. Government shall be solely in accordance with the terms of this Agreement.
Symantec Corporation
350 Ellis Street
Mountain View, CA 94043

http://www.symantec.com
Technical Support

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

Symantec’s 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
- Telephone and/or Web-based support that provides rapid response and up-to-the-minute information
- Upgrade assurance that delivers software upgrades
- Global support purchased on a regional business hours or 24 hours a day, 7 days a week basis
- Premium service offerings that include Account Management Services

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

www.symantec.com/business/support/

All support services will be delivered in accordance with your support agreement and the then-current enterprise technical support policy.

Contacting Technical Support

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

www.symantec.com/business/support/

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
- Issues that are related to CD-ROMs or manuals
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: supportsolutions@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
Technical Support .............................................................................................................. 4

Chapter 1 Planning your Veritas Operations Manager installation ........................................ 11
   About Veritas Operations Manager .......................................................... 11
   Management Server .................................................................. 12
   Managed host .......................................................................... 12
   Standalone (unmanaged) host .................................................. 13
   Downloading Veritas Operations Manager 4.0 ........................................ 13
   Downloading Management Server files ........................................ 14
   Downloading managed host files .............................................. 14
   Using the product documentation ................................................. 15
   Host considerations for installing Veritas Operations Manager ............. 16
   Typical Veritas Operations Manager deployment configurations ........ 16
   Centralized management of Storage Foundation and High Availability 5.x and 4.x hosts ........................................................................ 17
   Centralized management of only Storage Foundation and High Availability 5.x hosts ........................................................................ 17
   Standalone management of Storage Foundation 5.x and 4.x hosts ........................................................................ 18
   Veritas Operations Manager installation overview ................................ 18
   Choosing a Management Server host ............................................. 18
   Choosing managed hosts ............................................................. 19

Chapter 2 System requirements ................................................................. 21
   Operating system requirements ...................................................... 21
   Third-party required libraries ....................................................... 23
   32-bit SNIA Common HBA API on Windows hosts ....................... 24
   System resource requirements ..................................................... 24
   Supported hardware .................................................................. 26
   Web browser requirements ......................................................... 27
   Network and firewall requirements .............................................. 27
Chapter 3  Installing, upgrading, and uninstalling Veritas Operations Manager ..................................................... 29

Packages included in Veritas Operations Manager ................................. 30
Installing Veritas Operations Manager Management Server ................. 30
  Installing Management Server on UNIX ........................................ 31
  Installing Management Server on Windows .................................. 32
Verifying Management Server installation on UNIX ......................... 33
Verifying Management Server installation on Windows ..................... 33
Configuring Veritas Operations Manager on UNIX and Windows .......... 34
Setting up Internet Explorer 7.0 and Firefox 3.0 for Veritas Operations Manager ................................................................. 36
Installing Veritas Operations Manager host management ................. 37
  Installing host management on UNIX ...................................... 37
  Installing host management on Windows ................................. 38
Installing Veritas Operations Manager host management through Solaris JumpStart .................................................. 39
Verifying host management installation on UNIX .............................. 40
Verifying host management installation on Windows ......................... 40
Installing or upgrading Veritas Operations Manager Add-ons .......... 41
Upgrading Management Server to Veritas Operations Manager 4.0 ....................................................................................... 41
  Upgrading Management Server on UNIX ................................. 42
  Upgrading Management Server on Windows ............................. 43
Backing up Veritas Operations Manager data on UNIX ................... 44
Backing up Veritas Operations Manager data on Windows ............... 45
Restoring backed up Veritas Operations Manager data on UNIX ....... 46
Restoring backed up Veritas Operations Manager data on Windows ................................................................. 48
Upgrading host management to Veritas Operations Manager 4.0 ...... 49
  Upgrading managed hosts using Veritas Operations Manager console .................................................................................. 49
  Upgrading host management on UNIX using operating system commands ........................................................................... 50
  Upgrading host management on Windows using operating system commands ........................................................................ 52
Verifying the version of Veritas Operations Manager Management Server in the console .................................................. 52
Verifying the version of a Veritas Operations Manager managed host in the console ................................................................. 53
Uninstalling Management Server on UNIX ..................................... 53
Uninstalling Management Server on Windows .................................. 54
Uninstalling host management on UNIX .......................................... 55
Chapter 4  Using Veritas Operations Manager in high availability environment ........................................ 57

About configuring Veritas Operations Manager in high availability environment ............................................. 58
Configuring a new Veritas Operations Manager installation in high availability environment ................................. 59
Sample configuration: After you create the base service groups (SFM_Services and SFM_SStore) ......................... 65
Sample configuration: After you configure Veritas Operations Manager in high availability environment .............. 66
Configuring an existing Veritas Operations Manager installation in high availability environment ............................ 70
About configuring Veritas Operations Manager in high availability environment for disaster recovery .................. 77
Prerequisites for configuring Veritas Operations Manager in the high availability environment for disaster recovery .................. 78
Configuring Veritas Operations Manager in high availability environment for disaster recovery ....................... 79
Sample configuration: After you configure Veritas Operations Manager in high availability environment for disaster recovery ........................................................................................................... 83
About upgrading the high availability and the high availability for disaster recovery configurations to Veritas Operations Manager 4.0 ........................................................................................................ 89
Removing the high availability configuration from Veritas Operations Manager ................................................. 89

Index ................................................................................................. 91
Planning your Veritas Operations Manager installation

This chapter includes the following topics:

- About Veritas Operations Manager
- Downloading Veritas Operations Manager 4.0
- Using the product documentation
- Host considerations for installing Veritas Operations Manager
- Typical Veritas Operations Manager deployment configurations
- Veritas Operations Manager installation overview
- Choosing a Management Server host
- Choosing managed hosts

About Veritas Operations Manager

Veritas Operations Manager by Symantec gives you a single, centralized management console for the Veritas Storage Foundation and High Availability products. You can use it to monitor, visualize, and manage storage and cluster resources, and generate reports about them. Veritas Operations Manager lets administrators centrally manage diverse datacenter environments.
In Veritas Operations Manager, you can establish user credentials such that authorized users can access the product to perform sensitive management tasks, and other users can perform only a more basic set of functions.

A typical Veritas Operations Manager deployment consists of the following:

- **Management Server**
  See “Management Server” on page 12.

- **Managed hosts**
  See “Managed host” on page 12.

For more information on managing security roles and users accounts, see the *Veritas Operations Manager Administrator's Guide*.

## Management Server

In a centrally managed deployment, you must configure one host as Management Server. Management Server receives information about all the resources in its domain. When you log on to Management Server, you can gain access to the resources on different hosts within the centrally-managed deployment.

When you install Management Server, the Web Server component is installed automatically.

You can use the Web Server on Management Server to access the managed hosts in the centrally managed deployment. You log on to the Management Server URL and Web Server port 14161 (for example, `https://myhost.example.com:14161`).

## Managed host

A managed host runs at least one Storage Foundation and High Availability product, and belongs to a central management domain controlled by Management Server.

Managed hosts include the following:

- Hosts with Storage Foundation 4.x, or later, on all supported platforms
- Hosts with Storage Foundation and High Availability 3.5 on HP-UX
- Hosts with Storage Foundation and High Availability 4.x, or later, on all supported platforms

Typically, a managed host is a production server (database File Server) on which you install and run Storage Foundation and High Availability product components. A typical site can have thousands of hosts using some or all of the Storage Foundation and High Availability products. In Veritas Operations Manager,
Management Server is also configured as a managed host. You can manage Management Server itself as part of a central management domain.

In a centrally managed deployment, managed hosts relay information about storage network resources and applications to Management Server. Management Server coalesces the data it receives from the managed hosts within its database. Using this coalesced data, the Veritas Operations Manager Console can present centralized views and reports.

**Standalone (unmanaged) host**

A standalone (unmanaged) host is a Storage Foundation host that has been configured so it does not belong to a central management domain.

To manage individual Storage Foundation hosts, you can install and use the Java-based Veritas Enterprise Administrator. This console lets you manage hosts using the Storage Foundation products installed on them.

If you want a standalone host to participate in the central management domain, you must update it by installing the Veritas Operations Manager host management package.

**Note:** You can convert any standalone host to a managed host. However, because Management Server is also a managed host, you cannot configure it to be a standalone host.

**Downloading Veritas Operations Manager 4.0**

Veritas Operations Manager is a free license add-on to Veritas Storage Foundation.

You can download Veritas Operations Manager 4.0 packages from the following URL:

http://go.symantec.com/vom


See “Downloading managed host files” on page 14.
Downloading Management Server files

To install or upgrade Veritas Operations Manager Management Server, you need to download a .zip file. The .zip file contains the file that you can run to install Management Server.

The names of the .zip file and the installer file for each platform are as follows:

- **Linux:**
  - **Download file name**: Veritas_Operations_Manager_Management_Server_4.0_Linux.zip
  - **Installer file name**: Veritas_Operations_Manager_CMS_4.0_Linux.bin

- **Solaris:**
  - **Download file name**: Veritas_Operations_Manager_Management_Server_4.0_SolSparc.zip
  - **Installer file name**: Veritas_Operations_Manager_CMS_4.0_SolSparc.bin

- **Windows:**
  - **Download file name**: Veritas_Operations_Manager_Management_Server_4.0_Win.zip
  - **Installer file name**: Veritas_Operations_Manager_CMS_4.0_Win.exe

Downloading managed host files

To install or upgrade host management, you need to download the Veritas_Operations_Manager_Managed_Host_Bundle_4.0.zip file that contains the packages for all the supported operating systems for managed hosts. You can unzip the file and install the package on the host.

**Note:** To upgrade a managed host to version Veritas Operations Manager 4.0, you can choose to use the patch and package management feature to upgrade the host. For more information on deploying packages, see the Veritas Operations Manager Administrator's Guide.

Table 1-1 provides information on the file that you need to use to install the managed host for each operating system.
Table 1-1: Managed host installation and upgrade files

<table>
<thead>
<tr>
<th>Operating system</th>
<th>Installer file name</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX</td>
<td>VRTSsfmh_4.0.xxx.0_AIX.bff.Z, where, xxx is the build number for the release.</td>
</tr>
</tbody>
</table>
| HP-UX            | ■ For HP-UX 11.23 and HP-UX 11.31: VRTSsfmh_4.0.xxx.0_HP-UX.tar.gz  
|                  | ■ For HP-UX 11.11 with Storage Foundation 3.5: VRTSsfmh_4.0.xxx.0_HP-UX_osr_B.11.11.tar.gz  
|                  | where, xxx is the build number for the release. |
| Linux on x86 or Xeon | VRTSsfmh_4.0.xxx.0_Linux.rpm, where, xxx is the build number for the release. |
| Linux on PowerPC | VRTSsfmh_4.0.xxx.0_Linux_arch_ppc64.rpm, where, xxx is the build number for the release. |
| Solaris on SPARC | VRTSsfmh_4.0.xxx.0_SunOS_arch_sparc.pkg, where, xxx is the build number for the release. |
| Solaris on x86   | VRTSsfmh_4.0.xxx.0_SunOS_arch_i386.pkg, where, xxx is the build number for the release. |
| Windows 32-bit   | VRTSsfmh_4.00.0.xxx_Windows_arch_x86.msi, where, xxx is the build number for the release. |
| Windows 64-bit   | VRTSsfmh_4.00.0.xxx_Windows_arch_x64.msi, where, xxx is the build number for the release. |
| Windows IA64     | VRTSsfmh_4.00.0.xxx_Windows_arch_IA64.msi, where, xxx is the build number for the release. |

Using the product documentation

The following guides provide information about Veritas Operations Manager:

■ Veritas Operations Manager Administrator’s Guide
■ Veritas Operations Manager Getting Started Guide
■ Veritas Operations Manager Installation Guide
For complete host operating system and system resource specifications, as well as any known limitations or issues in this release, see the Veritas Operations Manager Release Notes.

For information about the third-party software that is used in this product, see the Veritas Operations Manager Third-Party License Agreements.

The latest version of the product documentation is available on the Symantec Technical Support Web site at the following URL:

http://go.symantec.com/vom

For the late breaking news that is related to this release, use the following TechNote:

http://www.symantec.com/docs/TECH157641

Host considerations for installing Veritas Operations Manager

Host considerations for installing and configuring Veritas Operations Manager include the following:

■ Before you begin the Veritas Operations Manager installation, ensure that you have the following information:
  ■ Administrator accounts and passwords for all target hosts
  ■ A diagram of your storage network (suggested for your reference)
  ■ The managed hosts within a central management domain must report synchronized universal time clock time (UTC/UTC).
  ■ You must have at least one valid support contract for Storage Foundation and High Availability to gain support for Veritas Operations Manager.

Typical Veritas Operations Manager deployment configurations

You have several options for deploying Veritas Operations Manager.

If you implement centralized management, a typical full installation of Veritas Operations Manager consists of a single Management Server, multiple managed hosts, and any number of Web Consoles. We recommend this form of management because of the advantages you gain from being able to perform management operations on multiple hosts across the datacenter.
If you implement traditional, single-host management, you have the following options:

- Install a "thick" client, the Java-based VEA Console.
- Install a light-weight Web Server that relies on a standard Web browser client.

Only the Java Console supports single-host management of both 5.x and 4.x hosts. Only 5.x hosts support the light-weight Web Server.

Typical deployment scenarios include the following:

- Centralized management of Storage Foundation and High Availability 5.x and 4.x hosts
  See “Centralized management of Storage Foundation and High Availability 5.x and 4.x hosts” on page 17.

- Centralized management of Storage Foundation and High Availability 5.x hosts only
  See “Centralized management of only Storage Foundation and High Availability 5.x hosts” on page 17.

- Standalone management of Storage Foundation 5.x and 4.x hosts
  See “Standalone management of Storage Foundation 5.x and 4.x hosts” on page 18.

Centralized management of Storage Foundation and High Availability 5.x and 4.x hosts

In this deployment scenario, you centrally manage your Storage Foundation and High Availability 5.x and your legacy (4.x) hosts. We recommend this deployment because centralized management offers you the flexibility of performing operations on multiple Storage Foundation and High Availability hosts.

Advantages also include the following:

- Aggregated information for reporting
- Performance management across the datacenter
- Monitoring storage utilization across the datacenter
- Administration and analysis of all clusters in an enterprise

Centralized management of only Storage Foundation and High Availability 5.x hosts

In this deployment scenario, you centrally manage only your Storage Foundation and High Availability 5.x products. You manage your Storage Foundation 4.x hosts.
individually using the Java-based Veritas Enterprise Administrator (VEA) console. Programmatically-aggregated information from multiple hosts is available from 5.x managed hosts only.

Standalone management of Storage Foundation 5.x and 4.x hosts

In this deployment scenario, you use the Java-based Veritas Enterprise Administrator console to perform traditional, single-host management for Storage Foundation 5.x and any 4.x hosts. Unlike centralized management options, connections to multiple hosts are not concurrent and are independent of each other. In this scenario, you cannot easily aggregate information from multiple hosts across the datacenter.

Veritas Operations Manager installation overview

Installing the Veritas Operations Manager involves the following:

- Reviewing the Veritas Operations Manager architecture and typical deployment configurations
  See “Typical Veritas Operations Manager deployment configurations” on page 16.

- Verifying that you have met system requirements
  See “Operating system requirements” on page 21.
  See “Third-party required libraries” on page 23.
  See “System resource requirements” on page 24.
  See “Supported hardware” on page 26.
  See “Web browser requirements” on page 27.
  See “Network and firewall requirements” on page 27.

- Installing and configuring the Veritas Operations Manager Management Server
  See “Installing Veritas Operations Manager Management Server” on page 30.
  See “Configuring Veritas Operations Manager on UNIX and Windows” on page 34.

- Installing Veritas Operations Manager host management on the hosts that will be centrally managed
  See “Installing Veritas Operations Manager host management” on page 37.

Choosing a Management Server host

Management Server is the central point for collecting and managing the information that Storage Foundation and High Availability managed hosts relay
back to it. When you install Management Server, the Web and Database servers are also installed on the host. The Web server supplies the views and reports that Veritas Operations Manager console users see. The Database server manages the Veritas Operations Manager database.

To identify a host that is appropriate for the Management Server, use the following criteria:

- The host should meet or exceed recommended system requirements. See “Operating system requirements” on page 21. See “Third-party required libraries” on page 23. See “System resource requirements” on page 24. See “Supported hardware” on page 26. See “Web browser requirements” on page 27. See “Network and firewall requirements” on page 27.

- The host should provide data security and space for a growing database as Management Server discovers new managed hosts and monitors network events. Ideally, the host should have RAID-protected storage and the capacity to grow its file systems.

- Clients that connect to Management Server using the Veritas Operations Manager console (Web browser) must be able to access the host.

Choosing managed hosts

A managed host is configured to belong to a centrally-managed deployment. The managed host has a Veritas Operations Manager agent that collects component-pertinent status information from network resources, such as hardware and applications, and relays that information to the management host. Typically, a managed host is a production server (such as a database or a file server) in which different components of Storage Foundation and High Availability products are installed and running.

The varieties of managed hosts are the following:

- Storage Foundation 4.x, or later, on all supported platforms
- Storage Foundation and High Availability 3.5 on HP-UX
- Storage Foundation and High Availability 4.x, or later, on all supported platforms

Before you install a managed host, make sure that it meets or exceeds the recommended system requirements.

See “Operating system requirements” on page 21.
Choosing managed hosts
System requirements

This chapter includes the following topics:

- Operating system requirements
- Third-party required libraries
- System resource requirements
- Supported hardware
- Web browser requirements
- Network and firewall requirements

Operating system requirements

Table 2-1 provides an overview of Veritas Operations Manager operating system requirements for Management Server:
### Table 2-1  Veritas Operations Manager operating system requirements for Management Server

<table>
<thead>
<tr>
<th>Operating system supported</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red Hat Enterprise Linux 4.0 Update 3</td>
<td>x86 64-bit is the supported architecture.</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 5.0</td>
<td></td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 5.1 Update 1</td>
<td></td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 5.2</td>
<td></td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 5.3</td>
<td></td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 5.4</td>
<td></td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 5.5</td>
<td></td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 6</td>
<td></td>
</tr>
<tr>
<td>SUSE Linux Enterprise Server 9</td>
<td>x86 64-bit is the supported architecture.</td>
</tr>
<tr>
<td>SUSE Linux Enterprise Server 10</td>
<td></td>
</tr>
<tr>
<td>SUSE Linux Enterprise Server 11</td>
<td></td>
</tr>
<tr>
<td>Solaris 10</td>
<td>SPARC is the supported architecture.</td>
</tr>
<tr>
<td>Windows 2003</td>
<td>x86 64-bit is the supported architecture.</td>
</tr>
<tr>
<td>Windows 2008</td>
<td></td>
</tr>
<tr>
<td>Windows 2008 R2</td>
<td></td>
</tr>
</tbody>
</table>

Table 2-2 provides an overview of Veritas Operations Manager operating system requirements for managed hosts:

### Table 2-2  Veritas Operations Manager operating system requirements for managed hosts

<table>
<thead>
<tr>
<th>Operating system supported</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIX 5.2</td>
<td>On AIX hosts, the xLC runtime environment must be version 8.0, or later. Use the `lslpp -lc</td>
</tr>
<tr>
<td>AIX 5.3</td>
<td></td>
</tr>
<tr>
<td>AIX 6.1 (only for hosts with Storage Foundation 5.0 MP3, or later)</td>
<td></td>
</tr>
<tr>
<td>AIX 7.1 (only for Storage Foundation 5.1 SP1 PR1 hosts)</td>
<td></td>
</tr>
<tr>
<td>HP-UX 11.11 (only for Storage Foundation 3.5 hosts)</td>
<td>PA RISC is the supported architecture.</td>
</tr>
</tbody>
</table>
Table 2-2  Veritas Operations Manager operating system requirements for managed hosts (continued)

<table>
<thead>
<tr>
<th>Operating system supported</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP-UX 11.23</td>
<td></td>
</tr>
<tr>
<td>HP-UX 11.31</td>
<td></td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 4.0</td>
<td>On Red Hat Enterprise Linux 4.0, Storage Foundation 5.0 is supported on 64-bit Xeon, x86, and PowerPC; Storage Foundation 4.1 is supported on x86 and Xeon (32- and 64-bit).</td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 5.0 Update 2 (only for hosts with Storage Foundation 5.0 MP3, or later)</td>
<td></td>
</tr>
<tr>
<td>Red Hat Enterprise Linux 6</td>
<td></td>
</tr>
<tr>
<td>SUSE Linux Enterprise Server 9</td>
<td>On SUSE Linux Enterprise Server 9, Storage Foundation 5.0 is supported on 64-bit Xeon, x86, and PowerPC; Storage Foundation 4.1 is supported on x86 and Xeon (32- and 64-bit).</td>
</tr>
<tr>
<td>SUSE Linux Enterprise Server 10 (only for hosts with Storage Foundation 5.0 MP3, or later)</td>
<td></td>
</tr>
<tr>
<td>SUSE Linux Enterprise Server 11 (only for hosts with Storage Foundation 5.0 MP3, or later)</td>
<td></td>
</tr>
<tr>
<td>Solaris 8</td>
<td></td>
</tr>
<tr>
<td>Solaris 9</td>
<td></td>
</tr>
<tr>
<td>Solaris 10 SPARC</td>
<td></td>
</tr>
<tr>
<td>Solaris 10 x86</td>
<td></td>
</tr>
<tr>
<td>Windows Server 2003</td>
<td>Supported on x86, x64, and IA64.</td>
</tr>
<tr>
<td>Windows Server 2008</td>
<td></td>
</tr>
<tr>
<td>Windows 2008 R2</td>
<td></td>
</tr>
</tbody>
</table>

For the most complete, up-to-date platform support documentation for Storage Foundation (UNIX) and Storage Foundation HA for Windows, visit the Symantec Technical Support Web site:

www.symantec.com/techsupp/

**Third-party required libraries**

This section lists third-party libraries required to run Veritas Operations Manager:

- 32-bit SNIA Common HBA API on Windows hosts
32-bit SNIA Common HBA API on Windows hosts

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

The Common HBA API would be typically available as part of your HBA vendor’s driver kit, or you can download it from your HBA vendor’s site.

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

To verify that the 32-bit SNIA Common HBA API is installed on a Windows host

1. Open the registry editor on the managed host using the `regedit` command.
2. Check the following location to get the SNIA library information:

   \HKEY_LOCAL_MACHINE\SOFTWARE\SNIA\HBA\hba_model

On 64-bit platforms, Veritas Operations Manager requires 32-bit libraries installed as a pre-requisite. For more information, see your HBA vendor documentation.

System resource requirements

The amounts of memory and disk space that Veritas Operations Manager requires are in addition to the resources already consumed by other software on the host.

Table 2-3 provides the memory specifications and the disk space specifications for Veritas Operations Manager components.

Table 2-3 System resources on Veritas Operations Manager hosts

<table>
<thead>
<tr>
<th>Component</th>
<th>CPU required</th>
<th>Memory required</th>
<th>Disk space required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management Server</td>
<td>Dual processor (Less than 50 managed hosts)</td>
<td>2GB (Less than 50 managed hosts)</td>
<td>Database only: 19GB (for 750 hosts including DB backup)</td>
</tr>
<tr>
<td></td>
<td>Quad processor (Over 50 managed hosts)</td>
<td>4GB (Over 50 managed hosts)</td>
<td>Database only: 6GB (for 100 hosts)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Requires additional swap space of at least 8GB to 16GB.</td>
</tr>
</tbody>
</table>
Table 2-3  System resources on Veritas Operations Manager hosts (continued)

<table>
<thead>
<tr>
<th>Component</th>
<th>CPU required</th>
<th>Memory required</th>
<th>Disk space required</th>
</tr>
</thead>
</table>
| Managed host    | See Storage documentation | See Storage documentation | - On UNIX hosts: 50MB to 200MB in /var/opt for discovery state files; 100MB in /opt  
|                 |              |                  | - On Windows hosts: 50MB to 200MB in Install_path\Veritas\VRTSsfmh; 100MB in %COMMONAPPDATA\folder%\Symantec |

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

http://www.symantec.com/docs/TECH157641

The following table describes the frequency of the managed host information updates in the Management Server database. The discovery on each managed host is divided into families to focus on a particular functional area:

<table>
<thead>
<tr>
<th>Family</th>
<th>Frequency in minutes</th>
<th>Discovered information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host</td>
<td>1440</td>
<td>The operating system, licenses, packages, and networking for the host.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Typically, most of the information that is related to this family do not change frequently.</td>
</tr>
<tr>
<td>Storage Foundation</td>
<td>30</td>
<td>Volume Manager, File Systems, and the related storage network.</td>
</tr>
<tr>
<td>Veritas Cluster Server</td>
<td>60</td>
<td>Veritas Cluster Server and the related information</td>
</tr>
<tr>
<td>Databases</td>
<td>60</td>
<td>Oracle, DB2, MSSQL, and Sybase databases and their storage dependencies.</td>
</tr>
<tr>
<td>NR</td>
<td>5</td>
<td>Configuration status and external faults.</td>
</tr>
</tbody>
</table>
### Supported hardware

The following TechNotes contain the Hardware Compatibility List (HCL) for Veritas Operations Manager 4.0 and Storage Foundation products on UNIX:

- Storage Foundation 5.0 for UNIX:  

- Storage Foundation 5.1 for UNIX:  

The following TechNotes contain the Hardware Compatibility List (HCL) for Veritas Operations Manager 4.0 and Storage Foundation products on Windows:

- Storage Foundation 5.0 for Windows:  

- Storage Foundation 5.1 for Windows:  
Web browser requirements

The Veritas Operations Manager console is a graphical user interface that displays reports and other information for users of the Storage Foundation products through a standard Web browser.

The Web browsers that the Veritas Operations Manager console supports are:

- Internet Explorer versions 6.x to 8.x
- Firefox 3.x

Additional considerations for supported Web browsers:

- Your browser must support JavaScript 1.2.
- If you use pop-up blockers (including Yahoo Toolbar or Google Toolbar), either disable them or configure them to accept pop-ups from the Web server to which you connect.
- For Internet Explorer 6.0 on Windows 2003 (Server and Advanced Server), set the default intranet zone security level to MEDIUM or lower.
- For Internet Explorer, when popup-blocker is turned on, make sure that the filter level is set to Medium or lower.
- You must install Adobe Flash plug-in version 10 or above.

Use the following criteria to identify the kind of system you need to run the Web console:

- The Web console host must be able to access Veritas Operations Manager.
- Veritas Operations Manager must support the Web browser.

Network and firewall requirements

If you are managing hosts within multiple domains, you will need to update the `resolve.conf` file on the Management Server host. This file resides by default in the `/etc` directory.

For example:

```
search my.domain1.example.com my.domain2.example.com
```

Veritas Operations Manager uses the default ports as shown in Table 2-4 to transfer information.
Table 2-4  Default ports in a Veritas Operations Manager installation

<table>
<thead>
<tr>
<th>Port</th>
<th>Protocol</th>
<th>Initiator</th>
<th>Purpose</th>
<th>Impact if blocked</th>
</tr>
</thead>
<tbody>
<tr>
<td>5634</td>
<td>TCP</td>
<td>Management Server</td>
<td>Management Server communications with the managed hosts</td>
<td>Managed host will not be added to the Management Server domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>managed hosts</td>
<td>Managed host to send heartbeats; also used to upload the data from the managed host to Management Server.</td>
<td>Managed host will not be added to the Management Server domain</td>
</tr>
<tr>
<td>14161</td>
<td>TCP</td>
<td>Web console</td>
<td>Run Veritas Operations Manager console</td>
<td>Users will not be able to access the Web console</td>
</tr>
</tbody>
</table>
Installing, upgrading, and uninstalling Veritas Operations Manager

This chapter includes the following topics:

- Packages included in Veritas Operations Manager
- Installing Veritas Operations Manager Management Server
- Verifying Management Server installation on UNIX
- Verifying Management Server installation on Windows
- Configuring Veritas Operations Manager on UNIX and Windows
- Setting up Internet Explorer 7.0 and Firefox 3.0 for Veritas Operations Manager
- Installing Veritas Operations Manager host management
- Installing Veritas Operations Manager host management through Solaris JumpStart
- Verifying host management installation on UNIX
- Verifying host management installation on Windows
- Installing or upgrading Veritas Operations Manager Add-ons
- Upgrading Management Server to Veritas Operations Manager 4.0
- Backing up Veritas Operations Manager data on UNIX
- Backing up Veritas Operations Manager data on Windows
Packages included in Veritas Operations Manager

Table 3-1 lists the software packages that are included in Veritas Operations Manager.

<table>
<thead>
<tr>
<th>Package name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>VRTSsfmcs</td>
<td>Veritas Operations Manager package that is required on Management Server</td>
</tr>
<tr>
<td>VRTSsfmh</td>
<td>Veritas Operations Manager package that is required on the managed host</td>
</tr>
</tbody>
</table>

Installing Veritas Operations Manager Management Server

You can install Management Server on any one of the following hosts:
- A Linux host
- A Solaris host
- A Windows host

After you install Management Server, you have to configure Veritas Operations Manager before you can use it.
Installing Management Server on UNIX

You can install the Veritas Operations Manager Management Server on a Linux host or a Solaris host using a .bin file. The .bin file installs the VRTSsfmc and the VRTSsfmh packages on the target host.

**Note:** On a Solaris host, you can install Management Server in a non-global zone.

**To install Veritas Operations Manager Management Server on UNIX**

1. Make sure that the host where you plan to install Management Server meets or exceeds system and operating system requirements.
   See “Choosing a Management Server host” on page 18.
2. Download and unzip the installation file.
   See “Downloading Veritas Operations Manager 4.0” on page 13.
3. Open an operating system console.
4. On the host where you plan to install Management Server, log on as root.
5. Change directory to the location where you unzipped the .bin file.
6. At the command prompt, enter one of the following:
   - On a Linux host:
     
     ```
     ./Veritas_Operations_Manager_CMS_4.0_Linux.bin
     ```
   - On a Solaris host:
     
     ```
     ./Veritas_Operations_Manager_CMS_4.0_SolSparc.bin
     ```

   If you see the error `Permission Denied`, change the permissions for the .bin file so that it can be run. Enter one of the following:
   - On a Linux host:
     
     ```
     chmod +x Veritas_Operations_Manager_CMS_4.0_Linux.bin
     ```
   - On a Solaris host:
     
     ```
     chmod +x Veritas_Operations_Manager_CMS_4.0_SolSparc.bin
     ```

   The installation is complete when you see messages similar to the following:

   **Installation is complete. You will need to configure Veritas Operations Manager.**
Please open your browser and type the following URL to configure:
https://myhost.example.com:5634/

7 Verify that the packages are installed and the processes are started.
See “Verifying Management Server installation on UNIX” on page 33.

8 Configure Veritas Operations Manager.
See “Configuring Veritas Operations Manager on UNIX and Windows” on page 34.

Installing Management Server on Windows

You can install the Veritas Operations Manager Management Server on a Windows host using the Veritas_Operations_Manager_CMS_4.0_Win.exe file.

To install Veritas Operations Manager Management Server on Windows

1 Make sure that the host where you plan to install Management Server meets or exceeds system and operating system requirements.
See “Choosing a Management Server host” on page 18.

2 On the host where you plan to install Management Server, log on as a user with administrator privileges.

3 Download and unzip the installation file.
See “Downloading Veritas Operations Manager 4.0” on page 13.

4 To launch the installer, run the Veritas_Operations_Manager_CMS_4.0_Win.exe file.

5 To install Management Server, click Install and follow through the installation process.

6 After the installation is complete, click Finish.
The Web browser is launched to configure Veritas Operations Manager.

7 Configure Veritas Operations Manager.
See “Configuring Veritas Operations Manager on UNIX and Windows” on page 34.

8 Verify that Management Server is installed and the required service is started.
See “Verifying Management Server installation on Windows” on page 33.
Verifying Management Server installation on UNIX

You can verify the Management Server installation by making sure that the packages are installed and the required processes are started.

To verify Management Server installation on UNIX

1. On the host where you installed Management Server, check whether the package is installed. Enter one of the following:
   - On a Linux host: `rpm -q VRTSsfmc`  
   - On a Solaris host: `pkginfo -l VRTSsfmc`

2. Check whether the `VRTSsfmh` package is installed. Enter one of the following:
   - On a Linux host: `rpm -q VRTSsfmh`  
   - On a Solaris host: `pkginfo -l VRTSsfmh`

3. Check whether the `xprtld` process is started. Enter the following:
   ```bash
   ps -ef | grep xprtld
   ```

4. Check whether the `vxdclid` process is started. Enter the following:
   ```bash
   ps -ef | grep vxdclid
   ```

See “Verifying the version of Veritas Operations Manager Management Server in the console” on page 52.

Verifying Management Server installation on Windows

You can verify the Management Server installation by making sure that the Veritas Operations Manager for Windows program is installed, and the Veritas Storage Foundation Messaging Service is started.

To verify Management Server installation on Windows

1. On the host where you installed host management, on the Windows Control Panel, click Add or Remove Programs.

2. Check whether Veritas Operations Manager for Windows appears in the list of installed programs.

3. On the Windows Services panel, check whether the Veritas Storage Foundation Messaging Service has started.

See “Verifying the version of Veritas Operations Manager Management Server in the console” on page 52.
Configuring Veritas Operations Manager on UNIX and Windows

When Management Server is successfully installed, messages similar to the following are displayed:

Installation is complete. You will need to configure Veritas Operations Manager.

Please open your browser and type the following URL to configure:

https://myhost.example.com:5634/

Use the URL displayed in the message to configure Veritas Operations Manager.

**Note:** You can configure the Veritas Operations Manager in either IPv4 mode or in the mixed mode (IPv4 and IPv6).

If you are installing Management Server on a Windows host, the Web browser is automatically launched with the URL to configure Veritas Operations Manager. For Internet Explorer 7.0 on Windows Server 2008, or Firefox 3.0, if the Web page does not get displayed, you have to set up the Web browser.

See “**Setting up Internet Explorer 7.0 and Firefox 3.0 for Veritas Operations Manager**” on page 36.

During the configuration, you are prompted to specify a location to store the Veritas Operations Manager database. You can accept the default location or specify your own.

**Note:** For Management Server configuration with IPv6 address, the localhost, 127.0.0.1, ::1 should be bound to a network interface (for example, lo0 on Solaris and Linux), and lo0 is up and running.

To **configure Veritas Operations Manager on UNIX and Windows**

1. Do the following tasks to launch the Web browser. If you are configuring Veritas Operations Manager on a Windows host, skip this step as the Web browser is automatically launched with the URL after the Management Server installation.
   - On a host that has a network connection to the Management Server host, open a Web browser.
   - In the Web browser's address field, type the following URL and press Enter:
https://hostname:5634/
where hostname is the Management Server’s host name, fully-qualified host name, or IP address. This is applicable for IPv4 mode. For dual mode (IPv4 and IPv6 mode) configuration, you can give only the host name. For example: https://myhost.example.com:5634/

For the dual mode of Management Server, the IPv6 address and the hostname entries of the managed hosts should be present in Management Server's /etc/hosts file. Also, all the managed hosts should have an entry of the IPv6 address and the host name of Management Server in their respective /etc/hosts file.

2 In the Authentication Required dialog, enter Management Server host’s root user name and password.

3 In the Server Setting page, check and modify the Server Name, if required.

4 Check and modify the Server Address, if required.

5 In the Database Setting page, check the default Database location and modify it, if required.

   The default database directory is /var/opt/VRTSsfms/db on UNIX, %ALLUSERSPROFILE%\Application Data\Symantec\VRTSsfms\db on Windows 2003, and %ALLUSERSPROFILE%\Symantec\VRTSsfms\db on Windows 2008/2008 R2.

6 Click Next.

7 In the Analytics Setting page, select Enable Analytics Gathering to allow Symantec to gather data on your Veritas Operations Manager usage.

8 Do one of the following:

   ■ To change settings, click Back

   ■ To start the configuration, click Finish.

   At the end of the Veritas Operations Manager configuration, messages similar to the following are displayed:

   Configuration successful

   Click the Launch Web Console button to login.

9 Click Launch Web Console to log on to Veritas Operations Manager on the configured Management Server host.

For Internet Explorer 7.0 on Windows Server 2008, or Firefox 3.0, if the Web page does not get displayed, you have to set up the Web browser.

See “Setting up Internet Explorer 7.0 and Firefox 3.0 for Veritas Operations Manager” on page 36.
Setting up Internet Explorer 7.0 and Firefox 3.0 for Veritas Operations Manager

If you use Internet Explorer 7.0 on Windows Server 2008, or Firefox 3.0, the web pages for configuring and launching Veritas Operations Manager are not displayed. You need to set up the Web browser to display the Web pages. For Internet Explorer 7.0 on Windows Server 2008, if the Web pages are not automatically displayed, add each Web site to the **Trusted Sites** list. On Firefox 3.0, if a security exception is displayed, add the exception to the Web browser to override how Firefox identifies the sites.

**To set up Internet Explorer 7.0 on Windows Server 2008 for Veritas Operations Manager**

1. In Internet Explorer, select **Tools > Internet Options**.
2. Select the **Security** tab.
3. Click **Sites** to add the following Web sites:
   - [https://hostname:5634/](https://hostname:5634/) — URL to configure Veritas Operations Manager
   - [https://hostname:14161/](https://hostname:14161/) — URL to launch Veritas Operations Manager
   where, *hostname* is the name of the Management Server host.

**To set up Firefox 3 for Veritas Operations Manager**

1. On the security exception page that is displayed when you attempt to open a Veritas Operations Manager Web page, click the **Or you can add an exception** link.
2. Click **Add Exception**.
   For Firefox 3.6.x, the users should first click the **I Understand the Risks** button before they click the **Add Exception** button.
3. In the **Add Security Exception** dialog, verify that the location is one of the following:
   - [https://hostname:5634/](https://hostname:5634/) — URL to configure Veritas Operations Manager
   - [https://hostname:14161/](https://hostname:14161/) — URL to launch Veritas Operations Manager
   where, *hostname* is the name of the Management Server host.
4. Click **Get Certificate**.
5. Select the **Permanently store this exception** check box.
6. Click **Confirm Security Exception**.
   The Web page is now displayed.
Installing Veritas Operations Manager host management

Three varieties of managed hosts are supported: a Storage Foundation 5.x managed host, a Storage Foundation 4.x managed host, or a Storage Foundation 3.5 managed host on HP-UX.

You must install the VRTSsfmh package on the host so you can manage it using Veritas Operations Manager Management Server. After you install the VRTSsfmh package on the host, you need to add the host to the Management Server domain. You can add the host using the Veritas Operations Manager console, or the gendeploy.pl script.

See the Veritas Operations Manager Administrator’s Guide for more information on adding hosts to a Management Server domain.

See “Installing host management on UNIX” on page 37.

See “Installing host management on Windows” on page 38.

Installing host management on UNIX

You can install Veritas Operations Manager host management on a UNIX host by installing the VRTSsfmh package on it.

**Note:** By default, the VRTSsfmh package is installed in the /opt directory. You cannot specify a different location to install the package.

To install Veritas Operations Manager host management on a UNIX host

1. Make sure that the host where you plan to install host management meets or exceeds system and operating system requirements.

   See “Choosing managed hosts” on page 19.

2. Download the managed host installation files bundle, and unzip it.

   See “Downloading Veritas Operations Manager 4.0” on page 13.

3. Open an operating system console.

4. On the host where you plan to install host management, log on as root.

5. Change directory to the location where you unzipped the installation files bundle.

   If the host is an AIX or an HP-UX host, decompress the downloaded file.

   See “Downloading managed host files” on page 14.
At the command prompt, enter one of the following commands to install the package:

- For AIX, enter the following:
  
  `installp -ac -d VRTSsfmh_4.0.xxx.0_AIX.bff VRTSsfmh`

  where, `xxx` is the build number for the release.

- For HP-UX, enter the following:
  
  `swinstall -s $PWD VRTSsfmh`

- For Linux on x86 or Xeon, enter the following:
  
  `rpm -ivh VRTSsfmh_4.0.xxx.0_Linux.rpm`

  where, `xxx` is the build number for the release.

- For Linux on PowerPC, enter the following:
  
  `rpm -ivh VRTSsfmh_4.0.xxx.0_Linux_arch_ppc64.rpm`

  where, `xxx` is the build number for the release.

- For Solaris on SPARC, enter the following:
  
  `pkgadd -d VRTSsfmh_4.0.xxx.0_SunOS_arch_sparc.pkg`

  where, `xxx` is the build number for the release.

- For Solaris on x86, enter the following:
  
  `pkgadd -d VRTSsfmh_4.0.xxx.0_SunOS_arch_i386.pkg`

  where, `xxx` is the build number for the release.

Verify that the `VRTSsfmh` package is installed and the required processes have started.

See “Verifying host management installation on UNIX” on page 40.

## Installing host management on Windows

You can install Veritas Operations Manager host management on a Windows host by running a `.msi` file on it.

### To install Veritas Operations Manager host management on a Windows host

1. Log on to the target host as a user with administrator privileges.
2. Download the managed host installation files bundle, and unzip it.
   See “Downloading Veritas Operations Manager 4.0” on page 13.
3. From the directory to which you unzipped the installation files bundle, do one of the following:
   - On a 32-bit host, run `VRTSsfmh_4.00.xxx_Windows_arch_x86.msi`
   - On a 64-bit host, run `VRTSsfmh_4.00.xxx_Windows_arch_x64.msi`
On a IA64 host, run `VRTSsfmh_4.00.0xxx_Windows_arch_IA64.msi`

where, `xxx` is the build number for the release.

See “Downloading managed host files” on page 14.

4. On the Welcome screen of the InstallShield Wizard, click **Next**.

5. On the Ready to Install the Program screen, click **Install** to start the installation.

6. Click **Finish** to exit the InstallShield Wizard.

7. Verify that the host management program is installed and the required service has started.

See “Verifying host management installation on Windows” on page 40.

---

**Installing Veritas Operations Manager host management through Solaris JumpStart**

You can install host management and add a managed host to the domain through Solaris JumpStart installation without any user interaction. You can use the `gendeploy.pl` script to create a script that adds the host to the Management Server domain. The script that is generated by `gendeploy.pl` can be included in the finalized stages of the Solaris JumpStart installation process.

The following are the highlights of installing Veritas Operations Manager host management as a part of the Solaris JumpStart installation:

- Use the `gendeploy.pl` script to create a script that adds the host to the Management Server domain.

- In the finalized stages of the Solaris JumpStart installation, run the script that is created through `gendeploy.pl`.

**To create the script to be used for adding the hosts in Solaris JumpStart installation**

1. Log on as root on Management Server.

2. Run `gendeploy.pl` to create the script file:

   ```bash
   /opt/VRTSsfmh/bin/gendeploy.pl --out scriptfilename
   ```

   where, `scriptfilename` is the name of the script file that has to be copied to the managed host, and then run to add the host to the Management Server domain.

See the *Veritas Operations Manager Administrator’s Guide* for more information on adding hosts to a Management Server domain.
Verifying host management installation on UNIX

You can verify host management installation on UNIX by making sure that the VRTSsfmh package is installed, and the required processes are started.

To verify host management installation on UNIX

1. On the host where you installed host management, enter one of the following at the command prompt to verify that the package is installed:
   - On AIX, enter the following:
     ```bash
     lslpp -l VRTSsfmh
     ```
   - On HP-UX, enter the following:
     ```bash
     swlist VRTSsfmh
     ```
   - On Linux, enter the following:
     ```bash
     rpm -q VRTSsfmh
     ```
   - On Solaris, enter the following:
     ```bash
     pkginfo -l VRTSsfmh
     ```

2. Check whether the `xprtld` process is started. Enter the following:
   ```bash
   # ps -ef | grep xprtld
   ```

3. Check whether the `vxdclid` process is started. Enter the following:
   ```bash
   # ps -ef | grep vxdclid
   ```

See “Verifying the version of a Veritas Operations Manager managed host in the console” on page 53.

Verifying host management installation on Windows

You can verify host management installation on Windows by making sure that the Veritas Operations Manager for Windows program is installed, and the SF Messaging Service is started.

To verify host management installation on Windows

1. On the host where you installed host management, on the Windows Control Panel, click **Add or Remove Programs**.

2. Check whether **Veritas Operations Manager (Host Component)** appears in the list of installed programs.

3. On the Windows Services panel, check whether the **Veritas Storage Foundation Messaging Service** has started.
Installing or upgrading Veritas Operations Manager Add-ons

Veritas Operations Manager Add-ons are independent optional feature packs that you can deploy on managed hosts. Add-ons are independent of each other, and they can be installed or uninstalled based on your business requirements.

Add-ons are installed on Management Server and are deployed from there on the managed hosts. Some add-ons are installed on Management Server during Management Server installation.

If you have upgraded to Veritas Operations Manager 4.0 from a previous version of Veritas Operations Manager, you may need to upgrade the add-ons. The previous version of the add-on may not be supported with Veritas Operations Manager 4.0.

For more information on the versions of the add-ons that are supported in Veritas Operations Manager 4.0, see the Veritas Operations Manager Administrator's Guide.

You can also download the latest available add-ons to Management Server from the following URL:

http://www.symantec.com/sfm_addons

For more information on deploying add-ons, see the Veritas Operations Manager Administrator's Guide.

Upgrading Management Server to Veritas Operations Manager 4.0

To upgrade your existing Management Server installation to Veritas Operations Manager 4.0, you have to download and install the required packages. You can upgrade to Veritas Operations Manager 4.0 from version 3.x.

**Note:** To upgrade to Veritas Operations Manager 4.0 from version 2.x, you need to upgrade first to version 3.x. Then, you can upgrade to version 4.0.

You can upgrade Management Server on Linux, Solaris, and Windows hosts.

See “Downloading Veritas Operations Manager 4.0” on page 13.

See “Upgrading Management Server on UNIX” on page 42.
Upgrading Management Server on UNIX

You can upgrade an existing Management Server on a Linux host or a Solaris host to Veritas Operations Manager 4.0 using a .bin file. When you run the .bin file, the installer first attempts to upgrade the Veritas Operations Manager database to a temporary location. If the database upgrade is successful, the remaining steps in the upgrade process are carried out. If the database upgrade fails, the previous version of Veritas Operations Manager is restored.

Before you upgrade Management Server, Symantec recommends that you take a backup of the Management Server data.

See “Back up Veritas Operations Manager data on UNIX” on page 44.

To upgrade Management Server to Veritas Operations Manager 4.0 on UNIX

1. Make sure that the host where you plan to upgrade Management Server meets or exceeds system and operating system requirements.

   See “Choosing a Management Server host” on page 18.

2. Download and unzip the installation file.

   See “Downloading Veritas Operations Manager 4.0” on page 13.

3. Open an operating system console.

4. On the host where you plan to upgrade Management Server, log on as root.

5. Change directory to the location where you unzipped the .bin file.

6. At the command prompt, enter one of the following:

   ■ On a Linux host:
     ```bash
     ./Veritas_Operations_Manager_CMS_4.0_Linux.bin
     ```

   ■ On a Solaris host:
     ```bash
     ./Veritas_Operations_Manager_CMS_4.0_SolSparc.bin
     ```

   If you see the error Permission Denied, change the permissions for the .bin file so that it can be run. Enter one of the following:

   ■ On a Linux host:
     ```bash
     chmod +x Veritas_Operations_Manager_CMS_4.0_Linux.bin
     ```

   ■ On a Solaris host:
     ```bash
     chmod +x Veritas_Operations_Manager_CMS_4.0_SolSparc.bin
     ```
7 Type y to confirm that you want to upgrade the previous version of Management Server.

The upgrade is complete when you see messages similar to the following:

Veritas Operations Manager is upgraded successfully.

8 To verify the upgrade, enter one of the following:

- On a Linux host:
  
  ```bash
  rpm -q VRTSsfmcs
  ```

- On a Solaris host:

  ```bash
  pkginfo -l VRTSsfmcs
  ```

Verify that the version for the `VRTSsfmcs` package is displayed as 4.0.

See “Verifying the version of Veritas Operations Manager Management Server in the console” on page 52.

Upgrading Management Server on Windows

You can upgrade an existing Management Server on a Windows host to Veritas Operations Manager 4.0 using the `Veritas_Operations_Manager_CMS_4.0_Win.exe` file. When you run the .exe file, the installer first attempts to upgrade the Veritas Operations Manager database to a temporary location. If the database upgrade is successful, the remaining steps in the upgrade process are carried out. If the database upgrade fails, the previous version of Veritas Operations Manager is restored.

Before you upgrade Management Server, Symantec recommends that you take a backup of the Management Server data.

See “Backing up Veritas Operations Manager data on Windows” on page 45.

To upgrade Management Server to Veritas Operations Manager 4.0 on Windows

1 Make sure that the host where you plan to upgrade Management Server meets or exceeds system and operating system requirements.

   See “Choosing a Management Server host” on page 18.

2 On the host where you plan to upgrade Management Server, log on as a user with administrator privileges.

3 Download and unzip the installation file.

   See “Downloading Veritas Operations Manager 4.0” on page 13.

4 To launch the installer, run the `Veritas_Operations_Manager_CMS_4.0_Win.exe` file.
5 In the message window that recommends that you back up data before the upgrade, do one of the following:

■ Click **Yes** to continue with the upgrade.
■ Click **No** to stop the upgrade. You can choose this option to stop the upgrade and back up data for the previous version of Veritas Operations Manager.

See “Backing up Veritas Operations Manager data on Windows” on page 45.

6 To upgrade Management Server, click **Upgrade**.

After the upgrade is complete, you will see the message **Upgrade Completed Successfully**.

7 Click **Finish** to close the installer.

8 To verify the upgrade, open the **Add or Remove Programs** panel.

9 To verify that the version has changed to 4.0, click the support information link under the **Veritas Operations Manager for Windows** program in the currently installed programs list.

See “Verifying the version of Veritas Operations Manager Management Server in the console” on page 52.

### Backing up Veritas Operations Manager data on UNIX

You can regularly back up the Veritas Operations Manager Management Server data to prevent data loss in the event of a failure. Veritas Operations Manager 4.0 provides a script that you can use to back up and restore data.

Before you upgrade Veritas Operations Manager Management Server, Symantec recommends that you back up the data. To take a backup of the existing configuration, you need to first extract a backup script, and then, run the backup script. The backup script can also be used to restore the backup. To restore the data using the backup script, the backup must be taken using the backup script for version 4.0.

On UNIX, the backup script can back up an existing Management Server in high-availability configuration. However, you cannot use the backup script to restore the high-availability configuration. This feature is currently not supported. To restore the backed up data, contact Symantec Technical Support.

**Note:** The backup script does not back up the data that is related to the add-ons.
You can use the .bin file that you downloaded for installing the version 4.0 Management Server to extract the backup script. You need to perform the extract step only once to obtain the backup script.

To extract the backup script, run the following command:

- **On Linux:**
  ```
  ./Veritas_Operations_Manager_CMS_4.0_Linux.bin --x-backup
  ```

- **On Solaris:**
  ```
  ./Veritas_Operations_Manager_CMS_4.0_SolSparc.bin --x-backup
  ```

The command extracts a Perl script named `vom_bkup.pl`.

To take the backup, run the extracted Perl script:

```
./vom_bkup.pl --backup dir
```

where, `dir` is the location that you specify for creating the backup. You can specify any location except `/var/opt/VRTSsfmh`, `/opt/VRTSsfmh`, `/var/opt/VRTSsfmcs`, or `/opt/VRTSsfmcs`.

See “Upgrading Management Server on UNIX” on page 42.

See “Restoring backed up Veritas Operations Manager data on UNIX” on page 46.

### Backing up Veritas Operations Manager data on Windows

You can regularly back up the Veritas Operations Manager Management Server data to prevent data loss in the event of a failure. Veritas Operations Manager 4.0 provides a script that you can use to back up and restore data.

Before you upgrade Veritas Operations Manager Management Server, Symantec recommends that you back up the data. To take a backup of the existing configuration, you need to first run the installation file that you downloaded to perform the upgrade to version 4.0. When you run the installation file, the backup script is copied to the `C:\Program Files\Veritas\VRTSsfmcs\config\adm\` folder. The backup script can also be used to restore the backup. To restore the data using the backup script, the backup must be taken using the backup script for version 4.0.

On Windows, the backup script cannot be used to back up an existing Management Server in high-availability configuration.

**Note:** The backup script does not back up the data that is related to the add-ons.
To back up Veritas Operations Manager on Windows

1. On the host where you plan to back up Management Server, log on as a user with administrator privileges.

2. To back up data before upgrading to Veritas Operations Manager 4.0, do the following:
   - Download and unzip the installation file.
     See “Downloading Veritas Operations Manager 4.0” on page 13.
   - To launch the installer, run the
     Veritas_Operations_Manager_CMS_4.0_Win.exe file.
   - In the message window that recommends that you back up data before the upgrade, click No to stop the upgrade.

3. To take the backup, run the following command at the command prompt:
   "C:\Program Files\Veritas\VRTSsfmh\bin\perl" ./vom_bkup.pl
   --backup "dir"
   
   where, dir is the location that you specify for creating the backup. Make sure that the location that you specify has adequate disk space to store the backup. You can specify any location except the following:
   - C:\Program Files\Veritas\VRTSsfmcs
   - C:\Program Files\Veritas\VRTSsfmh
   - C:\Documents and Settings\All Users\Application\Data\Symantec\VRTSsfmcs
   - C:\Documents and Settings\All Users\Application\Data\Symantec\VRTSsfmh

   See “Upgrading Management Server on Windows” on page 43.

   See “Restoring backed up Veritas Operations Manager data on Windows” on page 48.

Restoring backed up Veritas Operations Manager data on UNIX

After you have backed up the Veritas Operations Manager data, you can use vom_bkup.pl backup script to restore the data as and when required. You can also restore the data if the upgrade process fails after the packages are upgraded.
Note: You can restore a backup with the Veritas Operations Manager 4.0 backup script, only if the backup was taken using the same script. You cannot use the version 4.0 backup script to restore a backup that was taken using a script of an earlier version of Veritas Operations Manager.

Note: You cannot restore the data that you backed up on a UNIX-based Management Server in high-availability environment. This feature is currently not supported. To restore the backed up data, contact Symantec Technical Support.

You can restore the data to the same host on which the data was backed up, or to a different host. To restore the data to a different host, you need to do the following tasks on the new host before you perform the restore operation:

- Change the physical host name and the IP address to match that of the system that you backed up the data on.
- Install Veritas Operations Manager Management Server. The Veritas Operations Manager version should be the same as the version on the system that was used to back up the data.
- Configure Veritas Operations Manager using the same database directory.

Note: Since the backup script does not back up add-ons data, you need to install the required add-ons again after you restore the data.

To restore the Veritas Operations Manager data on UNIX

- Run the following command to restore the data:
  
  ```
  ./vom_bkup.pl --restore dir
  ```
  
  where, `dir` is the location that you specified for creating the backup.

See “Backing up Veritas Operations Manager data on UNIX” on page 44.

See “Installing Management Server on UNIX” on page 31.

See “Configuring Veritas Operations Manager on UNIX and Windows” on page 34.

See “Upgrading Management Server on UNIX” on page 42.
Restoring backed up Veritas Operations Manager data on Windows

After you have backed up the Veritas Operations Manager data, you can use `vom_bkup.pl` backup script to restore the data as and when required. You can also restore the data if the upgrade process fails after the packages are upgraded.

**Note:** You can restore a backup with the Veritas Operations Manager 4.0 backup script, only if the backup was taken using the same script. You cannot use the version 4.0 backup script to restore a backup that was taken using a script of an earlier version of Veritas Operations Manager.

You can restore the data to the same host on which the data was backed up, or to a different host. To restore the data to a different host, you need to do the following tasks on the new host before you perform the restore operation:

- Change the physical host name and the IP address to match that of the system that you backed up the data on.
- Install Veritas Operations Manager Management Server. The Veritas Operations Manager version should be the same as the version on the system that was used to back up the data.
- Configure Veritas Operations Manager using the same database directory.

**Note:** Since the backup script does not back up add-ons data, you need to install the required add-ons again after you restore the data.

To restore the Veritas Operations Manager data on Windows

- Run the following command to restore the data:

```
"C:\Program Files\Veritas\VRTSsfmh\bin\perl.exe" "C:\Program Files\Veritas\VRTSsfmcs\config\adm\vom_bkup.pl" --restore dir
```

where, `dir` is the location that you specified for creating the backup.

See “Back up Veritas Operations Manager data on Windows” on page 45.

See “Installing Management Server on Windows” on page 32.

See “Configuring Veritas Operations Manager on UNIX and Windows” on page 34.

See “Upgrading Management Server on Windows” on page 43.
Upgrading host management to Veritas Operations Manager 4.0

You can upgrade managed hosts in your Management Server domain to Veritas Operations Manager 4.0 to make them compatible with the 4.0 Management Server. You can upgrade both the UNIX-based and the Windows-based managed hosts. You can upgrade to Veritas Operations Manager 4.0 from the following:

- SF Manager 2.x managed host
- Veritas Operations Manager 3.0 managed host

**Note:** You must upgrade Management Server to 4.0 before you upgrade the managed hosts in its domain to 4.0.

You can do one of the following tasks to upgrade a managed host to Veritas Operations Manager 4.0:

- Upgrade the managed host using the **Settings > Deployment Management** tab in the Veritas Operations Manager console.
  
  See “Upgrading managed hosts using Veritas Operations Manager console” on page 49.
  
  For more information on deploying packages, see the Veritas Operations Manager Administrator’s Guide.

- Upgrade the managed host using operating system commands.
  
  See “Upgrading host management on UNIX using operating system commands” on page 50.
  
  See “Upgrading host management on Windows using operating system commands” on page 52.

Upgrading managed hosts using Veritas Operations Manager console

Users can upgrade multiple managed hosts (that is upgrading VRTSsfmh package on these hosts) using Veritas Operations Manager console. This is an efficient method to upgrade VRTSsfmh package remotely on these managed hosts (instead of upgrading VRTSsfmh package on these hosts individually). This section explains how to upgrade VRTSsfmh package on managed hosts using Veritas Operations Manager console. To upgrade the managed hosts, ensure that VRTSsfmh package is already uploaded to the repository. In the same context, note that if any hot fix (for VRTSsfmh package) is installed on the managed hosts, you need not remove that hot fix before upgrading the VRTSsfmh package. You can directly proceed with upgrading the VRTSsfmh package.
For more information on uploading packages to the repository, see the Veritas Operations Manager Administrator's Guide.

To upgrade managed hosts using Veritas Operations Manager

1 In the Veritas Operations Manager console, click Settings > Deployment Management.

2 In the Deployment Management view, select the package (VRTSsfmh package), and do one of the following:
   - Click Install.
   - Right-click the solution, and from the submenu select Install.

3 In the Install Solution panel, click Hosts option, and select the desired managed hosts. If you want to upgrade all managed hosts that use a specific platform, use the Platforms option.

4 Click Install.

5 Verify the managed host version in the console.

   See “Verifying the version of a Veritas Operations Manager managed host in the console” on page 53.

Upgrading host management on UNIX using operating system commands

You can upgrade an existing managed host on UNIX to Veritas Operations Manager 4.0 by upgrading the VRTSsfmh package on it.

To upgrade managed host to Veritas Operations Manager 4.0 on UNIX

1 Make sure that the host where you plan to upgrade host management meets or exceeds system and operating system requirements.

   See “Choosing managed hosts” on page 19.

2 Download the managed host installation files bundle, and unzip it.

   See “Downloading Veritas Operations Manager 4.0” on page 13.

3 Open an operating system console.

4 On the host where you plan to upgrade host management, log on as root.

5 Change directory to the location where you unzipped the installation files bundle.

   If the host is an AIX or an HP-UX host, decompress the downloaded file.

   See “Downloading managed host files” on page 14.
At the command prompt, enter one of the following commands to upgrade the package:

- For AIX, enter the following:
  ```bash
  installp -ad VRTSsfmh_4.0.xxx.0_AIX.bff VRTSsfmh
  ```
  where, `xxx` is the build number for the release.

- For HP-UX, enter the following:
  ```bash
  swinstall -s $PWD VRTSsfmh
  ```

- For Linux on x86 or Xeon, enter the following:
  ```bash
  rpm -U VRTSsfmh_4.0.xxx.0_Linux.rpm
  ```
  where, `xxx` is the build number for the release.

- For Linux on PowerPC, enter the following:
  ```bash
  rpm -U VRTSsfmh_4.0.xxx.0_Linux_arch_ppc64.rpm
  ```
  where, `xxx` is the build number for the release.

- For Solaris on SPARC, enter the following:
  ```bash
  pkgadd -d VRTSsfmh_4.0.xxx.0_SunOS_arch_sparc.pkg -a
  /opt/VRTSsfmh/etc/VRTSsfmhadmin VRTSsfmh
  ```
  where, `xxx` is the build number for the release.

- For Solaris on x86, enter the following:
  ```bash
  pkgadd -d VRTSsfmh_4.0.xxx.0_SunOS_arch_i386.pkg -a
  /opt/VRTSsfmh/etc/VRTSsfmhadmin VRTSsfmh
  ```
  where, `xxx` is the build number for the release.

To verify that the package has been upgraded and the version has changed to 4.0, enter one of the following at the command prompt:

- On AIX, enter the following:
  ```bash
  lslpp -l VRTSsfmh
  ```

- On HP-UX, enter the following:
  ```bash
  swlist VRTSsfmh
  ```

- On Linux, enter the following:
  ```bash
  rpm -q VRTSsfmh
  ```

- On Solaris, enter the following:
  ```bash
  pkginfo -l VRTSsfmh
  ```

See “Verifying the version of a Veritas Operations Manager managed host in the console” on page 53.
Upgrading host management on Windows using operating system commands

You can upgrade an existing managed host on Windows to Veritas Operations Manager 4.0 by upgrading the .msi package on it.

To upgrade managed host to Veritas Operations Manager 4.0 on Windows

1. Log on to the target host as a user with administrator privileges.
2. Download the managed host installation files bundle, and unzip it.

   See “Downloading Veritas Operations Manager 4.0” on page 13.

3. From the directory to which you unzipped the installation files bundle, do one of the following:
   - On a 32-bit host, run VRTSsfmh_4.00.0xxx_Windows_arch_x86.msi
   - On a 64-bit host, run VRTSsfmh_4.00.0xxx_Windows_arch_x64.msi
   - On a IA64 host, run VRTSsfmh_4.00.0xxx_Windows_arch_IA64.msi

   where, xxx is the build number for the release.

   See “Downloading managed host files” on page 14.

4. On the Welcome screen of the InstallShield Wizard, click Next.
5. On the Ready to Install the Program screen, click Install to start the upgrade.
6. Click Finish to exit the InstallShield Wizard.
7. To verify the upgrade, open the Add or Remove Programs panel.
8. To verify that the version has changed to 4.0, click the support information link under the Veritas Operations Manager for Windows (Host Component) program in the currently installed programs list.

   See “Verifying the version of a Veritas Operations Manager managed host in the console” on page 53.

Verifying the version of Veritas Operations Manager Management Server in the console

After you have installed or upgraded Management Server, you can verify its version in the Veritas Operations Manager console.
To verify the version of Management Server in the console

1. In the header, at the top of the Veritas Operations Manager console, click **About**.

   The Management Server version is displayed.

2. To close the window, click **OK**.

See “Verifying the version of a Veritas Operations Manager managed host in the console” on page 53.

---

Verifying the version of a Veritas Operations Manager managed host in the console

After you have installed or upgraded a managed host, you can verify its version in the Veritas Operations Manager console.

**To verify the version of a managed host in the console**

1. In the Veritas Operations Manager console, click **Settings > Host Management**.

2. In the **Host Management** view that is displayed, verify the managed host version in the **MH Version** column.

See “Verifying the version of Veritas Operations Manager Management Server in the console” on page 52.

---

Uninstalling Management Server on UNIX

You can uninstall Veritas Operations Manager Management Server by removing the **VRTSfmc** and **VRTSfms** packages from the Management Server host. When you uninstall Management Server, all data on managed hosts is also removed. If you reinstall Management Server on the host, you have to add the hosts again to the Management Server domain.

---

**Note:** You must remove the **VRTSfmc** package before you remove the **VRTSfms** package.

If the CommandCentral Storage Add-on is installed, you need to uninstall the add-on before you uninstall Management Server. If you uninstall Management Server without uninstalling the add-on, CommandCentral Storage processes continue to run on the host. If you reinstall Management Server and then try to
reinstall the CommandCentral Storage Add-on, installation of the add-on may fail.

For information about how to uninstall an add-on, see the Veritas Operations Manager Administrator's Guide.

To uninstall Veritas Operations Manager Management Server on UNIX

1. Open an operating system console.
2. On the Management Server host, log on as root.
3. Remove the VRTSsfmc package. Enter one of the following:
   - On a Linux host: `rpm -e VRTSsfmc`
   - On a Solaris host: `pkgrm VRTSsfmc`
4. Remove the VRTSsfmh package. Enter one of the following:
   - On a Linux host: `rpm -e VRTSsfmh`
   - On a Solaris host: `pkgrm VRTSsfmh`

Uninstalling Management Server on Windows

You can uninstall Veritas Operations Manager Management Server from a Windows host. When you uninstall Management Server, all data on managed hosts is also removed. If you reinstall Management Server on the host, you have to add the hosts again to the Management Server domain.

If the CommandCentral Storage Add-on is installed, you need to uninstall the add-on before you uninstall Management Server. If you uninstall Management Server without uninstalling the add-on, CommandCentral Storage processes continue to run on the host. If you reinstall Management Server and then try to reinstall the CommandCentral Storage Add-on, installation of the add-on may fail.

For information about how to uninstall an add-on, see the Veritas Operations Manager Administrator's Guide.

To uninstall Veritas Operations Manager Management Server on Windows

1. Log on to the target host as a user with administrator privileges.
2. On the Windows Control Panel, click Add or Remove Programs.
3. From the list of installed programs, select Veritas Operations Manager for Windows.
4. Click Remove.
5 In the dialog box, do one of the following:
- To confirm that you want to uninstall Management Server, click Yes.
- To exit without uninstalling Management Server, click No and skip step 6.

6 On the message window that indicates that the uninstall was successful, click OK.

Uninstalling host management on UNIX

You can use an operating system command to remove the VRTSsfmh package from a UNIX managed host. When you remove the package, Veritas Operations Manager host management is uninstalled from the managed host.

**Note:** Before you uninstall the host, remove it from the Management Server domain.

To uninstall Veritas Operations Manager host management on UNIX

1 Open an operating system console.

2 On the managed host where you plan to uninstall host management, log on as root.

3 At the command prompt, enter one of the following commands to uninstall the package:
- On AIX, enter the following:
  ```
  installp -u VRTSsfmh
  ```
- On HP-UX, enter the following:
  ```
  swremove VRTSsfmh
  ```
- On Linux, enter the following:
  ```
  rpm -e VRTSsfmh
  ```
- On Solaris, enter the following:
  ```
  pkgrm VRTSsfmh
  ```

Uninstalling host management on Windows

You can uninstall Veritas Operations Manager host management on a Windows managed host.
Before you uninstall the host, remove it from the Management Server domain.

To uninstall Veritas Operations Manager host management on Windows

1. Log on to the target host as a user with administrator privileges.
2. On the Windows Control Panel, click **Add or Remove Programs**.
3. From the list of installed programs, select **Veritas Operations Manager (Host Component)**.
4. Click **Remove**.
5. In the dialog box, do one of the following:
   - To confirm that you want to uninstall host management, click **Yes**.
   - To exit without uninstalling host management, click **No**.
Using Veritas Operations Manager in high availability environment

This chapter includes the following topics:

- About configuring Veritas Operations Manager in high availability environment
- Configuring a new Veritas Operations Manager installation in high availability environment
- Sample configuration: After you create the base service groups (SFM_Services and SFM_SStore)
- Sample configuration: After you configure Veritas Operations Manager in high availability environment
- Configuring an existing Veritas Operations Manager installation in high availability environment
- About configuring Veritas Operations Manager in high availability environment for disaster recovery
- Prerequisites for configuring Veritas Operations Manager in the high availability environment for disaster recovery
- Configuring Veritas Operations Manager in high availability environment for disaster recovery
- Sample configuration: After you configure Veritas Operations Manager in high availability environment for disaster recovery
About upgrading the high availability and the high availability for disaster recovery configurations to Veritas Operations Manager 4.0

- Removing the high availability configuration from Veritas Operations Manager

About configuring Veritas Operations Manager in high availability environment

Configuring Veritas Operations Manager in high availability environment (Veritas Operations Manager HA configuration) enhances the efficiency of Veritas Operations Manager as an operational tool for storage administrators. This configuration improves the availability of the applications and the services that Veritas Operations Manager provides.

**Note:** You can configure Veritas Operations Manager in high availability environment only in the failover mode.

For the Veritas Operations Manager HA configuration, you must use a two-node VCS cluster in which Storage Foundation HA 5.x is installed. Before you configure Veritas Operations Manager in high availability environment, you must ensure that Node1 that you configure as Management Server and Node2 that you add as managed host to Node1 are part of the same domain.

After you configure Veritas Operations Manager in high availability environment, you can enable the disaster recovery feature on the Veritas Operations Manager-HA set up.

See “Configuring a new Veritas Operations Manager installation in high availability environment” on page 59.

See “Configuring an existing Veritas Operations Manager installation in high availability environment” on page 70.

See “Removing the high availability configuration from Veritas Operations Manager” on page 89.

See “About upgrading the high availability and the high availability for disaster recovery configurations to Veritas Operations Manager 4.0” on page 89.
Configuring a new Veritas Operations Manager installation in high availability environment

You can configure Veritas Operations Manager in high availability environment immediately after the initial configuration of Management Server. In this method, you do not have to change the host name and IP address of the host.

**Note:** To avoid losing the data, do not use this method to configure high availability environment on an existing Management Server.

In Veritas Operations Manager, you can configure both UNIX and Windows Management Servers in the high availability environment.

**Note:** You can configure Windows Management Server with versions Windows 2008 (64-bit) and Windows 2008 R2 (64-bit) in the high availability environment.

Configuring Veritas Operations Manager in high availability environment without changing the host name and IP address of the host involves the following steps:

- Installing VCS cluster with Storage Foundation HA 5.x on Node1 and Node2 as part of preparing Management Server for high availability configuration.
- Installing Veritas Operations Manager Management Server bits on the hosts that you want to designate as Node1 and Node2.
- Creating the base service groups in VCS to ensure failover as part of preparing Management Server for high availability configuration.
- Configuring Veritas Operations Manager in the high availability environment.

As part of preparing Management Server for high availability configuration, you must create the following base service groups in VCS:

- SFM_SStore
- SFM_Services

**Note:** You must ensure that the SFM_SStore and the SFM_Services service groups are in the failover mode.

The following table displays the details of the resources that you can create on the SFM_SStore service group:
### Table 4-1 Resources on the SFM_SStore service group

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Resource type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFM_SStore_DG</td>
<td>Disk group</td>
<td>Disk group that is specified for the failover.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Note:</strong> For configuring Windows Management Server in the high availability environment, you must create the clustered disk group.</td>
</tr>
</tbody>
</table>

The following table displays the details of the resources that you can create on the SFM_Services service groups:

### Table 4-2 Resources on the SFM_Services service group

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Resource type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFM_Services_IP</td>
<td>IP</td>
<td>Virtual IP address, which you have configured along with the virtual host name. The IP resource type depends on the NIC resource type.</td>
</tr>
<tr>
<td>SFM_Services_NIC</td>
<td>NIC</td>
<td>Name of NIC. In the procedure in this topic, we use the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ eth0 as NIC for Linux Management Server.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ hme0 as NIC for Solaris Management Server.</td>
</tr>
</tbody>
</table>
Table 4-2  Resources on the SFM_Services service group (continued)

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Resource type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFM_Services_Mount</td>
<td>Mount</td>
<td>Mount point name of the File System that is specified for failover.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Complete path of the storage device that is specified for failover.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type of File System that is specified for failover. In Veritas Operations Manager, you can specify the VxFS File System only.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>File check option (fsckpt = -n or -y)</td>
</tr>
</tbody>
</table>

**Note:** The SFM_Services service group creates a link to the SFM_SStore service group.

The SFM_Services_IP resource creates a link to the SFM_Services_NIC resource.

In the following procedure, we use the following names for the hosts:

- Host name of Node1: My_host_1
- Host name of Node2: My_host_2
- Virtual host name: My_virtual-host

**Note:** Before you configure a new Veritas Operations Manager installation in high availability environment, you must install VCS cluster with Storage Foundation HA 5.x on the hosts that you want to designate as Node1 and Node2.
Note: You must create the SFM_Services_IP resource before you proceed with configuring Windows Management Server in the high availability environment. The SFM_Services_IP resource brings up the virtual host name and virtual IP address that you can use in configuring Windows Management Server in the high availability environment. After you get the virtual host name and the virtual IP address for Node1, you can proceed with configuring Windows Management Server on Node1. (To configure Veritas Operations Manager Management Server on Node1)

As a best practice, you can create all the base service groups in VCS to ensure failover before you proceed with configuring Windows Management Server on Node1 in the high availability environment. (To create the base service groups in VCS to ensure failover)

To bring up the virtual host name and the virtual IP address on Node1 (for UNIX Management Server only)

- To bring up the virtual host name and the virtual IP address on Node1 on which you have installed VCS cluster with Storage Foundation HA 5.x, execute the following command:
  - For the node on Linux:
    ```
    ifconfig eth0:0 My_host_1's virtual IP Address netmask subnet mask up
    ```
  - For the node on Solaris:
    ```
    ifconfig hme0:1 plumb
    ifconfig hme0:1 My_host_1's virtual IP Address netmask subnet mask up
    ```

To configure Veritas Operations Manager Management Server on Node1

1. On Node1 and Node2, install the Veritas Operations Manager Management Server bits.

2. To configure Node1 as Management Server in standalone mode, click the https://My_host_1:5634 URL that displays after you install the Management Server bits on Node1.

   where, My_host_1 is Node1’s host name. Alternatively, you can use the IP address of Node1.

   You must ensure that you have appropriate privileges to log in to this host.

3. In the first panel for configuring Veritas Operations Manager Management Server, do the following:
   - In the Server Name field, enter the virtual host name of Node1.
In the **Server Address** field, enter the virtual IP address of Node1.

4 In the second panel for configuring Veritas Operations Manager Management Server, specify the database location.

This field displays the default database path. If required, you can specify another database path in this field. If you specify a database path other than the default path that is displayed in the field, you must ensure the availability of enough database space.

When specifying a database path other than the default database path, you must not enter the clustered disk group path that you have created for the SFM_SStore_DG resource.

5 In the third panel for configuring Veritas Operations Manager Management Server, select the checkbox **Enable Analytics Gathering** and click **Start**.

6 In the next panel for configuring Veritas Operations Manager Management Server, view the status of the tasks that are performed as part of Veritas Operations Manager Management Server configuration and click the link that is displayed on the panel to log in to Management Server on Node1.

**To add Node2 as a managed host to the configured Management Server**

- Use the Veritas Operations Manager Web GUI to add Node2 (My_host_2) as a managed host to the configured Management Server. Make sure that the storage objects that are associated with Node2 are accessible after you add it as managed host.

**To create the base service groups in VCS to ensure failover**

- In VCS, create the following base service groups that are named as SFM_SStore and SFM_Services with the appropriate resource types. Also, link the base service groups and the resource types.

  To view the details of the resources that you can create on the SFM_SStore resource, refer to **Table 4-1**

  To view the details of the resources that you can create on the SFM_Services service group, refer to **Table 4-2**
To configure a new Veritas Operations Manager installation in high availability environment

1. To configure a new Veritas Operations Manager installation in high availability environment, open a Web browser, type the following URL in the Web browser’s address field, and press Enter:

   https://My_virtual-host:5634

   where, My_virtual-host is the virtual host name of Node1.

   You must ensure that you have appropriate privileges to log in to this host.

2. In the panel that displays the message that Click Next to configure CS as a Cluster Node, click Next.

3. In the next panel, which displays the steps that you must do to configure Management Server as a cluster node, click Start.

4. In the next panel, which displays the steps that you must do to configure Management Server in high availability environment, click Next.

5. In the next panel, which displays the details of the service group for the HA configuration for your review, click Next.

6. In the next panel, view the status of the tasks that are performed as part of Veritas Operations Manager HA configuration and do the following:

   - Click the link that is displayed on the panel to log in to Veritas Operations Manager that is configured in high availability environment.

   - Click Quit to quit the configuration dialog.

See “About configuring Veritas Operations Manager in high availability environment” on page 58.

See “Prerequisites for configuring Veritas Operations Manager in the high availability environment for disaster recovery” on page 78.

See “Configuring an existing Veritas Operations Manager installation in high availability environment” on page 70.

See “About upgrading the high availability and the high availability for disaster recovery configurations to Veritas Operations Manager 4.0” on page 89.

See “Removing the high availability configuration from Veritas Operations Manager” on page 89.
Sample configuration: After you create the base service groups (SFM_Services and SFM_SStore)

The following is an example of Veritas Operations Manager configuration after you create the base service groups (SFM_Services):

Note: The following example uses the names London for Node1 and Paris for Node2.

group SFM_SStore {
    SystemList = { London = 0, Paris = 1 }
    AutoStartList = { London, Paris }
}

DiskGroup SFM_SStore_DG {
    DiskGroup = hadg
}

// resource dependency tree
//
//    group SFM_SStore
//    {
//        DiskGroup SFM_SStore_DG
//    }

group SFM_Services {
    SystemList = { London = 0, Paris = 1 }
    AutoStartList = { London, Paris }
}

IP SFM_Services_IP {
    Device @London = eth0
    Device @Paris = eth0
    Address = "IP_Address"
    NetMask = "Netmask"
}

Mount SFM_Services_MOUNT {
    MountPoint = "/hafs"
    BlockDevice = "/dev/vx/dsk/hadg/havol"
    FSType = vxfs
Sample configuration: After you configure Veritas Operations Manager in high availability environment

The following is an example of Veritas Operations Manager configuration after you configure it in high availability environment:

Note: The following example uses the names London for Node1 and Paris for Node2.
DiskGroup SFM_SStore_DG {
    DiskGroup = hadg
}

// resource dependency tree
//
// group SFM_SStore
// {
//    DiskGroup SFM_SStore_DG
// }

group SFM_Services {
    SystemList = { London = 0, Paris = 1 }
    AutoStartList = { London, Paris }
}

Application SFM_Services_DB {
    User = root
    StartProgram = "/opt/VRTSsfmcs/config/vcs/db/online"
    StopProgram = "/opt/VRTSsfmcs/config/vcs/db/offline"
    MonitorProgram = "/opt/VRTSsfmcs/config/vcs/db/monitor"
}

Application SFM_Services_SECD {
    User = root
    StartProgram = "/opt/VRTSsfmcs/config/vcs/secd/online.sh"
    StopProgram = "/opt/VRTSsfmcs/config/vcs/secd/offline.sh"
    CleanProgram = "/opt/VRTSsfmcs/config/vcs/secd/clean.sh"
    MonitorProgram = "/opt/VRTSsfmcs/config/vcs/secd/monitor.sh"
}

Application SFM_Services_WEB {
    User = root
    StartProgram = "/opt/VRTSsfmcs/config/vcs/gui/online.sh"
    StopProgram = "/opt/VRTSsfmcs/config/vcs/gui/offline.sh"
    CleanProgram = "/opt/VRTSsfmcs/config/vcs/gui/clean.sh"
    MonitorProgram = "/opt/VRTSsfmcs/config/vcs/gui/monitor.sh"
}
Application SFM_Services_XPRTLDD {
    User = root
    StartProgram = "/opt/VRTSsfmc/config/vcs/xprtld_domain/online.sh"
    StopProgram = "/opt/VRTSsfmc/config/vcs/xprtld_domain/offline.sh"
    MonitorProgram = "/opt/VRTSsfmc/config/vcs/xprtld_domain/monitor.sh"
}

IP SFM_Services_IP {
    Device @London = eth0
    Device @Paris = eth0
    Address = "IP_Address"
    NetMask = "Netmask"
}

Mount SFM_Services_MOUNT {
    MountPoint = "/hafs"
    BlockDevice = "/dev/vx/dsk/hadg/havol"
    FSType = vxfs
    FsckOpt = "-n"
}

NIC SFM_Services_NIC {
    Device @London = eth0
    Device @Paris = eth0
}

requires group SFM_SStore online local hard
SFM_Services_DB requires SFM_Services_IP
SFM_Services_DB requires SFM_Services_MOUNT
SFM_Services_SECD requires SFM_Services_DB
SFM_Services_WEB requires SFM_Services_SECD
SFM_Services_XPRTLDD requires SFM_Services_DB
SFM_Services_IP requires SFM_Services_NIC

// resource dependency tree
//
// group SFM_Services
// {
//    Application SFM_Services_WEB
//    {
//        Application SFM_Services_SECD

Sample configuration: After you configure Veritas Operations Manager in high availability environment
Using Veritas Operations Manager in high availability environment

Sample configuration: After you configure Veritas Operations Manager in high availability environment

```java

// group SFM_Xprtld
//
// SystemList = { London = 0, Paris = 1 }
// Parallel = 1
// AutoStartList = { London, Paris }
//
Application SFM_Services_XPRTLDS {
  User = root
  StartProgram = "/opt/VRTSsfmcs/config/vcs/xprtld_standalone/online.sh"
  StopProgram = "/opt/VRTSsfmcs/config/vcs/xprtld_standalone/offline.sh"
  MonitorProgram = "/opt/VRTSsfmcs/config/vcs/xprtld_standalone/monitor.sh"
}

// resource dependency tree
//
// group SFM_Xprtld
//
```
Configuring an existing Veritas Operations Manager installation in high availability environment

In Veritas Operations Manager, you can configure the existing UNIX or Windows Management Servers in the high availability environment.

Configuring Veritas Operations Manager in high availability environment on an existing UNIX or Windows Management Server involves the following steps:

- Modifying the default host names and the IP addresses of the nodes.
- Installing VCS on the hosts that you want to designate as Node1 and Node2 as part of preparing an existing Management Server for high availability configuration. Node1 is the host on which Veritas Operations Manager Management Server is already installed.
- Configuring Veritas Operations Manager on Node1 in standalone mode as part of preparing an existing Management Server for high availability configuration.
- Installing Veritas Operations Manager Management Server on Node2 as part of preparing an existing Management Server for high availability configuration. You must not configure Veritas Operations Manager on Node2.
- Creating the base service groups in VCS to ensure failover.
- Configuring the existing Veritas Operations Manager installation in the high availability environment.

As part of preparing Veritas Operations Manager Management Server for high availability configuration, you must create the following base service groups in VCS:

- SFM_SStore
- SFM_Services

Note: You must ensure that the SFM_SStore and the SFM_Services service groups are in the failover mode.

The following table displays the details of the resources that you can create on the SFM_SStore service groups:
**Table 4-3** Resources on the SFM_SStore service group

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Resource type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFM_SStore_DG</td>
<td>Disk group</td>
<td>Disk group that is specified for the failover.</td>
</tr>
</tbody>
</table>

The following table displays the details of the resources that you can create on the SFM_Services service groups:

**Table 4-4** Resources on the SFM_Services service group

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Resource type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFM_Services_IP</td>
<td>IP</td>
<td>Virtual IP address, which you have configured along with the virtual host name. The IP resource type depends on the NIC resource type.</td>
</tr>
<tr>
<td>SFM_Services_NIC</td>
<td>NIC</td>
<td>Name of NIC.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>In the procedure in this topic, we use the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ eth0 as NIC for Linux Management Server.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ hme0 as NIC for Solaris Management Server.</td>
</tr>
<tr>
<td>SFM_Services_Mount</td>
<td>Mount</td>
<td>Mount point name of the File System that is specified for failover.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Complete path of the storage device that is specified for failover.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type of File System that is specified for failover.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>File check option (fsckpt = -n or -y)</td>
</tr>
</tbody>
</table>

After you log in to the Veritas Operations Manager that is configured in high availability environment, in the **Host** view, you can view the list of hosts in the Veritas Operations Manager HA setup. In this list of hosts, the active node is specified as follows:

**Hostname[active]**
**Note:** In the following procedure, we use eth0 as NIC for Linux Management Server. For Solaris Management Server, we use hme0 as NIC.

In the following procedure, we use the following host names:

<table>
<thead>
<tr>
<th>Host name of Node1</th>
<th>My_host_1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host name of Node2</td>
<td>My_host_2</td>
</tr>
<tr>
<td>Virtual host name</td>
<td>My_virtual_host</td>
</tr>
</tbody>
</table>

**Note:** Before you configure an existing Veritas Operations Manager installation in high availability environment, you must install VCS cluster with Storage Foundation HA 5.x on the hosts that you want to designate as Node1 and Node2.

**To modify the default IP address of Node1 (for Windows Management Server)**

1. On the Windows 2008 or the Windows 2008R2 server, navigate to the window that displays the active network adapters. Right-click the active network adapter. From the submenu, select **Properties**.

2. In the **Local Area Connection Properties** dialog box, select the **Networking** tab. In the **This connection uses the following items** field, select the option **Internet Protocol Version 4 (TCP/IPv4)**. Ensure that the check box on the left-side of the **Internet Protocol Version 4 (TCP/IPv4)** option is selected.

3. At the bottom of the **This connection uses the following items** field, click **Properties**.

4. In the **Internet Protocol Version 4 (TCP/IPv4) Properties** dialog box, ensure that the **Use the following IP address** option is selected. In the **IP address** field, replace the original IP address of Node1 with the virtual IP address that you want to use for configuring Veritas Operations Manager in high availability environment.

5. In the **Internet Protocol Version 4 (TCP/IPv4) Properties** dialog box, click **Advanced**.

6. In the **Advanced TCP/IP Settings** dialog box, select the **IP Settings** tab. Inside the **IP address** field, click **Add**.

7. In the **TCP/IP Address** dialog box, enter the virtual IP address that you have assigned to Node1 and click **Add**.
8 In the **TCP/IP Address** dialog box, in the **IP address** field, move the virtual IP address to the top of the list and click **OK**.

9 In the **Internet Protocol Version 4 (TCP/IPv4) Properties** dialog box, click **OK**

**To modify the default host name of Node1 (for Windows Management Server)**

1 On the desktop of the Windows 2008 or the Windows 2008R2 server, right-click **My Computer**. From the submenu, select **Properties**.

2 In the **System** window, on the left-side, click the link **Advanced System Settings**.

3 In the **System Properties** dialog box, select the tab **Computer Name** and click **Change**.

4 In the dialog box, enter the virtual host name for Node1 and enter the credentials for the domain to which the virtual host name is associated.

The virtual host name and the original host name of Node1 belong to the same domain.

5 Restart the computer.

**To modify the default host name and the IP address of Node1 (for UNIX Management Server)**

1 To change the original host name of Node1 (**My_host_1**) to virtual host name (**My_virtual_host**), execute the **hostname virtual_hostname** command. For example, use **hostname My_virtual_host**

This procedure demonstrates an example of changing the default host name and IP address.

2 To bring up the virtual host name and the virtual IP address on Node1 on which you have installed VCS cluster with Storage Foundation HA 5.x, execute the following command:

- For the node on Linux:
  ```
  ifconfig eth0:0 My_host_1's virtual IP Address netmask subnet mask up
  ```

- For the node on Solaris:
  ```
  ifconfig hme0:1 plumb
  ifconfig hme0:1 My_host_1's virtual IP Address netmask subnet mask up
  ```
To modify the default host names and the IP addresses in the files (for both UNIX and Windows Management Servers)

1  Execute the following commands to change the host name and the IP address of Node1 to virtual host name and virtual IP address in the following files:

   On Linux Management Server, use the following commands:

   vi /etc/sysconfig/network
   
   vi /etc/sysconfig/network-scripts/ifconfig-eth0
   
   On Solaris Management Server, use the following commands:

   vi /etc/nodename
   vi /etc/hostname.hme0
   vi /etc/inet/hosts

2  To stop all the VCS processes, execute the following command on both the nodes:

   /opt/VRTSvcs/bin/hastop -all

   On Windows Management Server, do the following

   ■ Select Start > Run. In the Run dialog box, type services.msc.
   ■ In the Services window, stop the Veritas high availability engine service.

   You must perform this task on both Node1 and Node2.
3 To change all occurrences of the original host names (My_host_1) to the virtual host names (My_virtual_host) in the following files of Node1, execute the commands that are mentioned against each file:

```
vi /etc/llttab
vi /etc/llthosts
vi /etc/VRTSvcs/conf/sysname
vi /etc/VRTSvcs/conf/config/main.cf
```

On Windows Management Server, modify the required entries in the following files from the locations that are mentioned against each of them:

```
llttab.txt  C:\Program Files\Veritas\comms\ltt\llttab.txt
llthosts.txt C:\Program Files\Veritas\comms\ltt\llthosts.txt
sysname C:\Program Files\Veritas\cluster server\conf
main.cf C:\Program Files\Veritas\cluster server\conf\config\main.cf
```

4 Log in to Node2. To change all occurrences of Node1 host names to the virtual host names in the following files, execute the commands that are mentioned against each file:

```
vi /etc/llthosts
vi /etc/VRTSvcs/conf/config/main.cf
```

On Windows Management Server, modify the required entries in the following files from the locations that are mentioned against each of them:

```
llthosts.txt C:\Program Files\Veritas\comms\ltt\llthosts.txt
main.cf C:\Program Files\Veritas\cluster server\conf\config\main.cf
```

5 To start the VCS processes, execute the following command on both the nodes:

```
/opt/VRTSvcs/bin/hastart
```
On Windows Management Server, do the following
■ Select Start > Run. In the Run dialog box, type services.msc.
■ In the Services window, start the Veritas high availability engine service.
You must perform this task on both Node1 and Node2.

6 Restart Node1 or execute the following command:

```
service network restart
```

7 Log in to Node1 using the virtual host name (My_virtual_host).

To prepare an existing Management Server for high availability configuration

1 On Node1, configure Veritas Operations Manager Management Server in non-HA mode.

2 On Node2, install Veritas Operations Manager Management Server without configuring it.

3 To Node1 on which you have configured the Veritas Operations Manager Management Server in non-high availability mode, add Node2 as a managed host. You can use the Veritas Operations Manager Web GUI to add Node2 as managed host to Node1. Make sure that the storage objects that are associated with Node2 are accessible after you add it as managed host to Node1.

To create the base service groups in VCS to ensure failover

- In VCS, create the base service groups that are named as SFM_SStore and SFM_Services with the appropriate resource types. Also, link the base service groups and the resource types.

To view the details of the resources that you can create on the SFM_SStore service group, refer to Table 4-3

To view the details of the resources that you can create on the SFM_Services service group, refer to Table 4-4

To configure an existing Veritas Operations Manager installation in high availability environment

1 To configure an existing Veritas Operations Manager installation in high availability environment, open a Web browser, type the following URL in the Web browser’s address field, and press Enter:

```
https://My_virtual-host:5634
```

where, My_virtual-host is the virtual host name of Node1.

You must ensure that you have appropriate privileges to log in to this host.

2 In the panel that displays the message that Click Next to configure CS as a Cluster Node, click Next.
3 In the next panel, which displays the steps that you must do to configure Management Server as a cluster node, click **Start**.

4 In the next panel, which displays the steps that you must do to configure Management Server in high availability environment, click **Next**.

5 In the next panel, which displays the details of the service group for the HA configuration for your review, click **Next**.

6 In the next panel, view the status of the tasks that are performed as part of Veritas Operations Manager HA configuration and do the following:

   ■ Click the link that is displayed on the dialog to log in to Veritas Operations Manager that is configured in high availability environment.

   ■ Click **Quit** to quit the configuration dialog.

See “About configuring Veritas Operations Manager in high availability environment” on page 58.

See “Prerequisites for configuring Veritas Operations Manager in the high availability environment for disaster recovery” on page 78.

See “Configuring a new Veritas Operations Manager installation in high availability environment” on page 59.

See “About upgrading the high availability and the high availability for disaster recovery configurations to Veritas Operations Manager 4.0” on page 89.

See “Removing the high availability configuration from Veritas Operations Manager” on page 89.

---

**About configuring Veritas Operations Manager in high availability environment for disaster recovery**

On Veritas Operations Manager that is configured in high availability environment, you can configure the disaster recovery feature. In your globally distributed datacenter, the Veritas Operations Manager HA set up that is enabled with disaster recovery enhances the failover support.

Before you configure the disaster recovery feature on an Veritas Operations Manager-HA set up, you must create the following two base service groups as part of the Veritas Operations Manager-HA configuration:

■ **SFM_Services**

■ **SFM_SStore**

You must replicate the Veritas Operations Manager database and the Veritas Operations Manager domain-wide information that is stored in the shared storage...
Prerequisites for configuring Veritas Operations Manager in the high availability environment for disaster recovery

Before you configure Veritas Operations Manager in the high availability environment, ensure the following:

- Storage Foundation and VCS are installed on both the nodes on which you want to configure Veritas Operations Manager in the high availability environment.
- Veritas Operations Manager Management Server bits are installed on both the nodes.
- Both the nodes on which you want to configure Veritas Operations Manager in the high availability environment must report synchronized Universal Time Clock (UTC/UC) time.
- You must specify the database location. You can either use the default database location /var/opt/VTRSsfmcs/db or specify another location. If you specify the location other than the default database location, you must make sure that it is not part of the shared file system that is used for failover. Later, the Veritas Operations Manager HA script moves the database to the shared file system.
- If you do not use DNS Agent, you must add the host names to the /etc/hosts file.
- Global Cluster Option (GCO) is enabled in VCS in Site A and Site B.
- Veritas Volume Replicator (VVR) is configured in Site A and Site B.
- The SFM_Services and the SFM_SStore base service groups that are created on Site A and Site B are the same. The SFM_Services base service group must be configured as Global Service group between the two clusters.
- Volumes in Site A and Site B are not to be part of replication.
- On Site A and Site B, on both the domains, use the same virtual host name.
- Use different virtual IP addresses for GCO IP, SFM_Services_IP, and SFM_SStore_IP.
In configuring Veritas Operations Manager in high availability environment for disaster recovery, you configure a Veritas Operations Manager HA setup in a remote site along with the Veritas Operations Manager HA setup in your local site and make them act as two nodes. Configuring Veritas Operations Manager in high availability environment for disaster recovery helps you enhance the failover support.

This topic considers the local Veritas Operations Manager-HA setup as Site A and the remote Veritas Operations Manager- HA setup as Site B.

You can use the SFM_Services and the SFM_SSStore service groups to configure the disaster recovery feature on Veritas Operations Manager that is configured in high availability environment. You must create the SFM_SSStore and the SFM_Services service groups on both Site A and Site B.

The following table displays the details of the resources that you can create on the SFM_SSStore service group to configure the disaster recovery feature on Veritas Operations Manager that is configured in high availability environment:

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Resource type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFM_SSStore_DG</td>
<td>Disk group</td>
<td>Disk group that is specified for the failover.</td>
</tr>
</tbody>
</table>

**Note:** For configuring Windows Management Server in the high availability environment, you must create the clustered disk group.
Table 4-5  
Resources on the SFM_SStore service group (continued)

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Resource type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFM_SStore_IP</td>
<td>IP</td>
<td>Virtual IP, which is used to configure Node1 in Site A.</td>
</tr>
<tr>
<td>SFM_SStore_NIC</td>
<td>NIC</td>
<td>Resource that is created on an interface on which original IP address and virtual IP address are configured.</td>
</tr>
<tr>
<td>SFM_SStore_RVG</td>
<td>RVG</td>
<td>Replicated volume group (RVG) that is configured for replication of volumes, which is subset of the disk group that is used to failover.</td>
</tr>
</tbody>
</table>

The following table displays the details of the resources that you can create on the SFM_Services service group to configure the disaster recovery feature on Veritas Operations Manager that is configured in high availability environment:

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Resource type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFM_SServices_IP</td>
<td>IP</td>
<td>Virtual IP address, which you have configured along with the virtual host name. The IP resource type depends on the NIC resource type.</td>
</tr>
<tr>
<td>SFM_SServices_NIC</td>
<td>NIC</td>
<td>Name of NIC. In the procedure in this topic, we use the following:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ eth0 as NIC for Linux Management Server.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ hme0 as NIC for Solaris Management Server.</td>
</tr>
</tbody>
</table>
Table 4-6 Resources on the SFM_Services service group (continued)

<table>
<thead>
<tr>
<th>Resource Name</th>
<th>Resource type</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SFM_Services_Mount</td>
<td>Mount</td>
<td>Mount point name of the File System that is specified for failover. Complete path of the storage device that is specified for failover. Type of File System that is specified for failover. In Veritas Operations Manager, you can specify the VxFS File System only. File check option (fsckpt = -n or -y)</td>
</tr>
<tr>
<td>SFM_Services_RVGPrimary</td>
<td>RVG Primary</td>
<td>Contains the RVG resource name that is to be used for replication.</td>
</tr>
</tbody>
</table>

**Note:** You need to create the SFM_SStore_RVG resource and the SFM_SStore_NIC resource manually. The SFM_SStore_RVG resource creates a link to the SFM_SStore_IP and the SFM_SStore_DG resources. The SFM_SStore_IP resource creates a link to the SFM_SStore_NIC resource.

The SFM_Services_Mount resource creates a link to the SFM_Services_RVGPrimary resource.

**Note:** Before you enable the disaster recovery feature on a Veritas Operations Manager-HA setup, which is configured on an existing Veritas Operations Manager installation, you must ensure that the virtual host name that is used on all domains in Site A and Site B are the same.

**Note:** Before you configure a Veritas Operations Manager-HA-DR setup, you must install VCS cluster with Storage Foundation HA 5.x on the hosts that you want to designate as Node1 and Node2 in Site A and Node3 and Node4 in Site B. Also, Node1 in Site A and Node3 in Site B are considered as primary nodes.

**Note:** You must configure SFM_Services as Global Cluster Option (GCO).
To configure Veritas Operations Manager in high availability environment for disaster recovery

1. Install the Veritas Operations Manager Management Server bits on the nodes Node1 and Node2 in Site A and Node3 and Node4 in Site B.

2. On Node1, configure Veritas Operations Manager Management Server in high availability environment using the virtual host and virtual IP.

3. Add Node2 in Site A and Node3 and Node4 in Site B as managed host to Veritas Operations Manager Management Server.

4. Add the virtual host name and the virtual IP addresses of Node1 in the /etc/hosts file of Node3. Similarly, add the virtual host name and the virtual IP addresses of Node3 in the /etc/hosts file of Node1.

To create the base service groups in VCS to ensure failover

- In VCS, create the following base service groups that are named as SFM_SStore and SFM_Services with the appropriate resource types. Also, link the base service groups and the resource types.

  To view the details of the resources that you can create on the SFM_SStore service group, refer to Table 4-5

  To view the details of the resources that you can create on the SFM_Services service group, refer to Table 4-6

  On Site B, ensure that the SFM_Services_NIC resource is online. You can make the other resources on Site B offline. Also, you must configure SFM_Services as Global Cluster Option (GCO).

To enable Veritas Operations Manager HA-DR configuration

- Run the following script on Site A to configure Site B as part of the Veritas Operations Manager HA-DR configuration:

  opt/VRTSsfmh/bin/xprt1c
  -u vxss://Virtual hostname of Site A:14545/sfm_admin/sfm_domain/vx\n  -d debug=1 \n  -d setup=1 \n  -d mh=site B Node_1,site B Node_2 \n  -l https://Virtual hostname of Site A:5634/admin/cgi-bin/cs_hadr_config.pl

See “About configuring Veritas Operations Manager in high availability environment for disaster recovery” on page 77.

See “About upgrading the high availability and the high availability for disaster recovery configurations to Veritas Operations Manager 4.0” on page 89.
Sample configuration: After you configure Veritas Operations Manager in high availability environment for disaster recovery

The following is an example of Veritas Operations Manager configuration after you configure it in high availability environment for disaster recovery:

```plaintext
include "types.cf"
include "VVRTypes.cf"

cluster USA_gco_cluster {
    UserNames = { admin = IppJ }
    ClusterAddress = "IP_Address"
    Administrators = { admin }
    HacliUserLevel = COMMANDROOT
}

cluster India_gco_cluster {
    ClusterAddress = "IP_Address"
}

heartbeat Icmp {
    ClusterList = { rhel5_cmsha }
    Arguments @rhel5_cmsha = { "IP_Address" }
}

system Chicago {
}

system Washington {
}

group ClusterService {
    SystemList = { Chicago = 0, Washington = 1 }
    AutoStartList = { Chicago, Washington }
    OnlineRetryLimit = 3
    OnlineRetryInterval = 120
}

Application wac {
    StartProgram = "/opt/VRTSvcs/bin/wacstart"
    StopProgram = "/opt/VRTSvcs/bin/wacstop"
}
MonitorProcesses = { "/opt/VRTSvcs/bin/wac" }
RestartLimit = 3
)

IP gcoip (
    Device @Chicago = eth0
    Device @Washington = eth2
    Address = "IP_Address"
    NetMask = "Netmask"
)

NIC csgnic (
    Device @Chicago = eth0
    Device @Washington = eth2
)

gcoip requires csgnic
wac requires gcoip

// resource dependency tree
//
//    group ClusterService
//    {
//      Application wac
//      {
//        IP gcoip
//        {
//          NIC csgnic
//        }
//      }
//    }
//

group SFM_SStore (
    SystemList = { Washington = 0, Chicago = 1 }
    AutoStartList = { Washington }
)

DiskGroup SFM_SStore_DG (
    Critical = 0
    DiskGroup = hadg
)
Sample configuration: After you configure Veritas Operations Manager in high availability environment for disaster recovery

```plaintext
IP SFM_SStore_IP (  
    Critical = 0  
    Device @Washington = eth2  
    Device @Chicago = eth0  
    Address = "IP_Address"
)

Proxy SFM_SStore_PROXY (  
    TargetResName = csgnic
)

RVG SFM_SStore_RVG (  
    RVG = rvg  
    DiskGroup = hadg
)

SFM_SStore_IP requires SFM_SStore_PROXY  
SFM_SStore_RVG requires SFM_SStore_DG  
SFM_SStore_RVG requires SFM_SStore_IP

// resource dependency tree
//
// group SFM_SStore
// {
//    RVG SFM_SStore_RVG
//    {
//        DiskGroup SFM_SStore_DG
//        IP SFM_SStore_IP
//        {
//            Proxy SFM_SStore_PROXY
//        }
//    }
//}
//

group SFM_Services (  
    SystemList = { Washington = 0, Chicago = 1 }  
    ClusterList = { suse_cmsha_dr = 0, rhel5_cmsha = 1 }  
    Authority = 1  
    AutoStartList = { Washington }  
    ClusterFailOverPolicy = Auto
```
Using Veritas Operations Manager in high availability environment

Sample configuration: After you configure Veritas Operations Manager in high availability environment for disaster recovery

```java

Application SFM_Services_DB {
    User = root
    StartProgram = "/opt/VRTSsfmc/config/vcs/db/online"
    StopProgram = "/opt/VRTSsfmc/config/vcs/db/offline"
    MonitorProgram = "/opt/VRTSsfmc/config/vcs/db/monitor"
}

Application SFM_Services_SECD {
    User = root
    StartProgram = "/opt/VRTSsfmc/config/vcs/secd/online.sh"
    StopProgram = "/opt/VRTSsfmc/config/vcs/secd/offline.sh"
    CleanProgram = "/opt/VRTSsfmc/config/vcs/secd/clean.sh"
    MonitorProgram = "/opt/VRTSsfmc/config/vcs/secd/monitor.sh"
}

Application SFM_Services_WEB {
    User = root
    StartProgram = "/opt/VRTSsfmc/config/vcs/gui/online.sh"
    StopProgram = "/opt/VRTSsfmc/config/vcs/gui/offline.sh"
    CleanProgram = "/opt/VRTSsfmc/config/vcs/gui/clean.sh"
    MonitorProgram = "/opt/VRTSsfmc/config/vcs/gui/monitor.sh"
}

Application SFM_Services_XPRTLDD {
    User = root
    StartProgram = "/opt/VRTSsfmc/config/vcs/xprtld_domain/online.sh"
    StopProgram = "/opt/VRTSsfmc/config/vcs/xprtld_domain/offline.sh"
    MonitorProgram = "/opt/VRTSsfmc/config/vcs/xprtld_domain/monitor.sh"
}

IP SFM_Services_IP {
    Critical = 0
    Device @Washington = eth2
    Device @Chicago = eth0
    Address = "$IP_Address"
}

Mount SFM_Services_Mount {
    Critical = 0
    MountPoint = "/hafs"
    BlockDevice = "/dev/vx/dsk/hadg/havol"
}
```
Using Veritas Operations Manager in high availability environment

Sample configuration: After you configure Veritas Operations Manager in high availability environment for disaster recovery

```plaintext
FSType = vxfs
FsckOpt = "-y"

NIC SFM_Services_NIC (
    Critical = 0
    Device @Washington = eth2
    Device @Chicago = eth0
)

RVGPrimary SFM_Services_RVGPRIMARY (
    RvgResourceName = rvg
)

requires group SFM_SStore online local hard
SFM_Services_DB requires SFM_Services_IP
SFM_Services_DB requires SFM_Services_Mount
SFM_Services_IP requires SFM_Services_NIC
SFM_Services_Mount requires SFM_Services_RVGPRIMARY
SFM_Services_SECD requires SFM_Services_DB
SFM_Services_WEB requires SFM_Services_SECD
SFM_Services_XPRTLDD requires SFM_Services_DB

// resource dependency tree
//
//   group SFM_Services
//   {
//     Application SFM_Services_WEB
//     {
//       Application SFM_Services_SECD
//       {
//         Application SFM_Services_DB
//         {
//           IP SFM_Services_IP
//           {
//             NIC SFM_Services_NIC
//             {
//               Mount SFM_Services_Mount
//               {
//                 RVGPrimary SFM_Services_RVGPRIMARY
//               }
//             }
//           }
//         }
//       }
//     }
//   }
```
group SFM_Xprtld {
    SystemList = { Washington = 0, Chicago = 1 }  
    Parallel = 1  
    AutoStartList = { Washington, Chicago }  
}

Application SFM_Services_XPRTLDS {  
    User = root  
    StartProgram = "/optVRTSsfms/config/vcs/xprtld_standalone/online.sh"  
    StopProgram = "/optVRTSsfms/config/vcs/xprtld_standalone/offline.sh"  
    MonitorProgram = "/optVRTSsfms/config/vcs/xprtld_standalone/monitor.sh"  
}

// resource dependency tree
//
//    group SFM_Xprtld
//        {
//            Application SFM_Services_XPRTLDS
//        }

See “Sample configuration: After you configure Veritas Operations Manager in high availability environment” on page 66.
About upgrading the high availability and the high availability for disaster recovery configurations to Veritas Operations Manager 4.0

You can upgrade a Veritas Operations Manager 3.x Management Server that is configured in the high availability (HA) environment or in the high availability for disaster recovery (HA-DR) environment to Veritas Operations Manager 4.0 Management Server. For this upgrade, you must use the VRTSsfmc.bin file for Veritas Operations Manager 4.0 Management Server. After the upgrade, you can use the HA or the HA-DR environments on the upgraded Veritas Operations Manager 4.0 Management server.

See “About configuring Veritas Operations Manager in high availability environment” on page 58.

See “Configuring a new Veritas Operations Manager installation in high availability environment” on page 59.

See “Configuring an existing Veritas Operations Manager installation in high availability environment” on page 70.

See “Configuring Veritas Operations Manager in high availability environment for disaster recovery” on page 79.

Removing the high availability configuration from Veritas Operations Manager

To remove the high availability configuration from Veritas Operations Manager, you need to run the https://hostname:5634 URL.

Note: In Veritas Operations Manager 4.0, you cannot remove the Veritas Operations Manager HA-DR environment that is configured in the remote site.

In the following procedure, we use the following host names:

Name of the Management Server host that is configured in a high availability environment
To remove the high availability configuration from Veritas Operations Manager

1. Open an Internet browser, paste the following URL, and press Enter
   
   https://My_Virtual-host_1:5634

   where, My_Virtual-host_1 is the name of the Management Server host that is configured in a high availability environment.

2. In the configuration dialog, select **Reconfigure as a NON HA CMS** and click Next.

3. In the panel that lists the tasks that are to be performed to remove the Veritas Operations Manager HA configuration, click Rollover.

   You must perform the rollover task on the Node1 when you remove the high availability configuration from Veritas Operations Manager.

   After the Rollover task, you remove the high availability configuration from Veritas Operations Manager and move back to standalone mode.

   After you perform the Rollover task, you do the following:

   - On Node1 and Node2, remove the sfm_ha directory from the mount location of the file system.
   - On Node2, remove the VRTSsfmc.pre_clus from the location var/opt/.VRTSsfmc.pre_clus/

4. In the next dialog, view the status of the tasks that are performed as part of removing the Veritas Operations Manager HA configuration and do the following:

   - Click the link that is displayed on the panel to log in to Veritas Operations Manager from which the HA configuration is removed.
   - Click **Quit** to quit the configuration dialog.

See “About configuring Veritas Operations Manager in high availability environment” on page 58.

See “Configuring an existing Veritas Operations Manager installation in high availability environment” on page 70.
B
backing up Veritas Operations Manager
  on UNIX 44
  on Windows 45
browsers 27

C
centralized management
  Storage Foundation and High Availability 4.x
    and 5.x 17
  Storage Foundation and High Availability 5.x 17
configuring
  Management Server 34
configuring Veritas Operations Manager in HA environment 70
configuring Veritas Operations Manager in high availability environment for disaster recovery prerequisites 78
configuring web browsers
  Firefox 3.0 36
  Internet Explorer 7.0 36

D
deploying
  Veritas Operations Manager 16
domains
  multiple 27

F
Firefox 3.0 36
firewalls
  ports 27

G
gendeploy.pl 39

I
installation resources
  Veritas Operations Manager 16

installing
  managed host 37
    UNIX 37
    Windows 38
  Management Server 30
    UNIX 31
    Windows 32
  Internet Explorer 7.0 36
  Intranet zone security level 27

J
JavaScript 27
JScript 27

M
managed host
  installing 37
    UNIX 37
    Windows 38
  package 30
  types 12
uninstalling
  UNIX 55
  Windows 55
upgrading 49
  UNIX 50
  Windows 52
verifying installation
  UNIX 40
  Windows 40
verifying version using the console 53
Management Server
  configuring 34
  installing 30
    UNIX 31
    Windows 32
  package 30
  uninstalling
    UNIX 53
    Windows 54
Management Server (continued)
  upgrading
    UNIX 42
    Windows 43
  upgrading to Veritas Operations Manager 4.0 41
  verifying installation
    UNIX 33
    Windows 33
  verifying version using the console 52

N
  network requirements 27
  new Veritas Operations Manager installation in high availability environment
    configuring 59

P
  pop-up blockers 27
  ports
    firewalls 27

R
  removing Veritas Operations Manager HA configuration 89
  resolv.conf 27
  resources
    installation
      Veritas Operations Manager 16
  restoring Veritas Operations Manager
    on UNIX 46
    on Windows 48

S
  security level 27
  SFM_HA setup
    configure disaster recovery 77
  Solaris JumpStart installation 39
  standalone management
    defined 13
    SF 4x and 5.x 18

T
  TCP 27
  toolbars 27

U
  UC 16

UDP 27
  uninstalling
    managed host
      UNIX 55
      Windows 55
    Management Server
      UNIX 53
      Windows 54
  upgrade
    disaster recovery 89
    HA 89
    HA-DR 89
    high availability 89
    managed host 49
  upgrading
    managed host 49
      UNIX 50
      Windows 52
    Management Server
      UNIX 42
      Windows 43
    Management Server to Veritas Operations Manager 4.0 41
    Veritas Operations Manager Add-ons 41
  UTC 16

V
  VEA
    deployment
      standalone management 18
  verifying
    managed host installation
      UNIX 40
      Windows 40
    managed host version using the console 53
  Management Server installation
    UNIX 33
    Windows 33
  Management Server version using the console 52
  Veritas Enterprise Administrator. See VEA
  Veritas Operations Manager
    about 11
    backing up
      on UNIX 44
      on Windows 45
    choosing managed hosts 19
    choosing Management Server hosts 18
    choosing Web console hosts 27
Veritas Operations Manager (continued)
  configuring
    Management Server 34
  deployment
    centralized management 17
  deployment configurations 16
  downloading 13
    managed host files 14
    Management Server files 14
  installation resources 16
  installing
    managed host on UNIX 37
    managed host on Windows 38
    Management Server on UNIX 31
    Management Server on Windows 32
  managed host component 12
  Management Server component 12
  packages 30
  restoring
    on UNIX 46
    on Windows 48
  uninstalling
    managed host on UNIX 55
    managed host on Windows 55
    Management Server on UNIX 53
    Management Server on Windows 54
  upgrading
    managed host on UNIX 50
    managed host on Windows 52
    Management Server on UNIX 42
    Management Server on Windows 43
  URL 13
    Web server component 12
  Veritas Operations Manager Add-ons
    downloading 41
    installing 41
    upgrading 41
  Veritas Operations Manager HA configuration
    configuring 70
    removing 89
  Veritas Operations Manager HA mode
    configure 58
  Veritas Operations Manager in HA environment
    configuring 70
  Veritas Operations Manager in high availability environment
    configure 58
    disaster recovery 77
Veritas Operations Manager in high availability environment for disaster recovery
    configuring 79
  Veritas_Operations_Manager_CMS_4.0_Linux.bin 14, 31, 42
  Veritas_Operations_Manager_CMS_4.0_SolSparc.bin 14, 31, 42
  Veritas_Operations_Manager_CMS_4.0_Win.exe 14, 32, 43
  VRTSsfmcs package 30
  VRTSsfmh package 30, 37, 50
  VRTSsfmh_4.00.0xxx_Windows_arch_IA64.msi 38, 52
  VRTSsfmh_4.00.0xxx_Windows_arch_x64.msi 38, 52
  VRTSsfmh_4.00.0xxx_Windows_arch_x86.msi 38, 52

W
  Web browsers 27
  Web console 27
  Web server
    overview 12