Veritas Storage Foundation™ and High Availability Solutions Read This First

Linux

5.0 Maintenance Pack 3 Rolling Patch 2

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Storage Foundation and High Availability Solutions 5.0 Maintenance Pack 3 Rolling Pack 2

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The *Veritas Storage Foundation 5.0 Release Notes* can be viewed at the following URL:

http://entsupport.symantec.com/docs/283859

The *Veritas Cluster Server 5.0 Release Notes* can be viewed at the following URL: http://entsupport.symantec.com/docs/283850

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

Contents

Veritas Storage Foundation and High Availability Solutions Read This First

This document provides release information about the products in the Veritas Storage Foundation and High Availability 5.0 Maintenance Pack 3 (MP3) Rolling Patch 2 (RP2) Linux release.

For the latest information on updates, patches, and known issues regarding this release, see the following TechNote on the Symantec Technical Support website:

http://entsupport.symantec.com/docs/281993

Review this entire document before installing and upgrading your Veritas Storage Foundation and High Availability product.

For further details, depending on the product for which you want to install this Rolling Patch, refer to one of the following Release Notes documents:

- *Veritas Cluster Server 5.0 MP3 Release Notes*
- *Veritas Storage Foundation 5.0 MP3 Release Notes*

Note: The Veritas Storage Foundation Cluster File System 5.0 MP3 Release Notes information is located in the *Veritas Storage Foundation 5.0 MP3 Release Notes*.

System requirements

This section describes the system requirements for this release.

Supported operating systems

The 5.0 MP3 RP2 release operates on the architectures and operating systems shown below:

- Red Hat Enterprise Linux 4 (RHEL 4) with Update 3 (2.6.9-34 kernel) or later on AMD Opteron or Intel Xeon EM64T (x86_64).
- Red Hat Enterprise Linux 5 (RHEL 5) with Update 1 (2.6.18-53.el5 kernel) or later on AMD Opteron or Intel Xeon EM64T (x86_64)
- Oracle Enterprise Linux (OEL) 4.4 or later on AMD Opteron or Intel Xeon EM64T (x86_64)
- Oracle Enterprise Linux (OEL) 5.1 or later on AMD Opteron or Intel Xeon EM64T (x86_64)
- SUSE Linux Enterprise Server 9 (SLES 9) with SP3 (2.6.5-7.244 kernel or later) or SP4 (2.6.5-7.308 kernel or later) on AMD Opteron or Intel Xeon EM64T (x86_64)
- SUSE Linux Enterprise Server 10 (SLES 10) with SP1 (2.6.16.46-0.12 kernel or later) or SP2 (2.6.16.60-0.21 kernel or later) on AMD Opteron or Intel Xeon EM64T (x86_64)

Note: Storage Foundation for Oracle RAC (SF Oracle RAC) is supported on the following operating systems:
- RHEL 4 on Linux 5.0 and 5.0 MP1
- SLES 9 on Linux 5.0 and 5.0 MP1

Storage Foundation Cluster File System for Oracle RAC replaces SF Oracle RAC from Linux 5.0 MP2 or later.

SF Oracle RAC does not support the following operating systems:
- RHEL 5
- OEL 5
- SLES 10

Storage Foundation for DB2 does not support OEL 4 or OEL 5.

Note: Veritas Cluster Server also supports the above mentioned operating systems on 32 bit (x86) architecture.

Before you install and upgrade VCS you must verify that the following RPMs are installed on the node. VCS will support any updates made to the following RPMs, provided it maintains the ABI compatibility.

Table 1-1 Operating system and package requirements

Operating system	Required Packages
RHEL 4	compat-libgcc-296-2.96-132.7.2.i386.rpm compat-libstdc++-296-2.96-132.7.2.i386.rpm compat-libstdc++-33-3.2.3-47.3.i386.rpm glibc-2.3.4-2.41.i686.rpm libgcc-3.4.6-10.i386.rpm libstdc++-3.4.6-10.i386.rpm compat-libstdc++-33-3.2.3-47.3.x86_64.rpm glibc-2.3.4-2.41.x86_64.rpm glibc-common-2.3.4-2.41.x86_64.rpm libgcc-3.4.6-10.x86_64.rpm libstdc++-3.4.6-10.x86_64.rpm java-1.4.2-gcj-compat-1.4.2.0-27jpp.noarch.rpm
RHEL 5	compat-libgcc-296-2.96-138.i386.rpm compat-libstdc++-33-3.2.3-61.i386.rpm compat-libstdc++-296-2.96-138.i386.rpm glibc-2.5-24.i686.rpm libgcc-4.1.2-42.el5.i386.rpm libstdc++-3.4.6-10.i386.rpm compat-libstdc++-33-3.2.3-61.x86_64.rpm glibc-2.5-24.x86_64.rpm glibc-common-2.5-24.x86_64.rpm libgcc-4.1.2-42.el5.x86_64.rpm libstdc++-3.4.6-10.x86_64.rpm java-1.4.2-gcj-compat-1.4.2.0-40jpp.115.noarch.rpm

Table 1-1 Operating system and package requirements

Operating system	Required Packages
SLES 9	compat-32bit-9-200407011229.x86_64.rpm glibc-32bit-9-200710191304.x86_64.rpm compat-2004.7.1-1.2.x86_64.rpm glibc-2.3.3-98.94.x86_64.rpm libgcc-3.3.3-43.54.x86_64.rpm libstdc++-3.3.3-43.54.x86_64.rpm
SLES 10	compat-32bit-2006.1.25-11.2.x86_64.rpm glibc-32bit-2.4-31.54.x86_64.rpm compat-2006.1.25-11.2.x86_64.rpm compat-libstdc++-5.0.7-22.2.x86_64.rpm glibc-2.4-31.54.x86_64.rpm libgcc-4.1.2_20070115-0.21.x86_64.rpm libstdc++-4.1.2_20070115-0.21.x86_64.rpm

If your system runs an older version of the operating system, you must upgrade to one of the supported operating systems before you install the product software.

- See "Upgrading the operating system and upgrading to 5.0 MP3 RP2" on page 85.
- See the *Oracle*, *Red Hat*, or *SUSE* documentation for more information on upgrading your system.

Note: All nodes in a VCS cluster must run on the same operating system version. It can however, have different patch levels.
See "Upgrading the patch levels of an operating system for Veritas Cluster Server" on page 88

Xen platform support

The Veritas 5.0 MP3 RP2 release is also supported on the Xen platform for Linux, with some restrictions.

For information about the Veritas Storage Foundation 5.0 MP3 for Xen, refer to the following URL:

http://entsupport.symantec.com/docs/318227

VMware Environment support

For information about the use of this product in a VMware Environment, refer to the following URL:

http://entsupport.symantec.com/docs/289033

DB2 support

This release supports DB2 9.5 FixPak 1, in addition to the DB2 database versions that are supported in the 5.0 MP3 release.

Cluster support

This release supports clusters of a maximum of 32 nodes.

Storage Foundation High Availability fixed issues

The following sections describe the Veritas Storage Foundation High Availability (HA) issues that were fixed in this release.

Volume Manager fixed issues

Table 1-2 describes fixed issues in the Volume Manager 5.0 MP3 RP2 release.

Table 1-2 Volume Manager 5.0 MP3 RP2 fixed issues

Incident	Description
1502120	Fixed an issue with `/dev/dmpconfig` device causing SELINUX an audit error.
1510204	Fixed an issue with `vxconfigd` command hanging after cluster nodes split simulation.
1503242	Fixed an issue with `vxdmpadm iostat` stats not tallying with those of `sar`, `iostat` and `vxstat`.
1487907	Fixed an issue with `vxio` has a non-unique UDID for failed disks.
1487888	Fixed an issue with the start up process fails after upgrade to 5.0 MP3.
1487584	Fixed an issue with CVR: I/O hang on logowner after logclient crashes.
1475580	Fixed an issue with VTOC getting corrupted by our header "PRIVHEAD".
1470734	Fixed an issue with `vxconfigd` dumps core if all paths are excluded.
1443752	Fixed an issue in a clustered environment the recovery of volumes having DCO v20 taking lots of time with no I/O load.
1443706	Fixed an issue in FMR3, I/Os initiating DCO updates for clearing DRL async clear region may not wait for its completion.
1442369	Fixed an issue with a bug in `vxconfigbackupd` script leading to 0 byte `binconfig` file being created.

Table 1-2 Volume Manager 5.0 MP3 RP2 fixed issues

Incident	Description
1441131	Fixed an issue with VxFS Corruption Detected when DCM log plex are attached with mirrored volume and VVR is not configured.
1441072	Fixed an issue with siteread policy is not honoured.
1441020	Fixed a secondary panic due to double free of message with TCP protocol and 16 connection.
1435882	Fixed a panic in `volkio_to_kio_copy` due to passing null ptr to bcopy.
1435471	Fixed an issue with the cluster nodes panicking in `voldco_or_pvmbuf_to_pvmbuf` code after installing 5.0 MP3.
1431279	Fixed an issue with `vxconfigd` core dumps.
1428106	Fixed a system panic in vxio:voldrl_trans_copy.
1427284	Fixed an issue with `vxdmpadm` dumped core when executing `vxdmpadm list dmpnode` command.
1427267	Fixed a CVR panic in `VOLSIOQ_MORE` due to corrupted `volsioq_start` queue.
1425919	Fixed an issue with `vxesd` looping using 100% of one CPU.
1425434	Fixed an issue with CVR fails to connect rlinks followed by `vxconfigd` hangs on secondary.
1414441	The `vxsnap` manual page includes `mirror=enclosure` parameter to avoid being mirrored on the same enclosure.
1414381	Fixed an issue with VVR I/O hanging due to the wrong generation number assignment after recovery.
1414380	Fixed an issue with VVR Rlink failing to connect due to failure of memory allocation for incoming message buffer.
1414342	Fixed an issue with disk devices not appearing in `vxdisk list`.
1412785	Fixed an issue with the system hanging while creating volumes in a guest Ldom.
1411636	Fixed a secondary log error causing rlink disconnect after IBC unfreeze.
1406185	Fixed a segmentation fault on x64 system when running the `vxdmpadm list dmpnode all` command.
1403370	Fixed a system panic after running the `vxdctl enable` or `vxconfigd -k` commands.

Table 1-2 Volume Manager 5.0 MP3 RP2 fixed issues

Incident	Description
1403123	Fixed an issue with `vxconfigd` sleeping and no vx commands were responding.
1397879	Enhanced the `vxresize` manual page to run from non-CVM master.
1397712	Fixed an issue with the `vxsnap restore` manual page is unable to properly freeze or thaw filesystems in a CVM environment.
1396427	Enhanced DMP to handle failing IO when it is not able to interpret sense data.
1389584	Fixed a system panic in vol_putdisk() code.
1389512	Able to force import diskgroup version 80 in VxVM 5.0.
1387033	Fixed a system panic in bcopy() due to null passed in from volioctl_copyin()
1385922	Fixed a system panic due to memory allocation.
1382705	Fixed an issue with the `vxdmpadm listexclude` command dumping core when you run the VRTSexplorer tool.
1381783	Improved the performance of snapshot backups.
1376656	Fixed an issue with vxcached never deletes old snaps when cache hits HWM.
1372340	Fixed an issue with `vxplex` core dumps during `vxassist addlog` due to DRL log length being less than 33 blocks.
1317361	Fixed an issue with the `vxreattach` and `vxunreloc` commands were leaving behind tmp files.
1266730	Fixed the `vxtask` command to display the resync progress subtask for shared volumes with DRL.
1253830	Fixed an issue with HP CCISS raid devices failing in `vxvmconvert`.
1230360	Fixed a system panic in vol_klog_start() due to accessing freed mv read_sio.
1225953	Improved I/O performance with VxFS filesystems on mirror-concat VxVM volumes with DCO and DRL.
1192105	Fixed the `vxdg -n [newdg] deport [origdg]` command causing a memory leak.
1182475	Fixed the `vxdg split` failing if the CVM master changes.
425273	Fixed an issue with VVR RU thread not starting nio after it is created from than waiting for all replicas to have NIO's created.

File System fixed issues

Table 1-3 describes fixed issues in the Veritas File System 5.0 MP3 RP2 release.

Table 1-3 Veritas File System 5.0 MP3 RP2 fixed issues

Incident	Description
1488246	Fixed up directory entry bounds checking which could cause files not to be removed.
1466362	Changed the minimum exclusion zone size for better performance with Thin Reclamation.
1459277	Fixed an issue in which Thin Storage could not be reclaimed.
1456156	Potential for CFS hang during file read ahead.
1456149	Improvements when allocating odd sized extents.
1435656	Made multi-threading improvements to the `fsclustadm` library.
1428641	Fixed an issue with shrinking a CFS which is over 69% full can cause temporary performance issues.
1424181	Improved performance when converting a data Storage Checkpoint to a nodata Storage Checkpoint.
1414719	The `du` and `bdf` commands now report the same amount of free space without a delay after files are deleted.
1413464	Changed the maximum direct I/O size to 1 MB.
1412583	Fixed the cause of a core dump if the `chkptname` parameter was omitted when running the `fsapadm enforceckpt` command.
1412163	Fixed the cause of a core dump by a VxFS function call while setting Dynamic Storage Tiering attributes.
1411872	NFS locking fix on RHEL 5.
1407592	Added support for a fake mount of a file system.
1404722	Corrected the `vxumount` command's usage text.
1385560	Fixed an issue when reusing a special-device inodes can cause memory corruption.
1385559	Fixed a policy enforcement when converting a "data" checkpoint to a "nodata" checkpoint.
1323920	Fixed the odmmkfile and qiomkfile to only run as root user.

Storage Foundation fixed issues

Table 1-4 describes fixed issues in the Storage Foundation 5.0 MP3 RP2 release.

Table 1-4 Storage Foundation 5.0 MP3 RP2 fixed issues

Incident	Description
1366109	Fixed an SElinux-related issue for mapping provider.

Storage Foundation for Oracle fixed issues

Table 1-5 describes fixed issues in the Storage Foundation for Oracle 5.0 MP3 RP2 release.

Table 1-5 Storage Foundation for Oracle 5.0 MP3 RP2 fixed issues

Incidents	Description
1476868	Fixed the `dbed_checkconfig` to provide the correct output.
1435527	Improved boot time for DBEDAgent startup script.
1434688	Storage Foundation for Oracle is no longer creating world writable files under `/tmp`.
1433571	Sybase repository database server is no longer creating world writable files under `/tmp`.
1425261	Automatic truncation of the transaction log of the repository database. In addition incomplete recovery is automatically attempted in case the online transaction log was lost.

Storage Foundation for DB2 fixed issues

Table 1-6 describes fixed issues in the Storage Foundation for DB2 5.0 MP3 RP2 release.

Table 1-6 Storage Foundation for DB2 5.0 MP3 RP2 fixed issues

Incidents	Description
1435527	Improved boot time for DBEDAgent startup script.
1434688	Storage Foundation for DB2 is no longer creating world writable files under `/tmp`.
1433571	Sybase repository database server is no longer creating world writable files under `/tmp`.

Table 1-6 Storage Foundation for DB2 5.0 MP3 RP2 fixed issues

Incidents	Description
1425261	Automatic truncation of the transaction log of the repository database. In addition incomplete recovery is automatically attempted in case the online transaction log was lost.

Veritas Cluster Server fixed issues

Table 1-7 describes fixed issues in the Veritas Cluster Server 5.0 MP3 RP2 release.

Table 1-7 Veritas Cluster Server 5.0 MP3 RP2 fixed issues

Incidents	Description
1507031	The LVMVolumeGroup monitor script now verifies the existence of Volume for all distributions correctly.
1487322	The default location of the Run_ServerFile in Sybase and SybaseBk agents can now be defined.
1469787	The file descriptor opened by HAD on /dev/llt now closes on exec.
1451717	`hasys` command displays an error message when non-existent attributes are specified with `-display` command.
1450300	NFS agent now supports export over multiple IP addresses.
1440459	Modified the init.d script of vxfen to ensure that the vxfen service starts after the vxvm-boot service, when the system boots up.
1425599	The setsockopt function is called with SO_BSDCOMPAT, only on linux kernel versions where it is supported.
1424929	Fixed the race condition while sending the GAB CONNECTS message.
1414709	After all the resources get offline, the IntentOnline attribute of the service group resets to 0.
1407418	Modified the logic such that the agent log files are now created when the environment variable VCS_LOG_MAXLEN is exported.
1404384	Global groups can now switch over to the target cluster when the Preswitch's attribute value is set to TRUE.
1403471	Reduced time for global cluster fault detection.
1386527	Removed the buffer overflow that occurred during CPU usage computation.
1369622	Steward process now starts as a daemon when invoked with 'steward -start'.

Storage Foundation and High Availability known issues

The following sections describe the Veritas Storage Foundation High Availability (HA) known issues in this release.

Volume Manager known issues

The following are the Volume Manager issues that are known in this release.

File system fsck and mount fails because VxVM devices are not present at system boot time (1411526)

On SLES10 systems, the system may fail to boot when a file system is mounted on a Veritas Volume Manager (VxVM) device. This issue occurs because the file system attempts to check and mount the VxVM device before the device is present.

Workaround

Edit the file system entry in `/etc/fstab` file to include the file system options `_netdev` and `hotplug`.

For example, for a VxVM logical volume `lvol0`, edit the line in the `/etc/fstab` file to say:

```
/dev/vx/dsk/vg/lvol0    /mnt      vxfs   _netdev,hotplug  1  2
```

Some subpaths remain in disabled state (1466146)

If you are running RHEL 4 Update 6 with QLogic HBA driver 8.02 some subpaths remain in `DISABLED` state after array controller's reboots.

Workaround

Using QLogic HBA driver 8.01.07-d4 version works correctly with DMP.

QLogic bug id: ER0000000063014.

The VxVM_initrd.img file creation may fail when upgrading a QLogic FC HBA driver on an RHEL 4 Update 6 system to the 8.02.14 driver version (1466116)

If you upgrade a standard QLogic driver by using a source RPM from the QLogic website, you may run into the following known issue. After upgrading to 8.02.14 QLogic driver, encapsulating the root disk on the upgraded system may fail. For some configurations, the root encapsulation fails with the following messages:

```
VxVM vxencap INFO V-5-2-1946 Generating VxVM initrd image...
No module qla2400 found for kernel 2.6.9-67.ELsmp, aborting.
```

Workaround

This error is caused because the upgrade did not correctly remove references to the pre-upgrade version in the `/etc/modprobe.conf` file.

To workaround this error:

1. Modify the `/etc/modprobe.conf` file to remove references of `qla2400.ko`.
2. After this, the root encapsulate will proceed. However, to avoid a system panic after the first reboot during this process you must intervene in the boot process using the GRuB boot menu.
3. Select the standard system boot option rather than the `vxvm_root` option. For example, select:

   ```
   Red Hat Enterprise Linux AS (2.6.9-67.ELsmp)
   ```

If you complete this for the 2 reboot cycles after the root encapsulation process has been invoked, the 3rd reboot will boot correctly from the default `vxvm_root` into a root encapsulated system, without user involvement.

On RHEL 4, if root disk name gets changed, the system fails to reboot (1466061)

If you are running RHEL 4 Update 6 or Update 7 the OS may fail to reboot if root disk name gets changed. The reboot will fail with the following error message:

```
fsck.ext3 can't resolve LABEL=/
```

This issue is caused by the stale cache `/etc/blkid.tab` file containing obsolete label information. This causes init to run into a can't find LABEL error when starting up the OS.

Workaround

To workaround from this issue:

1. Run into OS rescue mode.
2. Remove the old obsolete `/etc/blkid.tab` file.
3. Reboot the system.

With 8.02.14 Qlogic driver, OS devices would be inaccessible after DMP fault injection (1466049)

If you are using the Qlogic HBA driver version 8.02.14, you may run into this issue after DMP disabling and enabling some subpaths. The subpaths would be shown in `DISABLED` state and the corresponding OS devices would be inaccessible.

This issue is caused by SCSI mid layer marking the device state as offline when SCSI commands time out and the device is found unrecoverable.

Workaround

There are two options to recover the OS devices and workaround this issue:

Option 1

You need to determine the device number for this, such as if LUN 44 on Host0 is inaccessible:

1 Delete the stale device:

```
# echo 1>/sys/bus/scsi/devices/0\:0\:0\:44/delete
```

2 Run a SCSI rescan:

```
# echo "- - -">/sys/class/scsi_host/host0/scan
```

Option 2

Execute the script provided in Qlogic driver install package to reset the device state with the `-a` option.

The script is located at `/opt/qlafc-linux-8.02.14.01-1-install/LinuxTools/ql-lun-state-online-1.5.tgz`.

Enter the following commands:

```
# tar zxvf ql-lun-state-online-1.5.tgz
# cd ql-lun-state-online-1.5
# ./ql-lun-state-online.sh -a
```

Error messages when running the VRTSexplorer tool (1453906)

After upgrading from SFCFS 5.0 MP3 to 5.0 MP3 RP2 and running the `VRTSexplorer` tool, the following error messages may display on the console:

```
VRTSexplorer: Collecting VRAS configuration information.
VOL_KERN_DUMP ioctl failed: Bad address
VOL_KERN_DUMP ioctl failed: Bad address
VOL_KERN_DUMP ioctl failed: Bad address
```

These messages are harmless and may be ignored.

Error messages during the upgrade from SFCFS 5.0 MP3 to 5.0 MP3 RP2 (1452178)

During the upgrade from SFCFS 5.0 MP3 to 5.0 MP3 RP2 and after running the `rpm -Uvh` command, the following error messages may display on the console:

```
FATAL: Module vxspec is in use.
FATAL: Module vxio is in use.
FATAL: Module vxdmp is in use.
Error in loading module "vxdmp". See documentation.
```

These messages are harmless and may be ignored.

File System known issues

The following are the File System issues that are known in this release.

Advisory locking over NFS (1508386)

The NFS `lockd` daemon has some known issues on all versions of Linux supported by this 5.0 MP3 RP2 release. Although the issues are unrelated to Storage Foundation, you may experience problems when using advisory locking on an NFS-mounted VxFS file system. Symptoms can include the `lockd` process hanging, problems when trying to unmount the exported file system on the server, and error messages in the log files, such as `"nlmclnt_lock: VFS is out of sync with lock manager!"`.

Workaround

Try any of the following workarounds:

- Send a SIGKILL to the `lockd` process on the NFS server.
- Unmount the file system from the client.
- Reboot the system.

Symantec is working with Red Hat and Novell/SUSE on this fix.

Storage Foundation High Availability known issues

The following are the Storage Foundation High Availability issues that are known in this release.

Storage Foundation Manager 1.1.1 Central Server

The procedure to centrally manage Storage Foundation 5.0 MP3 RP2 nodes on Storage Foundation Manager 1.1.1 can be viewed at the following URL:

http://entsupport.symantec.com/docs/315384

Storage Foundation Cluster File System known issues

There are no known issues in 5.0 MP3 RP2 release of Storage Foundation Cluster File System.

Storage Foundation for Oracle known issues

The following are the Storage Foundation for Oracle issues that are known in this release.

Veritas Database Server (VxDBMS) is slow to boot (1433244)

The boot time for DBED repository database server (VxDBMS) is high. For more information, refer to the following Late Breaking News (LBN) URL:

http://entsupport.symantec.com/docs/281993

Storage Foundation for DB2 known issues

The following are the Storage Foundation for DB2 issues that are known in this release.

Veritas Database Server (VxDBMS) is slow to boot (1433244)

The boot time for DBED repository database server (VxDBMS) is high. For more information, refer to the following Late Breaking News (LBN) URL:

http://entsupport.symantec.com/docs/281993

Veritas Cluster Server known issues

The following are the known issues in the 5.0 MP3 RP2 release of Veritas Cluster Server.

Memberships to the GAB clients may not be formed if brought online before the Port a membership is formed (1509742)

The membership to the GAB clients will not be formed in the following situations:

- GAB clients are not started on all the nodes.
- Port a membership was not formed when the client was started.

Workaround

Perform the following steps to resolve this issue.

1 Stop the clients on any of the nodes where they are running.

2 Ensure that the Port a membership is formed on that node.

3 Restart the clients.

Refer to http://entsupport.symantec.com/docs/281993 for information on the hotfix for this issue

The vxfenclearpre script displays error messages if the /etc/vxfentab file is commented (1512956)

The `/etc/vxfentab` file has the following comments:

```
#
# /etc/vxfentab
# DO NOT MODIFY this file it is generated by the
# VXFEN rc script from the file /etc/vxfendg
#
```

When you run the `vxfenclearpre` script the following errors are displayed:

```
VXFEN vxfenadm ERROR V-11-2-1116 Cannot open:
# VXFEN vxfenadm ERROR V-11-2-1132 Open of file failed, errno =
-15344
VXFEN vxfenadm ERROR V-11-2-1205 READ_KEYS failed for:
# VXFEN vxfenadm ERROR V-11-2-1133 Error returned
VXFEN vxfenadm ERROR V-11-2-1116 Cannot open:
# VXFEN vxfenadm ERROR V-11-2-1132 Open of file failed, errno =
-15856
```

Workaround

Though the `vxfenclearpre` script performs its operation successfully, delete the comments added to the `/etc/vxfentab` file before you run the `vxfenclearpre` script, to avoid these error messages.

Software limitations

The following sections describe the Veritas Storage Foundation High Availability (HA) software limitations in this release.

- Storage Foundation for Oracle software limitations
- Storage Foundation for DB2 software limitations

Review your 5.0 MP3 product release notes for possible additional software limitations.

Storage Foundation for Oracle software limitations

The following are the Storage Foundation for Oracle software limitations that are known in this release.

Older backups failing to be restored using the DBED scripts

If you are currently using backup and restore for the DBED respository, it is crucial to perform a full backup of the DBED repository database after installing 5.0 MP3 RP2. Otherwise, prior backups cannot be restored using the 5.0 MP3 RP2 restore script.

See the *Veritas Storage Foundation for Oracle Administrator's Guide* for the `sfua_rept_adm` command.

For more information see "Storage Foundation for Oracle fixed issues" on page 16 for incident 1425261.

Storage Foundation for DB2 software limitations

The following are the Storage Foundation for DB2 software limitations that are known in this release.

Older backups failing to be restored using the DBED scripts

If you are currently using backup and restore for the DBED respository, it is crucial to perform a full backup of the DBED repository database after installing 5.0 MP3 RP2. Otherwise, prior backups cannot be restored using the 5.0 MP3 RP2 restore script.

See the *Veritas Storage Foundation for DB2 Administrator's Guide* for the `sfua_rept_adm` command.

For more information see "Storage Foundation for DB2 fixed issues" on page 16 for incident 1425261.

Downloading the rolling patch archive

The patches comprising the 5.0 MP3 RP2 release are available for download from the Veritas website. After downloading the 5.0 MP3 RP2 file, use the `tar -z` command to uncompress and extract the archive.

RPMs included in this rolling patch

This section provides the RPMs included in this rolling patch.

- File System RPMs
- Storage Foundation RPMs
- Storage Foundation Cluster File System RPMs
- Storage Foundation Cluster File System for Oracle RAC RPMs
- Storage Foundation for DB2 RPMs
- Storage Foundation for Oracle RPMs
- Volume Manager RPMs
- Veritas Cluster Server RPMs
- Veritas Cluster Server Agent RPMs
- Cluster Management Console RPMs

File System RPMs

Table 1-8 describes the File System RPMs that are included in this rolling patch:

Table 1-8 File System 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
RHEL 4	x86_64	VRTSaa-5.0.613.0-0.i686.rpm VRTSccg-5.0.613.0-0.i686.rpm VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm VRTSddlpr-5.0.30.20-GA_MP3_RHEL4.i686.rpm VRTSfssdk-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSob-3.3.1209.0-0.i686.rpm VRTSobc33-3.3.1209.0-0.i686.rpm VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvmpro-5.0.30.20-GA_RHEL4.i686.rpm VRTSvxfs-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSvxfs-platform-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
RHEL 5	x86_64	VRTSaa-5.0.613.0-0.i686.rpm VRTSccg-5.0.613.0-0.i686.rpm VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm VRTSddlpr-5.0.30.20-GA_MP3_RHEL5.i686.rpm VRTSfssdk-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSob-3.3.1209.0-0.i686.rpm VRTSobc33-3.3.1209.0-0.i686.rpm VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvmpro-5.0.30.20-GA_RHEL5.i686.rpm VRTSvxfs-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvxfs-platform-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm

Table 1-8 File System 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
SLES 9	x86_64	VRTSaa-5.0.613.0-0.i686.rpm VRTSccg-5.0.613.0-0.i686.rpm VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm VRTSddlpr-5.0.30.20-GA_MP3_SLES9.i586.rpm VRTSfssdk-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTSob-3.3.1209.0-0.i686.rpm VRTSobc33-3.3.1209.0-0.i686.rpm VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvmpro-5.0.30.20-GA_SLES9.i586.rpm VRTSvxfs-common-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTSvxfs-platform-5.0.30.20-MP3RP2_SLES9.x86_64.rpm VRTSvxvm-common-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
SLES 10	x86_64	VRTSaa-5.0.613.0-0.i686.rpm VRTSccg-5.0.613.0-0.i686.rpm VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm VRTSddlpr-5.0.30.20-GA_MP3_SLES10.i586.rpm VRTSfssdk-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSob-3.3.1209.0-0.i686.rpm VRTSobc33-3.3.1209.0-0.i686.rpm VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvmpro-5.0.30.20-GA_SLES10.i586.rpm VRTSvxfs-common-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSvxfs-platform-5.0.30.20-MP3RP2_SLES10.x86_64.rpm VRTSvxvm-common-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES10.x86_64.rpm

Storage Foundation RPMs

Table 1-9 describes the Storage Foundation RPMs that are included in this rolling patch:

Table 1-9 Storage Foundation 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
RHEL 4	x86_64	VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm VRTSddlpr-5.0.30.20-GA_MP3_RHEL4.i686.rpm VRTSfssdk-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSgab-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm VRTSllt-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm VRTSlvmconv-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSmapro-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSvcs-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSvcsag-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvmpro-5.0.30.20-GA_RHEL4.i686.rpm VRTSvxfen-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm VRTSvxfs-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSvxfs-platform-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm

Table 1-9 Storage Foundation 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
RHEL 5	x86_64	VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm VRTSddlpr-5.0.30.20-GA_MP3_RHEL5.i686.rpm VRTSfssdk-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSgab-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm VRTSllt-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm VRTSlvmconv-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSmapro-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvcs-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvcsag-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvmpro-5.0.30.20-GA_RHEL5.i686.rpm VRTSvxfen-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm VRTSvxfs-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvxfs-platform-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm

Table 1-9 Storage Foundation 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
SLES 9	x86_64	VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_SLES9.i586.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSgab-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_SLES9.i686.rpm
		VRTSmapro-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvcs-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_SLES9.i586.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES9.x86_64.rpm

Table 1-9 Storage Foundation 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
SLES 10	x86_64	VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_SLES10.i586.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSgab-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_SLES10.i686.rpm
		VRTSmapro-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvcs-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_SLES10.i586.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES10.x86_64.rpm

Storage Foundation Cluster File System RPMs

Table 1-10 describes the Storage Foundation Cluster File System RPMs that are included in this rolling patch:

Table 1-10 Storage Foundation Cluster File System 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
RHEL 4	x86_64	VRTSaa-5.0.613.0-0.i686.rpm
		VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSccg-5.0.613.0-0.i686.rpm
		VRTScmccc-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTScmcs-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_RHEL4.i686.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSgab-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSob-3.3.1209.0-0.i686.rpm
		VRTSobc33-3.3.1209.0-0.i686.rpm
		VRTSvcs-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_RHEL4.i686.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm

Table 1-10 Storage Foundation Cluster File System 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
RHEL 5	x86_64	VRTSaa-5.0.613.0-0.i686.rpm
		VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSccg-5.0.613.0-0.i686.rpm
		VRTScmccc-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTScmcs-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_RHEL5.i686.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSgab-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSob-3.3.1209.0-0.i686.rpm
		VRTSobc33-3.3.1209.0-0.i686.rpm
		VRTSvcs-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_RHEL5.i686.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm

Table 1-10 Storage Foundation Cluster File System 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
SLES 9	x86_64	VRTSaa-5.0.613.0-0.i686.rpm
		VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSccg-5.0.613.0-0.i686.rpm
		VRTScmccc-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTScmcs-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_SLES9.i586.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSgab-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_SLES9.i686.rpm
		VRTSob-3.3.1209.0-0.i686.rpm
		VRTSobc33-3.3.1209.0-0.i686.rpm
		VRTSvcs-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_SLES9.i586.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES9.x86_64.rpm

Table 1-10 Storage Foundation Cluster File System 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
SLES 10	x86_64	VRTSaa-5.0.613.0-0.i686.rpm
		VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSccg-5.0.613.0-0.i686.rpm
		VRTScmccc-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTScmcs-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_SLES10.i586.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSgab-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_SLES10.i686.rpm
		VRTSob-3.3.1209.0-0.i686.rpm
		VRTSobc33-3.3.1209.0-0.i686.rpm
		VRTSvcs-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_SLES10.i586.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES10.x86_64.rpm

Storage Foundation Cluster File System for Oracle RAC RPMs

Table 1-11 describes the Storage Foundation Cluster File System for Oracle RAC RPMs that are included in this rolling patch:

Table 1-11 Storage Foundation Cluster File System for Oracle RAC 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
RHEL 4	x86_64	VRTSaa-5.0.613.0-0.i686.rpm
		VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSccg-5.0.613.0-0.i686.rpm
		VRTScmccc-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTScmcs-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_RHEL4.i686.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSgab-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSob-3.3.1209.0-0.i686.rpm
		VRTSobc33-3.3.1209.0-0.i686.rpm
		VRTSvcs-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_RHEL4.i686.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm

Table 1-11 Storage Foundation Cluster File System for Oracle RAC 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
RHEL 5	x86_64	VRTSaa-5.0.613.0-0.i686.rpm VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm VRTSccg-5.0.613.0-0.i686.rpm VRTScmccc-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTScmcs-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm VRTSddlpr-5.0.30.20-GA_MP3_RHEL5.i686.rpm VRTSfssdk-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSgab-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm VRTSllt-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm VRTSob-3.3.1209.0-0.i686.rpm VRTSobc33-3.3.1209.0-0.i686.rpm VRTSvcs-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvcsag-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvmpro-5.0.30.20-GA_RHEL5.i686.rpm VRTSvxfen-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm VRTSvxfs-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvxfs-platform-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm

Table 1-11 Storage Foundation Cluster File System for Oracle RAC 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
SLES 9	x86_64	VRTSaa-5.0.613.0-0.i686.rpm
		VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSccg-5.0.613.0-0.i686.rpm
		VRTScmccc-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTScmcs-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_SLES9.i586.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSgab-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSob-3.3.1209.0-0.i686.rpm
		VRTSobc33-3.3.1209.0-0.i686.rpm
		VRTSvcs-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_SLES9.i586.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES9.x86_64.rpm

Table 1-11 Storage Foundation Cluster File System for Oracle RAC 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
SLES 10	x86_64	VRTSaa-5.0.613.0-0.i686.rpm VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm VRTSccg-5.0.613.0-0.i686.rpm VRTScmccc-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTScmcs-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm VRTSddlpr-5.0.30.20-GA_MP3_SLES10.i586.rpm VRTSfssdk-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSgab-5.0.30.20-MP3RP2_SLES10.x86_64.rpm VRTSllt-5.0.30.20-MP3RP2_SLES10.x86_64.rpm VRTSob-3.3.1209.0-0.i686.rpm VRTSobc33-3.3.1209.0-0.i686.rpm VRTSvcs-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSvcsag-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvmpro-5.0.30.20-GA_SLES10.i586.rpm VRTSvxfen-5.0.30.20-MP3RP2_SLES10.x86_64.rpm VRTSvxfs-common-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSvxfs-platform-5.0.30.20-MP3RP2_SLES10.x86_64.rpm VRTSvxvm-common-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES10.x86_64.rpm

Storage Foundation for DB2 RPMs

Table 1-12 describes the Storage Foundation for DB2 RPMs that are included in this rolling patch:

Table 1-12 Storage Foundation for DB2 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
RHEL 4	x86_64	VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSd2gui-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSdb2ed-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSdbcom-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_RHEL4.i686.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSgab-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvcs-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_RHEL4.i686.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm

Table 1-12 Storage Foundation for DB2 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
RHEL 5	x86_64	VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSd2gui-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSdb2ed-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSdbcom-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_RHEL5.i686.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSgab-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvcs-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_RHEL5.i686.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm

Table 1-12 Storage Foundation for DB2 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
SLES 9	x86_64	VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSd2gui-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSdb2ed-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSdbcom-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_SLES9.i586.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSgab-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_SLES9.i686.rpm
		VRTSvcs-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_SLES9.i586.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES9.x86_64.rpm

Table 1-12 Storage Foundation for DB2 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
SLES 10	x86_64	VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSd2gui-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSdb2ed-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSdbcom-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_SLES10.i586.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSgab-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_SLES10.i686.rpm
		VRTSvcs-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_SLES10.i586.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES10.x86_64.rpm

Storage Foundation for Oracle RPMs

Table 1-13 describes the Storage Foundation for Oracle RPMs that are included in this rolling patch:

Table 1-13 Storage Foundation for Oracle 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
RHEL 4	x86_64	VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSdbcom-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSdbed-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_RHEL4.i686.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSgab-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSorgui-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvcs-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_RHEL4.i686.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm

Table 1-13 Storage Foundation for Oracle 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
RHEL 5	x86_64	VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSdbcom-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSdbed-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_RHEL5.i686.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSgab-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSorgui-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvcs-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_RHEL5.i686.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm

Table 1-13 Storage Foundation for Oracle 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
SLES 9	x86_64	VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSdbcom-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSdbed-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_SLES9.i586.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSgab-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_SLES9.i686.rpm
		VRTSorgui-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvcs-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_SLES9.i586.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_SLES9.i586.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES9.x86_64.rpm

Table 1-13 Storage Foundation for Oracle 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
SLES 10	x86_64	VRTScavf-5.0.30.20-MP3RP2a_GENERIC.noarch.rpm
		VRTSdbcom-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSdbed-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm
		VRTSddlpr-5.0.30.20-GA_MP3_SLES10.i586.rpm
		VRTSfssdk-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSgab-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSllt-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSlvmconv-5.0.30.20-MP3RP2_SLES10.i686.rpm
		VRTSorgui-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvcs-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvcsag-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm
		VRTSvmpro-5.0.30.20-GA_SLES10.i586.rpm
		VRTSvxfen-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSvxfs-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvxfs-platform-5.0.30.20-MP3RP2_SLES10.x86_64.rpm
		VRTSvxvm-common-5.0.30.20-MP3RP2_SLES10.i586.rpm
		VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES10.x86_64.rpm

Volume Manager RPMs

Table 1-14 describes the Volume Manager RPMs that are included in this rolling patch:

Table 1-14 Volume Manager 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
RHEL 4	x86_64	VRTSaa-5.0.613.0-0.i686.rpm VRTSccg-5.0.613.0-0.i686.rpm VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm VRTSddlpr-5.0.30.20-GA_MP3_RHEL4.i686.rpm VRTSlvmconv-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSob-3.3.1209.0-0.i686.rpm VRTSobc33-3.3.1209.0-0.i686.rpm VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvmpro-5.0.30.20-GA_RHEL4.i686.rpm VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
RHEL 5	x86_64	VRTSaa-5.0.613.0-0.i686.rpm VRTSccg-5.0.613.0-0.i686.rpm VRTSdcli-5.0.30.20-GA_MP3RP2_RHEL.i686.rpm VRTSddlpr-5.0.30.20-GA_MP3_RHEL5.i686.rpm VRTSlvmconv-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSob-3.3.1209.0-0.i686.rpm VRTSobc33-3.3.1209.0-0.i686.rpm VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvmpro-5.0.30.20-GA_RHEL5.i686.rpm VRTSvxvm-common-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvxvm-platform-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm

Table 1-14 Volume Manager 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
SLES 9	x86_64	VRTSaa-5.0.613.0-0.i686.rpm VRTSccg-5.0.613.0-0.i686.rpm VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm VRTSddlpr-5.0.30.20-GA_MP3_SLES9.i586.rpm VRTSlvmconv-5.0.30.20-MP3RP2_SLES9.i686.rpm VRTSob-3.3.1209.0-0.i686.rpm VRTSobc33-3.3.1209.0-0.i686.rpm VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvmpro-5.0.30.20-GA_SLES9.i586.rpm VRTSvxvm-common-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
SLES 10	x86_64	VRTSaa-5.0.613.0-0.i686.rpm VRTSccg-5.0.613.0-0.i686.rpm VRTSdcli-5.0.30.20-GA_MP3RP2_SLES.i586.rpm VRTSddlpr-5.0.30.20-GA_MP3_SLES10.i586.rpm VRTSlvmconv-5.0.30.20-MP3RP2_SLES10.i686.rpm VRTSob-3.3.1209.0-0.i686.rpm VRTSobc33-3.3.1209.0-0.i686.rpm VRTSvmman-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvmpro-5.0.30.20-GA_SLES10.i586.rpm VRTSvxvm-common-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSvxvm-platform-5.0.30.20-MP3RP2_SLES10.x86_64.rpm

Veritas Cluster Server RPMs

Table 1-15 describes the Veritas Cluster Server RPMs that are included in this rolling patch:

Table 1-15 Veritas Cluster Server 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
RHEL 4	x86	VRTSllt-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSvcsag-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSgab-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSvcs-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSvxfen-5.0.30.20-MP3RP2_RHEL4.i686.rpm
RHEL 4	x86_64	VRTSllt-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm VRTSvcsag-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSgab-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm VRTSvcs-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSvxfen-5.0.30.20-MP3RP2_RHEL4.x86_64.rpm
RHEL 5	x86	VRTSllt-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvcsag-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSgab-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvcs-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvxfen-5.0.30.20-MP3RP2_RHEL5.i686.rpm
RHEL 5	x86_64	VRTSllt-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm VRTSvcsag-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSgab-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm VRTSvcs-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvxfen-5.0.30.20-MP3RP2_RHEL5.x86_64.rpm
SLES 9	x86	VRTSllt-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTSvcsag-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTSgab-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTSvcs-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTSvxfen-5.0.30.20-MP3RP2_SLES9.i686.rpm

Table 1-15 Veritas Cluster Server 5.0 MP3 RP2 RPMs

OS	Architecture	RPMs
SLES 9	x86_64	VRTSllt-5.0.30.20-MP3RP2_SLES9.x86_64.rpm VRTSvcsag-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTSgab-5.0.30.20-MP3RP2_SLES9.x86_64.rpm VRTSvcs-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTSvxfen-5.0.30.20-MP3RP2_SLES9.x86_64.rpm
SLES 10	x86	VRTSllt-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSvcsag-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSgab-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSvcs-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSvxfen-5.0.30.20-MP3RP2_SLES10.i686.rpm
SLES 10	x86_64	VRTSllt-5.0.30.20-MP3RP2_SLES9.x86_64.rpm VRTSvcsag-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTSgab-5.0.30.20-MP3RP2_SLES9.x86_64.rpm VRTSvcs-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTSvxfen-5.0.30.20-MP3RP2_SLES9.x86_64.rpm

Veritas Cluster Server Agent RPMs

Table 1-16 describes the Veritas Cluster Server Agent RPMs that are included in this rolling patch:

Table 1-16 Veritas Cluster Server 5.0 MP3 RP2 Agents RPMs

OS	Architecture	RPMs
RHEL 4	x86, x86_64	VRTSvcsdb-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvcsor-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTSvcssy-5.0.30.20-MP3RP2_RHEL4.i686.rpm
RHEL 5	x86, x86_64	VRTSvcsdb-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvcsor-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTSvcssy-5.0.30.20-MP3RP2_RHEL5.i686.rpm
SLES 9	x86, x86_64	VRTSvcsdb-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvcsor-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTSvcssy-5.0.30.20-MP3RP2_SLES9.i586.rpm

Table 1-16 Veritas Cluster Server 5.0 MP3 RP2 Agents RPMs

OS	Architecture	RPMs
SLES 10	x86, x86_64	VRTSvcsdb-5.0.30.20-MP3RP2_GENERIC.noarch.rpm VRTSvcsor-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTSvcssy-5.0.30.20-MP3RP2_SLES10.i586.rpm

Cluster Management Console RPMs

Table 1-17 describes the CMC RPMs that are included in this rolling patch:

Table 1-17 Cluster Manager Console for VCS RPMs

OS	Architecture	RPMs
RHEL 4	x86, x86_64	VRTScmcs-5.0.30.20-MP3RP2_RHEL4.i686.rpm VRTScmccc-5.0.30.20-MP3RP2_RHEL4.i686.rpm
RHEL 5	x86, x86_64	VRTScmcs-5.0.30.20-MP3RP2_RHEL5.i686.rpm VRTScmccc-5.0.30.20-MP3RP2_RHEL5.i686.rpm
SLES 9	x86, x86_64	VRTScmcs-5.0.30.20-MP3RP2_SLES9.i586.rpm VRTScmccc-5.0.30.20-MP3RP2_SLES9.i586.rpm
SLES 10	x86, x86_64	VRTScmcs-5.0.30.20-MP3RP2_SLES10.i586.rpm VRTScmccc-5.0.30.20-MP3RP2_SLES10.i586.rpm

Installing the Veritas software for the first time

This section describes how to install a Storage Foundation and High Availability Solutions product for the first time on a node and install 5.0 MP3 RP2.

- Installing Storage Foundation and 5.0 MP3 RP2
- Installing Storage Foundation Cluster File System and 5.0 MP3 RP2
- Installing Storage Foundation Cluster File System for Oracle RAC and 5.0 MP3 RP2
- Installing Veritas Cluster Server and 5.0 MP3 RP2

Installing Storage Foundation and 5.0 MP3 RP2

This section describes how to install Storage Foundation for the first time on a node and install 5.0 MP3 RP2.

Review the *Veritas Storage Foundation 5.0 MP3 Installation Guide* for pre-installation instructions at the following URL:

ftp://exftpp.symantec.com/pub/support/products/Foundation_Suite/306937.pdf

Also review the *Veritas Storage Foundation 5.0 MP3 Release Notes* for important release information at the following URL:

ftp://exftpp.symantec.com/pub/support/products/Foundation_Suite/306947.pdf

To install Storage Foundation and 5.0 MP3 RP2

1. Install the Storage Foundation 5.0 MP3 software from the release disc.
   For example, if you are installing the Storage Foundation software, enter the following command from the top-level directory of the mounted CD:
   ```
   # ./installsf -installonly [-rsh] node1 node2 ... nodeN
   ```
   The `-installonly` option is required to perform the installation without configuring the software. For other products, substitute the appropriate script.
2. Review the system requirements and the installation prerequisites for upgrading to 5.0 MP3 RP2.
   - See "System requirements" on page 8.
   - See "Prerequisites for upgrading to 5.0 MP3 RP2" on page 59.

\

3 Run the following command to change to the RPMs directory. For example:

```
# cd /extract_dir/dvdno-os/dist_arch/product/rpms
```

where *extract_dir* is the directory path under the location you extracted the downloaded 5.0 MP3 RP2 archive file.

where *dvdno-os* is either dvd1-redhatlinux or dvd2-suselinux.

where *dist* is either rhel4, rhel5, sles9, or sles10.

- If you are running OEL 4, use rhel4 for the *dist* name.
- If you are running OEL 5, use rhel5 for the *dist* name.

where *arch* is either i686, or x86_64.

where *product* is the name of the product either `storage_foundation`, `storage_foundation_for_db2`, or `storage_foundation_for_oracle` depending on the product you are installing.

4 Run the following command to upgrade manually to 5.0 MP3 RP2.

```
# rpm -Uvh *.rpm
```

See "RPMs included in this rolling patch" on page 25.

5 Run the same installation script that you used in step 1, this time specifying the `-configure` option to configure the software. For example,

```
# ./installsf -configure [-rsh] node1 node2 ... nodeN
```

For other products, substitute the appropriate script.

See the *Veritas Storage Foundation 5.0 MP3 Installation Guide* for more information on configuring Storage Foundation and High Availability products.

6 Restart the node.

Installing Storage Foundation Cluster File System and 5.0 MP3 RP2

This section describes how to install Storage Foundation Cluster File System for the first time on a node and install 5.0 MP3 RP2.

Review the *Veritas Storage Foundation 5.0 MP3 Installation Guide* for SFCFS pre-installation instructions at the following URL:

ftp://exftpp.symantec.com/pub/support/products/Foundation_Suite/306937.pdf

Also review the *Veritas Storage Foundation 5.0 MP3 Release Notes* for important SFCFS release information at the following URL:

ftp://exftpp.symantec.com/pub/support/products/Foundation_Suite/306947.pdf

To install Storage Foundation Cluster File System and 5.0 MP3 RP2

1. Install the Storage Foundation Cluster File System 5.0 MP3 software from the release disc.

   For example, if you are installing the Storage Foundation Cluster File System software, enter the following command from the top-level directory of the mounted CD:

   ```
   # ./installsfcfs -installonly [-rsh] node1 node2 ... nodeN
   ```

   The `-installonly` option is required to perform the installation without configuring the software. For other products, substitute the appropriate script.

2. Review the system requirements and the installation prerequisites for upgrading to 5.0 MP3 RP2.

   - See "System requirements" on page 8.
   - See "Prerequisites for upgrading to 5.0 MP3 RP2" on page 59.

3. Run the following command to change to the RPMs directory. For example:

   ```
   # cd /extract_dir/dvdno-os/dist_arch/product/rpms
   ```

   where *extract_dir* is the directory path under the location you extracted the downloaded 5.0 MP3 RP2 archive file.

   where *dvdno-os* is either dvd1-redhatlinux or dvd2-suselinux.

   where *dist* is either rhel4, rhel5, sles9, or sles10.

   - If you are running OEL 4, use rhel4 for the *dist* name.
   - If you are running OEL 5, use rhel5 for the *dist* name.

   where *arch* is either i686, or x86_64.

   where *product* is `storage_foundation_cluster_file_system`.

4 Run the following command to upgrade manually to 5.0 MP3 RP2.

```
# rpm -Uvh *.rpm
```

See "RPMs included in this rolling patch" on page 25.

5 Run the same installation script that you used in step 1, this time specifying the `-configure` option to configure the software. For example,

```
# ./installsfcfs -configure [-rsh] node1 node2 ... nodeN
```

See the *Veritas Storage Foundation 5.0 MP3 Installation Guide* for more SFCFS information.

6 Restart the node.

Installing Storage Foundation Cluster File System for Oracle RAC and 5.0 MP3 RP2

This section describes how to install Storage Foundation Cluster File System for Oracle RAC for the first time on a node and install 5.0 MP3 RP2.

Also review the *Veritas Storage Foundation 5.0 MP3 Release Notes* for important SFCFS release information at the following URL:

ftp://exftpp.symantec.com/pub/support/products/Foundation_Suite/306947.pdf

To install Storage Foundation Cluster File System for Oracle RAC and 5.0 MP3 RP2

1 Install the Storage Foundation Cluster File System for Oracle RAC 5.0 MP3 software from the release disc.

For example, if you are installing the Storage Foundation Cluster File System for Oracle RAC software, enter the following command from the top-level directory of the mounted CD:

```
# ./installsfcfsrac -installonly [-rsh] node1 node2 ... nodeN
```

The `-installonly` option is required to perform the installation without configuring the software.

2 Review the system requirements and the installation prerequisites for upgrading to 5.0 MP3 RP2.

- See "System requirements" on page 8.
- See "Prerequisites for upgrading to 5.0 MP3 RP2" on page 59.

3 Run the following command to change to the RPMs directory. For example:

```
# cd /extract_dir/dvdno-os/dist_arch/product/rpms
```

where *extract_dir* is the directory path under the location you extracted the downloaded 5.0 MP3 RP2 archive file.

where *dvdno-os* is either dvd1-redhatlinux or dvd2-suselinux.

where *dist* is either rhel4, rhel5, sles9, or sles10.

- If you are running OEL 4, use rhel4 for the *dist* name.
- If you are running OEL 5, use rhel5 for the *dist* name.

where *arch* is x86_64.

where *product* is storage_foundation_cluster_file_system_for_oracle_rac.

4 Run the following command to upgrade manually to 5.0 MP3 RP2.

```
# rpm -Uvh *.rpm
```

See "RPMs included in this rolling patch" on page 25.

5 Run the same installation script that you used in step 1, this time specifying the -configure option to configure the software. For example,

```
# ./installsfcfsrac -configure [-rsh] node1 node2 ... nodeN
```

6 Restart the node.

Installing Veritas Cluster Server and 5.0 MP3 RP2

This section describes how to install VCS for the first time on a node and install 5.0 MP3 RP2.

Review the *Veritas Cluster Server 5.0MP3 Installation Guide* for pre-installation instructions at the following URL:

http://sfdoccentral.symantec.com/sf/5.0MP3/linux/pdf/vcs_install.pdf

Also review the *Veritas Cluster Server 5.0 MP3 Release Notes* for important release information at the following URL:

http://sfdoccentral.symantec.com/sf/5.0MP3/linux/pdf/vcs_notes.pdf

To install Veritas Cluster Server and 5.0MP3RP2

1 Install the Veritas Cluster Server 5.0 MP3 software from the release disc, using the following command, from the top-level directory of the mounted disc:

```
# ./installvcs -installonly [-rsh] node1 node2 ... node
```

The -installonly option is required to perform the installation without configuring the software.

2 Review the system requirements and the installation prerequisites for upgrading to 5.0 MP3 RP2.

- See "System requirements" on page 8.

- See "Prerequisites for upgrading to 5.0 MP3 RP2" on page 59.

3 Run the following command to change to the RPMs directory. For example:

```
# cd /extract_dir/dvdno-os/dist_arch/cluster_server/rpms
```

where,

extract_dir is the directory path under the location you extracted the downloaded 5.0 MP3 RP2 archive file.

dvdno-os is either dvd1-redhatlinux or dvd2-suselinux.

dist is either rhel4, rhel5, sles9, or sles10.

- If you are running OEL 4, use rhel4 for the *dist* name.
- If you are running OEL 5, use rhel5 for the *dist* name.

arch is either i586, i686, or x86_64.

4 Run the following command to upgrade manually to 5.0 MP3 RP2.

```
# rpm -Uvh *.rpm
```

See "RPMs included in this rolling patch" on page 25

5 Run the same installation script that you used in step 1, this time specifying the -configure option to configure the software. For example,

```
# ./installvcs -configure [-rsh] node1 node2 ... node
```

For more information on installing and configuring Veritas Cluster Server, see the *Veritas Cluster Server 5.0 MP3 Installation Guide*.

6 Restart the node.

Prerequisites for upgrading to 5.0 MP3 RP2

This section describes the prerequisites for upgrading 5.0 MP3 RP2.

Prerequisites on Storage Foundation

You must have the following operating system and Storage Foundation release installed on the system before you upgrade to 5.0 MP3 RP2:

Table 1-18 Operating system and Storage Foundation release

Operating system	Product release
RHEL 4	Storage Foundation 5.0 MP3
RHEL 5	Storage Foundation 5.0 MP3
OEL 4	Storage Foundation 5.0 MP3
OEL 5	Storage Foundation 5.0 MP3
SLES 9	Storage Foundation 5.0 MP3
SLES 10	Storage Foundation 5.0 MP3

Prerequisites on Storage Foundation Cluster File System

You must have the following operating system and SFCFS release installed on the system before you upgrade to 5.0 MP3 RP2:

Table 1-19 Operating system and SFCFS release

Operating system	Product release
RHEL 4	SFCFS 5.0 MP3
RHEL 5	SFCFS 5.0 MP3

Table 1-19 Operating system and SFCFS release

Operating system	Product release
OEL 4	SFCFS 5.0 MP3
OEL 5	SFCFS 5.0 MP3
SLES 9	SFCFS 5.0 MP3
SLES 10	SFCFS 5.0 MP3

Prerequisites on Storage Foundation Cluster File System for Oracle RAC

You must have the following operating system and SFCFS for Oracle RAC release installed on the system before you upgrade to 5.0 MP3 RP2:

Table 1-20 Operating system and SFCFS for Oracle RAC release

Operating system	Product release
RHEL 4	SFCFS for Oracle RAC 5.0 MP3
RHEL 5	SFCFS for Oracle RAC 5.0 MP3
OEL 4	SFCFS for Oracle RAC 5.0 MP3
OEL 5	SFCFS for Oracle RAC 5.0 MP3
SLES 9	SFCFS for Oracle RAC 5.0 MP3
SLES 10	SFCFS for Oracle RAC 5.0 MP3

Prerequisites on Storage Foundation for Oracle

You must have the following operating system and SF for Oracle release installed on the system before you upgrade to 5.0 MP3 RP2:

Table 1-21 Operating system and SF for Oracle release

Operating system	Product release
RHEL 4	SF for Oracle 5.0 MP3
RHEL 5	SF for Oracle 5.0 MP3
OEL 4	SF for Oracle 5.0 MP3
OEL 5	SF for Oracle 5.0 MP3
SLES 9	SF for Oracle 5.0 MP3

Table 1-21 Operating system and SF for Oracle release

Operating system	Product release
SLES 10	SF for Oracle 5.0 MP3

Prerequisites on Storage Foundation for Oracle HA

You must have the following operating system and SF for Oracle HA release installed on the system before you upgrade to 5.0 MP3 RP2:

Table 1-22 Operating system and SF for Oracle HA release

Operating system	Product release
RHEL 4	SF for Oracle HA 5.0 MP3
RHEL 5	SF for Oracle HA 5.0 MP3
OEL 4	SF for Oracle HA 5.0 MP3
OEL 5	SF for Oracle HA 5.0 MP3
SLES 9	SF for Oracle HA 5.0 MP3
SLES 10	SF for Oracle HA 5.0 MP3

Prerequisites on Storage Foundation for DB2

You must have the following operating system and SF for DB2 release installed on the system before you upgrade to 5.0 MP3 RP2:

Table 1-23 Operating system and SF for DB2 release

Operating system	Product release
RHEL 4	SF for DB2 5.0 MP3
RHEL 5	SF for DB2 5.0 MP3
OEL 4	SF for DB2 5.0 MP3
OEL 5	SF for DB2 5.0 MP3
SLES 9	SF for DB2 5.0 MP3
SLES 10	SF for DB2 5.0 MP3

Prerequisites on Storage Foundation for DB2 HA

You must have the following operating system and SF for DB2 HA release installed on the system before you upgrade to 5.0 MP3 RP2:

Table 1-24 Operating system and SFCFS for DB2 HA release

Operating system	Product release
RHEL 4	SF for DB2 HA 5.0 MP3
RHEL 5	SF for DB2 HA 5.0 MP3
OEL 4	SF for DB2 HA 5.0 MP3
OEL 5	SF for DB2 HA 5.0 MP3
SLES 9	SF for DB2 HA 5.0 MP3
SLES 10	SF for DB2 HA 5.0 MP3

Prerequisites on Veritas Cluster Server

You must have the following operating system and VCS release installed on the system before you upgrade to 5.0 MP3 RP2:

Table 1-25 Operating system and VCS release

Operating system	Product release
RHEL 4	VCS 5.0 MP3
RHEL 5	VCS 5.0 MP3
OEL 4	VCS 5.0 MP3
OEL 5	VCS 5.0 MP3
SLES 9	VCS 5.0 MP3
SLES 10	VCS 5.0 MP3

Upgrading 5.0 MP3 to 5.0 MP3 RP2

This section describes how to upgrade from 5.0 MP3 to 5.0 MP3 RP2. You can upgrade to 5.0 MP3 RP2 only if you have installed and configured the 5.0 MP3 version of the product.

The operating system must be one of the supported operating systems, refer to "System requirements" on page 8

If you need to upgrade the operating system, ref to "Upgrading the operating system and upgrading to 5.0 MP3 RP2" on page 85.

This section includes the following topics:

- Upgrading to 5.0 MP3 RP2 on a cluster
  Use the procedures to upgrade to 5.0 MP3 RP2 on a cluster that has VCS, SFHA, SF for Oracle HA or SF for DB2 HA, SFCFS, SFCFS HA, SFCFS for Oracle RAC installed.
- Upgrading to 5.0 MP3 RP2 on a standalone system
  Use the procedure to upgrade to 5.0 MP3 RP2 on a system that has Storage Foundation, SF for Oracle, or SF for DB2 installed.

Upgrading to 5.0 MP3 RP2 on a cluster

Upgrading on a cluster requires stopping cluster failover functionality during the entire procedure. However, if you use SFCFS and Cluster Volume Manager (CVM), the SFCFS and CVM services remain available.

The following are the stages of upgrading on a cluster:

1. Select one or a group of nodes to upgrade first, and leave the other nodes with VCS and the other applications running.
2. Freeze service groups and stop VCS on the selected group of nodes.
3. Take the first group of nodes offline and install the software patches.
4. Take the second group of nodes offline.
5. Bring the first group (with the newly installed patches) online to restart cluster failover services.
6. Follow step 1 through step 3 for the second group of nodes. The cluster is fully restored.

Depending on your cluster's configuration, select one of the following procedures to upgrade to 5.0 MP3 RP2:

- Upgrading to 5.0 MP3 RP2 on a SFCFS cluster
- Upgrading to 5.0 MP3 RP2 on a SFCFS for Oracle RAC cluster

Upgrading to 5.0 MP3 RP2 on a SFCFS cluster

The following procedure describes upgrading on a SFCFS cluster.

To upgrading to 5.0 MP3 RP2 on a SFCFS cluster

1. Log in as superuser.
2. Verify that `/opt/VRTS/bin` is in your PATH so you can execute all product commands.
3. Select the group of nodes that are to be upgraded. On each node in the group being upgraded, offline the group:

   ```
   # hagrp -offline group -sys nodename01
   # hagrp -offline group -sys nodename02
   # hagrp -offline group -sys nodename03
   # hagrp -offline group -sys nodename04
   ```

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

   where *nodenameN* is the node names in the cluster.

   Repeat this step for each SFCFS service group.
4. If you have a failover service group, switch the service group to another node that is running:

   ```
   # hagrp -switch service_group -to nodename
   ```
5. From any node in the cluster, make the VCS configuration writable:

   ```
   # haconf -makerw
   ```
6. Add an additional argument to the CFSMount resource type:

   ```
   # hatype -modify CFSMount ArgList -add Primary
   ```
7. Enter the following command to freeze HA service group operations on each node:

   ```
   # hasys -freeze -persistent nodename
   ```
8. Make the configuration read-only:

   ```
   # haconf -dump -makero
   ```
9. On the group of nodes that are to be upgraded first, and follow step 10 through step 41 for these nodes.
10. Stop VCS by entering the following command on each node in the group being upgraded:

    ```
    # hastop -local
    ```
11. Stop the VCS command server:

    ```
    # killall CmdServer
    ```

12 Stop ODM, GMS, cluster fencing, GAB, and LLT in the following order:

```
# /etc/init.d/vxodm stop
# /etc/init.d/vxgms stop
# /etc/init.d/vxfen stop
# /etc/init.d/gab stop
# /etc/init.d/llt stop
```

13 Run the following command to 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:

a Use the `vxplex` command to remove all the plexes of the volumes `rootvol`, `swapvol`, `usr`, `var`, `opt` and `home` that are on disks other than the root disk.

For example, the following command removes the plexes `mirrootvol-01`, and `mirswapvol-01` that are configured on a disk other than the root disk:

```
# vxplex -o rm dis mirrootvol-01 mirswapvol-01
```

Note: Do not remove the plexes on the root disk that correspond to the original disk partitions.

b 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. There must be at least one other disk in the `rootdg` disk group in addition to the root disk for `vxunroot` to succeed:

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

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

14 If required, you can upgrade the nodes at this stage, and patch them to a supported kernel version.

See "System requirements" on page 8.

15 On each node, use the following command to check if any Storage Checkpoints are mounted:

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

If any Storage Checkpoints are mounted, on each node in the cluster unmount all Storage Checkpoints:

```
# umount /checkpoint_name
```

16 On each node, use the following command to check if any VxFS file systems are mounted:

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

a If any VxFS file systems are present, on each node in the cluster unmount all the VxFS file systems:

```
# umount /filesystem
```

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

a Stop all applications that are involved in replication. For example, if a data volume contains a file system, unmount it.

b Use the `vxrvg stop` command to stop each RVG individually:

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

c 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.

---

18 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.

19 On each node, stop all VxVM volumes for each disk group:

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

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

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

20 Check if the VEA service is running:

```
# /opt/VRTS/bin/vxsvcctrl status
```

If the VEA service is running, stop it:

```
# /opt/VRTS/bin/vxsvcctrl stop
```

21 On each node, run the following command to change to the RPMs directory. For example:

```
# cd /extract_dir/dvdno_os/dist_arch/product/rpms
```

where *extract_dir* is the directory path under the location you extracted the downloaded 5.0 MP3 RP2 archive file.
where *dvdno-os* is either dvd1-redhatlinux or dvd2-suselinux.
where *dist* is either rhel4, rhel5, sles9, or sles10.
where *arch* is either i686, or x86_64.
where *product* is the name of the product `storage_foundation_cluster_file_system`.

22 On each node, run the following command to upgrade manually to 5.0 MP3 RP2:

```
# rpm -Uvh *.rpm
```

See "RPMs included in this rolling patch" on page 25.

23 On each of the second group of nodes (non-upgraded nodes), stop VCS by entering the following command:

```
# hastop -local
```

24 Shut down and reboot each of the upgraded nodes.

25 On each of the upgraded nodes, verify that VCS has started:

```
# hastatus -summary
```

If you upgraded node1, an output similar to the following appears:

```
--  SYSTEM      STATE
--  System      State       Frozen
A   node1       RUNNING     1
A   node2       UNKNOWN     0

--  GROUP       STATE
--  Group           System      Probed      AutoDisabled    State
B   FailoverGroup   node1       Y           N               OFFLINE
B   FailoverGroup   node2       Y           Y               OFFLINE
B   SFCFS_grp1      node1       Y           N               OFFLINE
B   SFCFS_grp1      node2       Y           Y               OFFLINE
```

If VCS has started correctly, proceed to step 29.

26 If `hastatus` cannot connect to the VCS engine, check if the `had` and `hashadow` processes are running:

```
# ps -ef | grep -i had
```

27 Kill the `had` process:

```
# kill -9 pid_of_had
```

28 Wait for 10 seconds, to ensure that `Port h` membership forms. To confirm that `Port h` membership forms, enter:

```
# gabconfig -a
GAB Port Memberships
===================================
Port a gen   357b05 membership 01
Port b gen   357b15 membership 01
Port d gen   357b0d membership 01
Port h gen   357b17 membership 0
Port h gen   357b17    visible ;1
```

29 If you need to re-encapsulate and mirror the root disk on each of the nodes, follow the procedures in the "Administering Disks" chapter of the *Veritas Volume Manager Administrator's Guide*.

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

31 Start VCS on each upgraded node:

```
# hastart
```

32 Make the VCS configuration writable again from any node in the upgraded group:

```
# haconf -makerw
```

33 Enter the following command on each node in the upgraded group to unfreeze HA service group operations:

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

34 Make the configuration read-only:

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

35 From the upgraded node, clear the AutoDisabled flag for every failover service group for each node of the cluster:

```
# hagrp -autoenable service_group -sys nodename
```

36 Bring the failover service group online on the upgraded node:

```
# hagrp -online service_group -sys nodename
```

37 Bring the CVM service group online on each node in the upgraded group:

```
# hagrp -online cvm -sys nodename
```

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

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

39 If you stopped any RVGs in step 17, restart each RVG:

```
# vxrvg -g diskgroup start rvg_name
```

40 Remount all VxFS file systems on all nodes:

```
# mount /filesystem
```

41 Remount all Storage Checkpoints on all nodes:

```
# mount /checkpoint_name
```

42 Repeat step 11 through step 22 for the second group of nodes.

43 Reboot each of the upgraded nodes.

Upgrading to 5.0 MP3 RP2 on a SFCFS for Oracle RAC cluster

The following procedure describes upgrading on a SFCFS for Oracle RAC cluster.

To upgrading to 5.0 MP3 RP2 on a SFCFS for Oracle RAC cluster

1 Log in as superuser.

2 Verify that `/opt/VRTS/bin` is in your PATH so you can execute all product commands.

3 Run the following commands on any node in the cluster:

```
# haconf -makerw
# hatype -modify CFSMount ArgList -add Primary
# haconf -dump -makero
```

4 Select the group of nodes that are to be upgraded first. Switch the failover service group, if any, to a node in the second group that is upgraded later in the procedure.

```
# hagrp -switch service_group -to nodename
```

5 Follow step 6 through step 19 for the first group of nodes to be upgraded.

6 Stop CRS on all each node:

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

On stopping CRS if any gsd relevant process remains active, you must stop that process manually.

7 All Oracle users must stop all applications using the CFS mounts not under VCS control.

a To verify that no processes use the CFS mount point, enter the following command:

```
# fuser -c mount_point
```

b Stop any processes using a CFS mount point with the mechanism provided by the application.

8 All Oracle users must unmount any CFS file systems not under VCS control on all nodes. To unmount CFS file systems not under VCS control:

a Log in as root.

b Determine the file systems to unmount by checking the output of the mount file. For example:

```
# mount | grep vxfs | grep cluster
```

c By specifying the mount point for the file system, unmount each file system that is listed in the output:

```
# umount mount_point
```

9 Stop VCS by entering the following command on each node in the group being upgraded:

```
# hastop -local
```

10 Stop the VCS command server:

```
# ps -ef | grep CmdServer
# kill -9 pid_of_CmdServer
```

where *pid_of_CmdServer* is the process ID of CmdServer.

11 Stop cluster GLM, fencing, ODM, GMS, GAB, and LLT:

```
# /etc/init.d/vxglm stop
# /etc/init.d/vxfen stop
# /etc/init.d/vxodm stop
```

```
# /etc/init.d/vxgms stop
# /etc/init.d/gab stop
# /etc/init.d/llt stop
```

12 If required, you can upgrade the nodes at this stage, and patch them to a supported kernel version.

Note: If you are upgrading a Storage Foundation Cluster File System for Oracle RAC cluster, you must upgrade the nodes at this stage to one of the operating system versions that this RP release supports.

See "System requirements" on page 8.

13 On each node, use the following command to check if any VxFS file systems are mounted:

```
# mount | grep vxfs
```

a If any VxFS file systems are present, on each node in the cluster unmount all the VxFS file systems:

```
# umount /mount-point
```

b On each node, 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
```

14 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.

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

```
# fsck -t vxfs filesystem-device
# mount -t vxfs filesystem-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 fileset 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.
```

d 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 fileset clone can take several hours.

e Repeat the following command to verify that the unclean file system is now clean:

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

15 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.

16 On each node, stop all VxVM 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
```

17 Check if the VEA service is running:

```
# /opt/VRTS/bin/vxsvcctrl status
```

If the VEA service is running, stop it:

```
# /opt/VRTS/bin/vxsvcctrl stop
```

18 Run the following command to change to the RPMs directory. For example:

```
# cd /extract_dir/dvdno_os/dist_arch/product/rpms
```

where *extract_dir* is the directory path under the location you extracted the downloaded 5.0 MP3 RP2 archive file.

where *dvdno-os* is either dvd1-redhatlinux or dvd2-suselinux.

where *dist* is either rhel4, rhel5, sles9, or sles10.

where *arch* is x86_64.

where *product* is the name of the product storage_foundation_cluster_file_system_for_rac.

19 Run the following command:

```
# rpm -Uvh *.rpm
```

20 After all the nodes in the selected group are upgraded, shut down and reboot each of the upgraded nodes.

```
# shutdown -r now
```

Note: After the reboots, VCS on the first set of nodes will fail to come up since VCS protocol versions would be different on the two sets of nodes. Therefore, CVM and CFS will also not come up.

Note: After the reboots of any set of nodes, if the following message appears in the VCS engine log:

```
2009/02/06 11:42:35 VCS CRITICAL V-16-1-11306 Did not
receive cluster membership, manual intervention may be
needed for seeding
```

You must restart VCS by using the following steps:

a Kill `had` and `hashadow`:

```
# pkill had; pkill hashadow
```

b Wait for 10 seconds and then run:

```
# hastart
```

VCS should restart without any issues and the earlier message should not reappear in the VCS engine log.

---

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

22 On the second group of nodes, stop the failover service group:

```
# hagrp -offline failover_service_group -any
```

Downtime starts for failover service groups.

23 Make the VCS configuration writable again from any node second group:

```
# haconf -makerw
```

24 Enter the following command on each node in the second group to freeze HA service group operations for the failover service group:

```
# hasys -freeze failover_service_group -persistent
```

25 Make the configuration read-only:

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

26 On the second group of nodes, shut down VCS on one of the nodes:

```
# hastop -all -force
```

27 On the first group of nodes, start VCS on each of the nodes:

```
# hastart
```

28 On the first group of nodes, start CRS on each node:

```
# /etc/init.d/init.crs start
```

29 Check if the VEA service is started:

```
# /opt/VRTS/bin/vxsvcctrl status
```

If the VEA service is not running, start it:

```
# /opt/VRTS/bin/vxsvcctrl start
```

30 After all the services are up on the first group of nodes, stop VCS on one of the nodes:

```
# hastop -all -force
```

31 On the second group of nodes, start VCS on each of the nodes:

```
# hastart
```

Downtime ends for the failover service groups.

32 Repeat step 6 through step 21 for the second group of nodes.

33 Make the VCS configuration writable again from any node in the second group:

```
# haconf -makerw
```

34 Enter the following command on each node in the second group to unfreeze HA service group operations for the failover service group:

```
# hagrp -unfreeze failover_service_group
```

35 Make the configuration read-only:

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

36 On the first group of nodes, start VCS on each of the nodes:

```
# hastart
```

Upgrading to 5.0 MP3 RP2 on a Storage Foundation HA cluster

The following procedure describes upgrading on a Storage Foundation HA, SF for Oracle HA or SF for DB2 HA cluster.

To upgrade to 5.0 MP3 RP2 on a Storage Foundation HA cluster

1 Log in as superuser.

2 Verify that `/opt/VRTS/bin` is in your PATH so you can execute all product commands.

3 Switch the service group to a node that is running:

```
# hagrp -switch service_group -to nodename
```

4 Make the VCS configuration writable on a node that is being upgraded:

```
# haconf -makerw
```

5 Freeze the HA service group operations. Enter the following command on each node, if you selected a group of nodes to upgrade:

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

6 Make the VCS configuration read-only:

```
# haconf -dump makero
```

7 Close any instance of VCS GUI that is running on the node.

8 Select the group of nodes that are to be upgraded first, and follow step 9 through step 26 for these nodes.

9 Stop VCS. Enter the following command on each node in the group that is being upgraded:

```
# hastop -local
```

10 Stop the VCS command server:

```
# killall CmdServer
```

11 Stop cluster fencing, GAB, and LLT:

```
# /etc/init.d/vxfen stop
# /etc/init.d/gab stop
# /etc/init.d/llt stop
```

12 If required, you can upgrade the nodes at this stage, and patch them to a supported kernel version.
See "System requirements" on page 8.

13 If the system reboots after upgrading the operating system, you must repeat step 9 through step 11 to stop any components that were started by the init script.

14 Run the following command to change to the RPMs directory. For example:

```
# cd /extract_dir/dvdno_os/dist_arch/product/rpms
```

where *extract_dir* is the directory path under the location you extracted the downloaded 5.0 MP3 RP2 archive file.
where *dvdno-os* is either dvd1-redhatlinux or dvd2-suselinux.
where *dist* is either rhel4, rhel5, sles9, or sles10.
where *arch* is either i686, or x86_64.
where *product* is the name of the product either `storage_foundation`, `storage_foundation_for_db2`, or `storage_foundation_for_oracle` depending on the product you are installing.

15 If you are upgrading the Storage Foundation product, run the following command to upgrade manually to 5.0 MP3 RP2 on each node:

```
# rpm -Uvh *.rpm
```

If you are upgrading the Storage Foundation for DB2 product, run the following commands to upgrade manually to 5.0 MP3 RP2 on each node:

```
# rpm -Uvh --nopreun --nopostun VRTSd2ed-common.rpm
# rpm -Uvh --nopreun --nopostun VRTSd2gui-common.rpm
# rpm -Uvh --nopreun --nopostun VRTSdbcom-common.rpm
# rpm -Uvh *.rpm
```

If you are upgrading the Storage Foundation for Oracle product, run the following commands to upgrade manually to 5.0 MP3 RP2 on each node:

```
# rpm -Uvh --nopreun --nopostun VRTSdbed-common.rpm
# rpm -Uvh --nopreun --nopostun VRTSorgui-common.rpm
# rpm -Uvh --nopreun --nopostun VRTSdbcom-common.rpm
# rpm -Uvh *.rpm
```

See "RPMs included in this rolling patch" on page 25.

16 On each node in the second group of nodes (non-upgraded nodes), stop VCS:

```
# hastop -local
```

17 Shut down and reboot each of the upgraded nodes.

18 On each of the upgraded nodes, verify that VCS has started:

```
# hastatus -summary
```

If you upgraded node1, an output similar to the following appears:

```
--  SYSTEM      STATE
--  System      State       Frozen
A   node1       RUNNING     1
A   node2       UNKNOWN     0

--  GROUP       STATE
--  Group           System      Probed      AutoDisabled    State
B   FailoverGroup   node1       Y           N               OFFLINE
B   FailoverGroup   node2       Y           Y               OFFLINE
```

If VCS has started correctly, proceed to step 22.

19 If `hastatus` cannot connect to the VCS engine, check if `had` and `hashadow` processes are running:

```
# ps -ef | grep -i had
```

20 Kill the `had` process:

```
# kill -9 pid_of_had
```

21 Wait for 10 seconds, to ensure that `Port h` membership forms. To confirm that `Port h` membership forms, enter:

```
# /sbin/gabconfig -a
GAB Port Memberships
===============================
Port a gen   660103 membership 01
Port h gen   660105 membership 0
Port h gen   660105    visible ;1
```

22 Make the VCS configuration writable again from any node in the upgraded group:

```
# haconf -makerw
```

23 Unfreeze the service group operations. Perform this task on each node if you had upgraded a group of nodes:

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

24 Make the VCS configuration read-only:

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

25 From the upgraded node, clear the AutoDisabled flag for every failover service group for each node of the cluster:

```
# hagrp -autoenable service_group -sys nodename
```

26 Bring the failover service group online on the upgraded node:

```
# hagrp -online service_group -sys nodename
```

27 Repeat step 10 through step 15 for the second group of nodes.

28 Reboot each of the upgraded nodes.

29 If you are currently using backup and restore for the DBED repository. Perform a full backup of the DBED repository database after completing the 5.0 MP3 RP2 installation.
For more information see the "Software limitations" on page 24 about older backups failing to be restored using the DBED scripts.
See the *Veritas Storage Foundation for Oracle Administrator's Guide* for the `sfua_rept_adm` command.
For more information see "Storage Foundation for Oracle fixed issues" on page 16 or "Storage Foundation for DB2 fixed issues" on page 16 for incident 1425261.

Upgrading to 5.0 MP3 RP2 on a VCS cluster

To upgrade VCS 5.0 MP3 to VCS 5.0 MP3 RP2, follow either of the following upgrade options.

- Manual upgrade
- Minimal downtime upgrade

Refer to the following sections for more information:

- See "Performing a manual upgrade to 5.0 MP3 RP2 on a VCS cluster" on page 76.
- See "Performing a minimal downtime upgrade to 5.0 MP3 RP2 on a VCS cluster" on page 78.

Performing a manual upgrade to 5.0 MP3 RP2 on a VCS cluster

Upgrading to 5.0 MP3 RP2 on a cluster, following the manual upgrade requires you to freeze all the service groups from the nodes.

The following are the stages for upgrading on a cluster, using the manual upgrade:

- Freeze all the service groups
- Stop VCS
- Perform the upgrade
- Restart the services
- Unfreeze the service groups

To perform a manual upgrade to 5.0 MP3RP2 on a VCS cluster

1 Log in as a superuser on one of the nodes.

2 Verify that `/opt/VRTSvcs/bin` is set in your PATH environment variable to execute all product commands.

3 Make the VCS configuration writable. On any node, type:

```
# haconf -makerw
```

4 Freeze the HA service groups. On each node, type:

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

5 Save the main.cf file with the groups frozen. On any node, type:

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

6 Stop VCS. On any node, type:

```
# hastop -all
```

7 If the system returns an error message and fails to shut down VCS, type:

```
# hastop -all -force
```

8 Verify that VCS has shutdown.

```
# ps -ef | grep -i had
```

9 Stop the VCS command server.

```
# killall CmdServer
```

10 Stop the cluster fencing, GAB and LLT instances.

```
# /etc/init.d/vxfen stop
# /etc/init.d/gab stop
# /etc/init.d/llt stop
```

11 If required, you can upgrade the operating systems on the nodes at this stage, and patch them to a supported kernel version.
See "Supported operating systems" on page 8

12 Run the following command to change to the RPMs directory. For example:

```
# cd /extract_dir/dvdno_os/dist_arch/product/rpms
```

where *extract_dir* is the directory path under the location you extracted the downloaded 5.0 MP3 RP2 archive file.
where *dvdno-os* is either dvd1-redhatlinux or dvd2-suselinux.
where *dist* is either rhel4, rhel5, sles9, or sles10.
where *arch* is either i586, i686, or x86_64.
where *product* is the name of the product you are installing.

13 Run the following commands to upgrade to 5.0 MP3 RP2. On each node, type:

```
# rpm -Uvh VRTSllt-5.0.30.20-MP3RP2_dist.arch.rpm
# rpm -Uvh VRTSgab-5.0.30.20-MP3RP2_dist.arch.rpm
# rpm -Uvh VRTSvxfen-5.0.30.20-MP3RP2_dist.arch.rpm
# rpm -Uvh VRTSvcs-5.0.30.20-MP3RP2_dist.arch.rpm
# rpm -Uvh VRTSvcsag-5.0.30.20-MP3RP2_dist.arch.rpm
```

where *dist* is the supported Linux distribution and *arch* is the supported Linux architecture.

14 Restart services.

15 Ensure VCS is running on all the nodes.

16 Make the VCS configuration writable, on any node.

```
# haconf -makerw
```

17 Unfreeze the service groups. On each node, type:

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

18 Make the VCS configuration read-only.

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

Performing a minimal downtime upgrade to 5.0 MP3 RP2 on a VCS cluster

Upgrading to 5.0 MP3 RP2 on a cluster, using the minimal downtime upgrade requires you to take the service groups offline from a node or group of nodes that you select to upgrade.

The following are the stages for upgrading on a cluster, using the minimal downtime upgrade:

- Select a node (or a group of nodes) in the cluster to upgrade.
- Shut down the cluster services on the selected set of nodes.
- Perform the upgrade on selected nodes.
- Shut down cluster services on the second set of nodes.
- Restart the cluster services on the upgraded node.
- Perform the upgrade on the second set of nodes.
- Bring the service groups online on all the upgraded nodes.

To perform a minimal downtime upgrade on a VCS cluster

1 Log in as superuser.

2 Verify that `/opt/VRTSvcs/bin` is set as your PATH so that you can execute all product commands.

3 Select a node (or group of nodes) in a cluster to upgrade first.

4 Stop VCS using the following command on all the selected set of nodes:

```
# hastop -local
```

5 If fencing is configured, stop fencing using the following command:

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

6 Stop GAB.

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

7 Stop LLT.

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

8 If required, you can upgrade the operating systems on the nodes at this stage, and patch them to a supported kernel version.

See "Supported operating systems" on page 8

9 Run the following command to change to the RPMs directory. For example:

```
# cd /extract_dir/dvdno_os/dist_arch/product/rpms
```

where *extract_dir* is the directory path under the location you extracted the downloaded 5.0 MP3 RP2 archive file.

where *dvdno-os* is either dvd1-redhatlinux or dvd2-suselinux.

where *dist* is either rhel4, rhel5, sles9, or sles10.

where *arch* is either i586, i686, or x86_64.

where *product* is the name of the product you are installing.

10 Upgrade to VCS 5.0 MP3 RP2 using the following commands:

```
# rpm -Uvh VRTSllt-5.0.30.20-MP3RP2_dist.arch.rpm
# rpm -Uvh VRTSgab-5.0.30.20-MP3RP2_dist.arch.rpm
# rpm -Uvh VRTSvxfen-5.0.30.20-MP3RP2_dist.arch.rpm
# rpm -Uvh VRTSvcs-5.0.30.20-MP3RP2_dist.arch.rpm
# rpm -Uvh VRTSvcsag-5.0.30.20-MP3RP2_dist.arch.rpm
```

where *dist* is the supported Linux distribution and *arch* is the supported Linux architecture.

11 Shut down the cluster services on the second set of nodes.

12 Start LLT on all the upgraded nodes.

```
# /etc/init.d/llt start
```

13 Start GAB on all the upgraded nodes.

```
# /etc/init.d/gab start
# /sbin/gabconfig -cx
```

14 Ensure that the GAB Port a membership has been formed. On any node type:

```
# /sbin/gabconfig -a
```

An output similar to the following ensures that the required membership is formed.

```
GAB Port Memberships
=======================================================
Port a gen   907501 membership 01
```

In case you fail to receive this output, repeat step 14 after a few seconds.

15 Start Fencing.

```
# /etc/init.d/vxfen start
```

16 Start the remaining VCS components.

```
# /etc/init.d/vcs start
```

17 Upgrade the second set of nodes.

18 Start all VCS components on all the upgraded nodes from the second set.

```
# /etc/init.d/llt start
# /etc/init.d/gab start
# /etc/init.d/vxfen start
# /etc/init.d/vcs start
```

19 Bring service groups online on the cluster.

Upgrading to 5.0 MP3 RP2 on a standalone system

You can use this procedure to upgrade on a standalone system that runs Storage Foundation, SF for Oracle, or SF for DB2.

To upgrading to 5.0 MP3 RP2 on a standalone system

1. Log in as superuser.
2. Verify that `/opt/VRTS/bin` is in your PATH so you can execute all product commands.
3. Check if the root disk is under VxVM control by running this command:

   ```
   # 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:

   a. Use the `vxplex` command to remove all the plexes of the volumes `rootvol`, `swapvol`, `usr`, `var`, `opt` and `home` that are on disks other than the root disk.
   For example, the following command removes the plexes `mirrootvol-01`, and `mirswapvol-01` that are configured on a disk other than the root disk:

   ```
   # vxplex -o rm dis mirrootvol-01 mirswapvol-01
   ```

   Note: Do not remove the plexes on the root disk that correspond to the original disk partitions.

   b. 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. There must be at least one other disk in the `rootdg` disk group in addition to the root disk for `vxunroot` to succeed.

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

   Following the removal of encapsulation, the system is rebooted from the unencapsulated root disk.
4. If required, you can upgrade the system at this stage, and patch it to a supported kernel version.
5. Use 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 Veritas Volume Replicator (VVR) replicated volume groups (RVGs) on your system, perform the following steps:

a Stop all applications that are involved in replication. For example, if a data volume contains a file system, unmount it.

b Use the `vxrvg stop` command to stop each RVG individually:

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

c 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 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.

9 Stop all VxVM 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
```

10 Check if the VEA service is running:

```
# /opt/VRTS/bin/vxsvcctrl status
```

If the VEA service is running, stop it:

```
# /opt/VRTS/bin/vxsvcctrl stop
```

11 Run the following command to change to the RPMs directory. For example:

```
# cd /extract_dir/dvdno_os/dist_arch/product/rpms
```

where *extract_dir* is the directory path under the location you extracted the downloaded 5.0 MP3 RP2 archive file.

where *dvdno-os* is either dvd1-redhatlinux or dvd2-suselinux.

where *dist* is either rhel4, rhel5, sles9, or sles10.

where *arch* is either i686, or x86_64.

where *product* is the name of the product either `storage_foundation`, `storage_foundation_for_db2`, or `storage_foundation_for_oracle` depending on the product you are installing.

12 If you are upgrading the Storage Foundation product, run the following command to upgrade manually to 5.0 MP3 RP2 on each node:

```
# rpm -Uvh *.rpm
```

If you are upgrading the Storage Foundation for DB2 product, run the following commands to upgrade manually to 5.0 MP3 RP2 on each node:

```
# rpm -Uvh --nopreun --nopostun VRTSd2ed-common.rpm
# rpm -Uvh --nopreun --nopostun VRTSd2gui-common.rpm
# rpm -Uvh --nopreun --nopostun VRTSdbcom-common.rpm
# rpm -Uvh *.rpm
```

If you are upgrading the Storage Foundation for Oracle product, run the following commands to upgrade manually to 5.0 MP3 RP2 on each node:

```
# rpm -Uvh --nopreun --nopostun VRTSdbed-common.rpm
# rpm -Uvh --nopreun --nopostun VRTSorgui-common.rpm
# rpm -Uvh --nopreun --nopostun VRTSdbcom-common.rpm
# rpm -Uvh *.rpm
```

See "RPMs included in this rolling patch" on page 25.

13 Shut down and restart the system.

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

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

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

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

```
# vxrvg -g diskgroup start rvg_name
```

17 Remount all VxFS file systems and Storage Checkpoints:

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

18 Check if the VEA service was restarted:

```
# /opt/VRTS/bin/vxsvcctrl status
```

If the VEA service is not running, restart it:

```
# /opt/VRTS/bin/vxsvcctrl start
```

19 If you need to re-encapsulate and mirror the root disk, follow the procedures in the "Administering Disks" chapter of the *Veritas Volume Manager Administrator's Guide*.

20 If you are currently using backup and restore for the DBED repository. Perform a full backup of the DBED repository database after completing the 5.0 MP3 RP2 installation.

For more information see the "Software limitations" on page 24 about older backups failing to be restored using the DBED scripts.

See the *Veritas Storage Foundation for Oracle Administrator's Guide* for the `sfua_rept_adm` command.

For more information see "Storage Foundation for Oracle fixed issues" on page 16 or "Storage Foundation for DB2 fixed issues" on page 16 for incident 1425261.

Upgrading VCS Agents

For upgrading the Oracle, Sybase and DB2 agents for VCS, refer to the README documents provided along with the patch.

Upgrading Cluster Management Console

This section describes how to upgrade the Cluster Management Console for VCS 5.0 MP3 RP2.

Depending upon your CMC configuration, select one of the following procedures for the upgrade.

- Upgrading CMC Cluster Connector
- Upgrading CMC Web Console (Single Cluster Mode)

Upgrading CMC Cluster Connector

To upgrade CMC Cluster Connector

1. Verify whether the CMC Cluster Connector service group is present. If it is absent, skip step 2.
2. Take the service group offline, if it is online.
   # hagrp -offline CMC -any
3. Change the location to the RPMs directory.
   For example:
   # cd /*extract_dir*/dvdno_os/dist_arch/product/rpms
   where *extract_dir* is the directory path under the location you extracted the downloaded 5.0 MP3 RP2 archive file.
   where *dvdno-os* is either dvd1-redhatlinux or dvd2-suselinux.
   where *dist* is either rhel4, rhel5, sles9, or sles10.
   where *arch* is either i686, or x86_64.
   where *product* is the name of the product cluster_management_console.
4. Run the following command to upgrade CMC.
   # rpm -U VRTScmccc-5.0.30.20-MP3RP2_*dist*.*arch*.rpm
   where *dist* is the supported Linux distribution and *arch* is the supported Linux architecture.
5. Bring the Cluster Connector online, if it was brought offline earlier.
   # hagrp -online CMC -any

Upgrading CMC Web Console (Single Cluster Mode)

To upgrade CMC Web Console

1. Verify whether CMC Web Console service group is present. If it is absent, skip step 2.
2. Take the resource offline, if it is online.
   # hares -offline VCSweb -sys *system_name*
   Where, *system_name* is the system on which VCSweb resource is online.
3. Change the location to the RPMs directory.
   For example:
   # **cd /*extract_dir*/*dvdno_os*/*dist_arch*/*product*/rpms**
   where *extract_dir* is the directory path under the location you extracted the downloaded 5.0 MP3 RP2 archive file.
   where *dvdno-os* is either dvd1-redhatlinux or dvd2-suselinux.
   where *dist* is either rhel4, rhel5, sles9, or sles10.
   where *arch* is either i686, or x86_64.
   where *product* is the name of the product cluster_management_console.
4. Run the following command to upgrade CMC.
   # rpm -U VRTScmcs-5.0.30.20-MP3RP2_*dist.arch*.rpm
   where *dist* is the supported Linux distribution and *arch* is the supported Linux architecture.
5. Bring the Cluster Web Console online, if it was brought offline earlier.
   # hares -online VCSweb -sys *system_name*
   Where, *system_name* is the system on which you want the VCSweb resource to come online.

Upgrading the operating system and upgrading to 5.0 MP3 RP2

This section describes how to upgrade the operating system on a Storage Foundation node where you plan to upgrade to 5.0 MP3 RP2. This section includes the following topics:

Refer to the *Oracle*, *Red Hat*, or *SUSE* documentation for more information on upgrading your system.

Upgrading RHEL 4

This section describes how to upgrade the OS on a Storage Foundation node and upgrade to 5.0 MP3 RP2.

To upgrade to a later version of RHEL 4

1. Stop Storage Foundation.
2. Upgrade to RHEL 4 Update 3 or a later version.
3. Upgrade to 5.0 MP3 RP2.
   See "Upgrading 5.0 MP3 to 5.0 MP3 RP2" on page 63.
4. Start Storage Foundation.

Upgrading RHEL 4 to RHEL 5

This section describes how to upgrade the OS on a Storage Foundation node and upgrade to 5.0 MP3 RP2.

To upgrade RHEL 4 to RHEL 5

1. Stop Storage Foundation.

2 Upgrade to RHEL 5 Update 1 or a later version.

3 Upgrade to 5.0 MP3 RP2.
See "Upgrading 5.0 MP3 to 5.0 MP3 RP2" on page 63.

4 Start Storage Foundation.

Upgrading RHEL 5

This section describes how to upgrade the OS on a Storage Foundation node and upgrade to 5.0 MP3 RP2.

To upgrade to a later version of RHEL 5

1 Stop Storage Foundation.

2 Upgrade to RHEL 5 Update 1 or a later version.

3 Upgrade to 5.0 MP3 RP2.
See "Upgrading 5.0 MP3 to 5.0 MP3 RP2" on page 63.

4 Start Storage Foundation.

Upgrading OEL 4

This section describes how to upgrade the OS on a Storage Foundation node and upgrade to 5.0 MP3 RP2.

To upgrade to a later version of OEL 4

1 Stop Storage Foundation.

2 Upgrade to OEL 4.4 or a later version.

3 Upgrade to 5.0 MP3 RP2.
See "Upgrading 5.0 MP3 to 5.0 MP3 RP2" on page 63.

4 Start Storage Foundation.

Upgrading OEL 4 to OEL 5

This section describes how to upgrade the OS on a Storage Foundation node and upgrade to 5.0 MP3 RP2.

To upgrade OEL 4 to OEL 5

1 Stop Storage Foundation.

2 Upgrade to OEL 5.1 or a later version.

3 Upgrade to 5.0 MP3 RP2.

See “Upgrading 5.0 MP3 to 5.0 MP3 RP2” on page 63.

4 Start Storage Foundation.

Upgrading OEL 5

This section describes how to upgrade the OS on a Storage Foundation node and upgrade to 5.0 MP3 RP2.

To upgrade to a later version of OEL 5

1 Stop Storage Foundation.

2 Upgrade to OEL 5.1 or a later version.

3 Upgrade to 5.0 MP3 RP2.
See “Upgrading 5.0 MP3 to 5.0 MP3 RP2” on page 63.

4 Start Storage Foundation.

Upgrading SLES 9

This section describes how to upgrade the OS on a Storage Foundation node and upgrade to 5.0 MP3 RP2.

To upgrade to a later version of SLES 9

1 Stop Storage Foundation.

2 Upgrade to SLES 9 SP3 or a later version.

3 Upgrade to 5.0 MP3 RP2.
See “Upgrading 5.0 MP3 to 5.0 MP3 RP2” on page 63.

4 Start Storage Foundation.

Upgrading SLES 9 to SLES 10

This section describes how to upgrade the OS on a Storage Foundation node and upgrade to 5.0 MP3 RP2.

To upgrade SLES 9 to SLES 10

1 Stop Storage Foundation.

2 Upgrade to SLES 10 SP1 or a later version.

3 Upgrade to 5.0 MP3 RP2.
See “Upgrading 5.0 MP3 to 5.0 MP3 RP2” on page 63.

4 Start Storage Foundation.

Upgrading SLES 10

This section describes how to upgrade the OS on a Storage Foundation node and upgrade to 5.0 MP3 RP2.

To upgrade to a later version of SLES 10

1. Stop Storage Foundation.
2. Upgrade to SLES 10 SP1 or a later version.
3. Upgrade to 5.0 MP3 RP2.
   See "Upgrading 5.0 MP3 to 5.0 MP3 RP2" on page 63.
4. Start Storage Foundation.

Upgrading the patch levels of an operating system for Veritas Cluster Server

This section describes how to upgrade the patch levels of the operating system on a Veritas Cluster Server node, where you plan to upgrade to 5.0 MP3 RP2. This section includes the following topics:

- To upgrade RHEL from any previous update to the currently supported update.
- To upgrade SLES from any previous service pack to the currently supported service pack.

Refer to, "Supported operating systems" on page 8 for more information on the currently supported update levels.

To upgrade RHEL from any previous update to the currently supported update.

1. Switch the service groups from the target node to the node you want to upgrade later.
   ```
   # hagrp -switch servicegroup -to nodename
   ```
2. Perform step 3 through step 6 on each of the selected node.
3. Stop VCS.
   ```
   # hastop -local
   ```
4. Stop VCS command server.
   ```
   # killall CmdServer
   ```
5. Stop cluster fencing, GAB and LLT.
   ```
   # /etc/init.d/vxfen stop
   # /etc/init.d/gab stop
   # /etc/init.d/llt stop
   ```

6 Upgrade RHEL from the previous update to the currently supported update.

7 Reboot each of the upgraded node.

8 Switch back the service groups to the upgraded node.

To upgrade SLES from any previous service pack to the currently supported service pack.

1 Switch the service groups from the target node to the node you want to upgrade later.

```
# hagrp -switch servicegroup -to nodename
```

2 Perform step 3 through step 6 on each of the selected node.

3 Stop VCS.

```
# hastop -local
```

4 Stop VCS command server.

```
# killall CmdServer
```

5 Stop cluster fencing, GAB and LLT.

```
# /etc/init.d/vxfen stop
# /etc/init.d/gab stop
# /etc/init.d/llt stop
```

6 Upgrade SLES from the previous service pack to the currently supported service pack.

7 Reboot each of the upgraded node.

8 Switch back the service groups to the upgraded node.

Verifying software versions

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

```
# rpm -qa | egrep VRTS
```

Removing 5.0 MP3 RP2

Roll back of the 5.0 MP3 RP2 to the release 5.0 MP3 version is not supported. It is recommended that you follow the steps in the following sections to remove all the installed Veritas software, and then perform a complete reinstallation of the release 5.0 MP3 software.

Removing 5.0 MP3 RP2 on Storage Foundation or Storage Foundation Cluster File System

You can use the following procedure to uninstall 5.0 MP3 RP2 on Storage Foundation or Storage Foundation Cluster File System (SFCFS).

To uninstall 5.0 MP3 RP2 on Storage Foundation or SFCFS

1. Log in as superuser.
2. Verify that `/opt/VRTS/bin` is in your PATH so you can execute all product commands.
3. Unmount all VxFS file systems or SFCFS file systems by stopping VCS:

   ```
   # hastop -all
   ```
4. Stop the VCS command server:

   ```
   # killall CmdServer
   ```
5. If cluster fencing was originally configured in enabled mode, type the following on all the nodes:

   ```
   # rm /etc/vxfenmode
   ```
6. Check if the root disk is under VxVM control by running this command:

   ```
   # 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:

   a. Use the `vxplex` command to remove all the plexes of the volumes `rootvol`, `swapvol`, `usr`, `var`, `opt` and `home` that are on disks other than the root disk.

For example, the following command removes the plexes `mirrootvol-01`, and `mirswapvol-01` that are configured on a disk other than the root disk:

```
# vxplex -o rm dis mirrootvol-01 mirswapvol-01
```

Note: Do not remove the plexes on the root disk that correspond to the original disk partitions.

b 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. There must be at least one other disk in the `rootdg` disk group in addition to the root disk for `vxunroot` to succeed.

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

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

7 Use the following command to check if any VxFS file systems or Storage Checkpoints are mounted:

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

8 Unmount all Storage Checkpoints and file systems:

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

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

a Stop all applications that are involved in replication. For example, if a data volume contains a file system, unmount it.

b Use the `vxrvg stop` command to stop each RVG individually:

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

c 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.

10 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.

11 Stop all VxVM 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
```

12 Check if the VEA service is running:

```
# /opt/VRTS/bin/vxsvcctrl status
```

If the VEA service is running, stop it:

```
# /opt/VRTS/bin/vxsvcctrl stop
```

13 To shut down and remove the installed Veritas packages, use the appropriate command in the `/opt/VRTS/install` directory. For example, to uninstall the Storage Foundation, use the following commands:

```
# cd /opt/VRTS/install
# ./uninstallsf [-rsh]
```

You can use this command to remove the packages from one or more systems. For other products, substitute the appropriate script for `uninstallsf` such as `uninstallsfcfs` for the Storage Foundation Cluster File System software.

After uninstalling the Veritas software, refer to the appropriate product's 5.0 MP3 Installation Guide document to reinstall the 5.0 MP3 software.

Removing 5.0 MP3 RP2 on a Storage Foundation Cluster File System for Oracle RAC

You can use the following procedure to uninstall 5.0 MP3 RP2 on Storage Foundation Cluster File System for Oracle RAC (SFCFS for Oracle RAC):

1 Log in as superuser on all the nodes.

2 Stop CRS on all the nodes, use the following command:

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

3 From any node, stop VCS on all the nodes, use the following command:

```
# /opt/VRTS/bin/hastop -all
```

4 On any node, change to the install directory:

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

5 On the same node, from the scripts directory, run the `uninstallsfcfsrac` script and remove SFCFS for Oracle RAC:

```
# ./uninstallsfcfsrac nodelist
```

where *`nodelist`* is list of nodes in the SFCFS for Oracle RAC cluster.

Removing 5.0 MP3 RP2 for Veritas Cluster Server

Perform the following procedure in each node of the cluster to remove the VCS 5.0 MP3 RP2 packages.

To remove the VCS 5.0 MP3 RP2 packages from the cluster.

1. Log in as superuser.
2. Stop VCS along with all the online resources.
3. Stop the remaining resources, if any.
   ```
   # /etc/init.d/vcs stop
   ```
4. Stop the VCS command server.
   ```
   # killall CmdServer
   ```
5. Uninstall VCS.
   ```
   # cd /opt/VRTS/install
   # ./uninstallvcs [-rsh]
   ```
6. If vxfen was originally configured in enabled mode, type the following:
   ```
   # rm /etc/vxfenmode
   ```
7. Refer to the *Veritas Cluster Server Installation Guide* to reinstall the 5.0MP3 software.