

Veritas InfoScale™ 7.0.1 Installation Guide - Linux

Veritas InfoScale™ Installation Guide

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- Available memory, disk space, and NIC information

- Operating system
- Version and patch level
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- Problem description:
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Japan

CustomerCare_Japan@veritas.com

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Installing the products for the first time

This chapter includes the following topics:

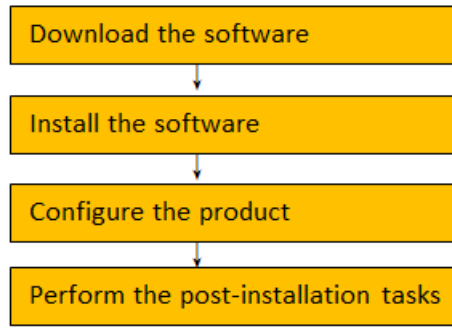
- [Supported types of Installation](#)
- [Installing the Veritas InfoScale software using the Install Bundles feature](#)

Supported types of Installation

You can use the script-based installer with install bundle method to install Veritas InfoScale 7.0.1.

Installing the Veritas InfoScale software using the Install Bundles feature

This section describes how to install a Veritas InfoScale product of 7.0 and 7.0.1 using the Install Bundles feature in one step.

Figure 1-1 Install flow of Veritas InfoScale**To install the Veritas InfoScale software 7.0.1 using Install Bundles:**

- 1 Download 7.0 version of InfoScale product from <https://myveritas.com>.
- 2 Extract the tar ball into the `/infoscale7.0/` directory.
- 3 Download Veritas InfoScale 7.0.1 from <https://sort.veritas.com/patches>.
- 4 Extract it to the `/infoscale7.0.1` directory.
- 5 Change to the `/infoscale7.0.1` directory by entering:

```
# cd /infoscale7.0.1
```

- 6 Invoke the `installmr` script with `-base_path` option to install 7.0 and 7.0.1.
Enter:

```
./installmr -base_path /infoscale7.0/dvd1-redhatlinux/rhel6_x86_64/
```

Note: The actual path varies depending on your operating system.

- 7 In the Task Menu, enter `i` to install a product.

To configure the product, please see the 7.0 Configuration and Upgrade Guide.

Preparing to upgrade to Veritas InfoScale 7.0.1

This chapter includes the following topics:

- [Downloading required software to upgrade to 7.0.1](#)
- [Prerequisites for upgrading to 7.0.1](#)
- [Supported upgrade types for Veritas InfoScale 7.0.1](#)
- [Supported upgrade paths for Veritas InfoScale 7.0.1](#)
- [About using the installer to upgrade from releases earlier than 7.0 when the root disk is encapsulated](#)
- [Preparing to upgrade Volume Replicator](#)
- [Downloading Veritas InfoScale 7.0.1](#)

Downloading required software to upgrade to 7.0.1

This section describes how to download the latest patches for the installer.

To download required software to upgrade to 7.0.1

- 1 Download InfoScale 7.0.1 from <https://sort.Veritas.com/patches>.
- 2 Extract it to a directory, say /infoscale.

Note: If you are upgrading from versions earlier than 7.0 to 7.0.1 using the Install Bundles, you must download both 7.0 and 7.0.1.

Prerequisites for upgrading to 7.0.1

If you are upgrading from 7.0, see the following list for prerequisites for upgrading to the 7.0.1 release:

- For any product in the Veritas Storage Foundation stack, you must have the 7.0.1 release binaries.
- Each system must have sufficient free space to accommodate patches.
- The full list of prerequisites can be obtained by running `./installmr -precheck`.
- Make sure to download the latest patches for the installer.
 See [“Downloading required software to upgrade to 7.0.1”](#) on page 11.

Supported upgrade types for Veritas InfoScale 7.0.1

Veritas InfoScale supports various ways of upgrading your cluster to the latest version. Choose a method that best suits your environment and supports your planned upgrade path.

[Table 2-1](#) lists the supported types of upgrade.

Table 2-1 Supported types of upgrade

Type of upgrade	Abstract
Full upgrade	A full upgrade involves upgrading all the nodes in the cluster at the same time. All components are upgraded during the process. The cluster remains unavailable for the duration of the upgrade.
Online upgrade	The online upgrade involves upgrading the whole cluster and supporting customer's application zero down time during the upgrade procedure. Now it only support VCS component.

Supported upgrade paths for Veritas InfoScale 7.0.1

You can run the `installmr` script with Install Bundles to upgrade Veritas InfoScale to 7.0.1.

For information on operating systems that are supported for 7.0.1, see *System requirements* in *Veritas InfoScale 7.0.1 Release Notes*.

The following tables describe upgrading to 7.0.1.

Table 2-2 RHEL 6 x64 upgrades

Veritas product versions	RHEL 5	RHEL 6
6.0 6.0 RP1	No upgrade path exists.	Upgrade OS to RHEL 6 U4 or later. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
6.0.1 6.0.2 6.0.3 6.0.5	No upgrade path exists.	Upgrade OS to RHEL 6 U4 or later. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
6.1 6.1.1	No upgrade path exists.	Upgrade OS to RHEL 6 U4 or later. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
6.2	Platform not supported.	Upgrade OS to RHEL 6 U4 or later. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
6.2.1	Platform not supported.	Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
7.0	Platform not supported.	Upgrade to 7.0.1 using the <code>installmr</code> script.

Table 2-3 RHEL 7 x64 upgrades

Veritas product versions	RHEL 5	RHEL 6	RHEL 7
6.0 6.0 RP1	No upgrade path exists.	No upgrade path exists.	Platform not supported.
6.0.1 6.0.2 6.0.3 6.0.5	No upgrade path exists.	No upgrade path exists.	Platform not supported.
6.1 6.1.1	No upgrade path exists.	No upgrade path exists.	Platform not supported.
6.2 6.2.1	Platform not supported.	No upgrade path exists.	Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
7.0	Platform not supported.	No upgrade path exists.	Upgrade to 7.0.1 using the <code>installmr</code> script.

Table 2-4 OL 6 x64 (RHEL Compatible mode) upgrades

Veritas product versions	OL 5 (RHEL Compatible mode)	OL 6 (RHEL Compatible mode)
6.0 6.0 RP1	No upgrade path exists.	Upgrade OS to OL6 U4 or later. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
6.0.1 6.0.2 6.0.3 6.0.5	No upgrade path exists.	Upgrade OS to OL6 U4 or later. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
6.1 6.1.1	No upgrade path exists.	Upgrade OS to OL6 U4 or later. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.

Table 2-4 OL 6 x64 (RHEL Compatible mode) upgrades (*continued*)

Veritas product versions	OL 5 (RHEL Compatible mode)	OL 6 (RHEL Compatible mode)
6.2	Platform not supported.	Upgrade OS to OL6 U4 or later. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
6.2.1	Platform not supported.	Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
7.0	Platform not supported.	Upgrade to 7.0.1 using the <code>installmr</code> script.

Table 2-5 OL 7 x64 (RHEL Compatible mode) upgrades

Veritas product versions	OL 5 (RHEL Compatible mode)	OL 6 (RHEL Compatible mode)	OL 7(RHEL Compatible mode)
6.0 6.0 RP1	No upgrade path exists.	No upgrade path exists.	Platform not supported.
6.0.1 6.0.2 6.0.3 6.0.5	No upgrade path exists.	No upgrade path exists.	Platform not supported.
6.1 6.1.1	No upgrade path exists.	No upgrade path exists.	Platform not supported.
6.2 6.2.1	Platform not supported.	No upgrade path exists.	Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
7.0	Platform not supported.	No upgrade path exists.	Upgrade to 7.0.1 using the <code>installmr</code> script.

Table 2-6 OL6 x64 (UEK) upgrades

Veritas product versions	OL6 (UEK)
6.0.4	Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.

Table 2-6 OL6 x64 (UEK) upgrades (*continued*)

Veritas product versions	OL6 (UEK)
6.0.5	Upgrade OS to OL6 U4 or later. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
6.2 6.2.1	Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
7.0	Upgrade to 7.0.1 using the <code>installmr</code> script.

Note: Only VCS supports OL UEK.

Table 2-7 OL7 x64 (UEK) upgrades

Veritas product versions	OL6	OL7
6.0.4	No upgrade path exists.	Platform not supported.
6.0.5	No upgrade path exists.	Platform not supported.
6.2	No upgrade path exists.	Platform not supported.
6.2.1	No upgrade path exists.	Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
7.0	No upgrade path exists.	Upgrade to 7.0.1 using the <code>installmr</code> script.

Table 2-8 SLES 11 x64 upgrades

Veritas product versions	SLES 10	SLES 11
6.0 6.0 RP1	No upgrade path exists.	Upgrade OS to SLES11 SP3 or SP4. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
6.0.1 6.0.2 6.0.3	No upgrade path exists.	Upgrade OS to SLES11 SP3 or SP4. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.

Table 2-8 SLES 11 x64 upgrades (*continued*)

Veritas product versions	SLES 10	SLES 11
6.0.4	Platform not supported.	Upgrade OS to SLES11 SP3 or SP4. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
6.0.5	No upgrade path exists.	Upgrade OS to SLES11 SP3 or SP4. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
6.1 6.1.1	Platform not supported.	Upgrade OS to SLES11 SP3 or SP4. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
6.2 6.2.1	Platform not supported.	Upgrade OS to SLES11 SP3 or SP4. Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
7.0	Platform not supported.	Upgrade to 7.0.1 using the <code>installmr</code> script.

Table 2-9 SLES 12 x64 upgrades

Veritas product versions	SLES 10	SLES 11	SLES 12
6.0 6.0 RP1	No upgrade path exists.	No upgrade path exists.	Platform not supported.
6.0.1 6.0.2 6.0.3	No upgrade path exists.	No upgrade path exists.	Platform not supported.
6.0.4	Platform not supported.	No upgrade path exists.	Platform not supported.
6.0.5	No upgrade path exists.	No upgrade path exists.	Platform not supported.
6.1 6.1.1	Platform not supported.	No upgrade path exists.	Platform not supported.

Table 2-9 SLES 12 x64 upgrades (*continued*)

Veritas product versions	SLES 10	SLES 11	SLES 12
6.2	Platform not supported.	No upgrade path exists.	Platform not supported.
6.2.1	Platform not supported.	No upgrade path exists.	Upgrade to 7.0.1 using the <code>installmr</code> script with Install Bundles.
7.0	Platform not supported.	No upgrade path exists.	Upgrade to 7.0.1 using the <code>installmr</code> script.

About using the installer to upgrade from releases earlier than 7.0 when the root disk is encapsulated

When you use the installer to upgrade from a previous version of Veritas InfoScale and the system where you plan to upgrade has an encapsulated root disk, do not unencapsulate the disks. The installer runs normally. Reboot the system after upgrade.

Note: On RHEL6, only for 6.0.1 and later, do not unencapsulate. For other releases on RHEL6, you need to unencapsulate.

Preparing to upgrade Volume Replicator

Before installing or upgrading Volume Replicator (VVR):

- Confirm that your system has enough free disk space to install VVR.
- Make sure you have root permissions. You must have root permissions to perform the install and upgrade procedures.
- If replication using VVR is configured, Veritas recommends that the disk group version is at least 110 prior to upgrading.

You can check the Disk Group version using the following command:

```
# vxdg list diskgroup
```

- If replication using VVR is configured, make sure the size of the SRL volume is greater than 110 MB.

Refer to the *Veritas InfoScale Replication Administrator's Guide*.

- If replication using VVR is configured, verify that all the Primary RLINKs are up-to-date on all the hosts.

```
# /usr/sbin/vxlink -g diskgroup status rlink_name
```

Note: Do not continue until the primary RLINKs are up-to-date.

- If VCS is used to manage VVR replication, follow the preparation steps to upgrade VVR and VCS agents.

See the *Veritas InfoScale Replication Administrator's Guide* for more information.

See the *Getting Started Guide* for more information on the documentation.

Planning an upgrade from the previous VVR version

If you plan to upgrade VVR from the previous VVR version, you can upgrade VVR with reduced application downtime by upgrading the hosts at separate times. While the Primary is being upgraded, the application can be migrated to the Secondary, thus reducing downtime. The replication between the (upgraded) Primary and the Secondary, which have different versions of VVR, will still continue. This feature facilitates high availability even when the VVR upgrade is not complete on both the sites. Veritas recommends that the Secondary hosts be upgraded before the Primary host in the Replicated Data Set (RDS).

See the *Veritas InfoScale Release Notes* for information regarding VVR support for replicating across Storage Foundation versions.

Replicating between versions is intended to remove the restriction of upgrading the Primary and Secondary at the same time. VVR can continue to replicate an existing RDS with Replicated Volume Groups (RVGs) on the systems that you want to upgrade. When the Primary and Secondary are at different versions, VVR does not support changing the configuration with the `vradmin` command or creating a new RDS.

Also, if you specify TCP as the network protocol, the VVR versions on the Primary and Secondary determine whether the checksum is calculated. As shown in [Table 2-10](#), if either the Primary or Secondary are running a version of VVR prior to 7.0.1, and you use the TCP protocol, VVR calculates the checksum for every data packet it replicates. If the Primary and Secondary are at VVR 7.0.1, VVR does not calculate the checksum. Instead, it relies on the TCP checksum mechanism.

Table 2-10 VVR versions and checksum calculations

VVR prior to 7.0.1 (DG version <= 140)	VVR 7.0.1 (DG version >= 150)	VVR calculates checksum TCP connections?
Primary	Secondary	Yes
Secondary	Primary	Yes
Primary and Secondary		Yes
	Primary and Secondary	No

Note: When replicating between versions of VVR, avoid using commands associated with new features. The earlier version may not support new features and problems could occur.

If you do not need to upgrade all the hosts in the RDS simultaneously, you can use replication between versions after you upgrade one host. You can then upgrade the other hosts in the RDS later at your convenience.

Note: If you have a cluster setup, you must upgrade all the nodes in the cluster at the same time.

Downloading Veritas InfoScale 7.0.1

- 1 Download Veritas InfoScale 7.0 from <https://myveritas.com>.
- 2 Extract the tar ball into a directory called /infoscale7.0.
- 3 Download Veritas InfoScale 7.0.1 from <https://sort.veritas.com/patches>.
- 4 Extract it to a directory called /infoscale7.0.1.

Note: If you are upgrading from versions earlier than 7.0 to 7.0.1 using the Install Bundles, you must download both 7.0 and 7.0.1.

Upgrading to 7.0.1 from releases earlier than 7.0

This chapter includes the following topics:

- [Performing a full upgrade with Install Bundles](#)
- [Performing an automated upgrade using response files with Install Bundles](#)
- [Performing a full upgrade of SF Oracle RAC using Install Bundles](#)

Performing a full upgrade with Install Bundles

The following procedure describes how to upgrade to 7.0.1 with Install Bundles from releases earlier than 7.0.

Note: If you are upgrading from releases earlier than 7.0, Veritas suggests you upgrade with Install Bundles.

- [Performing a full upgrade of VCS using Install Bundles](#)
- [Performing a full upgrade of SFHA using Install Bundles](#)
- [Performing a full upgrade of SFCFSHA using Install Bundles](#)
- [Performing a full upgrade of SF Oracle RAC using Install Bundles](#)

Performing a full upgrade of VCS using Install Bundles

You can use the installer to upgrade VCS.

To upgrade VCS using the product installer

- 1 Log in as superuser.
- 2 Change to the `/infoscale7.0.1` directory.
- 3 Invoke the `installmr` script with `-base_path` option to upgrade to 7.0.1:

```
# ./installmr -base_path /infoscale7.0/dvd1-redhatlinux/rhel6_x86_64/
```

Note: The actual path varies depending on your operating system version.

- 4 From the opening Selection Menu, choose: **G** for "Upgrade a Product."
- 5 Choose **1** for Full Upgrade.
- 6 Enter the names of the nodes that you want to upgrade. Use spaces to separate node names. Press the Enter key to proceed.

The installer runs some verification checks on the nodes.
- 7 When the verification checks are complete, the installer asks if you agree with the terms of the End User License Agreement. Press **y** to agree and continue.

The installer lists the RPMs to upgrade.
- 8 The installer displays the following question before it stops the product processes, if the cluster is configured in secure mode and the previous product version is less than 6.2:

```
Do you want to grant read access to everyone? [y,n,q,?]
```

To grant read access to all authenticated users, type **y**.

To grant permissions to specific user group, type **n**.

```
Do you want to provide any usergroups that you would like to\grant read access?[y,n,q,?]
```

To specify user groups and grant them read access, type **y**.

To grant read access only to root users, type **n**. Then the installer grants read access read access to the root users.

Enter the user group names that you want to grant read access and separate them by spaces. If you want to grant read access to a user group on a specific node, enter **usergroup@node**. If you want to grant read access to user groups on any cluster node, enter **usergroup**. If some user groups are not created yet, create the user groups after configuration if needed.

- 9 The installer asks if you want to stop VCS processes. Press the Enter key to continue.

The installer stops VCS processes, uninstalls RPMs, installs or upgrades RPMs, configures, and starts VCS.

The installer lists the nodes that Veritas recommends you to restart, if needed.

- 10 The installer asks if you would like to send the information about this installation to Veritas to help improve installation in the future. Enter your response.

The installer displays the location of log files, summary file, and response file.

Note: If you want to upgrade the application clusters that use CP server based fencing to version 6.1 and later, make sure that you first upgrade VCS or SFHA on the CP server systems to version 6.1 and later. And then, from 7.0.1 onwards, CP server supports only HTTPS based communication with its clients and IPM based communication is no longer supported. CP server needs to be reconfigured if you upgrade the CP server with IPM-based CP server configured.

Performing a full upgrade of SFHA using Install Bundles

This section describes how to perform a full upgrade of SFHA using Install Bundles.

Upgrading SFHA with Install Bundles

Use this procedure to upgrade SFHA with Install Bundles.

Note: The installer doesn't support upgrading with Install Bundles when the boot disk is encapsulated. If the boot disk is encapsulated, you need to un-encapsulate the boot disk first, and then run Install Bundles to perform upgrade.

To upgrade SFHA from previous versions to 7.0.1

- 1 Log in as superuser.
- 2 Use the following command to check if any VxFS file systems or Storage Checkpoints are mounted:

```
# df -T | grep vxfs
```

- 3 Unmount all Storage Checkpoints and file systems:

```
# umount /checkpoint_name  
# umount /filesystem
```

4 Verify that all file systems have been cleanly unmounted:

```
# echo "8192B.p S" | fsdb -t vxfs filesystem | grep clean
flags 0 mod 0 clean clean_value
```

A *clean_value* value of `0x5a` indicates the file system is clean, `0x3c` indicates the file system is dirty, and `0x69` indicates the file system is dusty. A dusty file system has pending extended operations.

Perform the following steps in the order listed:

- If a file system is not clean, enter the following commands for that file system:

```
# fsck -t vxfs raw_device
# mount -t vxfs block_device mountpoint
# umount /mountpoint
```

This should complete any extended operations that were outstanding on the file system and unmount the file system cleanly.

There may be a pending large RPM clone removal extended operation if the `umount` command fails with the following error:

```
file system device busy
```

You know for certain that an extended operation is pending if the following message is generated on the console:

```
Storage Checkpoint asynchronous operation on file_system
file system still in progress.
```

- If an extended operation is pending, you must leave the file system mounted for a longer time to allow the operation to complete. Removing a very large RPM clone can take several hours.
 - Repeat this step to verify that the unclean file system is now clean.
- 5 Stop activity to all VxVM volumes. For example, stop any applications such as databases that access the volumes, and unmount any file systems that have been created on the volumes.
 - 6 Stop all the volumes by entering the following command for each disk group:

```
# vxvol -g diskgroup stopall
```

To verify that no volumes remain open, use the following command:

```
# vxprint -Aht -e v_open
```


- 7 Make a record of the mount points for VxFS file systems and VxVM volumes that are defined in the `/etc/fstab` file. You will need to recreate these entries in the `/etc/fstab` file on the freshly installed system.
- 8 Perform any necessary preinstallation checks.
- 9 Change to the `/infoscale7.0.1` directory.
- 10 Run the `installmr` command as shown in this example:

```
#./installmr -base_path /infoscale7.0/dvd1-redhatlinux/rhel6_x86_64/
```

Note: The actual path varies depending on your operating system version.

- 11 Enter `g` to upgrade and press Return.
- 12 You are prompted to enter the system names (in the following example, "host1") on which the software is to be installed. Enter the system name or names and then press Return.

```
Enter the 64 bit <platform> system names separated  
by spaces : [q, ?] host1  
             host2
```

where `<platform>` is the platform on which the system runs, such as RHEL5.

Depending on your existing configuration, various messages and prompts may appear. Answer the prompts appropriately.

During the system verification phase, the installer checks if the boot disk is encapsulated and the upgrade's path. If the upgrade is not supported, you need to un-encapsulate the boot disk.

- 13 The installer asks if you agree with the terms of the End User License Agreement. Press `y` to agree and continue.
- 14 The installer lists the RPMs to upgrade.

- 15** The installer displays the following question before it stops the product processes, if the cluster is configured in secure mode and the previous product version is less than 6.2:

```
Do you want to grant read access to everyone? [y,n,q,?]
```

To grant read access to all authenticated users, type **y**.

To grant permissions to specific user group, type **n**.

```
Do you want to provide any usergroups that you would like to/  
grant read access?[y,n,q,?]
```

To specify user groups and grant them read access, type **y**.

To grant read access only to root users, type **n**. Then the installer grants read access read access to the root users.

Enter the user group names that you want to grant read access and separate them by spaces. If you want to grant read access to a user group on a specific node, enter **usergroup@node**. If you want to grant read access to user groups on any cluster node, enter **usergroup**. If some user groups are not created yet, create the user groups after configuration if needed.

- 16** The installer asks if you want to stop SFHA processes, enter **y** to continue.

```
Do you want to stop SFHA processes now? [y,n,q] (y) y
```

If you select **y**, the installer stops the product processes and makes some configuration updates before upgrading.

- 17** The installer stops, uninstalls, reinstalls, and starts specified RPMs.
- 18** If necessary, reinstate any missing mount points in the `/etc/fstab` file on each node that you recorded in step 7.
- 19** Restart all the volumes by entering the following command for each disk group:

```
# vxvol -g diskgroup startall
```

- 20** Remount all VxFS file systems and Storage Checkpoints on all nodes:

```
# mount /filesystem  
# mount /checkpoint_name
```

- 21** You can perform the following optional configuration steps:
- If you want to use features of Veritas Storage Foundation 7.0.1 for which you do not currently have an appropriate license installed, obtain the license and run the `vxlicinst` command to add it to your system.

- To upgrade VxFS Disk Layout versions and VxVM Disk Group versions, follow the upgrade instructions.
- 22** The installer prompts you to provide feedback, and provides the log location for the upgrade.

Note: If you want to upgrade the application clusters that use CP server based fencing to version 6.1 and later, make sure that you first upgrade VCS or SFHA on the CP server systems to version 6.1 and later. And then, from 7.0.1 onwards, CP server supports only HTTPS based communication with its clients and IPM based communication is no longer supported. CP server needs to be reconfigured if you upgrade the CP server with IPM-based CP server configured.

Performing a full upgrade of SFCFSHA using Install Bundles

This section describes how to perform a full upgrade of SFCFSHA using Install Bundles.

Performing a full SFCFSHA upgrade with Install Bundles

Performing a full upgrade involves the following tasks:

- Ensuring that the file systems are clean
- Performing the upgrade

Ensuring the file systems are clean

Before upgrading to SFCFSHA 7.0.1, ensure that the file systems are clean. To ensure that the logs have been replayed and the file systems are marked clean:

To ensure the file systems are clean

- 1 Log in as superuser onto any node in the cluster.
- 2 Take the service group offline on each node of the cluster, which contains VxFS and CFS resources:

```
# hagrps -offline group -any
```

where *group* is the VCS service group that has the CVMVolDg and CFSMount resource.

Repeat this step for each SFCFSHA service group.

Note: This unmounts the CFS file systems.

- 3 Unmount all VxFS file systems not under VCS control:

```
# umount /mount_point
```

- 4 Check and repair each VxFS file system:

```
# fsck -t vxfs /dev/vx/dsk/diskgroup/volume
```

The `fsck` command in `/opt/VRTS/bin` accepts either the block or character device (`/dev/vx/dsk/dg/vol`) or (`/dev/vx/rdisk/dg/vol`). The operating system version of `fsck` may limit the device types it accepts.

For more information, see the `fsck` and `fsck_vxfs` man pages.

Repeat this step for each file system.

Performing the upgrade

To perform the upgrade

- 1 Log in as superuser.
- 2 Verify there are no VxFS file systems mounted on the nodes being upgraded:

```
# mount -t vxfs
```

If any VxFS file systems are mounted, offline the group on each node of the cluster. For details, see step 2 and step 3 of [Ensuring the file systems are clean](#).

- 3 Change to the `/infoscale7.0.1` directory. Invoke the `installmr` script with `-base_path` option to upgrade to 7.0.1:

```
#./installmr -base_path /infoscale7.0/dvd1-redhatlinux/rhe16_x86_64/
```

Note: The actual path varies depending on your operating system version.

- 4 From the opening Selection Menu, choose: **G for Upgrade a Product**. Choose **1 for Full Upgrade**.
- 5 You are prompted to enter the system names (in the following example, "sys1" and "sys2") on which the software is to be upgraded. Enter the system name or names and then press Return.

Enter the system names separated by spaces on which to
install SFCFSA: **sys1 sys2**

- 6 At the prompt, specify whether you accept the terms of the End User License Agreement (EULA). Press **y** to agree and continue.
- 7 During the initial system check, the installer verifies that communication between systems has been set up.

If the installer hangs or asks for a login password, setup passwordless ssh or setup rsh from the system that run `installmr` to the system that need to be upgraded to 7.0.1. Then run the installer again.

- 8 After you accept EULA and the system checks complete, the installer displays a list of the RPMs that will be upgraded. Press Enter to continue with the upgrade.
- 9 The installer displays the following question before it stops the product processes, if the cluster is configured in secure mode and the previous product version is less than 6.2:

```
Do you want to grant read access to everyone? [y,n,q,?]
```

To grant read access to all authenticated users, type **y**.

To grant permissions to specific user group, type **n**.

```
Do you want to provide any usergroups that you would like to\
grant read access?[y,n,q,?]
```

To specify user groups and grant them read access, type **y**.

To grant read access only to root users, type **n**. Then the installer grants read access read access to the root users.

Enter the user group names that you want to grant read access and separate them by spaces. If you want to grant read access to a user group on a specific node, enter **usergroup@node**. If you want to grant read access to user groups on any cluster node, enter **usergroup**. If some user groups are not created yet, create the user groups after configuration if needed.

- 10 Output shows information that SFCFSHA must be stopped on a running system. Enter **y** to continue.

- 11 The installer stops, uninstalls, reinstalls, and starts specified RPMs.
- 12 Press **Enter** again for summary information about logs and reboots.

Do not remove the log files until the Veritas InfoScale products are working properly on your system. Technical Support will need these log files for debugging purposes.

Note: If you want to upgrade the application clusters that use CP server based fencing to version 6.1 and later, make sure that you first upgrade VCS or SFHA on the CP server systems to version 6.1 and later. And then, from 7.0.1 onwards, CP server supports only HTTPS based communication with its clients and IPM based communication is no longer supported. CP server needs to be reconfigured if you upgrade the CP server with IPM-based CP server configured.

Performing a full upgrade of SF Oracle RAC using Install Bundles

This section describes how to perform a full upgrade of SF Oracle RAC using Install Bundles.

- [Preparing to perform a full upgrade to 7.0.1 on an SF Oracle RAC cluster](#)
- [Upgrading SF Oracle RAC and operating system \(minor OS upgrade\)](#)

Preparing to perform a full upgrade to 7.0.1 on an SF Oracle RAC cluster

Perform the preparatory steps in this section if you are performing a full upgrade of the cluster. Before you upgrade, make sure that your systems meet the hardware and software requirements for this release.

Pre-upgrade tasks for migrating the SFDB repository database

Perform the following before upgrading SF Oracle RAC.

Note: The Sfua_Base repository resource group will be removed from the main.cf file. It is not required as a separate service group for SF Oracle RAC 7.0.1.

To prepare to migrate the repository database

- ◆ Resynchronize all existing snapshots before upgrading. As Oracle user, enter:

```
$ /opt/VRTS/bin/dbed_vmsnap -s $ORACLE_SID \  
-f SNAPPLAN -o resync
```

Warning: The Database Flashsnap clone database will not be able to be carried over after upgrading. You must create a new Database Flashsnap clone database after upgrading to 7.0.1.

Upgrading SF Oracle RAC and operating system (minor OS upgrade)

This section provides instructions for SF Oracle RAC and minor operating system upgrade.

Perform the steps in the following procedure if you plan to perform a minor upgrade of the operating system, for example from SLES11 SP1 to SLES11 SP2, along with SF Oracle RAC.

- If required, upgrade the operating system.
- Upgrade to SF Oracle RAC 7.0.1.
- Bring the SF Oracle RAC online.

Upgrading the operating system

If you want to upgrade the operating system, perform the following steps:

- 1 Rename the `/etc/llttab` file to prevent LLT from starting automatically when the node starts:

```
# mv /etc/llttab /etc/llttab.save
```

- 2 Upgrade the operating system on all nodes in the cluster.
For instructions, see the operating system documentation.

Note: If reboot is required, use `shutdown -r now` command to reboot the nodes.

- 3 After the system restarts, restore the `/etc/llttab` file to its original name:

```
# mv /etc/llttab.save /etc/llttab
```

Upgrading SF Oracle RAC using Install Bundles

Use the `installmr` script-based installation programs to upgrade SF Oracle RAC.

The installer performs the following tasks to upgrade SF Oracle RAC:

- Verifies the compatibility of the systems before the upgrade.
- Stops the SF Oracle RAC processes before the upgrade.
- Uninstalls SF Oracle RAC.
- Installs the SF Oracle RAC 7.0 RPMs on the nodes.
- Installs the SF Oracle RAC 7.0.1 patches on the nodes.
- Starts the SF Oracle RAC processes after the upgrade.
- Displays the location of the log files, summary file, and response file.

Bringing the application database online

- 1 Start all applications that are not managed by VCS. Use native application commands to start the applications.
- 2
 - If the application database is managed by VCS, reset the `AutoStart` value to 1 to enable VCS to bring the database service group online automatically when VCS starts:
 - If the application database is not managed by VCS, change the management policy for the database to automatic:
 - For Oracle RAC 11g:

Performing an automated upgrade using response files with Install Bundles

```
$ srvctl modify database -d db_name -y AUTOMATIC
```

- For Oracle RAC 12c:

```
$ srvctl modify database -db db_name -policy AUTOMATIC
```

- 3 Complete other post-upgrade steps.

For instructions, see the chapter *Performing post-upgrade tasks* in *Storage Foundation for Oracle RAC 7.0 Installation and Configuration Guide*.

- 4 If you want to upgrade all application clusters to version 7.0.1, make sure that you upgraded CP server systems that use VCS or SFHA to 7.0.1. Then, upgrade all application clusters to version 7.0.1.

For instructions to upgrade VCS or SFHA on the CP server systems, see the 7.0 VCS or SFHA installation guide.

Performing an automated upgrade using response files with Install Bundles

Typically, you can use the response file that the installer generates after you perform InfoScale upgrade with Install Bundles on one system to upgrade InfoScale on other systems.

To perform automated upgrade using response files

- 1 Make sure the systems where you want to upgrade meet the upgrade requirements.
- 2 Copy the response file to one of the systems where you want to upgrade Veritas InfoScale.
- 3 Edit the values of the response file variables as necessary.
- 4 Navigate to the folder that contains the installation program.
- 5 Start the upgrade from the system to the `/infoscale7.0.1` directory. For example:

```
# ./installmr -responsefile /infoscale7.0.1/response_file
```

Where `/infoscale7.0.1/response_file` is the response file's full path name.

- 6 Complete the post upgrade task as mentioned in the upgrade method for specific components.

Performing a full upgrade of SF Oracle RAC using Install Bundles

This section describes how to perform a full upgrade of SF Oracle RAC using Install Bundles.

- [Preparing to perform a full upgrade to 7.0.1 on an SF Oracle RAC cluster](#)
- [Upgrading SF Oracle RAC and operating system \(minor OS upgrade\)](#)

Preparing to perform a full upgrade to 7.0.1 on an SF Oracle RAC cluster

Perform the preparatory steps in this section if you are performing a full upgrade of the cluster. Before you upgrade, make sure that your systems meet the hardware and software requirements for this release.

Pre-upgrade tasks for migrating the SFDB repository database

Perform the following before upgrading SF Oracle RAC.

Note: The Sfua_Base repository resource group will be removed from the main.cf file. It is not required as a separate service group for SF Oracle RAC 7.0.1.

To prepare to migrate the repository database

- ◆ Resynchronize all existing snapshots before upgrading. As Oracle user, enter:

```
$ /opt/VRTS/bin/dbed_vmsnap -s $ORACLE_SID \  
-f SNAPPLAN -o resync
```

Warning: The Database Flashsnap clone database will not be able to be carried over after upgrading. You must create a new Database Flashsnap clone database after upgrading to 7.0.1.

Upgrading SF Oracle RAC and operating system (minor OS upgrade)

This section provides instructions for SF Oracle RAC and minor operating system upgrade.

Perform the steps in the following procedure if you plan to perform a minor upgrade of the operating system, for example from SLES11 SP1 to SLES11 SP2, along with SF Oracle RAC.

- If required, upgrade the operating system.
- Upgrade to SF Oracle RAC 7.0.1.
- Bring the SF Oracle RAC online.

Upgrading the operating system

If you want to upgrade the operating system, perform the following steps:

- 1 Rename the `/etc/llttab` file to prevent LLT from starting automatically when the node starts:

```
# mv /etc/llttab /etc/llttab.save
```

- 2 Upgrade the operating system on all nodes in the cluster.
For instructions, see the operating system documentation.

Note: If reboot is required, use `shutdown -r now` command to reboot the nodes.

- 3 After the system restarts, restore the `/etc/llttab` file to its original name:

```
# mv /etc/llttab.save /etc/llttab
```

Upgrading SF Oracle RAC using Install Bundles

Use the `installmr` script-based installation programs to upgrade SF Oracle RAC.

The installer performs the following tasks to upgrade SF Oracle RAC:

- Verifies the compatibility of the systems before the upgrade.
- Stops the SF Oracle RAC processes before the upgrade.
- Uninstalls SF Oracle RAC.
- Installs the SF Oracle RAC 7.0 RPMs on the nodes.
- Installs the SF Oracle RAC 7.0.1 patches on the nodes.
- Starts the SF Oracle RAC processes after the upgrade.
- Displays the location of the log files, summary file, and response file.

Bringing the application database online

- 1 Start all applications that are not managed by VCS. Use native application commands to start the applications.
- 2
 - If the application database is managed by VCS, reset the AutoStart value to 1 to enable VCS to bring the database service group online automatically when VCS starts:
 - If the application database is not managed by VCS, change the management policy for the database to automatic:

- For Oracle RAC 11g:

```
$ srvctl modify database -d db_name -y AUTOMATIC
```

- For Oracle RAC 12c:

```
$ srvctl modify database -db db_name -policy AUTOMATIC
```

- 3 Complete other post-upgrade steps.

For instructions, see the chapter *Performing post-upgrade tasks* in *Storage Foundation for Oracle RAC 7.0 Installation and Configuration Guide*.

- 4 If you want to upgrade all application clusters to version 7.0.1, make sure that you upgraded CP server systems that use VCS or SFHA to 7.0.1. Then, upgrade all application clusters to version 7.0.1.

For instructions to upgrade VCS or SFHA on the CP server systems, see the 7.0 VCS or SFHA installation guide.

Upgrading to 7.0.1 from 7.0

This chapter includes the following topics:

- [Performing a full upgrade to 7.0.1 on a cluster](#)
- [Upgrading to 7.0.1 on a standalone system](#)
- [Upgrading to 7.0.1 on a system that has encapsulated boot disk](#)
- [Upgrading the operating system](#)
- [Verifying software versions](#)

Performing a full upgrade to 7.0.1 on a cluster

Performing a full upgrade on a cluster requires stopping cluster failover functionality during the entire procedure.

Depending on your cluster's configuration, select one of the following procedures to upgrade to 7.0.1:

- [Performing a full upgrade to 7.0.1 on a Veritas Cluster Server](#)
- [Performing a full upgrade to 7.0.1 on an SFHA cluster](#)
- [Performing a full upgrade to 7.0.1 on an SFCFSHA cluster](#)
- [Performing a full upgrade to 7.0.1 on an SF Oracle RAC cluster](#)

See “[Downloading required software to upgrade to 7.0.1](#)” on page 11.

Performing a full upgrade to 7.0.1 on a Veritas Cluster Server

The following procedure describes performing a full upgrade on a Veritas Cluster Server (VCS) cluster.

Note: You need to make sure that IPv4RouteOptions attribute is configured for MultiNICA resources, otherwise network connection may be interrupted.

To upgrade VCS

- 1 Make sure you have downloaded the latest software required for the upgrade.
- 2 Log in as superuser.

Note: Upgrade the Operating System and reboot the systems if required.

- 3 Check the readiness of the nodes where you plan to upgrade. From the directory that contains the extracted and untarred 7.0.1 rolling patch binaries, change to the directory that contains the installmr script. Start the pre-upgrade check:

```
# ./installmr -precheck sys1 sys2 ... nodeN
```

- 4 Resolve any issues that the precheck finds.
- 5 Start the upgrade:

```
# ./installmr sys1 sys2 ... nodeN
```

- 6 After the upgrade, review the log files for any issues.

Performing a full upgrade to 7.0.1 on an SFHA cluster

The following procedure describes performing a full upgrade on an SFHA and VCS cluster.

To perform a full upgrade to 7.0.1 on an SFHA cluster

- 1 Make sure you have downloaded the latest software required for the upgrade.
- 2 Log in as superuser.

- 3 From the directory that contains the extracted and untarred 7.0.1 rolling patch binaries, change to the directory that contains the `installmr` script. Check the readiness of the nodes where you plan to upgrade. Start the pre-upgrade check:

```
# ./installmr -precheck sys1 sys2... nodeN
```

where `sys1`, `sys2` and `nodeN` are nodes to be upgraded.

- 4 If service groups have VxFS file systems mounted, make the service groups offline.
- 5 If you have VxVM or VxFS cache on your system, offline the cache before upgrading with the `installmr` script:

```
# sfcache offline cache_area
```

- 6 Start the upgrade:

```
# ./installmr sys1 sys2... nodeN
```

where `sys1`, `sys2` and `nodeN` are nodes to be upgraded.

Performing a full upgrade to 7.0.1 on an SFCFSHA cluster

The following procedure describes performing a full upgrade on an SFCFSHA cluster.

To perform a full upgrade to 7.0.1 on an SFCFSHA cluster

- 1 Make sure you have downloaded the latest software required for the upgrade.
- 2 Log in as superuser.
- 3 If applications are not managed by VCS, make the applications offline.
- 4 On each node, enter the following command to check if any Storage Checkpoints or VxFS file systems out of VCS control are mounted:

```
# mount | grep vxfs
```

If any Storage Checkpoints or VxFS file systems are mounted, on each node in the cluster unmount all Storage Checkpoints.

```
# umount /checkpoint_name
```

- 5 If you have created any Volume Replicator (VVR) replicated volume groups (RVGs) on your system, perform the following steps:

- Stop all applications that are involved in replication. For example, if a data volume contains a file system, unmount it.
- Use the `vxrvrg stop` command to stop each RVG individually:

```
# vxrvrg -g diskgroup stop rvg_name
```

- On the Primary node, use the `vxrlink status` command to verify that all RLINKs are up-to-date:

```
# vxrlink -g diskgroup status rlink_name
```

Caution: To avoid data corruption, do not proceed until all RLINKs are up-to-date.

- 6** If you have VxVM or VxFS cache on your system, offline the cache before upgrading with the `installmr` script:

```
# sfcache offline cache_area
```

- 7** Stop activity to all VxVM volumes.

For example, stop any applications such as databases that access the volumes, and unmount any file systems that have been created on the volumes

- 8** Stop all VxVM volumes by entering the following command for each disk group on master node:

```
# vxvol -g diskgroup stopall
```

Verify that no volumes remain open:

```
# vxprint -Aht -e v_open
```

- 9** If required, apply the OS kernel patches.
- 10** From the directory that contains the extracted and untarred 7.0.1 rolling patch binaries, change to the directory that contains the `installmr` script. Start the upgrade.

```
# ./installmr sys1
           sys2
```

where `sys1` and `sys2` are nodes which are to be upgraded.

- 11 After all nodes in the cluster are upgraded, the processes will be restarted automatically. Should there be any problem, the `installmr` script will ask you to reboot the system. Then the application failover capability will be available.
- 12 If necessary, reinstate any missing mount points in the `/etc/filesystems` file on each node.
- 13 Restart all the volumes by entering the following command on the master node, for each disk group:

```
# vxvol -g diskgroup startall
```

- 14 If you stopped any RVGs in step 5, restart each RVG:

```
# vxrvrg -g diskgroup start rvg_name
```

- 15 Remount all VxFS file systems and Storage Checkpoints on all nodes:

```
# mount /filesystem
```

Performing a full upgrade to 7.0.1 on an SF Oracle RAC cluster

The following procedure describes performing a full upgrade on an SF for Oracle RAC cluster.

To upgrade to 7.0.1 on an SF Oracle RAC cluster

- 1 Make sure you have downloaded the latest software required for the upgrade.
- 2 Log in as superuser.
- 3 Verify that `/opt/VRTSvcs/bin` is in your `PATH` so that you can execute all product commands.
- 4 From any node in the cluster, make the VCS configuration writable:

```
# haconf -makerw
```

- 5 Enter the following command to freeze HA service group operations on each node:

```
# hasys -freeze -persistent nodename
```

- 6 Make the configuration read-only:

```
# haconf -dump -makero
```

- 7** ■ If the Oracle database is managed by VCS, set the AutoStart value to 0 to prevent the database service group from starting automatically when VCS starts:

- If the Oracle database is not managed by VCS, change the management policy for the database to manual:

For Oracle RAC 12c:

```
$ srvctl modify database -db db_name -policy MANUAL
```

For Oracle RAC 11g:

```
$ srvctl modify database -d db_name -y MANUAL
```

- 8** If Oracle Clusterware is not controlled by VCS, enter the following command on each node of the cluster to stop Oracle Clusterware:

```
# GRID_HOME/bin/crsctl stop crs
```

- 9** Stop all applications that use VxFS or VxVM disk groups, whether local or CFS.

If the applications are under VCS control:

```
# hagrps -offline grp_name -any
```

If the applications are not under VCS control:

Use native application commands to stop the application.

- 10** Unmount the VxFS file system, which is not under VCS control.

```
# mount |grep vxfs
```

```
# fuser -m /mount_point
```

```
# umount /mount_point
```

Make sure that no processes are running which make use of mounted shared file system or shared volumes.

```
# fuser -cu /mount_point
```

- 11** If you have VxVM or VxFS cache on your system, offline the cache before upgrading with the `installmr` script:

```
# sfcache offline cache_area
```

12 Stop VCS.

```
# hastop -all
```

13 If required, apply the OS kernel patches.

See *Oracle's* documentation for the procedures.

14 From the directory that contains the extracted and untarred 7.0.1 rolling patch binaries, change to the directory that contains the installmr script. Enter:

```
# ./installmr sys1 sys2
```

where `sys1` and `sys2` are nodes which are to be upgraded.

15 Follow the instructions from the installer. If there is some module load/unload issue, reboot all of the nodes of the cluster.

```
# /sbin/shutdown -r now
```

16 If necessary, reinstate any missing mount points in the `/etc/fstab` file on each node.

17 Relink the SF Oracle RAC libraries with Oracle:

Choose the option **Relink Oracle Database Binary** from the program menu.

18 From any node in the cluster, make the VCS configuration writable:

```
# haconf -makerw
```

19 Enter the following command on each node to unfreeze HA service group operations:

```
# hasys -unfreeze -persistent nodename
```

20 Make the configuration read-only:

```
# haconf -dump -makero
```

21 Enter the following command on each node to take service groups online:

```
# hagrps -online service_group -sys nodename
```

22 Restart all the volumes by entering the following command for each disk group:

```
# vxvol -g diskgroup startall
```

23 Remount all VxFS file systems on all nodes:

```
# mount /filesystem
```

24 If Oracle Clusterware is not controlled by VCS, enter the following command on each node to start Oracle Clusterware.

```
# $CRS_HOME/bin/crsctl start crs
```

25 Bring the Oracle database service group online.

- If the Oracle database is managed by VCS:

```
# hagrps -online Oracle_group -any
```

- If the Oracle database is not managed by VCS:

For Oracle RAC 11g:

```
$ srvctl start database -d db_name
```

For Oracle RAC 12c:

```
$ srvctl start database -db db_name
```

26 ■ If the Oracle database is managed by VCS, reset the AutoStart value to 1 to enable VCS to bring the database service group online automatically when VCS starts:

```
# haconf -makerw
```

```
# hagrps -modify oracle_groupname AutoStart 1
```

```
# haconf -dump -makero
```

- If the Oracle database is not managed by VCS, change the management policy for the database to automatic:

For Oracle RAC 11g:

```
$ srvctl modify database -d db_name -y AUTOMATIC
```

For Oracle RAC 12c:

```
$ srvctl modify database -db db_name -policy AUTOMATIC
```

27 Upgrade Oracle RAC.

For information on Oracle RAC support, see:

http://www.Veritas.com/support/en_US/article.DOC5081

For instructions, see the chapter *Upgrading Oracle RAC* in *Veritas™ Storage Foundation for Oracle® RAC Installation and Configuration Guide*.

Note: The procedure for Oracle RAC 12c is the same with that for Oracle RAC 11g Release 2.

Upgrading to 7.0.1 on a standalone system

You can use this procedure to upgrade on a standalone system that runs SF.

To upgrade to 7.0.1 on a standalone system

- 1 Make sure you have downloaded the latest software required for the upgrade.
- 2 Log in as superuser.
- 3 Verify that `/opt/VRTS/bin` is in your `PATH` so you can execute all product commands.
- 4 If required, apply the OS kernel patches.
- 5 Enter the following command to check if any VxFS file systems or Storage Checkpoints are mounted:

```
# df -T | grep vxfs
```

- 6 Unmount all Storage Checkpoints and file systems:

```
# umount /checkpoint_name
```

```
# umount /filesystem
```

- 7 If you have created any Volume Replicator (VVR) replicated volume groups (RVGs) on your system, perform the following steps:
 - Stop all applications that are involved in replication. For example, if a data volume contains a file system, unmount it.
 - Use the `vrxvg stop` command to stop each RVG individually:

```
# vxrvg -g diskgroup stop rvg_name
```

- On the Primary node, use the `vxrlink status` command to verify that all RLINKs are up-to-date:

```
# vxrlink -g diskgroup status rlink_name
```

Caution: To avoid data corruption, do not proceed until all RLINKs are up-to-date.

- 8 If you have VxVM or VxFS cache on your system, offline the cache before upgrading with the `installmr` script:

```
# sfcache offline cache_area
```

- 9 Stop activity to all VxVM volumes. For example, stop any applications such as databases that access the volumes, and unmount any file systems that have been created on the volumes.

- 10 Stop all VxVM volumes by entering the following command for each disk group:

```
# vxvol -g diskgroup stopall
```

Verify that no volumes remain open:

```
# vxprint -Aht -e v_open
```

- 11 Navigate to the folder that contains the installation program. Run the `installmr` script:

```
# ./installmr nodename
```

- 12 If necessary, reinstate any missing mount points in the `/etc/fstab` file.

- 13 Restart all the volumes by entering the following command for each disk group:

```
# vxvol -g diskgroup startall
```

14 If you stopped any RVGs in step 7, restart each RVG:

```
# vxrvrg -g diskgroup start rvg_name
```

15 Remount all VxFS file systems and Storage Checkpoints:

```
# mount /filesystem  
# mount /checkpoint_name
```

Upgrading to 7.0.1 on a system that has encapsulated boot disk

You can use this procedure to upgrade to 7.0.1 on a system that has encapsulated boot disk.

Note: Upgrading with encapsulated boot disk from 7.0 to 7.0.1 requires reboot.

To upgrade to 7.0.1 on a system that has encapsulated boot disk

1 If you have VxVM or VxFS cache on your system, offline the cache.

```
# sfcache offline cache_area
```

2 Manually unmount file systems and stop open volumes.

3 Upgrade to 7.0.1 using `installmr` command.

4 After upgrading, reboot the system to have the new VM drivers take effect.

5 If the mirror of boot disk is split during upgrading, re-join the mirrors manually when systems reboot after upgrading to 7.0.1.

Upgrading the operating system

This section describes how to upgrade the operating system on a VeritasVeritas InfoScale node where you plan to upgrade to 7.0.1 for Red Hat Enterprise Linux (RHEL) 6, RHEL 7, RHEL 7.1, SUSE Linux Enterprise (SLES) 11, Oracle Linux (OL) 6, and OL 7.

Note: Support for RHEL 7.1 is introduced in this release. If you want to upgrade an existing SFHA 6.2 deployment from RHEL 7 to RHEL 7.1, upgrade to SFHA 6.2.1 first, then upgrade the operating system to RHEL 7.1. If you upgrade RHEL 7 to RHEL 7.1 first, some errors will be observed with the SFHA 6.2 modules and they can only be resolved until you upgrade SFHA 6.2 to SFHA 6.2.1.

Preparing for OS upgrades

- 1 Rename the `/etc/llttab` file to prevent LLT from starting automatically when the node starts:

```
# mv /etc/llttab /etc/llttab.save
```

- 2 Upgrade the operating system on all nodes in the cluster.
For instructions, see the operating system documentation.

Note: If required, restart the nodes with the `shutdown -r now` command.

- 3 After the system restarts, restore the `/etc/llttab` file to its original name:

```
# mv /etc/llttab.save /etc/llttab
```

To upgrade the operating system to a later version

- 1 Stop Storage Foundation.
- 2 Upgrade to the latest operating system.
- 3 Upgrade to 7.0.1.
- 4 Start Storage Foundation.

Verifying software versions

To list the Veritas RPMs installed on your system, enter the following command:

```
# rpm -qa | grep VRTS
```

The output version for 7.0.1 is 7.0.1.000, and the VRTSperl version is 5.20.1.2.

Removing Veritas InfoScale

This chapter includes the following topics:

- [About removing Veritas InfoScale 7.0.1](#)
- [Uninstalling Veritas Storage Foundation Cluster File System High Availability 7.0.1](#)
- [Uninstalling Veritas Storage Foundation for Oracle RAC 7.0.1](#)

About removing Veritas InfoScale 7.0.1

Veritas recommends that you follow the steps in the following sections to remove all the installed Veritas software, and then perform a complete reinstallation of the previous release.

For extensive uninstallation and reinstallation procedures, refer to the appropriate product's Installation Guide.

Uninstalling Veritas Storage Foundation Cluster File System High Availability 7.0.1

This section provides procedures for uninstalling Veritas Storage Foundation Cluster File System High Availability (SFCFSA). You must complete the preparatory tasks before you uninstall SFCFS.

Preparing to uninstall Veritas Storage Foundation Cluster File System High Availability

The following procedure prepares your system for uninstalling Veritas Storage Foundation Cluster File System High Availability (SFCFSHA).

To prepare to uninstall Veritas Storage Foundation Cluster File System High Availability

- 1 Log in as the root user on any node in the cluster.
- 2 Verify that the following directories are set in your `PATH` environment variable:

```
/opt/VRTS/bin
/opt/VRTSvcs/bin
```

- 3 Back up the following configuration files:

```
# mv /etc/llttab /etc/llttab.`date +%m-%d-%y_%H-%M-%S`
# mv /etc/llthosts /etc/llthosts.`date +%m-%d-%y_%H-%M-%S`
# mv /etc/gabtab /etc/gabtab.`date +%m-%d-%y_%H-%M-%S`
# mv /etc/vxfenmode /etc/vxfenmode.`date +%m-%d-%y_%H-%M-%S`
```

- 4 Determine if each node's root disk is under VxVM control and proceed as follows.

- Check if each node's root disk is under VxVM control:

```
# df -v /
```

The root disk is under VxVM control if `/dev/vx/dsk/rootvol` is listed as being mounted as the root (`/`) file system. If so, unmirror and unencapsulate the root disk as described in the following steps:

- If the encapsulated root disk is mirrored, use the `vxrootadm` command to split the mirror.

For example, the following command removes a root disk mirror from the current root disk group:

```
# vxrootadm -Yv rmmirror rootdg_01-s0
```

- Enter the following command to convert all the encapsulated volumes in the root disk back to being accessible directly through disk partitions instead of through volume devices.

```
# /etc/vx/bin/vxunroot
```

Following the removal of encapsulation, the system is rebooted from the unencapsulated root disk.

- 5** If you have created any Volume Replicator (VVR) replicated volume groups (RVGs) on your system, perform the following steps:

- Stop all applications that are involved in replication. For example, if a data volume contains a file system, unmount it.
- Use the `vxrvrg stop` command to stop each RVG individually:

```
# vxrvrg -g diskgroup stop rvg_name
```

- On the Primary node, use the `vxrlink status` command to verify that all RLINKs are up-to-date:

```
# vxrlink -g diskgroup status rlink_name
```

- 6** Check if any VxFS file systems or Storage Checkpoints are mounted:

```
# df -T | grep vxfs
```

- 7** Unmount all Storage Checkpoints and file systems:

```
# umount /checkpoint1
# umount /filesystem1
```

If file system is mounted in a cluster, then use `cfsumount` command.

- 8** Stop all VxVM volumes by entering the following command for each disk group:

```
# vxvol -g dg1 stopall
```

To verify that no volumes are open:

```
# vxprint -Aht -e v_open
```

- 9** Stop VCS:

```
# hastop -all
```

Uninstalling Storage Foundation Cluster File System High Availability

The following procedure uninstalls Storage Foundation Cluster File System High Availability (SFCFSHA).

To uninstall Storage Foundation Cluster File System High Availability

- 1 Log in as the root user on any node in the cluster.
- 2 Navigate to the directory that contains the uninstallation program:

```
# cd /opt/VRTS/install
```

- 3 Run the uninstallation program while specifying each node in the cluster:

```
# ./installer -uninstall sys1
                sys2
```

- 4 Confirm the uninstallation:

```
Are you sure you want to uninstall SFCFSHA [y,n,q] (y)
```

The installer stops the Storage Foundation Cluster File System High Availability processes and uninstalls the packages.

Uninstalling Veritas Storage Foundation for Oracle RAC 7.0.1

The following procedure uninstalls Veritas Storage Foundation for Oracle RAC (SFRAC).

Note: This procedure will remove the complete SFRAC stack from all nodes.

To uninstall Veritas Storage Foundation for Oracle RAC

- 1 On each node, take the Oracle resources in the VCS configuration file (`main.cf`) offline.

```
# hagrps -offline oracle_group -sys node_name
```

If the database is not managed by VCS, stop the Oracle database as follows:

```
$ srvctl stop database -d db_name
```

- 2 If Oracle Clusterware is not under VCS Control, then enter the following command on each node of the cluster to stop Oracle Clusterware.

- For 11gR2 and 12c:

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

- 3** Stop the applications that use CVM or CFS that are not under VCS control
- Using native application commands, stop the applications that use CVM or CFS on all nodes.
 - Verify that no processes use the CFS mount point:

```
# fuser -c /mount_point
```

- 4** Unmount CFS file systems that are not under VCS control
- Determine the file systems that need to be unmounted by checking the output of mount command.

```
# mount -v | grep vxfs | grep cluster
```

- Unmount each file system that is not controlled by VCS on each node:

```
# umount /mount_point
```

- 5** If you have VxVM or VxFS cache on your system, offline the cache before uninstallation:

```
# sfcache offline cache_area
```

- 6** Stop VCS to take the service groups on all nodes offline

On any one node execute following command to stop VCS:

```
# hastop -all
```

- 7** Stopping the applications that use VxVM or VxFS that are not under VCS control

- Using native application commands, stop the applications that use VxVM or VxFS.
- Verify that no processes use the VxFS mount point:

```
# fuser -c /mount_point
```

- 8** Unmounting VxFS file systems that are not under VCS control.

- Determine the file systems that need to be unmounted by checking the output of mount command.

```
# mount -v | grep vxfs
```

Unmount each file system that is not controlled by VCS on each node:

```
# umount /mount_point
```

9 Remove SF for Oracle RAC.

- On any one node, navigate to the directory that contains the `uninstallsfrac` program:

```
# cd /opt/VRTS/install
```

- Start the `uninstallsfrac` program:

```
# ./installer -uninstall
```

10 After uninstalling the SF Oracle RAC, refer to the chapter of *Installing the products for the first time* in this document to reinstall the SF Oracle RAC 7.0.1 software.

About the installation script

This appendix includes the following topics:

- [About the installation script](#)

About the installation script

Veritas™ Veritas InfoScale 7.0.1 provides an installation and upgrade script. To install or upgrade the patches that are included in this release, you can use the `installmr` script. The `installmr` script lets you install or upgrade all the patches that are associated with the packages installed.

For more information regarding installation,

Veritas has introduced a new Install Bundles feature to help you install or upgrade directly to maintenance level with one execution. You can use the `-base_path` option to install or upgrade base and maintenance bundles. There are a few prerequisites for using Install Bundles feature for installation and upgrade of 7.0.1 mentioned below:

The installmr script options

The following table lists the command line options for the `installmr` and upgrade script:

Table A-1 The command line options for the product `installmr` script

Command Line Option	Function
<code>system1 system2...</code>	Specifies the systems on which to run the installation options. A system name is required for all options. If not specified, the command prompts for a system name.

Table A-1 The command line options for the product installmr script
(continued)

Command Line Option	Function
-base_path	The <i>-base_path</i> option is used to define the path of a base level release to be integrated with a maintenance level release in order for the two releases to be simultaneously installed.
-patch_path	Defines the path of a patch level release to be integrated with a base or a maintenance level release in order for multiple releases to be simultaneously installed.
-patch2_path	Defines the path of a patch level release to be integrated with a base or a maintenance level release in order for multiple releases to be simultaneously installed.
-patch3_path	Defines the path of a patch level release to be integrated with a base or a maintenance level release in order for multiple releases to be simultaneously installed.
-patch4_path	Defines the path of a patch level release to be integrated with a base or a maintenance level release in order for multiple releases to be simultaneously installed.
-patch5_path	Defines the path of a patch level release to be integrated with a base or a maintenance level release in order for multiple releases to be simultaneously installed.
-precheck	Performs a preinstallation check to determine if systems meet all installation requirements. Veritas recommends doing a precheck before installing a product.
-postcheck	Checks any issues after installation or upgrading on the system.

Table A-1 The command line options for the product installmr script
(continued)

Command Line Option	Function
<code>-responsefile <i>response_file</i></code>	Automates installation and configuration by using system and configuration information stored in a specified file instead of prompting for information. The <i>response_file</i> must be a full path name. You must edit the response file to use it for subsequent installations. Variable field definitions are defined within the file.
<code>-logpath <i>log_path</i></code>	Specifies a directory other than <code>/opt/VRTS/install/logs</code> as the location where installer log files, summary files, and response files are saved.
<code>-tmppath <i>tmp_path</i></code>	Specifies a directory other than <code>/var/tmp</code> as the working directory for the installation scripts. This destination is where initial logging is performed and where RPMs are copied on remote systems before installation.
<code>-timeout <i>timeout_value</i></code>	The <code>-timeout</code> option is used to specify the number of seconds that the script should wait for each command to complete before timing out. Setting the <code>-timeout</code> option overrides the default value of 1200 seconds. Setting the <code>-timeout</code> option to 0 will prevent the script from timing out. The <code>-timeout</code> option does not work with the <code>-serial</code> option.
<code>-keyfile <i>ssh_key_file</i></code>	Specifies a key file for secure shell (SSH) installs. This option passes <code>-i <i>ssh_key_file</i></code> to every SSH invocation.
<code>-hostfile <i>full_path_to_file</i></code>	Specifies the location of a file that contains a list of hostnames on which to install.

Table A-1 The command line options for the product installmr script
(continued)

Command Line Option	Function
<code>-kickstart <i>dir_path</i></code>	Produces a kickstart configuration file for installing with Linux RHEL Kickstart. The file contains the list of Veritas RPMs in the correct order for installing, in a format that can be used for Kickstart installations. The <i>dir_path</i> indicates the path to the directory in which to create the file.
<code>-yumgroupxml</code>	The <code>-yumgroupxml</code> option is used to generate a yum group definition XML file. The <code>createrepo</code> command can use the file on Redhat Linux to create a yum group for automated installation of all rpms for a product. An available location to store the XML file should be specified as a complete path. The <code>-yumgroupxml</code> option is supported on Redhat Linux only.
<code>-require</code>	The <code>-require</code> option is used to specify a installer hot fix file.
<code>-serial</code>	Specifies that the installation script performs install, uninstall, start, and stop operations on each system in a serial fashion. If this option is not specified, these operations are performed simultaneously on all systems.
<code>-rsh</code>	Specifies this option when you want to use RSH and RCP for communication between systems instead of the default SSH and SCP.
<code>-redirect</code>	Displays progress details without showing the progress bar.
<code>-pkgset</code>	Discovers and displays the RPM group (minimum, recommended, all) and RPMs that are installed on the specified systems.
<code>-pkgtable</code>	Displays product's RPMs in correct installation order by group.
<code>-listpatches</code>	The <code>-listpatches</code> option displays product patches in correct installation order.

Table A-1 The command line options for the product installmr script
(continued)

Command Line Option	Function
-comcleanup	The <code>-comcleanup</code> option removes the secure shell or remote shell configuration added by installer on the systems. The option is only required when installation routines that performed auto-configuration of the shell are abruptly terminated.
-version	Checks and reports the installed products and their versions. Identifies the installed and missed RPMs and patches where applicable for the product. Provides a summary that includes the count of the installed and any missed RPMs and patches where applicable. Lists the installed patches, hotfixes, and available updates for the installed product if an Internet connection is available.
-nolic	Allows installation of product RPMs without entering a license key. Licensed features cannot be configured, started, or used when this option is specified.
-disable_dmp_native_support	Disables Dynamic multi-pathing support for native the LVM volume groups/ZFS pools during an upgrade. Retaining Dynamic multi-pathing support for the native LVM volume groups/ZFS pools during an upgrade increases package upgrade time depending on the number of LUNs and native LVM volume groups/ZFS pools configured on the system. The <code>-disable_dmp_native_support</code> option is supported in upgrade scenario only.
-noipc	Disables the installer from making outbound networking calls to Veritas Operations Readiness Tool (SORT) in order to automatically obtain hot fixes and release information updates.

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