VERITAS

VERITAS FlashSnap™ Agent *for Symmetrix* 4.0

Installation Guide

Solaris

N11760F

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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

◆ Conventions

◆ Licensing Procedure

◆ Preinstallation Instructions

◆ Installing FlashSnap Agent for Symmetrix

◆ Installing Language Packages

◆ Upgrading to VxFAS 4.0

◆ Uninstalling VxFAS Software

◆ Verifying VxFAS Installation

◆ Using VxFAS

Getting Help

For assistance with any of the VERITAS products, contact VERITAS Technical Support:

◆ U.S. and Canadian Customers: 1-800-342-0652

◆ International: +1-650-527-8555

◆ Email: support@veritas.com

For license information:

◆ Phone: 1-650-527-0300

◆ Email: license@veritas.com

◆ Fax: 1-650-527-0952

For software updates:

◆ Email: swupdate@veritas.com

For information on purchasing VERITAS products:

◆ Phone: 1-800-327-2232

◆ Email: sales.mail@veritas.com

For additional information about VERITAS and VERITAS products, visit the website at:

http://www.veritas.com

For software updates and additional technical support information, such as TechNotes, product alerts, and hardware compatibility lists, visit the VERITAS Technical Support website at:

http://support.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 VERITAS Technical Support, either by telephone or by visiting the VERITAS Technical Support website, be sure to provide the relevant message number. VERITAS 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.

Conventions

Typeface	Usage	Examples
monospace	Computer output, files, directories, software elements such as command options, function names, and parameters	Read tunables from the `/etc/vx/tunefstab` file. See the `ls(1)` manual page for more information.
monospace (**bold**)	User input	#**mount -F vxfs /h/filesys**
italic	New terms, book titles, emphasis, variables replaced with a name or value	See the *User's Guide* for details. The variable *ncsize* determines the value of...

Symbol	Usage	Examples
%	C shell prompt	
$	Bourne/Korn shell prompt	
#	Superuser prompt (all shells)	
\	Continued input on the following line; you do not type this character	#**mount -F vxfs ** **/h/filesys**
[ ]	In a command synopsis, brackets indicates an optional argument	ls [-a]
|	In a command synopsis, a vertical bar separates mutually exclusive arguments	mount [suid | nosuid]
blue text	Indicates an active hypertext link	In PDF and HTML files, click on links to move to the specified location

Licensing Procedure

Before installing the VERITAS FlashSnap Agent *for Symmetrix*:

◆ Review the *VERITAS FlashSnap Agent for Symmetrix Release Notes*, vxfas_notes.pdf located on the VERITAS software disc under the storage_foundation/release_notes directory.

> **Note** VERITAS product names are shown on the software disc label.

Because product release notes are not installed by packages, VERITAS recommends that you copy them from the software disc to the /opt/VRTS directory so that they are available for future reference.

◆ Obtain a license key (see "Product Licensing" on page 4 for details).

> **Note** The license keys for VERITAS Utilities *for TimeFinder* (VxTF) do not work with this release of VxFAS. You must obtain a new license key for VxFAS.

◆ Ensure that the directory /opt exists and has write permissions for root.

Product Licensing

The VERITAS FlashSnap Agent *for Symmetrix* is a licensed product. Before you install VxFAS, obtain a license key from VERITAS. If you have a temporary license key, you must obtain a permanent license key when you purchase the product. A License Key Request Form is included in the product package. The License Key Request Form has all the information required to establish a user account on the VERITAS vLicense™ website and generate your license key. If you do not receive this form, contact your sales representative, or send an email with your sales order number to license@veritas.com.

To obtain a product license, use the vLicense website (see below), or complete the License Key Request Form, including your system's host ID and model type. Sign and date the completed form and fax it to VERITAS. You will receive a license key by email within a few business days. Retain the License Key Request Form for your records.

Using the VERITAS vLicense Website to Obtain a License

You can access the vLicense website at:

http://www.veritas.com/vlicense

To obtain a license from the website, provide the following information shown on the License Key Request Form:

◆ Your customer number

◆ Your order number

◆ Your serial number

To determine the host ID of your system, enter:

    # **hostid**

To determine the machine type, enter:

    # **uname -i**

After receiving a license key, record the number somewhere other than on the system where it is installed so that you can access it if the system becomes inoperable or the product requires reinstallation.

The VERITAS licensing commands are provided in the software package VRTSvlic. The VRTSvlic package must be installed for the licensing process to work.

If you have any questions about licensing, contact VERITAS at the license information numbers listed under "Getting Help" on page 2.

Faxing the License Key Request Form

If you do not have web access, fax the License Key Request Form directly to VERITAS. Sign and date the form in the appropriate spaces and fax it to the number shown on the form. Faxed orders are typically processed within two business days.

VERITAS Licensing Commands

The VRTSvlic licensing package must be installed on your system to enable VERITAS product licensing. VRTSvlic is typically installed by the product installation scripts. The following VERITAS licensing commands are available on the system after VRTSvlic is installed:

vxlicinst—licenses a VERITAS product already installed on a system

vxlicrep—views currently installed licenses

vxlictest—retrieves features encoded in a license key and their descriptions

---

Preinstallation Instructions

For information on how to install the other VERITAS products included in the FlashSnap Agent *for Symmetrix*, see the respective product installation guides. You can install VxFAS using the VERITAS Installation Menu, 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 installation guides for these products.

Note Only users with superuser privileges can install the VERITAS 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 VERITAS product is installed, see "Upgrading to VxFAS 4.0" on page 18.

VxFAS Packages

The VERITAS 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 f*or Symmetrix*

◆ `VRTSfasdc`—VERITAS FlashSnap Agent *for Symmetrix* Documentation

The documentation package includes the following:

◆ *VERITAS FlashSnap Agent for Symmetrix Administrator's Guide*

◆ *VERITAS FlashSnap Agent for Symmetrix Installation Guide*

◆ *VERITAS Cluster Server Agents for VERITAS FlashSnap Agent for Symmetrix Installation and Configuration Guide*

VxFAS Prerequisites

VERITAS FlashSnap Agent *for Symmetrix* 4.0 requires:

◆ VERITAS Volume Manager (VxVM) 4.0.

◆ VERITAS File System (VxFS) 4.0.

◆ VERITAS Cluster Server™ (VCS). VCS is required for VxFAS recovery support in a high availability environment.

◆ Solaris 7, Solaris 8, or Solaris 9 32-bit or 64-bit operating system.

◆ Symmetrix Command Line Interface (SYMCLI), EMC Solutions Enabler kit V5.1 or above.

◆ Symmetrix disk array firmware 5x66 or above.

◆ PowerPath version 3.0 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.

The VxVM, VxFS, and VCS packages are part of the VERITAS Storage Foundation, and must be installed before installing VxFAS packages. See the installation guides for the respective products for instructions on their installation.

Note The `VRTSfas` package is not compatible with the `VRTSvail` package that is installed with VERITAS Storage Foundation for Databases products and VERITAS SAN Point Control product.

Installing FlashSnap Agent *for Symmetrix*

The following sections describe how to install VxFAS using the pkgadd command, using the VERITAS Installation Menu, and by invoking the installation script from the command line.

Installing VxFAS Using the pkgadd Command

VERITAS product packages are compressed using GNU compression utilities before writing them to distribution media. VERITAS provides the gunzip utility on the VERITAS 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 VERITAS 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 VERITAS license package and the VERITAS FlashSnap Agent *for Symmetrix* packages in the order shown.

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

Follow the instructions displayed on the screen.

> **Note** Answer **yes** when `pkgadd` prompts about installing the conflicting file `/usr/lib/libarray.so`. The original file is restored when VxFAS is uninstalled.

5. 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.

6. 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
```

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

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

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

```
# vxlicinst
```

9. 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
```

VERITAS Installation Menu

VERITAS products distributed by VERITAS have an automated installation and licensing procedure that lets you install packages using an Installation Menu, or invoke installation scripts from the command line. Alternatively, you can install VxFAS using the pkgadd command. The Getting Started Guide, included with the VERITAS product software discs, provides information on using the Installation Menu. Review the *Getting Started Guide* before installing VxFAS.

Loading the Software from CD

1. Log in as superuser.

2. Place the VERITAS software disc into a CD-ROM drive connected to your system.

Note VERITAS 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 Installation Menu

To start the Installation Menu, 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 installsf Script" below. See the *Getting Started Guide*, included in the VERITAS product media kit, for more information.

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 VERITAS Installation Menu. To install the VxFAS packages, first install the SYMCLI software from EMC, then run the VERITAS Installation Menu to install VxFAS packages again.

Installing VxFAS Using the installsf Script

1. To install `VRTSfas` using `installsf`, move to the `storage_foundation` directory:

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

2. Run the Storage Foundation installation script:

   ```
   # ./installsf

   VERITAS STORAGE FOUNDATION 4.0 INSTALLATION PROGRAM
   Copyright (c) 2003 VERITAS Software Corporation.
   All rights reserved.
   .
   .
   .
   ```

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:

```
        VERITAS STORAGE FOUNDATION 4.0 INSTALLATION PROGRAM

installsf can install the following optional SF packages:
VRTSobgui    VERITAS Enterprise Administrator
VRTSvmman    VERITAS Volume Manager Manual Pages
VRTSvmdoc    VERITAS Volume Manager Documentation
VRTStep      VERITAS Task Provider
VRTSap       VERITAS Action Provider
VRTSfsman    VERITAS File System Manual Pages
VRTSfsdoc    VERITAS File System Documentation
VRTSfasag    VERITAS Cluster Server Agents for VERITAS
                      FlashSnap Agent for Symmetrix
VRTSvrw      VERITAS Volume Replicator Web Console
VRTSvrdoc    VERITAS Volume Replicator (user documentation)
VRTSvxfen    VERITAS I/O Fencing
VRTSvcsmn    VERITAS Cluster Server Man Pages
VRTSvcsdc    VERITAS Cluster Server Documentation
VRTScssim    VERITAS Cluster Server Simulator
VRTScscm     VERITAS Cluster Server Cluster Manager

   1)   Install all of the optional packages
   2)   Install none of the optional packages
   3)   View package descriptions and select optional packages

Select the optional packages to be installed on
all systems? [1-3,q,?] (1) 1
```

```
        VERITAS STORAGE FOUNDATION 4.0 INSTALLATION PROGRAM

installsf will install the following SF packages:
VRTSperl   VERITAS Perl 5.8.0 Redistribution
VRTSob     VERITAS Enterprise Administrator Service
VRTSmuob   VERITAS Enterprise Administrator Service Localized
                     Package
VRTSobgui  VERITAS Enterprise Administrator
VRTSvxvm   VERITAS Volume Manager Binaries
VRTSvmman  VERITAS Volume Manager Manual Pages
VRTSvmdoc  VERITAS Volume Manager Documentation
VRTSvmpro  VERITAS Volume Manager Management Services Provider
VRTSfspro  VERITAS File System Management Services Provider
VRTSalloc  VERITAS Volume Manager Intelligent
                     Storage Provisioning
VRTSddlpr  VERITAS Device Discovery Layer Services Provider
VRTSvxfs   VERITAS File System
VRTStep    VERITAS Task Provider
VRTSap     VERITAS Action Provider
VRTSfppm   VERITAS File Placement Policy Manager
VRTSfsman  VERITAS File System Manual Pages
VRTSfsdoc  VERITAS File System Documentation
VRTSfas    VERITAS FlashSnap Agent for Symmetrix
VRTSfasag  VERITAS Cluster Server Agents for VERITAS
                     FlashSnap Agent for Symmetrix
Press [Return] to continue:
```

Note VRTSfasag and VRTSfasdc are optional packages.

6. The program then checks the system and Storage Foundation installation requirements and installs the packages:

```
        VERITAS STORAGE FOUNDATION 4.0 INSTALLATION PROGRAM

Checking system installation requirements:
Checking SF installation requirements on host1:
Checking VRTSperl package ....... version 4.0.1 not installed
Checking VRTSob package ........................not installed
Checking VRTSobgui package .....................not installed
.
.
.

Installation requirement checks completed successfully.
Press [Return] to continue:
```

7. The program prompts whether to enable optional EMC configuration rules:

```
        VERITAS STORAGE FOUNDATION 4.0 INSTALLATION PROGRAM

Do you want to enable optional VxFAS EMC configuration
rules? [y,n,q,?] (y)
```

Note 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.*

```
        VERITAS STORAGE FOUNDATION 4.0 INSTALLATION PROGRAM

Installing Storage Foundation Enterprise HA 4.0 on host1:
Installing VRTSperl 4.0.1 on host1 ........... Done 1 of 10 steps
Installing VRTSob 3.2.514.0 on host1 ......... Done 2 of 10 steps
.
.
.
Storage Foundation Enterprise HA installation completed
successfully.
Press [Return] to continue:
```

8. The program displays the following summary after completing the installation:

```
        VERITAS STORAGE FOUNDATION 4.0 INSTALLATION PROGRAM

Installation of Storage Foundation Enterprise HA 4.0 has
completed successfully.
The installation summary is saved at:

  /opt/VRTS/install/logs/installsf831145046.summary

The installfs log is saved at:

  /opt/VRTS/install/logs/installsf831145046.log

The installation response file is saved at:

  /opt/VRTS/install/logs/installsf831145046.response
```

where the time stamp "831145046" is August 31st at the time 14:50:46.

9. 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 23 for information on other VxFAS command path names).

Installing Language Packages

If you are installing a language version, install the language packages required by the VERITAS 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 f*or Symmetrix*

◆ `VRTSjafad`—Japanese VERITAS FlashSnap Agent *for Symmetrix* Documentation

To install these language packages:

1. The VERITAS Enterprise Administrator server must not be running. If it is, stop it by entering the command:

   # **/etc/init.d/isisd 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 17) or the language package installation script ("Installing VxFAS Language Packages Using install_lp Script" on page 17).

4. Restart the VERITAS Enterprise Administrator server. Type:

   # **/etc/init.d/isisd start**

Installing VxFAS Language Packages Using pkgadd Command

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.

3. In addition to the VxFAS language packages, you must also install the language packages for VxVM. See the *VERITAS Volume Manager 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.

1. Move to the cdrom0 directory:

>   # **cd /cdrom/cdrom0**

2. Enter the installer command:

>   # **./install_lp**

This command installs the language packages required by VERITAS products.

Upgrading to VxFAS 4.0

If a previous version of the VERITAS Utilities *for TimeFinder* (Version 3.0 or above) is already installed, you can upgrade to the VxFAS 4.0 release. VxVM version 4.0 must be installed before upgrading to FlashSnap Agent *for Symmetrix*.

Note You cannot upgrade to VxFAS 4.0 from VERITAS Utilities *for TimeFinder* versions prior to 3.0.

1. If an older version of VxFS is installed, upgrade to VxFS 4.0 before upgrading VxVM. See the *VERITAS File System System Installation Guide* for instructions on how to upgrade VxFS.

2. Upgrade VxVM to Volume Manager version 4.0. See the *VERITAS Volume Manager Installation Guide* for instructions on how to upgrade to Volume Manager Release 4.0. Make sure the VRTSvmpro 4.0 package is installed.

3. Upgrade to EMC SYMCLI Version 5.1 or above.

4. Upgrade to EMC PowerPath Version 3.0 or above.

5. Remove the old packages (VRTSvxtf 4.0 or lower). See "Removing the Binary Package" on page 19 for instructions.

6. Add the VRTSfas 4.0 package. See "Installing FlashSnap Agent for Symmetrix" on page 8 for instructions.

7. If you want HA functionality, install the VRTSfasag 4.0 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 If upgrading from VxTF 4.0, the existing resource configuration for VxTF resource types can be reused for the VxFAS 4.0 cluster resource configuration setup.

Removing the Binary Package

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

Binary Package 3.x

There are several steps to take before removing VERITAS Utilities *for TimeFinder* 3.x and upgrading to VxFAS 4.0:

1. Recover any unprocessed log (`/etc/vx/emc.d/vxsymlog.txt`) by running one of the following commands:

> # **vxsymcleanup**

or

> # **vxsymcleanrst**

2. If you have installed `VRTStfag` package:

    a. Make a note of your HA configuration for VxTF.

    b. Remove the VCS resources corresponding to VxTF resource types `VxSymRecover`, `VxSymLog` and `VxSymDevGrp`. See the *VERITAS Cluster Server User's Guide* on information on removing the resources.

    c. Remove the VxTF resource types `VxSymRecover`, `VxSymLog` and `VxSymDevGrp`. See the *VERITAS Cluster Server User's Guide* for information on removing the resource types.

    d. Remove the `VRTStfag` package.

> > # **pkgrm VRTStfag**

3. Remove the `VRTSvxtf` package:

> # **pkgrm VRTSvxtf**

Binary Package 4.0

Use the following procedure 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 VRTSvlsp package:

>   # **pkgrm VRTSvlsp**

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:

```
# /etc/init.d/isisd stop
```

Continue with either "Uninstalling Using the uninstallsf Script" or "Uninstalling Using the pkgrm Command."

Uninstalling Using the uninstallsf Script

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 10) 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

1. Remove the VxFAS packages using the pkgrm command, starting with the optional package VRTSfasag. Do not remove the license packages VRTSvlic or VRTSlic if there are other VERITAS products installed.

> # **pkgrm VRTSfasag VRTSfas VRTSfasdc**

Follow the instructions displayed on the screen.

2. After the uninstall completes, remove the directory /etc/vx/emc.d if it exists:

> # **rm -r /etc/vx/emc.d**

3. Remove the Japanese language packages for VxFAS if you have installed them:

> # **pkgrm VRTSjafas VRTSjafag VRTSjafad**

Verifying VxFAS Installation

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

`/etc/vx/emc.d/bin`	Contains the VxFAS helper utilities and `vxtfexplorer` script.
`/usr/sbin`	Contains the VxFAS command line utilities.
`/opt/VRTS/bin`	Contains the 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 VERITAS 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:

`/opt/VRTSvcs/bin`	Contains the `VxSymDevGrp`, `VxSymLog` and `VxSymRecover` 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.