

Veritas FlashSnap™ Agent for Symmetrix Installation Guide

Solaris

5.0

Veritas FlashSnap Agent for Symmetrix Installation Guide

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Veritas FlashSnap™ Agent 5.0 for Symmetrix

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Installing and Configuring Veritas FlashSnap Agent for Symmetrix

This guide provides information on installing and configuring the Veritas FlashSnap Agent for Symmetrix (VxFAS). VxFAS includes the following product packages:

- Veritas FlashSnap Agent for Symmetrix
- Veritas Cluster Server Agents for Veritas FlashSnap Agent for Symmetrix

For more information on installing the Cluster Server agents, see the Veritas Cluster Server Agents for Veritas FlashSnap Agent for Symmetrix Installation and Configuration Guide. Topics in this guide include:

- [Getting help](#)
- [Symantec product licensing](#)
- [Symantec License Inventory Agent](#)
- [Preinstallation instructions](#)
- [Installing FlashSnap Agent for Symmetrix](#)
- [Installing language packages](#)
- [Upgrading to VxFAS 5.0](#)
- [Unconfiguring VxFAS](#)
- [Coexisting with Storage Foundation for Databases](#)
- [Uninstalling VxFAS software](#)

- [Verifying VxFAS installation](#)
- [Using VxFAS](#)

Getting help

For technical assistance, visit <http://support.veritas.com> and select phone or email support. Use the Knowledge Base search feature to access resources such as TechNotes, product alerts, software downloads, hardware compatibility lists, and our customer email notification service.

Diagnostic tools are also available to assist in troubleshooting problems associated with the product. These tools are available on disc or can be downloaded from the Veritas FTP site. See the `README.VRTSspt` file in the `/support` directory for details.

For information on purchasing product documentation, visit <http://webstore.veritas.com>.

Unique message number

If you encounter a product error message, record the unique message number preceding the text of the message. When contacting Symantec Technical Support, either by telephone or by visiting the Technical Support website, be sure to provide the relevant message number. Technical Support will use this message number to quickly determine if there are TechNotes or other information available for you.

A unique message number is an alpha-numeric string beginning with the letter “V”. For example, in the message number:

```
V-3-20750: cannot perform log replay
```

the “V” indicates that this is a Veritas product error message. The text of the error message follows the unique message number.

Symantec product licensing

This product includes a License Key certificate. The certificate specifies the product keys and the number of product licenses purchased. A single key lets you install the product on the number and type of systems for which you purchased the license. A key may enable the operation of more products than are specified on the certificate; however, you are legally limited to the number of product licenses purchased.

The product installation procedure (“[Installing FlashSnap Agent for Symmetrix](#)” on page 12) includes instructions on how to activate the key. If you encounter problems while licensing this product, visit the licensing support website at:

<http://www.veritas.com/buy/vLicense/vLicenseHome.jhtml>

The VRTSvlic package enables product licensing. After the VRTSvlic is installed, the following commands and their manual pages are available on the system:

- vxlicinst Installs a license key for a Symantec product
- vxlicrep Displays currently installed licenses
- vxlictest Retrieves features and their descriptions encoded in a license key

Even though other products are included on the enclosed software discs, you can only install the Symantec software products for which you have purchased a license.

Symantec License Inventory Agent

The Symantec License Inventory Agent is installed or upgraded by the Symantec product installer when you install a product. If you want to use the agent with the Symantec License Inventory Manager, see “[Configuring the Symantec License Inventory Agent](#)” on page 35 for more information.

Preinstallation instructions

For information on how to install the other Symantec products included with the FlashSnap Agent for Symmetrix, see the respective product installation guides. You can install VxFAS using the Veritas product installer, using the `installsf` script, or using the `pkgadd` command. Follow the installation procedure for Veritas Volume Manager (VxVM) and Veritas File System (VxFS) as described in the *Storage Foundation Installation Guide*.

Note: Only users with superuser privileges can install the Symantec products.

Installation tasks

To install the FlashSnap Agent for Symmetrix:

- 1 Obtain a license key.
- 2 Review preinstallation requirements and make any necessary modifications.
- 3 Install or upgrade the FlashSnap Agent for Symmetrix.
- 4 Initialize the FlashSnap Agent for Symmetrix.

If a previous version of any Symantec product is installed, see “[Upgrading to VxFAS 5.0](#)” on page 26.

VxFAS packages

The Symantec software disc contains the following FlashSnap Agent for Symmetrix packages:

- `VRTSfas`—Veritas FlashSnap Agent for Symmetrix
- `VRTSfasag`—Veritas Cluster Server Agents for Veritas FlashSnap Agent for Symmetrix
- `VRTSfasdc`—Veritas FlashSnap Agent for Symmetrix Documentation

See *Veritas FlashSnap Agent for Symmetrix Release Notes* for information about the documentation package.

VxFAS prerequisites

Veritas FlashSnap Agent for Symmetrix 5.0 requires:

- Veritas Volume Manager (VxVM) 5.0.
- Veritas File System (VxFS) 5.0.
- Veritas Cluster Server (VCS) 5.0. VCS is required for VxFAS recovery support in a high availability environment.
- Veritas Array Providers (`VRTSvail`) Version 4.4.x.x .
- Solaris 8, or Solaris 9 32-bit or 64-bit operating system.
- Symmetrix Command Line Interface (SYMCLI), EMC Solutions Enabler kit V5.2 or above.
- Symmetrix disk array firmware 5x66 or above.
- EMC PowerPath V3.0 or above. If a PowerPath version prior to 3.0 is installed, upgrade to the current version.
- A SYMCLI license is required to perform TimeFinder operations.
- Ensure that there are enough semaphores configured on your system; one semaphore is required for VxFAS operations.
- Confirm that your system has enough free disk space to install VxFAS. Use the “Precheck” option of the product installer to determine whether there is sufficient space. The following table shows the approximate disk space used by VxFAS for the required and optional packages:

Table 1-1 Approximate disk space used by VxFAS (in kilobytes)

	<code>/ (root)</code>	<code>/opt</code>	<code>/usr</code>	<code>/var</code>
Required Packages	100	15000	3000	50

Table 1-1 Approximate disk space used by VxFAS (in kilobytes)

	/ (root)	/opt	/usr	/var
Optional Packages	2200	2000	0	100

The VxVM, VxFS, VCS packages and the Veritas array providers package are part of the Veritas Storage Foundation, and must be installed before installing VxFAS packages. See the *Storage Foundation Installation Guide* for more information.

Installing FlashSnap Agent for Symmetrix

The following sections describe how to install VxFAS using the `pkgadd` command, using the Veritas installation utility, and by invoking the installation script from the command line.

Note: The `VRTSvail` package should be installed before you install any VxFAS packages. See the installation guide for Veritas Storage Foundation for information on installing the `VRTSvail` package.

Installing VxFAS using the `pkgadd` command

Symantec product packages are compressed using GNU compression utilities before writing them to distribution media. Symantec provides the `gunzip` utility on the Symantec software discs so that you can decompress the packages before installing VxFAS using the `pkgadd` command.

The commands used to install these utilities are in the `/sbin` and `/usr/sbin` directories. Add these directories to your `PATH` environment variable. For example, if you are using a Bourne Shell (`sh`) use the command:

```
# PATH=/sbin:/usr/sbin:$PATH
# export PATH
```

If you are using a Korn Shell (`ksh`), use the command:

```
# export PATH=/sbin:/usr/sbin:$PATH
```

If you are using a C shell (`csh` or `tcsh`) use the command:

```
% setenv PATH /sbin:/usr/sbin:${PATH}
```

- 1 After mounting the Symantec software disc that contains the VxFAS packages, move to a directory on your system and copy the compressed VxFAS packages from the `storage_foundation/pkgs` directory:

```
# cp -r
/cdrom/cdrom0/storage_foundation/pkgs/VRTSfas.tar.gz .
```

```
# cp -r
/cdrom/cdrom0/storage_foundation/pkgs/VRTSfasag.tar.gz .
# cp -r
/cdrom/cdrom0/storage_foundation/pkgs/VRTSfasdc.tar.gz .
```

2 Uncompress the compressed packages:

```
#
/cdrom/cdrom0/storage_foundation/scripts/install/gunzip *.gz
```

3 Extract each archived package that you want to install:

```
# tar xv package_name.tar
```

- 4 To install `VRTSfas` using `pkgadd`, install the license package and the Veritas FlashSnap Agent for Symmetrix packages in the order shown.

```
# pkgadd -d . VRTSvlic VRTSfas
```

Follow the instructions displayed the screen.

- Answer **yes** when `pkgadd` prompts about installing the conflicting file `/usr/lib/libarray.so`. The original file is restored when VxFAS is uninstalled.
- Answer **configure** to the following prompt if you want to use VxFAS:
Do you want to Configure/Unconfigure/Skip VxFAS configuration for system host1 [c,u,s] (s) [?] c
- Answer **yes** to the following prompt if you want to use VxFAS rules:
Do you want to enable optional EMC configuration rules (y,n)?

- 5 Configuration makes VxFAS registry entries in the VEA Registry file, installs the real `libarray`, and adds the Symmetrix provider under `StorageAgent` and removes it from `VAILAgent`. Restart `StorageAgent` after configuration completes by issuing the following commands:

```
/opt/VRTSobc/pal33/bin/vxpalctrl -a StorageAgent  
-c restart
```

- 6 Symbolic links to the VxFAS commands and the online manual pages are installed in the `/opt/VRTS/bin` directory and the `/opt/VRTS/man` directory, respectively. Be sure to add the command directory to the end of your `PATH` environment variable, and the manual page directory to your `MANPATH` environment variable.
- 7 You can now install the `VRTSfasag` package if you have the Veritas Cluster Server installed and you want the VxFAS operation recovery support in your VCS environment.

```
# pkgadd -d . VRTSfasag
```

- 8 Install the `VRTSfasdc` package if you want the documentation for VxFAS available locally on your system.

```
# pkgadd -d . VRTSfasdc
```

- 9 Before using VxFAS, you must enter a license key. Enter the license installation command:

```
# vxlicinst
```

- 10 The system responds with a prompt for the license key. Enter a valid key as shown in the following example:

```
VERITAS License Manager vxlicinst utility version  
3.02.001  
Copyright (C) VERITAS Software Corp 2003. All Rights reserved.
```

Please enter your key: **ABCD-EFGH-IJKL-MNOP-QRS-TU**

License key installed successfully for VERITAS Storage
Foundation Enterprise HA

- 11** If you are installing VxFAS on a host where Storage Foundation for Databases is installed and you are using the deep mapping feature, see [“Coexisting with Storage Foundation for Databases”](#) on page 29 for instructions to ensure coexistence.

Veritas installation utility

Veritas products distributed by Symantec have an automated installation and licensing procedure that lets you install packages using the product installer, or invoke installation scripts from the command line. Alternatively, you can install VxFAS using the `pkgadd` command.

Loading the software from CD

To prepare to install

- 1 Log in as superuser.
- 2 Place the Symantec software disc into a CD-ROM drive connected to your system.

Note: Products are listed on the disc label. VxFAS is part of the Storage Foundation product.

- 3 If Solaris volume management software is running on your system, the CD automatically mounts as `/cdrom/cdrom0`.
- 4 If Solaris volume management software is not available to mount the CD, you must mount it manually. After inserting the CD, enter:

```
# mount -F hsfs -o ro /dev/dsk/c0t6d0s2 /cdrom
```

where `c0t6d0s2` is the default address for the CD-ROM drive.

Installing VxFAS using the Veritas product installer

To start the product installer, move to the `cdrom0` directory and enter the `installer` command:

```
# cd /cdrom/cdrom0
# ./installer
```

The installer guides you through the procedure. The steps are similar to those described under “[Installing VxFAS using the installs script](#)” below.

Note: To function correctly, VxFAS requires that SYMCLI be installed. If SYMCLI is not installed on the host, the VxFAS packages will not be installed by the product installer. To install the VxFAS packages, first install the SYMCLI software from EMC, then run the product installer to install VxFAS packages again.

If you are installing VxFAS on a host where Storage Foundation for Databases is installed and you are using the deep mapping feature, see “[Coexisting with Storage Foundation for Databases](#)” on page 29 for instructions to ensure coexistence.

Installing VxFAS using the installs script

To install `VRTSfas` using `installsf`

- 1 Move to the `storage_foundation` directory:

```
# cd /cdrom/cdrom0/storage_foundation
```

- 2 Run the Storage Foundation installation script:

```
# ./installsf
```

```
Veritas Storage Foundation 5.0 Installation Program
```

```
Copyright (c) 2006 Symantec Corporation. All rights reserved. Use of this
```

```
product is subject to license terms. Federal Acquisitions: Commercial Software . Government Users Subject to Standard License Terms and Conditions.
```

```
.  
. .  
.
```

- 3 The installation program prompts for a system name. Enter one or more system names, separated by a space, on which to install Storage Foundation. For example, `host1`:

```
Enter the system names separated by spaces on which to
```

```
install SF: host1  
.  
.  
.
```

4 The system responds with a prompt for the license key. Enter a valid key as shown in the following example:

```
SF Licensing Verification:  
Checking SF license key on host1 ..... not  
licensed  
Enter a SF license key for  
host1:[?] 9999-9999-9999-9999-9999-99  
Registering Storage Foundation Enterprise HA SITE key on  
host1  
Do you want to enter another license key for host1?  
[y,n,q,?] (n)  
SF licensing completed successfully.  
Press [Return] to continue:
```

5 Next you can install the optional packages:

SF can be installed without optional packages to conserve disk space.

- 1) Required Veritas Storage Foundation packages-961 MB required
 - 2) All Veritas Storage Foundation packages-1192 MB required
- Select the packages to be installed on all systems? [1-2,q,?]
(2) 2

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```
installsf will install the following SF packages:  
VRTSvlic      Veritas Licensing  
VRTSperl     Veritas Perl 5.8.6 Redistribution  
VRTSicsco    Symantec Common Infrastructure  
VRTSspbx     Symantec Private Branch Exchange  
VRTSat       Symantec Product Authentication Service  
VRTSobc33    Veritas Enterprise Administrator Core Service  
VRTSob       Veritas Enterprise Administrator Service  
VRTSobgui    Veritas Enterprise Administrator  
VRTSccg      Veritas Enterprise Administrator Central Control  
Grid  
VRTSmh       Veritas Centralized Management for Storage  
Foundations - Managed Host  
VRTSaa       Veritas Enterprise Administrator Action Agent  
VRTSspt      Veritas Software Support Tools  
VRTSvxvm     Veritas Manager Binaries  
VRTSdsa     Veritas Datacenter Storage Agent  
VRTSfspro    Veritas File System Management Services Provider  
VRTSvmman    Veritas Volume Manager Manual Pages  
VRTSvmdoc    Veritas Volume Manager Documentation  
VRTSdcli     Veritas Distributed Command Line Interface
```

VRTSalloc Veritas Volume Manager Intelligent Storage Provisioning

Press [Return] to continue:

...continued:

VRTSvmpro Veritas Volume Manager Management Services Provider
 VRTSvsvc Veritas Volume Server and Client Provider
 VRTSvdid Veritas Device Identification API
 VRTSddlpr Veritas Device Discovery Layer Services Provider
 VRTSvrpro Veritas Volume Replicator Client Extension and Provider for
 Veritas Enterprise Administrator
 VRTSvcsvr Veritas Cluster Server Agents for VVR
 VRTSjre Veritas Java Runtime Environment Redistribution
 VRTSjre15 Veritas Java Runtime Environment Redistribution
 VRTSweb Veritas Java Web Server
 VRTSvrw Veritas Volume Replicator Web Console
 VRTSvrdoc Veritas Volume Replicator Documentation
 VRTSvxfs Veritas File System
 VRTSfsman Veritas File System Manual Pages
 VRTSfsdoc Veritas File System Documentation
 VRTSfssdk Veritas File System Software Developer Kit
 VRTSfsmnd Veritas File System Software Developer Kit Manual Pages
 VRTSllt Veritas Low Latency Transport
 VRTSgab Veritas Group Membership and Atomic Broadcast
 VRTSvxfen Veritas I/O Fencing
 VRTSvcs Veritas Cluster Server

Press [Return] to continue:

...continued:

VRTSvcsmsg Veritas Cluster Server Message Catalogs
 VRTSvcsag Veritas Cluster Server Bundled Agents
 VRTSvcsmn Veritas Cluster Server Man Pages
 VRTSvcsdc Veritas Cluster Server Documentation
 VRTScutil Veritas Cluster Utilities
 VRTScscw Veritas Cluster Server Configuration Wizards
 VRTScscm Veritas Cluster Server Cluster Manager
 VRTScssim Veritas Cluster Server Simulator
 VRTSacclib Veritas ACC Library
 VRTScmcs Veritas Cluster Management Console (Single Cluster Mode)
 VRTScmccc Veritas Cluster Management Console Cluster Connector
 VRTSvail Veritas Array Integration Layer
 VRTSfas Veritas FlashSnap Agent for Symmetrix
 VRTSfasag Veritas Cluster Server Agents for Veritas FlashSnap Agent for Symmetrix
 VRTSfasdc Veritas FlashSnap Agent for Symmetrix Documentation
 VRTScpi VERITAS Cross Product Installation Framework

Press [Return] to continue:

Note: VRTSfasag is an optional package.

- 6 The program checks the system and Storage Foundation installation requirements, asks whether you want to do configuration after installation, and installs the packages. Answer yes to the following prompt if you want to use VxFAS:

```
Checking for any AP driver issues
..... None

It is possible to install SF packages without performing
configuration.

It is optional to configure SF now. If you choose to configure
SF later, you
can either do so manually or run the installsf -configure
command.

Are you ready to configure SF? [y,n,q] (y) y

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Installing SF: .....
```

- 7 The program asks whether you want to configure VxFAS and whether you want to enable optional EMC configuration rules. Volume Manager has rules and guidelines to ensure that it works with intelligent storage hardware in an EMC Symmetrix environment. Most of the rules apply to Volume Manager tasks, such as creating a disk group, adding disks to a disk group, and allocating storage for a volume. If rules are enabled, warnings display when configurations with objects that cannot be administered by VxFAS are encountered, or there are potential incompatibilities between objects, or there is a possibility of performance loss. For more information, see the *Veritas FlashSnap Agent for Symmetrix Administrator's Guide*:

```
Do you want to Configure/Unconfigure/Skip VxFAS configuration
for system host1 [c,u,s] (s) [?] c
Answer configure if you want to use VxFAS (default is skip). Configuration
makes VxFAS registry entries in the VEA Registry file, installs the real
libarray, and adds the Symmetrix provider under StorageAgent and
removes it from VAILAgent.
```

```
Do you want to enable optional VxFAS EMC configuration rules?
[y,n,q,?] (y) y
Answer yes if you want to use the EMC configuration rules.
```

8 The program asks whether you want to install as a stand alone host or a centrally managed host. Specify **y or **n**:**

```
    Querying fully qualified domain name of host "host1"  
    ..... ok
```

```
Is the fully qualified hostname of system "host1" =  
"host1.vxindia.veritas.com"? [y,n,q] (y) y
```

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This product can configured one of the two following ways:

- * Storage Foundation Management Server managed host
(Recommended)

- * Standalone host

Pre-requisites for Storage Foundation Management Server managed host:

- * A Storage Foundation Management Server (SFMS) is configured
- * SFMS should be currently running and fully operational.
- * Authentication Broker that is used by SFMS should be running.

The following information would be requested during configuration:

- * The host name of the SFMS
- * Previously set SFMS agent account password

There are no pre-requisites for deploying as a standalone host.

Enabling Storage Foundation Management Server management simplifies and improves management of the complex data center resources, reducing planned and unplanned down time.

```
Enable Storage Foundation Management Server Management? [y,n,q]  
(y)
```

```
Enter the Central Management Server hostname, or 'QUIT' to quit  
install.
```

```
Enter Central Management server hostname: [?] host2
```

```
    Querying fully qualified domain name of host "host2"  
    ..... ok
```

```
Is the fully qualified hostname of system "host2" =
```

```
"host2.vxindia.veritas.com"? [y,n,q] (y) y
```

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Register Management Agent:

Centrally managed hosts and the Central Management Server (SFMS) communicate using a pre-created SFMS agent account, `vea_agent`. This account was created as part of the SFMS installation.

Enter the 'vea_agent' password, or 'QUIT' to quit install.

```
Verifying 'vea_agent' password  
..... ok
```

```
Contacting Central Management Server at host2  
..... ok
```

```
Configure VEA in MANAGED mode on host1  
..... ok
```

```
Configuring gridnode on host1  
..... ok
```

```
Registering gridnode on host1  
..... ok
```

```
Stopping gridnode on host1  
..... ok
```

```
Registering StorageAgent on host1  
..... ok
```

```
Configuring gridnode on host1  
..... ok
```

```
Stopping gridnode on host1  
..... ok
```

Adding VxFAS provider to Enterprise Administrator Service registry file...

Adding VxFAS provider client extension entries...

Adding VxFAS provider message catalog entries...

Installing real libarray

Enabling symrule.

Configuring Symmetrix provider.

```
VxFAS provider configuration and installation complete.  
To use VxFAS, you must start the Veritas StorageAgent.  
If Storage Foundations for Databases is installed, and you want  
to use Deep mapping, see Veritas Array Configuration Guide for  
reconfiguring Symmetrix provider under StorageAgent.  
Do you want to start Veritas Storage Foundation processes now?  
[y,n,q] (y) y
```

9 The program displays the following summary after completing the installation:

```
Restoring the VxVM configuration on host1; you cannot reset the  
default disk group.
```

```
Installation log files, summary file, and response file are  
saved at:
```

```
    /opt/VRTS/install/logs/installsf-TmNCKL
```

```
Reboot all systems on which VxFS was installed or upgraded.  
    shutdown -y -i6 -g0
```

```
See the Veritas File System Administrators Guide for information  
on using VxFS.  
14:50:46.
```

- 10** Symbolic links to the VxFAS commands and the online manual pages are installed in the `/opt/VRTS/bin` directory and the `/opt/VRTS/man` directory, respectively. Be sure to add the command directory to end of your `PATH` environment variable, and the manual page directory to your `MANPATH` environment variables (see [“Verifying VxFAS installation”](#) on page 33 for information on other VxFAS command path names).
- 11** If you are installing VxFAS on a host where Storage Foundation for Databases is installed and you are using the deep mapping feature, see [“Coexisting with Storage Foundation for Databases”](#) on page 29 for instructions to ensure coexistence.

Installing language packages

If you are installing a language version, install the language packages required by the packages you have installed.

VxFAS Japanese language packages

The following are the Japanese language packages for VxFAS:

- `VRTSjafas`—Japanese Veritas FlashSnap Agent for Symmetrix
- `VRTSjafag`—Japanese Veritas Cluster Server Agents for Veritas FlashSnap Agent for Symmetrix
- `VRTSjafad`—Japanese Veritas FlashSnap Agent for Symmetrix Documentation

To install these language packages:

- 1 The Veritas Enterprise Administrator (VEA) service must not be running. If it is running, stop it by entering the command:

```
# /opt/VRTSdsa/config/startup.sh stop
```

- 2 Insert the Language CD into the CD-ROM drive. The Solaris volume-management software automatically mounts the CD as `/cdrom/cdrom0`.
- 3 Install the language packages using either `pkgadd` (“[Installing VxFAS language packages using pkgadd command](#)” on page 25) or the language package installation script (“[Installing VxFAS language packages using install_lp script](#)” on page 25).

- 4 Restart the VEA service:

```
# /opt/VRTSdsa/config/startup.sh start
```

- 5 To display the state of the VEA service, type:

```
# /opt/VRTSobc/pal33/bin/vxpalctrl -a StorageAgent -c status
```

Installing VxFAS language packages using pkgadd command

To use pkgadd

- 1 Move to the `storage_foundation/pkgs` directory:

```
# cd /cdrom/cdrom0/ja/storage_foundation/pkgs
```
- 2 Install the language packages

```
# pkgadd -d . VRTSjafas VRTSjafag VRTSjafad
```

Note: Install the `VRTSjafag` package only if you previously installed the `VRTSfasag` package for high availability support.

- 3 In addition to the VxFAS language packages, you must also install the language packages for VxVM and Veritas Array Providers. See the *Veritas Storage Foundation Installation Guide* for more information.

Installing VxFAS language packages using install_lp script

For the following procedure, the `install_lp` command must use the `ssh` or `rsh` commands as root on all systems in the cluster (see the `ssh(1)` and `rsh(1)` manual pages for more information). Make sure that permissions are granted for the system on which `install_lp` is run.

To use install_lp

- 1 Move to the `cdrom0` directory:

```
# cd /cdrom/cdrom0
```
- 2 Enter the installer command:

```
# ./install_lp
```

This command installs the language packages required by Symantec products.

Upgrading to VxFAS 5.0

If a previous version of the Veritas Utilities *for TimeFinder* (Version 4.0) or Veritas FlashSnap Agent for Symmetrix (Version 4.0) is already installed with or without the maintenance patches, you can upgrade to the VxFAS 5.0 release. VxVM version 4.1 must be installed before upgrading to FlashSnap Agent for Symmetrix.

To upgrade

- 1 If an older version of VxFS is installed, upgrade to VxFS 4.1 before upgrading VxVM. See the *Veritas Storage Foundation Installation Guide* for instructions on how to upgrade VxFS.
- 2 Upgrade VxVM to Volume Manager version 4.1. See the *Veritas Storage Foundation Installation Guide* for instructions on how to upgrade to Volume Manager Release 4.1. Make sure the `VRTSvmpro 4.1` package is installed.
- 3 Upgrade to EMC Solutions Enabler kit V5.2 or above.
- 4 Upgrade to EMC PowerPath V3.0 or above.
- 5 Remove the old packages. See “[Removing the binary package](#)” on page 27 for instructions.
- 6 If an older version of `VRTSvail` is installed, upgrade to `VRTSvail 4.4.*`
- 7 Add the `VRTSfas 5.0` package. See “[Installing FlashSnap Agent for Symmetrix](#)” on page 12 for instructions.

Note: The release of VxFAS 4.1 and later requires the Veritas Array Providers (`VRTSvail`) package to be installed before any VxFAS packages are installed. So, you will need to install the required version of `VRTSvail` package even if you are upgrading to VxFAS 5.0 in both mixed and EMC Symmetrix-only SAN environment. After installing the `VRTSvail` package, you will be able to use the performance statistics and deep mapping features provided by `VRTSvail` for EMC Symmetrix and other supported storage arrays.

- 8 If you want HA functionality, install the `VRTSfasag 4.1` package. To recreate the HA configuration, see the “Guidelines for Creating Service Groups and Resources” section of the Veritas Cluster Server Agents for Veritas FlashSnap Agent for Symmetrix Installation and Configuration Guide.

Note: The existing resource configuration for VxTF 4.0 or VxFAS 4.0 resource types can be reused for the VxFAS 4.1 cluster resource configuration.

Removing the binary package

This section contains instructions for removing different versions of the binary package.

Binary package VRTSvxtf 4.0

To remove the VRTSvxtf 4.0 package

- 1 Recover any unprocessed log (/etc/vx/emc.d/vxsymlog.txt). Type:
vxsymrecover
- 2 Remove the VRTStfag package if it is installed.
pkgrm VRTStfag
- 3 Remove the VRTSvxtf package:
pkgrm VRTSvxtf
- 4 Remove the VRTSv1sp package:
pkgrm VRTSv1sp

Binary package VRTSfas 4.0

To remove the VRTSfas 4.0 package.

- 1 Recover any unprocessed log (/etc/vx/emc.d/vxsymlog.txt). Type:

```
# vxsymrecover
```
- 2 It is advisable to stop the Veritas Enterprise Administrator Service (vxsvc) before you uninstall the VxFAS software. To stop the vxsvc server, type:

```
# /opt/VRTSdsa/config/startup.sh stop
```
- 3 Remove the Japanese language packages for VxFAS if you have installed them:

```
# pkgrm VRTSjafas VRTSjafag VRTSjafad
```
- 4 Remove the VxFAS packages using the pkgrm command, starting with the optional package VRTSfasag.

```
# pkgrm VRTSfasag VRTSfas VRTSfasdc
```

Follow the instructions displayed on the screen.
- 5 After the uninstall completes, remove the directory /etc/vx/emc.d if it exists.

```
# rm -r /etc/vx/emc.d
```

Unconfiguring VxFAS

To unconfigure VxFAS

- 1 Follow the instructions in [“To prepare to install”](#) on page 16.
- 2 Move to the storage_foundation directory:

```
# cd /cdrom/cdrom0/storage_foundation
```
- 3 Run the Storage Foundation installation script:

```
# ./installsf -configure
```

The following question is displayed:
Do you want to Configure/Unconfigure/Skip VxFAS configuration for system host1 [c,u,s] (s) [?]
- 4 Enter **u** to unconfigure VxFAS. Unconfiguring VxFAS removes VxFAS registry entries from the VEA Registry file, installs the stub libarray, and removes the Symmetrix provider from StorageAgent and adds it under VAILAgent.
- 5 Issue the following to restart StorageAgent after unconfiguration completes:

```
/opt/VRTSobc/pal33/bin/vxpalctrl -a StorageAgent  
-c restart
```

- 6 If VxFAS is installed on a host where Storage Foundation for Databases is installed, continue at [“Unconfiguring VxFAS on a host where Storage Foundation for Databases is installed”](#) on page 30.

Coexisting with Storage Foundation for Databases

If VxFAS is installed on a host where Storage Foundation for Databases is installed and you are using deep mapping, follow the instructions in this section to ensure coexistence.

Configuring VxFAS on a host where Storage Foundation for Databases is installed

After VxFAS is configured, remove the Symmetrix provider from all agents except StorageAgent

- 1 If the Symmetrix provider is running under an agent other than StorageAgent, determine whether the other agent is running. Issue the following:

```
/opt/VRTSobc/pal33/bin/vxpalctrl -a OtherAgentName -c status
```
- 2 Remove the Symmetrix provider from the agent by issuing the following:

```
/opt/VRTSvail/bin/vaildiag /removearrayprovider -agentname AgentName -provider vx_emc_symmetrix
```
- 3 If you determined, in step 1, that the agent from which you removed the Symmetrix provider was running, do one of the following
 - If other providers are configured under the agent, issue the following to restart the agent:

```
/opt/VRTSobc/pal33/bin/vxpalctrl -a AgentName -c restart
```
 - If no other providers are configured under the agent, issue the following to stop the agent:

```
/opt/VRTSobc/pal33/bin/vxpalctrl -a AgentName -c stop
```
- 4 Repeat steps 1-3 for each agent, other than StorageAgent, where the Symmetrix provider is configured.

Unconfiguring VxFAS on a host where Storage Foundation for Databases is installed

If you want to continue to use deep mapping after unconfiguring VxFAS, start or restart the VAILAgent or configure the Symmetrix provider to run under a different agent.

To start the VAILAgent

- ◆ Issue the following:

```
/opt/VRTSobc/pal33/bin/vxpalctrl -a VAILAgent -c start
```

To restart the VAILAgent

- ◆ Issue the following:

```
/opt/VRTSobc/pal33/bin/vxpalctrl -a VAILAgent -c  
restart
```

To configure the Symmetrix provider to run under a different agent

- ◆ Issue the following:

```
/opt/VRTSvail/bin/vaildiag /addarrayprovider -agentname  
AgentName -provider vx_emc_symmetrix
```

Uninstalling VxFAS software

You can uninstall the Veritas FlashSnap Agent for Symmetrix using the `uninstallsf` script or using the `pkgrm` command.

It is advisable to stop the Veritas Enterprise Administrator Service (`vxsvc`) before you uninstall the VxFAS software. To stop the `vxsvc` server, type:

```
# /opt/VRTSdsa/config/startup.sh stop
```

Continue with either [“Uninstalling using the uninstallsf script”](#) or [“Uninstalling using the pkgrm command.”](#)

Uninstalling using the uninstallsf script

To use uninstallsf

- 1 Perform recovery of any crashed VxFAS operation if required:

```
# vxsymrecover
```
- 2 Mount the Storage Foundation software disc (see [“Loading the software from CD”](#) on page 16) and move to the `storage_foundation` directory:

```
# cd /cdrom/cdrom0/storage_foundation
```

- 3 Run the Storage Foundation uninstall script:

```
# ./uninstallsf
```

- 4 The `uninstallsf` script prompts for a system name. Enter one or more system names, separated by a space, from which to uninstall Storage Foundation. For example, `host1`:

```
Enter the system names separated by spaces from which to  
uninstall SF: host1
```

- 5 After the uninstall completes, remove the directory `/etc/vx/emc.d` if it exists.

```
# rm -r /etc/vx/emc.d
```

Uninstalling using the `pkgrm` command

To use `pkgrm`

- 1 Remove the Japanese language packages for VxFAS if you have installed them:

```
# pkgrm VRTSjafas VRTSjafag VRTSjafad
```
- 2 Remove the VxFAS packages using the `pkgrm` command, starting with the optional package `VRTSfasag`. Do not remove the license packages `VRTSvlic` or `VRTSllic` if there are other products installed.

```
# pkgrm VRTSfasag VRTSfas VRTSfasdc
```

Follow the instructions displayed on the screen.
- 3 After the uninstall completes, remove the directory `/etc/vx/emc.d` if it exists.

```
# rm -r /etc/vx/emc.d
```

Note: If you are not using the Veritas Array Providers with any other product like Veritas Storage Foundation for Oracle, then you can remove the packages `VRTSjaap` and `VRTSvail`. Do not remove these packages unless you are sure that these were being used with VxFAS only.

Verifying VxFAS installation

The Veritas FlashSnap Agent for Symmetrix package consists of commands for VxFAS operations. The VxFAS commands are installed in following directories:

<code>/etc/vx/emc.d/bin</code>	Contains the VxFAS helper utilities and <code>vxtfexplorer</code> script.
<code>/usr/sbin</code>	Contains the VxFAS command line utilities.
<code>/opt/VRTS/bin</code>	Contains symbolic links to the VxFAS commands installed in the above directory.

Determine whether these subdirectories are present:

```
# ls /etc/vx/emc.d
# ls /usr/sbin
# ls /opt/VRTSvxtf
# ls /opt/VRTS/bin
```

Add only the symbolic link directory at the end of your PATH environment variable to make all Symantec product commands accessible as shown in the following Korn Shell example:

```
PATH=$PATH:/opt/VRTS/bin:/etc/vx/emc.d/bin; export PATH
```

The VxFAS VCS Agents are installed with the `VRTSfasag` package in directory:

<code>/opt/VRTSvcS/bin</code>	Contains the <code>VxSymDevGrp</code> , <code>VxSymLog</code> , and <code>VxSymRecover</code> agent.
-------------------------------	--

Using VxFAS

After you have installed VxFAS software, you can configure any VxVM disk groups having EMC Symmetrix disks for snapshot operations. See the *Veritas FlashSnap Agent for Symmetrix Administrator's Guide* for information about using VxFAS.

Configuring the Symantec License Inventory Agent

This appendix includes the following topics:

- [About the Symantec License Inventory Manager](#)
- [When the Symantec License Inventory Agent is installed](#)
- [When the server and access points are installed](#)
- [What you can do with the agent after it is installed](#)
- [How to remove the agent](#)
- [How to order the Symantec License Inventory Manager license and media kit](#)

The Symantec License Inventory Manager installation disc is available separately. For information on how to order the full product, see “[How to order the Symantec License Inventory Manager license and media kit](#)” on page 39. The installation media provides online documentation with details on all topics discussed in this appendix.

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

<http://support.veritas.com/docs/282183>

You can also download the *Symantec License Inventory Agent 4.1 Release Notes*, from this website.

About the Symantec License Inventory Manager

The Symantec License Inventory Manager (license inventory manager) is an enterprise asset management tracking tool that inventories Symantec Information Availability products in your network and consolidates critical information on the deployment of these products to facilitate license management and compliance tracking. Using the information provided by the license inventory manager, you can:

- Determine all the Symantec software products and licenses being used in your enterprise
- Achieve easier license self-compliance management
- Know your Enterprise License Agreement deployment status
- Reduce administrative overhead for managing license compliance
- Renew support and maintenance based on the licenses you have deployed
- Gain more control over your Symantec software usage
- Manage department chargebacks based on actual software usage
- Use more flexible licensing and pricing models
- Exploit detailed deployment data to perform return on investment analyses for purchased software

The license inventory manager is a three-tiered system that consists of a server tier, access point tier, and an agent tier. The server tier is the Symantec License Inventory Server, which consolidates and stores information that it gathers from the agents and access points.

The optional access point tier includes Symantec License Inventory Access Points and serves as a consolidation layer between the agents and server.

The agent tier includes Symantec License Inventory Agents, which are deployed on individual hosts in a network. Each agent gathers product information on the supported Symantec products that are installed on the agent's host, then sends the information to an access point or the server.

When the Symantec License Inventory Agent is installed

The Symantec product installer installs or upgrades the agent on the host with the Symantec product. The agent is installed in the following directory:

`/opt/SYMCLma`

The agent is installed with a default configuration that minimizes its impact on a running system. The minimum configuration prevents remote communication with the agent to keep its data and interfaces secure.

When the server and access points are installed

The server and access points are not installed automatically. If you want to use the Symantec License Inventory Manager, you must manually install the server and, optionally, the access points. After you install the server and access points, the agents can gather information and you can create inventory reports.

You can install the server and access points from the Symantec License Inventory Manager installation disc.

What you can do with the agent after it is installed

If you are already participating in a Symantec sales program that requires the use of the agent, or if you want to order and deploy the Symantec License Inventory Manager, you can use the agent to track Symantec products on the systems on which it was installed. To use the agent, however, you must manually configure it to enable remote communication between the agent and its server or access point.

Complete instructions for reconfiguring the agent are provided in the *Symantec License Inventory Manager 4.1 Release Notes*. You can download this document from the following website:

<http://support.veritas.com/docs/282183>

How to remove the agent

If you do not want to use the Symantec License Inventory Manager, you can remove the agent using the operating system package removal commands to remove the agent packages, which include SYMClma and VRTSsmf.

The server and access point also use the VRTSsmf package. If the server or access point is installed on this host with the agent, you can remove the SYMClma package, but not the VRTSsmf package. If neither the server nor the access point is installed on this host, you can remove both the SYMClma and VRTSsmf packages.

If you remove both packages, remove the SYMClma package first.

[Table A-1](#) lists the commands required to remove these packages on the supported platforms.

Table A-1 Package removal commands required to remove the agent

Platform	Package removal command
AIX	installp -u VRTSlma installp -u VRTSsmf
HP-UX	swremove SYMClma swremove VRTSsmf
Linux	rpm evv SYMClma rpm evv VRTSsmf
Solaris	pkgrm VRTSlma pkgrm VRTSsmf

Later, you can reinstall the agent with the Symantec License Inventory Manager installation disc. This disc is available in the Symantec License Inventory Manager kit.

How to order the Symantec License Inventory Manager license and media kit

To order a Symantec License Inventory Manager license and media kit, contact your Symantec sales representative.

The installation media provides online documentation for the Symantec License Inventory Manager. You can contact your sales representative to order printed copies of the documentation. The documents you can order include:

- *Symantec License Inventory Manager Installation and Configuration Guide*
- *Symantec License Inventory Manager Administrator's Guide*
- *Symantec License Inventory Manager User's Guide*

