Veritas Storage Foundation™ and High Availability Solutions Read This First

Solaris

5.0 Maintenance Pack 3 Rolling Patch 5

Symantec

Veritas Storage Foundation and High Availability Solutions Read This First 5.0 Maintenance Pack 3 Rolling Patch 5

Product version: 5.0 MP3 RP5

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- Operating system
- Version and patch level
- Network topology
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- Information about the Symantec Buying Programs
- Advice about Symantec's technical support options
- Nontechnical presales questions
- Issues that are related to CD-ROMs or manuals

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North America and Latin America	supportsolutions@symantec.com

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Your feedback on product documentation is important to us. Send suggestions for improvements and reports on errors or omissions. Include the title and document version (located on the second page), and chapter and section titles of the text on which you are reporting. Send feedback to:

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Veritas Storage Foundation and High Availability Solutions: Read This First

This document includes the following topics:

- Documentation errata

About this document

This document provides release information about the products in the Veritas Storage Foundation and High Availability 5.0 Maintenance Pack 3 Rolling Patch 5 (SFHA 5.0 MP3 RP5) release.

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

For Solaris SPARC,

http://www.symantec.com/docs/TECH46439

For Solaris x64,

http://www.symantec.com/docs/TECH50452

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

See also the *Veritas Storage Foundation™ for Oracle® RAC 5.0 MP3 RP5 Application Note: Installing or upgrading to Oracle RAC 11g Release 2*.

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*.

- *Veritas Storage Foundation™ for Oracle® RAC 5.0 MP3 Release Notes*

System requirements

This section describes the system requirements for this release.

Supported operating systems

The 5.0 MP3 RP5 release operates on the architectures and operating systems shown below:

For SPARC:

- Solaris 8
- Solaris 10 Update 6, 7, 8 and 9
- Solaris 9 Update 6, 7, 8, and 9 + latest recommend cluster patches

Note: Solaris 9 Update 9 is based on Update 8, but added hardware support for the V445, V245, and Ultra 45 SPARC platforms.

For x64

- Solaris 10 Update 6, 7, 8 and 9

DB2 support

This release of Storage Foundation for DB2 offers support for DB2 9.7 in addition to the DB2 database versions that are supported in 5.0 MP3 release.

Oracle support

This release of Storage Foundation for Oracle and Veritas Cluster Server (VCS) offers support for the following in addition to the Oracle database versions that are supported in 5.0 MP3 release:

- Oracle 11.1.0.7
- Oracle 11.2.0.1 and 11.2.0.2
  See the *Veritas Storage Foundation™ for Oracle® RAC 5.0 MP3 RP5 Application Note: Installing or upgrading to Oracle RAC 11g Release 2*.

Storage Foundation High Availability fixed issues

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

- Veritas Volume Manager fixed issues
- Veritas File System fixed issues
- Storage Foundation Cluster File System fixed issues
- Storage Foundation for Oracle fixed issues
- Storage Foundation for DB2 fixed issues
- Storage Foundation for Sybase fixed issues

Veritas Volume Manager fixed issues

Table 1-1 describes fixed issues in the Veritas Volume Manager 5.0 MP3 RP5 release.

Table 1-1 Veritas Volume Manager 5.0 MP3 RP5 fixed issues

Fixed issues	Description
2310284	Fixed the issue that for VxVM versions prior to 5.1SP1, don't allow CDS disk initialization for LUN size > 1TB
2226813	Fixed the issue with VVR: rlinks remain disconnected with UDP protocol if data ports are specified
2226304	Fixed the issue that cannot create 1TB+ ufs file system with Solaris 9
2199496	Fixed the issue that Data Corruption issue with "site mirror" Campus Cluster feature
2197254	Fixed the issue that while creating volumes on thinrclm disks, the option "logtype=none" does not work with vxassist command
2196480	Fixed the issue that the disk initialization failed due to wrong number of cylinders reported from raw geometry
2188590	Fixed the issue that interlock acquired by SLAVE node for a read on a DCL object leads to IO hang when the node becomes MASTER before completion of the read
2183984	Fixed the system panic in dmp_update_stats routine
2181631	Fixed the issue that striped-mirror volume cannot be grown across sites with -oallowspansites with DRL
2160199	Fixed the issue that master takeover fails as the upcoming Master could not import shared diskgroup
2158438	Fixed the issue that vxsnap restore operation for 500 volumes spits garbage strings and sometime dumps core

Table 1-1 Veritas Volume Manager 5.0 MP3 RP5 fixed issues *(continued)*

Fixed issues	Description
2152830	Fixed the issue that in multilevel clone disks environment, regular diskgroup import should be handled properly and in case of diskgroup import failure, it should report correct error message
2141176	Fixed the panic: BAD TRAP: type=31 in dmp_decode_modmap_dmpnode routine
2139179	Fixed the issue that SSB check invalid when lun copy
2133503	Fixed the issue that renaming enclosure results in dmpevents.log reporting Mode for Enclosure has changed from Private to Private
2131814	Fixed the issue with VVR:System panic due to corrupt sio in _VOLRPQ_REMOVE
2112568	Fixed the issue that system panicked by vxconfigd daemon in voldco_or_acmbuf_to_pvmbuf routine
2105722	Fixed the issue with VVR:I/O hang on Primary with link-breakoff snapshot
2105547	Fixed the issue that tag meta info records are not cleaned-up during DGSJ operation and leading to huge delay in DGSJ operation after few iterations
2102829	Fixed the issue that diskgroup corruption is seen after suppressing the DMP paths of a controller with persistent naming set to off and enclosure having only one controller
2094685	Fixed the issue that diskgroup corruption following an import of a cloned BCV image of a SRDF-R2 device
2089128	Fixed the issue that ression: handling of unlabelled "nolabel" devices
2082450	Fixed the issue that in case of failure, vxdisk resize should display more meaningful error message
2078115	Fixed the issue that the dmpnode shows as "auto:error" on creation of zpool on the dmpnode after installing the DMPonly product
2076700	Fixed the issue with VVR:Primary panic due to NULL pointer dereference
2075801	Fixed the issue with VVR:"vxnetd stop/start" panic'ed the system due to bad free
2070531	Fixed the issue with campus cluster: Couldn't enable siteconsistency on a DCL volume, when trying to make the disk group and its volumes siteconsistent

Table 1-1 Veritas Volume Manager 5.0 MP3 RP5 fixed issues *(continued)*

Fixed issues	Description
2067038	Fixed the issue on Solaris 10: Correction of EFI detection logic in DMP after fix provided by Sun/Oracle
2060785	Fixed the issue with VIS: Panic in vol_rv_merge_config
2055609	Fixed the issue that allocation specification should be propagated for DCO during grow operation
2054201	Fixed the issue that 'vxdctl enable' triggers SCSI errors on EMC CLARiiON MirrorView read-only devices
2052459	Fixed the issue that DMP failed to register one path resulted in CFS mount failure on slave node
2040150	Fixed the issue that existence of 32 or more keys per LUN leads to loss of SCSI3 PGR keys during cluster reconfiguration
2038735	Fixed the issue that incorrect handling of duplicate objects resulting in node join failure and subsequent panic
2038137	Fixed the issue that system panics if the I/O breakup routine is called recursively
2036929	Fixed the issue that renaming a volume with an attached link object can break linked snapshots
2034564	Fixed the issue that I/Os hung in serialization after one of the disk which formed the raid5 volume was pulled out
2029735	Fixed the system panic in volobject_iogen routine due to null gio_object
2029480	Fixed the diskgroup join failure with error "Configuration too large for configuration copies" renders source diskgroup into inconsistent state
2027831	Fixed the issue that 'vxdg free' not reporting free space correctly on CVM master. vxprint not printing DEVICE column for SDs
2025593	Fixed the issue that vxdg join hang/failure due to presence of non-allocator inforecords and when tagmeta=on
2020373	Fixed the issue that system crashes (due to page fault) in gendmpopen while running the test suite
2016129	Fixed the issue that need to disable vxesd when PP is present on the system

Table 1-1 Veritas Volume Manager 5.0 MP3 RP5 fixed issues *(continued)*

Fixed issues	Description
2015577	Fixed the issue that VVR init scripts need to exit gracefully if VVR license not installed
2010426	Fixed the issue that settag and rmtag do not handle wrong enclosure name
2009439	Fixed the issue with CVR:Panic in vol_ru_check_limits routine while running the stress test suite
1982715	Fixed the issue with vxclustadm dumping core in realloc
1974393	Fixed the issue that avoiding cluster hang when the transaction client timed out
1960341	Fixed the issue that toggling of naming scheme is not properly updating the DM records in incore database of vxconfigd
1954062	Fixed the issue that vxrecover results in system crash
1946460	Fixed the issue that reattchsite is not doing da-dm assosiation on slave after diskgroup deport-import, when disks are in detached state
1933375	Changed value of "voliomem_chunk_size" should be align with page-size granularity
1932023	Fixed issue with vxdiskadm: 'Allow multipathing of all disks on a controller by VxVM' for MPxIO controlled devices fails
1831634	Fixed the issue with CVR:Wrong sending sibling count causing replication hang, which can result in I/O hang
1589715	Fixed the issue that vxconfigd dumps core, after vxdmpadm getportids ctlr=ctlr_name on a disabled ctlr
1586095	Fixed the issue with DMP:'vxdmpadm include' failed for including excluded dmpnodename
1513385	Fixed the issue with VVR:Primary panic during autosync or dcm replay
1482555	Fixed the issue that vxconfigd hung when unloading apm modules
1426480	Fixed the issue with VOLCVM_CLEAR_PR ioctl does not propogate the error returned by DMP to the caller
1421078	Fixed the issue that manpage for vxdg(1M) needs to cover last shared diskgroup disk detach scenario in a more better way

Table 1-2 describes fixed issues in the Veritas Volume Manager 5.0 MP3 RP4 release, which are included in this release.

Table 1-2 Veritas Volume Manager 5.0 MP3 RP4 fixed issues

Fixed issues	Description
529286	vx commands fails with global zone error
2034898	Allow creation and importing cdsdisks of size more than 1 TB
2029480	DG join failure with error "Configuration too large for configuration copies" renders source DG into inconsistent state (cannot re-imported)
2021737	HDS TrueCopy S-VOL type devices displayed as "error" in vxdisk list whilst read-only [Sun bug ID 6953184]
2013417	vxrootadm grow failed
1999004	I/Os hang in drl_busyq in VxVM on linked-based snapshot
1996162	bootdg not reset after unencapsulation
1993953	CVM Node unable to join in Sun Cluster environment selecting wrong coordinator [Sun bug ID 6935505]
1992872	Multiple issues with vxdisk resize code
1992537	Diskgroup agent paniced in a 6 node cluster
1982715	vxclustadm dumping core in realloc
1982178	vxdiskadm option "6" should not list available devices outside of source diskgroup
1980229	Need to remove direct lbolt usage from rvio.c
1972851	DG import failed after VxVM upgrade with DG version doesn't support feature error
1972755	TP/ETERNUS: No reclaim seen with Stripe-Mirror volume
1956777	VVR: Stale references in pripendinq causes random corruption
1955693	5.0MP3RP3 patch 122058-13 disables vxfsldlic service and prevents booting in multi-user mode after jumpstart installation
1952197	Running vxtrace against a volume shows response times as negative
1950328	vxfmrshowmap: dumping core while freeing the allocated memory

Table 1-2 Veritas Volume Manager 5.0 MP3 RP4 fixed issues *(continued)*

Fixed issues	Description
1947089	vxdisk resize cannot handle over 1TB gpt labelled disk as expected
1946939	CVM: Panic during master takeover, when there are cache object I/Os being started on the new master
1946936	CVM: IO hangs during master takeover waiting for a cache object to quiesce
1939432	TP: reclaim with raid5 volumes caused system panic
1938907	vxdmpadm getportids is not showing pWWN number
1938708	Solaris: root encapsulation not handling dump/swap device and unencapsulation of mirror plex with EBN naming
1936611	vxconfigd core dump while splitting a dg
1935297	vxconfigd core dumps during backups [Sun bug ID 6915791]
1934338	Path name should not be passed to dogi_slice_rawpath
1929074	vxbootsetup not processing volumes in an ordered manner
1920761	I/O is not going through the disk after connecting the storage back to master node in local detach policy
1915356	I/O stuck in vxvm caused cluster node panic
1911546	vxrecover hung after hitting e1909954 and reboot of all nodes
1911388	upgrade scripts should be included in package/patch
1911357	SFRAC: After applying patch SxRT-5.1P1-2009-11-18c, cvm faults
1911137	Possible cache object corruption due to CREC and shadow tree updates conflicting
1907796	Corrupted Blocks in Oracle after Dynamic LUN expansion and vxconfigd core dump
1901827	vxdg move failed silently and drops disks
1889747	vxlustart customer is unable to do live upgrade with Solaris Zone on vxfs
1886007	vxesd leaking File descriptors
1884070	When running iotest on volume, primary node runs out of memory

Table 1-2 Veritas Volume Manager 5.0 MP3 RP4 fixed issues *(continued)*

Fixed issues	Description
1881639	Node paniced while testing recovery of space optimized snapshot based thin provisioning volume after unplug / plug of FC cable
1881336	VVR: Primary Panic in vol_ru_replica_sent()
1874034	Race between modunload and an incoming IO leading to panic
1872743	Layered volume not startable due to duplicate rid in vxrecover maintained volume_list
1871447	Mirrored encapsulated disk panics on boot when the primary is removed and mpxio is enabled
1870049	Sol: Dump device changed to none after boot disk encapsulation [Sun bug ID 6892922]
1860892	Cache Object corruption when replaying the CRECs during recovery
1849558	vxlufinish failed while upgrade from solaris10U5 to solaris10U6 while encapsulating alternate boot disk
1846165	Data corruption seen on cdsdisks on Solaris-x86 in several customer cases
1843233	vxvm core dumps during live upgrade pkgadd VRTSvxvm to altroot [Sun bug ID 6875379]
1829337	Disk failed and VCS offline during firmware revert from array side.
1825637	VM cannot recognize over 2TB LUNs
1825516	Unable to initialize and use ramdisk for VxVM use
1825270	Need for dmp_revive_paths() in dmp reconfiguration/restore_demon code path
1820179	vxdctl debug 0 core dumps after vxconfig -X #n -x logfile=file_name
1810655	When vxesd is enabled, dmp/dr procedure with PowerPath panics the system
1805669	TP: vxdisk reclaim should skip cache object update
1797508	vxconfigd level join hang when a slave rejoin is followed by a master-takeover
1797203	NULL pointer dereference panic :vxio:vol_cvol_dshadow1_done()
1781461	Prompt user to run vxdiskunsetup within vxdiskadm when disk is sliced

Table 1-2 Veritas Volume Manager 5.0 MP3 RP4 fixed issues *(continued)*

Fixed issues	Description
1781406	panic in dmp_dmpnode_license_add
1766931	During boot time at VxVM start-up, paths keep getting enabled/disabled for BCV/BCV-NR devices in a loop resulting in system hang
1766452	vradmind dumps core during collection of memory stats
1762344	vxconfigd hang on one of cluster node when performed some switch operations and vxdisk scandisks
1747275	SFRAC/CVR - panic in _VOLRPQ_APPEND: corrupted queue at 3002c12cc28
1741757	Single Active iopolicy is not working as expected for A/A array.
1740927	vxdiskadm:vxconfigd dumped core after option 18:1 on TPD devices
1720155	(Equallogic iSCSI) vxfentsthdw consistently failed while using dmp devices
1677149	vxesd core dump in strncmp() during boot
1671264	vxconfigrestore fails when only one disk is under the dg.
1669719	After removing LUN from array side, 'listenclosure all' o/p doesn't list that array enclosure
1668978	ASL Request for Hitachi USPV HAM
1668351	VVR: nmcom server start hanging system on startup
1665982	vxvm 5.0MP3RP2 patch 122058-12 hung during patchadd. postinstall script trying to remove vxdmp driver
1665400	vxsnap refresh' hung for long time, as vxconfigd response is slow due to GAB EAGAIN errors
1664952	Refreshing private region structures degrades performance during "vxdisk listtag" on a setup of more than 400 disks
1662744	VVR: Hang in tli_send() for duration equivalent to "tcp_ip_abort_interval" time period
1650663	vxsnap dumped core while trying to add mirror to a snapshot
1634547	Disallowing manually changing the primary/secondary attributes for devices for which ASL exists

Table 1-2 Veritas Volume Manager 5.0 MP3 RP4 fixed issues *(continued)*

Fixed issues	Description
1603445	vxconfigd dumped core during "vxddladm -c assign names" after vxdiskunsetup on UDN name.
1601404	On 8 node cluster, reconfiguration hung during cvm stress testing
1594928, 1469487	w/117080-07 fmthard of "in use disk" causes hang, used to simply behave as a failed disk [Sun bug ID 6778439]
1594668	I/O failures on cache object causes flooding of system log with 'vol_cvol_insert1_done:SIO error: 5' message
1591146	VxVM volume grown with "mirror=enclosure" option can lead to data corruption [Sun bug ID 6953235]
1589715	vxdmpadm getportids ctlr=ctlr_name on a disabled ctlr causes vxconfigd to coredump
1558384	VxVM: adding the fmrshowmap utility
1541662	System panicked in DRL code when running flashsnap
1532288	vxcdsconvert encountered "list_append[1210]: ${3pardata0_7[*]}: bad substitution"
1529858	Site detach due to error falsely updates ssb on available disks on that site
1504466	VxVM fails to create some underlying slices when mirroring from rootmirror to root disk [Sun bud ID 6791545]
1482555	System hung after running VxVM command vxdmpadm -u cfgapm [Sun bug ID 6944297]
1481493	panic seen at vxio:vol_cvol_bplus_walk3+1bec while running FMR stress test
1471741	vxdmpadm getdmpnode all option is not supported
1471487	DMP I/O policy Improvements: Minimum Queue and Round-robin
1471003	vxdg -s import oradg failed with "required lock not held in transaction"
1461717	'vxsnap make' command resulted in vxconfigd and I/Os to hang
1442139	CVM reconfiguration hung in vold level join, when all 4 nodes rebooted
1393756	vxvm commands hung on master and slave after FC-site link disconnected

Table 1-2 Veritas Volume Manager 5.0 MP3 RP4 fixed issues *(continued)*

Fixed issues	Description
1291610	EFI label device name does not change when DMP is disabled in VxVM [Sun bug ID 6916481]
1237675	vxdiskadm option 16-5 not working due to vxconfigd dumping core

Table 1-3 describes fixed issues in the Veritas Volume Manager 5.0 MP3 RP3 release, which are included in this release.

Table 1-3 Veritas Volume Manager 5.0 MP3 RP3 fixed issues

Fixed issues	Description
990338	FMR Refreshing a snapshot should keep the same name for the snap object.
963951	INSTSNAPTMP marked dco log not getting deleted during vxrecover or volume restart
339187	CVM activation tag in vxprint -m output breaks vxprint.
1850166	vxvm vxdisk error v-5-1-8643 device resize failed:
1846165	Data corruption seen on cdsdisks on Solaris-x86 in several customer cases.
1843722	vxvoladm aborts transaction with error - Unexpected Kernel error in configuration update.
1840832	vxrootadm does not update the partition table while doing a grow operation.
1840673	After adding new luns one of the nodes in 3 node CFS cluster hangs.
1835569	Incorrect dropping of messages when the messages arrive out of order during kernel-level join leading to hang/system crash.
1835139	CERT : pnate test hang I/O > 200 seconds during the filer giveback.
1831610	master have to receive CVM_MSG_JOIN_STATE from all slaves before sending CVM_MSG_JOIN_STATE response.
1826088	After pulling out FC cables of local site array, plex became DETACHED/ACTIVE.
1824993	da_is_any_same_disk skipped disk, blank udid_asl "is same disk same as".
1822681	memory leak in vxio/voldrl_cleansio_start

Table 1-3 Veritas Volume Manager 5.0 MP3 RP3 fixed issues *(continued)*

Fixed issues	Description
1819777	Panic in voldiosio_start(as race window exists while handling duplicate DA records.
1810749	CR 6874695 - vxlustart -V deleted existing BEs.
1805826	panic in vol_klog_clear_trans on Solaris x86.
1804262	VVR: File system I/O of size bigger than 256k fails with error ENXIO after 2TB(>2G blocks)offset.
1797540	VxVM: vxdisk resize intermittently causes vxconfigd to dump core.
1792795	supportability feature/messages for plex state change, DCO map clearance, usage of fast re-sync by vxplex.
1787437	VXPLEX CPU USAGE IS very high for snapback operation.
1779257	VVR: Disable Secondary logging through a tunable.
1764972	vxdiskadm option 5 fails with "/usr/lib/vxvm/voladm.d/bin/disk.repl"
1762561	DMP: System panic when perform excludearray operation with powerpath.
1762534	vxdctl settz and vxconfigd core dump if TZ environment variable is not set.
1755830	kmsg: sender: the logic for resend of messages needs to be optimized.
1755810	kmsg: sender thread is woken up unnecessarily during flowcontrol.
1755788	for a broadcast message, sender thread may end up sending the same message multiple times (not resend).
1755735	recovery I/Os get broken down to voliomem_chunk_size.
1755707	vxtask list shows the same taskid for parent and child tasks.
1755689	During recovery, -o delayrecover option does not work as expected for value of 0.
1755628	kmsg layer: with heavy messaging in the cluster the receiver thread slows down processing.
1755519	kmsg layer: receiver side flowcontrol is not supported.
1745992	CVR:I/O hang in 4 node CVR cluster.
1745894	Database corruption continues with HF for e1458199

Table 1-3 Veritas Volume Manager 5.0 MP3 RP3 fixed issues *(continued)*

Fixed issues	Description
1744672	Primary slave hangs in volcvm_rvgrecovery_send_iocnt(TC remote_write_reconfigure_2.tc.
1744224	FMR3: multiple vxplex attach cmds running in parallel on a volume lead to clearing DCO map and subsequently lead to corruption.
1742702	vxvmconvert fails, probably due to wrong disk capacity calculation.
1733811	System panic on voldco_isdirty code path while doing vxsnap make operation after upgrading from DCO version 10.
1732200	[DMP] [Usability] When NEW dmp_native_multipathing tunable is set to 'on' - unlabelled LUNs vanish from format until turned off.
1729558	multiple vxplex attach cmds running in parallel on a volume lead to clearing DCO map and subsequently lead to corruption in FMR2.
1728587	VVR: Replication started with a checkpoint remains inconsistent/cant_sync after SRL is drained if the replication is interrupted.
1728269	Incorrect cur_pri_path updation for A/PG arrays leading to dmp database inconsistency.
1726902	vxconfigd dumped core while trying to choose a path in dmp_dmpdevice_to_pathlist_ebn().
1722984	Memory leak in vold_dg_get_clone_disks(.
1718008	Unable to initialize EFI LUNs controlled by EMC Powerpath driver, vxprtvtoc "Syntax Error" occurs.
1715889	Unable to encapsulate an unmanaged EMC DMX PP LUN.
1711339	VVR: Unable to modify VVR tunables via kdb, make it tunable using vxtune.
1678370	VM_VVR: RLINK disconnected and "vx" commands hung on Secondary while load in progress.
1678292	[SxRT sparc/x64] vxdmpadm get tpdnodename error
1677416	CVM join & takeover issues in shared A/P storage config due to not breaking more than 64K size kmsgs.
1677217	DMP does not autofailback to the Primary paths following LCC card restoration.

Table 1-3 Veritas Volume Manager 5.0 MP3 RP3 fixed issues *(continued)*

Fixed issues	Description
1676061	System panic'd after 2 out of 4 paths to disk were removed.
1675221	DDL: vxdmpadm setattr enclosure - identical da naming issue.
1673764	vxconfigd loses licensing information.
1673002	Need to remove thousands of empty /tmp/vx.* directories.
1638494	VVR: vxnetd stop causing 100% CPU & vx commands hanging.
1638174	vxconfigd memory leak found.
1630572	Creating cdsdisk layout on GPT-labeled disks on Linux platform is defective.
1594928	Avoid unnecessary retries on error buffers when disk partition is nullified.
1594325	need to backout *unit_io and *pref_io changes after 5.0GA.
1589018	num_retries field is getting re-initialized to initial value leading to looping and delay in error handling time.
1545835	vxconfigd core dump during system boot after VxVM4.1RP4 applied.
1538053	CVM_MSG_REQ_GSLOCK repeatedly resent resulting in hang
1537027	SECURITY: ddl_change_naming_scheme(should set mode when creating .newnames.
1528368	VVR: IO hang during DCM transition after vxresize operations on Primary.
1528160	An ioctl interrupted with EINTR causes frequent vxconfigd exit()'s on 4.1MP4RP3
1508462	vxconfigd hung after cluster nodes split simulation - VxVM 5.0 MP3 RP1
1485075	vmtest/tc/scripts/admin/voldg/cds/set.tc hits DMP ted assert dmp_select_path:2a.
1479735	CVR: I/O hang on slave if master (logowner crashes with DCM active.
1475692	The size of large VxVM volumes must be reported correctly to Solaris utilities.
1471784	[5.0MP3RP1 x64] vm can not create stripe-mirror/mirror- stripe/mirror volume with maxsize.

Table 1-3 Veritas Volume Manager 5.0 MP3 RP3 fixed issues *(continued)*

Fixed issues	Description
1471263	machine has panicked when added the disk from dg as a foreign device using "vxdmpadm addforeign".
1468647	vxdmpdebug fails to find ugettxt
1463197	no path disable event occurs during I/O error analysis in dmp when pulling a FC cable out with 5.0MP3.
1459000	Fail over cmd on a bad LUN can cause an infinite loop in dmpCLARiiON_issue_failover.
1437869	Need to examine package dependencies, especially wrt SUNWscpu.
1108839	Turning on dmp_cache_open tunable slows vxconfigd down when run with 2048 dual path luns.
1060336	vxresize should not roll back if fsadm failed but disabled vxfs.

Table 1-4 describes fixed issues in the Veritas Volume Manager 5.0 MP3 RP2 release, which are included in this release.

Table 1-4 Veritas Volume Manager 5.0 MP3 RP2 fixed issues

Fixed issues	Description
850816	You can now delete snap objects from a mounted volume.
1598706	Fixed the cause of a system crash that occurred while mirroring the rootdisk.
1597868	Fixed an issue in which, on a secondary node, rlink paused and generated the "Incorrect magic number or unexpected upid" error message, and the secondary_log_err flag got set.
1590314	The vxdmpadm getsubpaths dmpnodename command now validates the dmpnodename value before getting the subpath information.
1589881	Fixed an issue in which the dump device was changed to none (dumps disabled) after encapsulating a boot disk.
1589172	Fixed an issue in which the vxdisksetup and vxdiskunsetup commands sometimes failed for EFI disks.
1589022	Fixed the cause of an infinite loop in the DMP error handling code path with a CLARIION array, which led to an I/O hang.

Table 1-4 Veritas Volume Manager 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1586879	Improved performance of the vxdisk online command when used on large configurations.
1544051	Fixed an issue in which the incorrect bit was being checked for an EMC Symmetrix thin device.
1534379	Fixed an issue in which the vxdg split command failed with the following error:Internal configuration daemon error
1534038	Fixed an issue in which DMP stats sometimes used invalid I/O stats entries, which led to a panic on the host.
1528368	Fixed the cause of an I/O hang during the data change map transition after performing vxresize operations on the primary node.
1527247	Fixed an issue in which the vxstat command showed twice the I/O activity on a mirror volume compared to the source volume.
1525819	Fixed an issue in which the vxconfigbackup command failed to work on a diskgroup that had 2 TB LUNs.
1525121	Fixed an issue in which EFI disks were in an error state after installing the Storage Foundation 5.0 MP3 RP1 patches.
1515581	Fixed an issue in which recreating a shared diskgroup put CVMVolDg in an empty KSTATE and offlined clustered file systems.
1512352	Fixed an issue in which the vxconfigrestore command failed with the following error: VxVM vxconfigrestore ERROR V-5-2-3706 Diskgroup configuration
1508462	Fixed the cause of a vxconfigd hang that occurred due to a split brain condition on a cluster.
1507291	Fixed an issue in which setting the dmp_monitor_fabric value to ON triggered unexpected offlining of paths on a DMX4 array.
1503168	Fixed an issue in which the diskgroup for disks without a private region (nopriv disks) could not be imported.
1502842	Fixed an issue in which the dmppolicy.info file did not get updated after upgrading the packages from Storage Foundation (SF) 5.0 MP3 RP1 to SF 5.1.
1501165	Changed the V-5-1-2140 message from an error to a warning.

Table 1-4 Veritas Volume Manager 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1500389	The vxrootadm command now automatically enables the use-nvramrc? variable.
1488084	Fixed an issue in which the vxdmpadm iostat command reported different amounts of read/write blocks than the vxstat, iostat, and sar -d commands.
1485379	Fixed an issue in which the vxtask -l list command displayed incorrect progress of the vxsnap addmir command, which was used to link a snapshot volume to the source volume.
1484919	Fixed an issue in which a system that was upgraded to the 5.0 MP3 release could not be booted.
1483643	Fixed an issue in which a raid 5 volume would not start on 3PAR Thin Provisioning LUNs.
1483201	Fixed an issue in which the Device Discovery Layer (DDL) sometimes set the unique disk identifier (UDID) value to INVALID. Multiple disks set to INVALID resulted in the following error: VxVM vxio V-5-0-1056 new disk disk_id has a non-unique UDID
1483164	Fixed an issue in which disks with the NOLABEL state were usable via the CLI.
1480315	Fixed an issue in which VxVM performed a full re-sync of a volume that was created in the background when the volume's diskgroup was imported.
1479735	Fixed the cause of an I/O hang on a slave if the master (logowner) crashed with a data change map active.
1479729	Fixed the cause of an I/O hang on the primary node after a secondary node crashed.
1477143	The cluster volume manager failback protocol is now triggered when cur_pri is null and at least one DMP node of the same LUN group is DMPNODE_SHARED.
1475707	Added an error message for attempting to import unwritable disks.
1473638	Fixed the cause of a failover in the IOCTL context for coordinator disks.
1472736	Fixed the cause of a system panic in the vxdmp module that was due to a NULL pointer dereference.
1471763	Fixed the cause of the following error: build_devlink_list: readlink failed for /dev/vx/rdsk/ludg: Invalid argument

Table 1-4 Veritas Volume Manager 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1471658	Fixed the cause of a vxconfigd daemon core dump that occurred in the priv_get_all_udid_entry() call.
1469487	The I/O buffer start time is no longer modified as part of error analysis.
1463547	Fixed the cause of a vxconfigd core dump that occurred when dynamically reconfiguring a LUN.
1461717	Fixed an issue in which the vxsnap make command caused the vxconfigd daemon to hang.
1461314	DMP no longer uses the SCSI bypass on single path disks for path-suppressing TPD.
1459831	Fixed an issue in which replication hung due to a deadlock on a secondary that had a TCP multiconnection and was managed by nmcom.
1458792	Fixed in issue in which the *unit_io and *pref_io tunables became set to 32 MB after upgrading from the Storage Foundation 5.0 MP1 release to the 5.0 MP3 release.
1457758	Fixed an issue in which the vxdiskadm command failed to replace a disk that was removed.
1457132	Fixed the cause of data corruption when running the vxdmpadm disable path and vxdmpadm disable ctlr commands.
1452957	Fixed a panic in the bcopy() call from dmp_recv_scsipkt().
1450348	Fixed a potential hang/panic that was due to a race condition between an RU thread and a volume read completing during DCM replay.
1446208	Changed message V-5-1-2140 from an error message to an informational message.
1437281	Fixed the cause of an error with the vxdmpadm -v getdmpnode enclosure=name command when a LUN was removed incorrectly.
1425338	Fixed an issue in which connect rlinks failed to be connected, followed by vxconfigd hanging on a secondary node.
1421353	Fixed an issue in which I/O got stuck in the drl_logbusy queue due to corruption of the age node LRU list.
1418659	Fixed an issue in which a Jumpstart installation of the 4.1 MP2 and 4.1 MP2 RP3 patches created duplicate entries in the /var/svc/profile/upgrade file.

Table 1-4 Veritas Volume Manager 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1416080	Fixed the cause of a system panic in the vol_change_disk() routine that was due to NULL pointer dereference.
1414469	Fixed an issue in which the vxddladm listsupport all did not display up-to-date information.
1414336	Fixed an issue in which some disk devices did not appear in the vxdisk list command output.
1408367	Fixed the cause of a system panic when mutex_panic() was called from vol_rwsleep_wrlock().
1402443	Fixed the cause of a system panic in the kmsg_udp_payload() call.
1388883	Fixed an issue in which rebooting a controller caused the diskgroups to be disabled.
1380386	The appropriate number of I/O threads are now created for systems with more than 8 CPUs.
1374603	Fixed a cause of data corruption in the dmp_bypass_iodone() call.
1370927	Fixed an issue in which the VTOC of disks in a cluster became corrupted.
1321298	Fixed the cause of a vxconfigd daemon core dump that occurred after reconnecting the FC site link and heartbeat link.
1321272	Fixed the an issue in which some VxVM commands hung after disconnecting, then reconnecting to the FC site link.
1302064	Fixed an issue in which EFI disks could not be initialized or set up after formatting the disks.
1287975	The vxclustadm command has a segmentation fault when the main.cf file contains lines that are greater than 512 characters.
1286298	Fixed an issue in which proper locks were not taken in all necessary places while modifying last_sent_seqno.
1259467	Fixed an issue in which the accept() call entered an infinite loop.
1224659	Fixed an issue in which the vxconfigbackup -p script sometimes created a zero-length .binconfig file.
1195591	Fixed the cause of a panic when a cluster had an empty RVG.

Table 1-4 Veritas Volume Manager 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1189199	Fixed the cause of a system panic that occurred when you unloaded the vxdmp driver.
1184280	Added additional debug messages around the VE_BADPROTOV error message to improve debugging.
1108839	Turning on the dmp_cache_open tunable no longer slows down the vxconfigd daemon when run with 2048 dual path LUNs.
1097258	The vxconfigd daemon no longer hangs when an array is disconnected.

Table 1-5 describes fixed issues in the Veritas Volume Manager 5.0 MP3 RP1 release, which are included in this release.

Table 1-5 Veritas Volume Manager 5.0 MP3 RP1 fixed issues

Fixed issues	Description
853207	Fixed an issue with 4.1 vxclust reconfig step 2 timed out on joining; node, reconfiguration looping.
424397	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.
1444425	The vxsnap prepare manual page includes support for the mirror= attribute.
1443748	Fixed an issue in a clustered environment the recovery of volumes having DCO v20 taking lots of time with no I/O load.
1443679	Fixed an issue in FMR3, I/Os initiating DCO updates for clearing DRL async clear region may not wait for its completion.
1441003	Fixed a secondary panic due to double free of message with TCP protocol and 16 connection.
1435681	Fixed an issue with vxesd looping using 100% of one CPU.
1435470	Fixed an issue with cluster nodes panicking after installing 5.0 MP3.
1433120	Fixed an issue with after a reboot site read policy is not honored.
1425338	Fixed an issue with CVR fails to connect rlinks followed by vxconfigd hangs on secondary.

Table 1-5 Veritas Volume Manager 5.0 MP3 RP1 fixed issues *(continued)*

Fixed issues	Description
1424479	Fixed an issue with vxdmpadm dumped core when executing vxdmpadm list dmpnode command.
1421088	Fixed a secondary panic due to a corrupted volsioq_start.
1416930	Fixed an issue with the vxvm daemon that comes online when the system is rebooted.
1414451	The vxsnap manual page includes mirror=enclosure parameter to avoid being mirrored on the same enclosure.
1413700	Fixed an issue with the wrong label on a device lead VxVM to calculate the wrong public region size.
1412784	Fixed an issue with the system hanging while creating volumes in the guest Ldom.
1410216	Fixed a secondary log error causing rlink disconnect after IBC unfreeze.
1409991	Fixed an issue with vxclust configuration caused the cluster to panic.
1409986	Fixed a segmentation fault on x64 system when running the vxdmpadm list dmpnode all command.
1402144	Fixed a system panic due to invalid pointer being passed to bcopy() by volkio_to_kio_copy.
1401188	Fixed a system panic after running the vxdctl enable or vxconfigd -k commands.
1397877	Enhanced the vxresize manual page to run from non-CVM master.
1397540	Fixed an issue with the vxsnap restore manual page is unable to properly freeze or thaw filesystems in a CVM environment.
1393570	Fixed a FC-Switch port failure resulting in the loss one of four paths.
1393030	Fixed an issue with the vxdiskunsetup manual page failing when the dmpnode is not the primary path.
1389511	Fixed issue that was unable not to force import diskgroup version 80 in VxVM 5.0.
1386980	Fixed a system panic in vol_putdisk() code.

Table 1-5 Veritas Volume Manager 5.0 MP3 RP1 fixed issues *(continued)*

Fixed issues	Description
1385996	Fixed a rootdisk with B0 subdisk rendering unbootable after its removed and replaced with itself.
1385126	Fixed an issue with VVR I/O hanging due to the wrong generation number assignment after recovery.
1382977	Fixed a system panic due to memory allocation.
1375354	Fixed an issue with vxcached never deletes old snaps when cache hits HWM.
1374927	Fixed and issue with vxvm-startup2 does not set VISSWAP flag if swap device is encapsulated and mirrored.
1373432	Fixed a system panic in bcopy() due to null passed in from volioctl_copyin().
1368737	Fixed an issue when there are no mirrors to read, VOL_READ_MIRRORS ioctl returns -1 instead of 1.
1314301	Fixed an issue with vxlustart.
1288468	Fixed an issue with vxconfigd sleeping and no vx commands were responding.
1281274	Fixed an issue with vxplex core dumps during vxassist addlog due to DRL log length being less than 33 blocks.
1269468	Fixed an issue with vxconfigd core dumps.
1230351	Fixed a system panic in vol_klog_start() due to accessing freed mv read_sio.
1224659	Fixed an issue with the vxconfigbackupd script leading to 0 byte binconfig file being created.
1192166	Fixed the vxdg -n [newdg] deport [origdg] command causing a memory leak.
1135462	Fixed issue that was unable not to import disk group.
1114699	Fixed the vxtask command to display the resync progress subtask for shared volumes with DRL
1058665	Fixed the vxdiskunsetup command failing when disk access name does not match the physical path name.

Veritas File System fixed issues

Table 1-6 describes fixed issues in Veritas File System 5.0 MP3 RP5, which are included in this release.

Table 1-6 Veritas File System 5.0 MP3 RP5 fixed issues

Incident	Description
2026516 (1981668)	Fixed the issue that data key miss fault during hazard testing.
2026558 (2009472)	Fixed the issue that system hang as threads hang during directory creation using transaction
2026607 (1978884)	Fixed the issue that "Customer uses heavy workload to monitor for abuses of application API by users. These abuses were missed twice due to high average load at time of worklist threads"
2046156 (2029556)	Fixed two panics in mutex_exit: not owner
2061950 (2060219)	Fixed the issue that panic is caused due to a race between inode memory de-initialization and inactive list processing code
2074286 (2074281)	Fixed the issue that fcladm dump dumps core if no savefile is specified
2074310 (2030289)	Fixed the issue that FS corruption issue
2080407 (2079457)	Fixed the issue that "storage quota fs userquota user hardlimit numspace XX FS" does not work, customer can make files after reaching hardlimit.
2087043 (2068797)	Fixed the issue that Redhat NFSv3 clients fail to recognize a lock grant.
2103134 (2086902)	Fixed the issue that "Spinlock held too long on vxfs spinlock, and there is high contention for it."
2112775 (2061177)	Fixed the issue that fsadm -de' command erroring with 'bad file number' on filesystem(s)
2133415 (2107903)	Fixed the issue that at the time of resizing the file system with clones (mounted and in use), fsadm gives some errors and the file system is marked for full fsck after this
2166211 (2069462)	Fixed the issue that full fsck runs slowly on sles10

Table 1-6 Veritas File System 5.0 MP3 RP5 fixed issues *(continued)*

Incident	Description
2181553 (2180476)	Fixed the issue that system panic in vx_iupdat_clustblks()
2194616 (2178147)	Fixed the issue that link of IFSOC file does not call vx_dotdot_op resulting in a corrupted inode
2196897 (2184528)	Fixed the issue that fsck fails to repair corrupt directory blocks having duplicate directory entries.
2203133 (2120692)	Fixed the issue that "Many ""ps"" processes hangs, and finally system hangs. A pagefault thread hangs inside function vx_page_alloc() is the root cause that all other threads cannot proceed."
2212577 (2192895)	Fixed the panic while set/get acls - possible race condition
2220456 (2074806)	Fixed the issue that dm_punch_hole request does not invalidate pages
2220465 (2172485)	Fixed the issue that metadata was not updated correctly after write() with O_SYNC flag.
2227222 (2226762)	Fixed the issue that vx_ntran overflow causes a lot of buffer flushes
2243088 (1929221)	Fixed the issue that vxrepquota truncated username and groupname to 8 characters
2243095 (2126233)	Fixed the issue that real time pri threads looping in vx_ireuse() causing system hang during hazard testing.
2292346 (2272072)	Fixed the issue that "GAB panics the box because VCS engine ""had"" did not respond. The lobolt wraps around."
2292366 (2253938)	Fixed the issue that EAU delegation timeouts
2292369 (2283893)	Added functionality of free space defragmentation through fsadm.

Table 1-6 Veritas File System 5.0 MP3 RP5 fixed issues *(continued)*

Incident	Description
2333978 (2316094)	Fixed the issue that vxfsstat's "vxi_bcache_maxkbyte" counter shows maximum memory available for buffer allocation. Maximum memory available for Buffer allocation depends on total memory available for Buffer cache i.e. "vx_bc_bufhwm". vxfsstat can incorrectly report "vxi_bcache_maxkbyte" greater than "vx_bc_bufhwm" after re-initialization of buffer cache globals. reinitialization can happen in case of dynamic reconfig operations.
2292374 (1392781)	Fixed the issue that GLM hang due to an EXCLUSIVE waiting lock request to be starved by giving prirority to SHARED lock requests.

Table 1-7 describes fixed issues in Veritas File System 5.0 MP3 RP4, which are included in this release.

Table 1-7 Veritas File System 5.0 MP3 RP4 fixed issues

Incident	Description
2043952	Fixed an issue in reverse name lookup operation
2046634	Fixed an issue with negative DNLC handling
2035201	Fixed an internal ted assert "f:xted_fslist_lock1:2.
2030957	Fixed an internal ted assert f:vx_getimap:1a.
1914604	Fixed an internal ted assert f:vx_imap_process_inode:4a.
1948462	Fixed a resize issue with corrupt IFDEV.
1946138	Fixed a issue in fcl close operation.
2000547	Fixed issue in the preremove patching script for VxFS patch.
1954298	Fixed a panic due to null pointer derefrence during reverse name lookup operation.
2019808	Fixed a panic during vxfs tunning operation.
1991440	Fixed a panic due to null pointer derefrence during parallel umount operation.
1913901	Optimized file relocation by parallelising.
1983196	Fixed fsadm(1M) issue returning EFAULT while doing reclamation.

Table 1-7 Veritas File System 5.0 MP3 RP4 fixed issues *(continued)*

Incident	Description
2000532	Fixed an issue in thin reclaim algorithm to ensure at least 95% reclamation.
2026528	Fixed an issue in Age based DST placement policies.
2000535	Fixed a corruption issue in direct I/O with buffered reads.
2007752	Optimized full fsck for file system with many ilist holes.
2031023	Fixed an core dump issue in ncheck(1m) command.
2034333	Fixed an issue in quotactl API.

Table 1-8 describes fixed issues in Veritas File System 5.0 MP3 RP3, which are included in this release.

Table 1-8 Veritas File System 5.0 MP3 RP3 fixed issues

Incident	Description
1468377	fsadm to move any structures in shrinking a VxFS.
1484888	qiostat -l hit percentage wildly inaccurate.
1630098	busy umount cleaned the mntlock silently.
1634807	Need to release CPU in vx_multi_bufinval () for local mount large extent.
1635777	New VxFS tunables and new vxfsstat counters required to massively increase the number of vmm bufs per PDT.
1635780	Incorrect use of fse_funmounted flag.
1672814	Pagezero panic with vmodsort enabled.
1716047	vxumount fails to force unmount a nested filesystem when the underlying filesystem is unavailable.
1827710	mntlock won't unlock (sol 9)
1839051	0tb fs on 50mp3rp1. Recent upgraded filesystem which moved OLT_iext > 8tb offset. Mount fail.
1842208	vxfs mount: ERROR: V-3-22168: Cannot open portal device.
1842210	Panic in segmap_release.
1844483	CIO returned ENOTSUP (124) and caused DB2 to crash.

Table 1-8 Veritas File System 5.0 MP3 RP3 fixed issues *(continued)*

Incident	Description
1844535	vxupgrade 5->6 still fails with ENFILE.
1844574	file system disabled.[Fix in vx_rename_tran].
1851091	VxFS: add cast moving odm mrside to fsvm api to prevent conversion error.
1880814	fsadm shrink fs looping in vx_reorg_emap() due to VX_EBMAPMAX from vx_reorg_enter_zfod().
1885523	clone removal can block resive ops.

Table 1-9 describes fixed issues in Veritas File System 5.0 MP3 RP2, which are included in this release.

Table 1-9 Veritas File System 5.0 MP3 RP2 fixed issues

Incident	Description
1370823	Fixed an issue in which running a full fsck did not fix a file system.
1401516	Fixed the cause of a hang that occurred after locking a file system, disconnecting the storage cable, then using fsadm to unlock the file system.
1412465	Fixed an issue in which the vxresize command failed to resize the volume, even though the file system was successfully resized.
1426951	Fixed some badly formed printf() statements in vxm_getinfo() that caused a system panic.
1441487	Changed GMS to use the standard gab_api_init() call to avoid a possible GAB panic.
1445511	The vx_cds_control() call now releases active level 1 on an error path.
1468377	You can now shrink a file system regardless of where the structural files reside on that file system.
1484888	Fixed an issue in which the cache hit percentage shown by qiostat -l command was inaccurate.
1517415	Fixed the cause of a core dump when running the ncheck command.
1526581	vx_tflush_map() no longer disables the file system if a map is marked as bad, but there is no I/O error.
1588199	Fixed an issue in which dm_get_allocinfo() failed with the EIO error for ext4 inodes with indirect pointers.

Table 1-9 Veritas File System 5.0 MP3 RP2 fixed issues *(continued)*

Incident	Description
1601187	Reverted default max_seqio_extent_size to 2048, from 104857.
1634788	Fixed an issue in which the fsadm command dumped core intermittently when trying to defragment a file system.

Table 1-10 describes fixed issues in Veritas File System 5.0 MP3 RP1, which are included in this release.

Table 1-10 Veritas File System 5.0 MP3 RP1 fixed issues

Incident	Description
1413494	Fixed a failure of the umount -f command to unmount a VxFS file system.
1414175	Improved VxFS performance.
1414178	Fixed an issue with VxFS using too much CPU while looking for odd-sized extents (vxi_alloc_fail).
1415188	Fixed a full fsck core dump that was caused by running out of swap space, which resulted in a malloc failure.
1417973	Eliminated a benign error that occurred on globally- mounted VxFS file systems in a SunCluster environment when using the scswitch command or mount command.
1423867	Optimized vx_convnodata_files().
1428661	Improved the performance of fsadm resize on SFCFS.
1433066	Fixed a case of looping in vx_do_putpage () due to having a page beyond i_wsize.
1434438	Fixed a panic in vx_unlockmap() due to a null ml_tranp pointer.
1437490	The fsclustadm's lltdb.c is now mult-threaded safe for CFSMountAgent.

Storage Foundation Cluster File System fixed issues

Table 1-11describes fixed issues in Storage Foundation Cluster File System 5.0 MP3 RP5, which are included in this release.

Table 1-11 Storage Foundation Cluster File System 5.0 MP3 RP5 fixed issues

Fixed issues	Description
1913910 (1296491)	Fix the issue that panic occurs while doing nested mount when the base cluster mounted base fs gets force unmounted
1970440 (1505675)	Fix the issue that cfs command fail if sysconf file is used in llttab
2026516 (1981668)	Fix the issue that Data key miss fault during hazard testing.
2026558 (2009472)	Fix the issue that system hang as threads hang during directory creation using transaction
2026607 (1978884)	Fix the issue that "Customer uses heavy workload to monitor for abuses of application API by users. These abuses were missed twice due to high average load at time of worklist threads"
2046156 (2029556)	Fix two panics in mutex_exit: not owner
2061950 (2060219)	Fix the issue that panic is caused due to a race between inode memory de-initialization and inactive list processing code
2074286 (2074281)	Fix the issue that fcladm dump dumps core if no savefile is specified
2074310 (2030289)	Fix the issue that FS corruption issue
2080407 (2079457)	Fix the issue that "storage quota fs userquota user hardlimit numspace XX FS" does not work, customer can make files after reaching hardlimit.
2087043 (2068797)	Fix the issue that Redhat NFSv3 clients fail to recognize a lock grant.
2103134 (2086902)	Fix the issue that "Spinlock held too long on vxfs spinlock, and there is high contention for it."
2112756 (2091103)	Fix the issue that CFS hangs in cluster

Table 1-11 Storage Foundation Cluster File System 5.0 MP3 RP5 fixed issues *(continued)*

Fixed issues	Description
2112775 (2061177)	Fix the issue that fsadm -de' command erroring with 'bad file number' on filesystem(s)
2133415 (2107903)	Fix the issue that at the time of resizing the file system with clones (mounted and in use), fsadm gives some errors and the file system is marked for full fsck after this
2163801 (2069059)	Fix the issue that CFS hang when setting LIBPATH to a CFS directory.
2166211 (2069462)	Fix the issue that full fsck runs slowly on sles10
2181553 (2180476)	Fix the issue that system panic in vx_iupdat_clustblks()
2192031 (2161379)	Fix the issue that one node of a 4-node CFS cluster repeatedly hangs due to deadlock between ILOCK and inode owner
2194616 (2178147)	Fix the issue that link of IFSOC file does not call vx_dotdot_op resulting in a corrupted inode
2195418 (2184114)	Fix the issue that three node VCS/CFS cluster where the CVM/CFSMount monitoring is getting timeout very frequently
2196897 (2184528)	Fix the issue that fsck fails to repair corrupt directory blocks having duplicate directory entries.
2203133 (2120692)	"Fix the issue that Many ""ps"" processes hangs, and finally system hangs. A pagefault thread hangs inside function vx_page_alloc() is the root cause that all other threads cannot proceed."
2212577 (2192895)	Fix the panic while set/get acls - possible race condition
2220456 (2074806)	Fix the issue that dm_punch_hole request does not invalidate pages

Table 1-11 Storage Foundation Cluster File System 5.0 MP3 RP5 fixed issues *(continued)*

Fixed issues	Description
2220465 (2172485)	Fix the issue that metadata was not updated correctly after write() with O_SYNC flag.
2227222 (2226762)	Fix the issue that vx_ntran overflow causes a lot of buffer flushes
2235668 (2213282)	Fix the issue that unable to grow filesystem on SVM Volume
2243088 (1929221)	vxrepquota truncated username and groupname to 8 characters
2243095 (2126233)	Fix the issue that real time pri threads looping in vx_ireuse() causing system hang during hazard testing.
2277481 (2206065)	Fix the issue that CFS panic due to corrupt freelist
2292346 (2272072)	Fix the issue that "GAB panics the box because VCS engine ""had"" did not respond. The lobolt wraps around."
2292366 (2253938)	Fix the issue that EAU delegation timeouts
2292369 (2283893)	Added functionality of free space defragmentation through fsadm.
2333978 (2316094)	Fix the issue that vxfsstat's "vxi_bcache_maxkbyte" counter shows maximum memory available for buffer allocation. Maximum memory available for Buffer allocation depends on total memory available for Buffer cache i.e. "vx_bc_bufhwm". vxfsstat can incorrectly report "vxi_bcache_maxkbyte" greater than "vx_bc_bufhwm" after re-initialization of buffer cache globals. reinitialization can happen in case of dynamic reconfig operations.
2292374 (1392781)	Fix the issue that GLM hang due to an EXCLUSIVE waiting lock request to be starved by giving prirority to SHARED lock requests.

Table 1-12 describes fixed issues in Storage Foundation Cluster File System 5.0 MP3 RP4, which are included in this release.

Table 1-12 Storage Foundation Cluster File System 5.0 MP3 RP4 fixed issues

Fixed issues	Description
2012508	Fixed a CFSmount error UX:vxfs mount: ERROR: V-3-21272: mount option(s) incompatible with file system
2000536	Fixed an alignment issue during EMAP processing.
1958228	Fixed a performance issue during file removal.
1913932	Fixed a hang during a file remove /df operation in CFS environment.
1913800	Fixed a panic due to a bad mutex in a CFS environment.

Table 1-13 describes fixed issues in Storage Foundation Cluster File System 5.0 MP3 RP3, which are included in this release.

Table 1-13 Storage Foundation Cluster File System 5.0 MP3 RP3 fixed issues

Fixed issues	Description
1891140	secondaries ias_ilist not updated fully.
1885528	CFS hang while expanding AUs
1880816	'mv' hung on CFS
1844568	filesystem performance degradation
1844544	CFS - Bad inode errors on secondary nodes
1844538	f:vx_extentalloc:1d during policy enforcement on CFS secondary
1844532	fsclustadm cfsdeinit failed with "device busy". PHKL_37113 installed.
1844485	switchout fsck needs to be invoked for CFS with 2 separate args: "-o" and "mounted"
1819895	State Map corruption reported, followed by a CFS hang.
1807542	Need to make VX_FREEZE_ALL ioctl to work with CFS file systems
1745700	mmap shared slow with CFS.
1634808	bdf commands hung in VX_CFS_GLOCK_GRANT_WAIT when CVM master switched over.

Table 1-14 describes fixed issues in Storage Foundation Cluster File System 5.0 MP3 RP2, which are included in this release.

Table 1-14 Storage Foundation Cluster File System 5.0 MP3 RP2 fixed issues

Fixed issues	Description
1600241	Fixed the cause of a hang that occurred after another node in the cluster crashed.
1591783	Optimized getattr() to operate faster when binaries are mmapped from many nodes.
1556159	Fixed an issue in which adding a file system to a diskgroup caused the monitor to label the cvmvoldg resource as offline, which in turn caused other CFS file systems to become offline.
1539892	Fixed an issue in which a clustered file system that was mounted on one node required fsck to be run.
1531031	Fixed an issue in which quota hard limits could be exceeded on a clustered file system.
1518713	The vxfsckd -n command now initializes the nthrs variable.

Table 1-15 describes fixed issues in Storage Foundation Cluster File System 5.0 MP3 RP1, which are included in this release.

Table 1-15 Storage Foundation Cluster File System 5.0 MP3 RP1 fixed issues

Fixed issues	Description
1447197	Fixed an issue after a 5.0 MP3 upgrade, CFSMountAgent restarts and is not sending alive messages.

Storage Foundation for Oracle fixed issues

Table 1-16 describes fixed issues in Storage Foundation for Oracle 5.0 MP3 RP3, which are included in this release.

Table 1-16 Storage Foundation for Oracle 5.0 MP3 RP3 fixed issues

Fixed issues	Description
1873755	Storage Foundation for Oracle no longer creates world writable log files in /var/vx/vxdba directory. The sfua_db_config command is modified to ask for DBA group information so we can set the correct group for various directories in /var/vx/vxdba.
1854447	Fix the problem for Database Flashsnap in offline mode when cloning the database offhost by commenting out certain pfile parameters (db_recovery_file_dest,audit_file_dest etc.) in the clone pfile.
1851299	Storage Foundation for Oracle no longer creates world writable directories under /var/vx/vxdba.
1851293	Fix Frequent vxpal core dump problem from orgui provider.
1851291	Fix dbed_analyzer core dump problem. Stack shows edm_print trying to print NULL msg pointer.
1851290	User can specify logical name for offhost processing in Database Flashsnap snapplan in this release.
1851282	Fix problem that 5.0MP3RP2 VRTSdbms3 Patch 139362-02 is not Jumpstart compliant.
1666155	a broken soft link exists under /opt/VRTSdbed/.dba.

Table 1-17 describes fixed issues in Storage Foundation for Oracle 5.0 MP3 RP2, which are included in this release.

Table 1-17 Storage Foundation for Oracle 5.0 MP3 RP2 fixed issues

Fixed issues	Description
1651363	Fixed a security issue with the vxdbms server, in which an attacker could see the name and port of the server.
1533204	Fixed an issue in which the DBED GUI showed archive log mode as disabled when the archive log was actually enabled. Also, fixed an issue in which the number of file systems and the number of data files always showed as 0 (zero).

Table 1-17 Storage Foundation for Oracle 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1530125	Fixed an issue in which the owner of the following directories was changed when installing VRTSdbms packages for the Storage Foundation for Oracle 5.0 or 5.0 MP3 releases: /etc /etc/default /etc/init.d /etc/rc2.d /opt
1526653	Fixed an issue in which the dbed_vmchecksnap script output an error if the dco object name was renamed from *_dco.
1511321	Fixed multiple issues with the dbed_checkconfig script. For example, the script can now distinguish if the control file is on a volume set and can identify if some of the Oracle files are not on a VxFS file system.
1508346	Added a date stamp to entries in the vxsnapadm_50.log file, which is used for trace vxsnapadm issues.
1481426	Fixed an issue in which the owner of the following directories was changed when installing patches or packages for the Storage Foundation for Oracle 5.0 or 5.0 MP3 releases: /etc /etc/default /etc/init.d /etc/rc2.d /opt

Table 1-18 describes fixed issues in Storage Foundation for Oracle 5.0 MP3 RP1, which are included in this release.

Table 1-18 Storage Foundation for Oracle 5.0 MP3 RP1 fixed issues

Fixed issues	Description
1435906	Fixed JumpStart problem of VxDBMS package perl scripts are not executable.
1435527	Improved boot time for DBEDAgent startup script.

Table 1-18 Storage Foundation for Oracle 5.0 MP3 RP1 fixed issues *(continued)*

Fixed issues	Description
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.
1433244	Improved boot time for the DBED repository database server startup script.
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.
1425256	Support flashsnap CVM slave.

Storage Foundation for DB2 fixed issues

Table 1-19 describes fixed issues in Storage Foundation for DB2 5.0 MP3 RP3, which are included in this release.

Table 1-19 Storage Foundation for DB2 5.0 MP3 RP3 fixed issues

Fixed issues	Description
1851282	Fix problem that 5.0MP3RP2 VRTSdbms3 Patch 139362-02 is not Jumpstart compliant.
1873755	Storage Foundation for DB2 no longer creates world writable log files in /var/vx/vxdba directory. The sfua_db_config command is modified to ask for DBA group information so we can set the correct group for various directories in /var/vx/vxdba.
1854457	Fixed an issue with db2ed_clonedb Checkpoint clonedb fails for online, offline checkpoint on DB2 9.5 FixPak 2 and beyond.
1854456	Fixed an issue with db2ed_vmclonedb -o recoverdb fails for online snapshot mode on DB2 9.5 FixPak 2 and beyond.
1851299	Storage Foundation for DB2 no longer creates world writable directories under /var/vx/vxdba.

Table 1-20 describes fixed issues in Storage Foundation for DB2 5.0 MP3 RP2, which are included in this release.

Table 1-20 Storage Foundation for DB2 5.0 MP3 RP2 fixed issues

Fixed issues	Description
1651363	Fixed a security issue with the vxdbms server, in which an attacker could see the name and port of the server.
1530125	Fixed an issue in which the owner of the following directories was changed when installing VRTSdbms packages for the Storage Foundation for DB2 5.0 or 5.0 MP3 releases: /etc /etc/default /etc/init.d /etc/rc2.d /opt
1508346	Added a date stamp to entries in the vxsnapadm_50.log file, which is used for trace vxsnapadm issues.
1481426	Fixed an issue in which the owner of the following directories was changed when installing patches or packages for the Storage Foundation for DB2 5.0 or 5.0 MP3 releases: /etc /etc/default /etc/init.d /etc/rc2.d /opt

Table 1-21 describes fixed issues in Storage Foundation for DB2 5.0 MP3 RP1, which are included in this release.

Table 1-21 Storage Foundation for DB2 5.0 MP3 RP1 fixed issues

Fixed issues	Description
1435906	Fixed JumpStart problem with VxDBMS package perl scripts are not executable.
1435527	Improved boot time for DBEDAgent startup script.
1434688	Storage Foundation for DB2 is no longer creating world writable files under /tmp.

Table 1-21 Storage Foundation for DB2 5.0 MP3 RP1 fixed issues *(continued)*

Fixed issues	Description
1433571	Sybase repository database server is no longer creating world writable files under /tmp.
1433244	Improved boot time for the DBED repository database server startup script.
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 Sybase fixed issues

There are no fixed issues for Storage Foundation for Sybase in 5.0 MP3 RP4 release.

There are no fixed issues for Storage Foundation for Sybase in 5.0 MP3 RP3 release.

Table 1-22 describes fixed issues in Storage Foundation for Sybase in 5.0 MP3 RP2.

Table 1-22 Storage Foundation for Sybase in 5.0 MP3 RP2 fixed issues

Fixed issues	Description
1481426	Fixed an issue in which the owner of the following directories was changed when installing patches or packages for the Storage Foundation for Sybase 5.0 or 5.0 MP3 releases: /etc /etc/default /etc/init.d /etc/rc2.d /opt

Veritas Cluster Server fixed issues

Table 1-23 describes fixed issues in Veritas Cluster Server 5.0 MP3 RP5, which are included in this release.

Table 1-23 Veritas Cluster Server 5.0 MP3 RP5 fixed issues

Fixed issues	Description
2318316	Fixed issue with Oracle agent which needs database's $Oracle_home/lib library in LD_LIBRARY_PATH before /usr/lib
2296350	Fixed memory leaks in Netlsnr agent
2295996	Fixed Memory leak in IP agent
2294012	Fixed issue with Mount Agent which does not handle a vx-disable in VXFS due to I/O failure.
2277536	Fixed issue with SNMP traps where trap is not sent for "V-16-1-53025 Agent X has faulted; ipm connection was lost; restarting the agent"
2277508	Fixed issue with VCS_SERVICE when it changed from previous vcs to vcs-app which caused the gui port could not be changed
2271103	Enhanced hazonesetup command to set localized zone name attribute in case of parallel zones.
2277517	Fixed the issue that cannot configure SCSI-3 fencing using RamSan DMP devices.
2223481	Fixed issue with IPMultiNICB.xml file where VCS GUI shows the "UseMpathd" attribute for IPMutliNICB resources
2213719	Fixed Zone startup issues with Milestone configuration in the Zone agent BootState Variable
2212112	Fixed issue with NotifierMngr agent during online
2204035	Fixed issue with agent framework where MonitorTimeStats incorrectly shows 303 secs intermittently
2198773	Fixed issue with hagrp -switch command for the child group which fails if two or more parent groups online on alternate
2195571	Fixed issue with RemoteGroup agent where resource cannot be recovered during network failure without bouncing entire cluster.
2194409	Fixed issue with hacf which dies dumping VCS configuration due to some attributes containing strings > 4Kb in length
2185545	Removed the old periodic timers in the WAN heartbeat timer thread to fix the ICMP agent cpu usage issue.

Table 1-23 Veritas Cluster Server 5.0 MP3 RP5 fixed issues *(continued)*

Fixed issues	Description
2177206	Fixed split-brain issue in GCO environment when there is network loss with other clusters and steward.
2153875	Fixed issue with Sybase agent which can not online Sybase dataserver in non-global zone, because can't find matching user in global zone
2138229	Fixed Zone agent not modify the cluster configuration during Zone resource online.
2230371	Fixed the issue that "/usr/sbin/_vxfenswap -g fendg -a autoconfirm" failed
2127445	Fixed a memory leak issue of MultiNICB agent.
2125454	Fixed issue with ASMInst which fails to perform health check monitoring for Oracle 10.2.0.4
2117381	Fixed issue with DB2 agent where the resource generates excessive logging in engine_A.log
2106847	Fixed issue with GAB which gets stuck with flow control due to race in handling LLT DISCONNECT and LLT CANPUT failure.
2104850	Fixed _had not to do target decision while the service group is already onlining.
2098103	Fixed issue with _had where service group will not restart locally if PreOnline and OnlineRetryLimit > 1
2091444	Fixed issue with vxfentstdhw which fails on unregistering keys in Japanese Locale
2078943	Fixed issue with DiskGroup agent monitor which causes the system to panic
2077397	Fixed issue with VCS which dumps core under heavy load and the node goes for panic.
2077381	Improved heartbeating logic between engine and agfw during snapshotting and during steady cluster operation.
2077191	Fixed a split-brain issue during cluster failover which causes the nfs client I/O thrash interruption
2067297	Removed redundant KSH instances in vxfenswap_common.sh command
2033683	Added support for RemoteGroup agent to work with parallel service groups

Table 1-23 Veritas Cluster Server 5.0 MP3 RP5 fixed issues *(continued)*

Fixed issues	Description
1939135	Fixed the hadsim core dump when the systems are switching to running state for simulator.
1006133	Enhanced LLT to limit the number of delivery work threads and make it configurable
2277536	Fixed issue thatSNMP traps are not sent for "V-16-1-53025 Agent X has faulted; ipm connection was lost; restarting the agent"
2277508	Fixed issue thatthe VCS_SERVICE was changed from previous vcs to vcs-app which caused the gui port couldn't be changed.
2212112	Fixed issue thatNotifierMngr agent dose not online correctly VCS 5.0MP4 with Linux 5.5.
2136747	Fixed issue with the notifier - SMTP mail - missing line break between Event Time and Entity Name
2078818	Fixed issue with Zone agent where it logs some solaris patch messages during zone resource online

Table 1-24 describes fixed issues in Veritas Cluster Server 5.0 MP3 RP4, which are included in this release.

Table 1-24 Veritas Cluster Server 5.0 MP3 RP4 fixed issues

Fixed issues	Description
2045656	Zone agent does not fault a zone when its $Zoneroot no longer exists
2033423	Volume Agent core dumped and noticed memory leak.
2033411	Oracle Agent Monitor problem inside a zone where the oracle home directory is NFS / NAS mounted inside the zone.
2033405	Sol10 VRTSvcssy 5.0MP3RP3 (141286-03) - online script exits before dataserver writes; dataserver killed by SIGPIPE.
2033395	Notifier Agent is unable to get local IP address in linked-based IPMP.
2029161	Added new attribute for Zone type to support fsck during zone boot for vxfs file systems.

Table 1-24 Veritas Cluster Server 5.0 MP3 RP4 fixed issues *(continued)*

Fixed issues	Description
2021028	Need workaround for a Sun bug where zoneadm list fails causing Zone resource to fault
2017300	Check for 'NOT_IN_RECOVERY' state during Online operation for Sybase agent Added a new attribute WaitForRecovery to fix this issue in Sybase agent. If this attribute is enabled, during the online function, the agent waits till recovery has been completed and all databases that can be made online are brought online. Sybase agent type definition should be updated in order to use WaitForRecovery attribute.
2001964	Customer looking for hotfix for e1950516 on 5.0MP3RP3 for Sol 10 x64
1982578	Enhance NFS agent to clear /etc/rmtab before starting mountd
1979660	hastatus -sum does not work for a non-root user with FSS.
1958244	Notifier Agent is unable to get local IP address in linked-based IPMP.
1954778	Oracle ASM resource does not come to ONLINE state upon reboot in 11gR2 setup.
1954722	Oracle Agent Monitor problem inside a zone where the oracle home directory is NFS / NAS mounted inside the zone
1950516	In a zone, if there are multiple IPMultiNICB resources on same subnet, issues with source address of IP pkts.
1928994	Zone agent changes from e1205072 resulting in too many UserNames to allow successful _had snashot of remote node(s).
1915907	hares allows to create resources which has "." special character.
1906771	ASMagent connecting as sysdba instead of sysasm for 11gR2.
1673643	VCS can't monitor sybase in non-global zone, because can't find matching user.

Table 1-25 describes fixed issues in Veritas Cluster Server 5.0 MP3 RP3, which are included in this release.

Table 1-25 Veritas Cluster Server 5.0 MP3 RP3 fixed issues

Fixed issues	Description
1915936	Support Oracle 11gR2 for a single instance of Oracle for Solaris in 5.0MP3RP3
1906771	ASMagent connecting as sysdba instead of sysasm for 11gR2. 11g and above the ASMInst and ASMDG agents use the role sysasm rather than sysdba in the offline, online, clean, and monitor entry points.
1902230	World writable files and directories exist on VCS Java Gui installation
1898247	Netlsnr offline script does not kill listener process when ip is plumbed but the underlying MultiNICA resource is faulted.
1884737	Fixed an issue in GAB's sequence recovery protocol where node may panic if it receives delayed response from the heavily loaded master node.
1882308	Changes made to Oracle agent via e1722109 do not honour ContainerName attribute
1859598	Add Disk agent support for LDoms 1.2.
1836633	hashadow core in restart_had /var/VRTSvcs/lock/.hadargs parse resulted in attempt to deref null ptr
1836575	SMTP notification email should contain Entity name in subject line
1836512	`had' segv via notifier messages handler.
1834858	RemoteGroup faults when setup as monitoronly and local SG is taken offline
1807047	Issues found with SqlTest.pl script for Sybase agent
1803107	SFCFS0814a (Sol9 32bit): LLT heartbeat link status changed. Previous status = 0x9586ff; Current status = 0x77afff.
1782360	Match PidFile in SambaServer
1780698	VCS Oracle agent not sending notification in case of an Oracle error defined in oraerror.dat
1779172	had core dump on the non-first node of a cluster
1767158	For a "netbios" could not support bind interface only.
1763187	IPAgent in 5.0TOT crashed and dumped core due to NULL pointer dereference.
1751804	VCS 5.0MP1 (Solaris 10) WAC application fails to come online on the node dedps1111.

Table 1-25 Veritas Cluster Server 5.0 MP3 RP3 fixed issues *(continued)*

Fixed issues	Description
1749323	LLT should give error if an attempt is made to configure more than 8 links (LLT_MAX_LINK) under LLT
1748713	vxfenswap should remember root password instead of asking 24 times during operation
1590725	Introduce attribute to disable hostmonitor related logging
1556549	Parent group not autostarted when some of the resoures are online before VCS is started.
1744255	Agfw should not convert IntentionalOffline to Offline, (1) in first probe, (2) when probe is requested in Offline state
1739684	CCStor incorrect discovery as hasys outputdoesn't separate nodes by `#'

Table 1-26 describes fixed issues in Veritas Cluster Server 5.0 MP3 RP2, which are included in this release.

Table 1-26 Veritas Cluster Server 5.0 MP3 RP2 fixed issues

Fixed issues	Description
1632806/ 1677496	[GAB] Fixed an issue in which panic results when clients access the gab_api pointer through GAB_API_INIT.
1469788/ 1469787	[LLT] Fixed an issue in which LLT cannot be unloaded and returns the error message "Module LLT is in use" even when the system was shutdown.
1713201	[Agents] Fixed an issue in which the Oracle agent starts Oracle with a non-default Oracle userid but the monitor function does not detect it as online. When you have a dummy user that belongs to the same group as the Oracle binaries and is a part of the Owner attribute, the Oracle agent starts Oracle but the monitor function does not detect it as online. This happens because the ID of the Owner attribute and the id of the /proc/PID/object/a.out file are checked. The a.out file is the same as the $ORACLE_HOME/bin/oracle binary. Since these two do not match, the agent detects it as online. The user ID of $ORACLE_HOME/bin/oracle binary was matched to that of the /proc/PID/object/a.out file. If these two user ids matched, you cache the cookie and proceed with the next process.

Table 1-26 Veritas Cluster Server 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1703756	[VCS] Fixed an issue in which a warning message is displayed even when a parallel global group was brought online successfully. This happens because after a suitable target is determined, an internal variable is not incriminated. This results in a re-visiting of the target selection algorithm, which causes error because the action is already initiated on the suitable target.
1677412	[Agents] Fixed an issue so that when the SystemList of the service group is modified, you do not start all agents but only the required agents. The agent that was stopped by a user on a system gets restarted even if the group has no resource of that agent type, when the SystemList is modified to add that system. On SystemList modification to add new systems in SystemList, the engine starts all the agents without ensuring if the group has a resource of that type. Code changes so that only agents for which the group has resources are started whenever the SystemList is modified to add a new system.
1675815	[HAD] Fixed an issue so that the HostMonitor objects like VCShmg (Group), VCSHM (Resource), and HostMonitor (Type) are not counted in each object's number.
1672405	[VCS] Fixed an issue in which a switch operation on a child service group with an OLH (Online Local Hard) and OLF (Online Local Firm) parent results in a switch of the OLH parent and the child group even though the OLF parent was online. In a situation, where two service groups depend on one child and one parent has an online local hard dependency (OLH) while the other parent has an online local firm dependency (OLF): The command: hagrp -switch Hard_ParentSG -any switches both the parents. The command: hagrp -switch Hard_ParentSG -to sysB switches only the hard parent group along with the child group. When the hargp -switch command is executed with any of the following options: i) hagrp -switch SG_parent -any ii) hagrp -switch SG_parent -to sys The parent group switches (while the child group is online) only in the case of a hard dependency. The switch does not happen in the case of soft or firm dependency. The switch operation succeeds for an OLH parent, if only the parent group is online. The child group has no other parents online. The OLH parent and child group can have other parents. However, the OLH child group is always a leaf node.
1668609	[Agents] Fixed an issue in which the Proxy agent is updated to allow the target resource to be probed before scheduling the first probe of the Proxy resource.

Table 1-26 Veritas Cluster Server 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1638725	[LLT] Fixed an issue in which the LLT timer function may not run as quickly as required if there are higher priority processes in the system. LLT uses the heartbeat mechanism between nodes to ensure and identify that the other node is alive. Any node in VCS/SFRAC sends heartbeat packets to all the other nodes in the cluster after every 50 millisecond. This heartbeat is sent with the LLT timer thread. Under a heavy load condition, LLT timer thread may not be scheduled to send heartbeat. If the LLT thread is on the busy node, it is not able to send a heartbeat for 16 seconds. The other node considers the busy node failed and this results in panic whenever the load of the busy node goes down and it starts communicating with the other node of cluster. The LLT heartbeat code has been moved from an llt thread context to a timer interrupt context. This ensures that the heartbeat is sent as soon as timer returns after 50 milliseconds. Interrupt handler will run real time and this removes scheduling delays.
1638240	[Agents] Fixed an issue in which the Sybase agent is unable to bring the Sybase resource online if the RUN_ servername file is moved to some other (non default) location. The non default location for the Sybase dataserver RUN_ servername file is not supported by the Sybase agent. Hence, if you move the RUN_ servername file to some other location, the agent is unable to bring the Sybase resource online. A new attribute named Run_ServerFile of type string was introduced for the Sybase and SybaseBk agents. The value of this attribute can be set to the absolute path of the RUN_ servername file.
1635792	[VCS] Fixed an issue in which the Zpool monitor returned unknown when ZFS filesystem snapshot was created. The Zpool agent monitor checks if all the ZFS file systems are mounted. If the Zpool agent monitor does not find a file system mounted, it sets the UNKNOWN state flag. Thus, ZFS snapshots are not mounted and this results in the UNKNOWN flag being set for the ZPool resource. If the ZFS file system is a snapshot, the check for mounted status is not done and hence, the UNKNOWN state flag is not set.
1634924	[VCS] Fixed an issue in which the engine logs indicated CPU usage even after the HostMonitor resource is deleted.
1633973	[VCS] Fixed an issue in which the node does not test the Authority attribute before bringing the faulted service group online, leading to concurrency violations and the service group being taken offline on the disaster recovery site.

Table 1-26 Veritas Cluster Server 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1633781	[VCS] Fixed an issue in which the NFS resource goes to faulted state even after it is restarted if rpcbind/portmap daemon is restarted. During the online monitoring of the NFS resource, if the rpcbind/portmap daemon is restarted, the NFS resource monitor entry point detects the resource as offline unexpectedly. This triggers the clean entry point for the resource. The clean entry point gets executed successfully and thereafter, the NFS resource tries to restart itself. The monitor entry point after the restart again detects the NFS resource as offline and the resource goes to FAULTED state. The clean entry point is used to check whether the server daemons are running or not. If the server daemons are running, it does nothing and exits successfully. However, the running daemons do not indicate that they are registered with rpcbind/portmap. The rpcbind/portmap restart terminates the registrations of all RPC daemons. So the RPC service daemons must be restarted whenever the rpcbind/portmap restarts itself. Thus, the monitor was returning offline even when the daemons were running. The clean entry point now always restarts the server daemons. If the server daemons are running, it kills the running daemons.
1603120	[VCS] Fixed an issue where NFSRestart triggers were called despite no configured NFSRestart resources, which was detrimental to performance. See "Mandatory configuration change for the NFS and NFSRestart resources".
1600786	[Fencing] Fixed an issue in which I/O errors occur in case of a network partition at any point when the keys on the coordinator disks are being refreshed using the vxfenswap command. If the keys on coordinator disks are accidentally cleared, they can be refreshed using the vxfenswap command. However if there is a network partition at a particular point in the operation, it could result in I/O errors. If the keys that are registered on the coordinator disks are lost, the cluster may panic when a split-brain occurs. Using the vxfenswap script to replace the coordinator disks with the same disks will register the missing keys again without any risk of data corruption. However there is a possibility of seeing I/O errors because the algorithm registers the keys in the modify phase and if there is a network partition then the register(s) could override preempt(s) without synchronization. If the vxfenswap utility is run on existing coordinator disks, then the registrations are done in the commit phase instead of the modify phase.

Table 1-26 Veritas Cluster Server 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1600484	[VCS] Fixed an issue so that user names are checked and validated while verifying the configuration and modifying the UserNames attribute. A user with a special character in the userid is accepted if it is the second or later user in the UserNames attribute within the main.cf file. Only the first user name is checked for valid names. If the attribute UserNames has more than one user defined in the main.cf file or the command haclus -modify UserNames u1 p1 u2 p2 is run, then even invalid user names were accepted.
1600452	[Fencing] Fixed an issue in which the script to shutdown fencing (vxfen) produces an unexpected error message.
1590726	[VCS] Fixed an issue in which VCS generated notifications about high CPU/SWAP usage when notifications were configured. The HostMonitor feature is enhanced to give control to the user for enabling or (fully / partially) disabling the feature through the cluster object attribute - HostMonLogLvl. VCS has the HostMonitor feature enabled by default through the VCShmg group with a HostMonitor type resource VCShm. If notification is configured in VCS, you see the notifications whenever the CPU/SWAP usage is beyond critical levels. A new attribute HostMonLogLvli is added. The values can be 'ALL', 'HMAgentLog' or 'DisableHMAgent', with `ALL'as default.
1589851	[GAB] Fixed the cause of a system panic that was due to depleted memory reserves.
1545229	[Agents] Fixed an issue to allow control of entry point scheduling priorities and scheduling class using the new attributes EPPriority, EPClass, OnlinePriority, and OnlineClass. See "Attributes to control the scheduling of class and priority of agent entry points".
1545222	[Agents] Fixed an issue to provide the ability to pass the entry point timeout value as a parameter to agent entry points in their argument list. See "New attribute EntryPointTimeout".

Table 1-26 Veritas Cluster Server 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1544263	[Agents] Fixed an issue in which the Oracle agent performs an action corresponding to the last error even when it encounters multiple errors, thereby ignoring the previous error numbers. This happens because when the list of errors was parsed by the agent, it moved to the last error and got its state to perform the action corresponding to that error. The priority of actions are: FAILOVER, UNKNOWN, and IGNORE. If any error has FAILOVER/NOFAILOVER, the resource is FAULTED. If any error has UNKNOWN action, the resource is moved to UNKNOWN state. Else, we safely ignore the error and return the state as ONLINE.
1542391	[Agents] Fixed an issue in which VCS indicated that the zone was online when it was not active by modifying the zone agent for better monitoring. The Zone agent uses the RUNNING state to determine if a non-global zone resource is online. A non-global zone can go into the running state even before all the services inside the non-global zone are stared. Added the BootState attribute to determine at what level the non-global zone is considered to be online: single-user, multi-user, or multi-user-server.
1542382	[Agents] Fixed an issue in which starting the Mount agent created a defunct process.
1542334	[VCS] Fixed an issue in which the nfs_restart trigger was issuing too many hares -list commands, which impacted the response time of other HA commands invoked from the command line. The HA commands in nfs_postoffline trigger were replaced with more efficient HA commands. The nfs_restart trigger was obsolete and was removed. Also, the nfs_postoffline and nfs_preonline triggers were moved to the sample_triggers directory so that they are not invoked by default. Users are required to copy both the triggers from /opt/VRTSvcs/bin/sample_triggers to /opt/VRTSvcs/bin/triggers, if the configuration has the NFSRestart agent.
1542326	[Agents] Fixed an issue in which the IPMultiNICB agent crashes and produces core dump when monitoring an IP address that is brought up outside of VCS control. An IP address brought up outside of VCS control, e.g., as a part of a non-global zone configuration, can be monitored by an IPMultiNICB resource. Such a configuration exercises a code path in the agent which causes a core dump. Source code agent to fix the problem.
1540807	[GAB] Fixed an issue in which the error number returned by the gab_receive() function in the GAB library is wrong. The gab_receive() function returns -1, but the error number was set to 0.

Table 1-26 Veritas Cluster Server 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1539087	[Agents] Fixed an issue in which the agent framework seems to be leaking memory during message logging.
1538208	[VCS] Fixed an issue in which the value of attribute HostUtilization is not 0 even after HostMonitor resource is deleted.
1537141	[Agents] Fixed an issue in which the Mount agent leaks memory despite the installation of the 5.0MP3HF1 patch.
1537111	[VCS] VCS issues warning messages with ha commands on a ZFS root file system due to the priocntl() function being called with a NULL sched_class.
1528584	[Agents] Fixed an issue where the system performance dropped when a large number of application resources are configured and the Application agent searches the process table continuously.
1522568	[Agents] Fixed an issue in which the agent framework crashed while setting the resource name for the dependent attribute.
1509742	[GAB] Fixed an issue in which GAB membership to VCS (Port h) may not occur, if VCS is brought online before the Port a membership occurs. Clients of the GAB service may not get cluster membership. Symantec recommends that GAB must be configured to provide membership only after a minimum quorum number of nodes join the cluster. If a client of GAB comes up before GAB Port a forms membership on that node, then this client may not get cluster membership until it starts up on at least the configured quorum number of nodes, not even if Port a or any other GAB Ports receive cluster membership. Previously, seeding of Port a would trigger seeding on all other ports by seeding a CONNECTS message on all those ports. However, this led to a race which was fixed via e1424927. The fix disabled CONNECTS which used to propagate the SEED bit to other ports. SEED bit is now propagated to other ports after Port 'a' reconfigures. The master for each port just runs the reconfiguration calculation after Port a reconfigures there.
1504693	[GAB/LLT] Fixed an issue in which LLT cannot provide backenable to GAB. This resulted in an error being produced from the GAB module gabwrite() function.
1487725	[Agents] Fixed an issue in which the zone agent monitor script failed with an unexpected error. In the month of December, the Zone agent monitor would fail with the message: "Month '12' out of range 0..11 at /opt/VRTSvcs/bin/Zone/monitor line 164". The Zone agent monitor code was not setting the timelocal() function properly. Correct monitor code. Note that the issue is related only to a specific month of the year.

Table 1-26 Veritas Cluster Server 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1482806	[GAB] Fixed an issue in which uninstalling GAB produced the following error "Error in removing the gab entry in the /etc/devlinks.tab" when the GAB module was not loaded in the kernel.
1465956	[VCS] Fixed an issue in which you cannot delete a system even if it has no service group configured on it. Whenever a system is added, it is added to the SystemList of the VCShmg group (if HostMonitorLogLvl is enabled). While deleting the system from the cluster, VCS should silently delete this from the SystemList of VCShmg. However, it produces an error. VCS now lets you delete the system without displaying any error.
1451717	[VCS] Fixed an issue in which the correct error message was not displayed if the value of non-existing attribute was queried for a node from the remote cluster. The command hasys -value sys_from_remote_cluster JunkAttribute produces a core dump.
1377324	[Agents] Fixed a parsing error which caused an error message to appear in the /var/VRTSvcs/log/tmp/Oracle-0 file.
1368385	[Agents] Fixed an issue in which DiskGroupSnap does not work if layered volumes are used. VxVM creates layered volumes by default, in case of larger volumes spanning multiple disks. The agent expects each volume to have a plex at each site but VxVM does not assign a site tag to plex and there is only one top level plex. Thus, the agent reports that the configuration is invalid. This was a limitation in the original agent when no layered volumes were supported.
1362407	[LLT] Fixed an issue in which the lltdump command failed to display all the LLT packets and produces the following error: bash-3.00# /opt/VRTSllt/lltdump -f /dev/bge2 CR C 60425 S 2559 D 00 P 000 rdy 0000 seq 000001dc len 0000 lltdump: cannot read messages on /dev/bge2: Error 0 The lltdump command gets control and data information from dlpi streams read head queue. The initial buffer size passed to get control information was 36. The latest dlpi drivers like bge and nge have control information that is larger than 36. Insufficient buffer size for control information produces the error message "Cannot read messages ". The buffer size was increased from 36 to 64.
1070177	[Agents] Fixed an issue to include a new attribute to use the db2start command. There was no option to use the db2start command. Added optional attribute UseDB2start to allow users to start DB2 using the db2start command.

Table 1-27 describes fixed issues in Veritas Cluster Server 5.0 MP3 RP1, which are included in this release.

Table 1-27 Veritas Cluster Server 5.0 MP3 RP1 fixed issues

Fixed issues	Description
1457429	Removed the VCS NOTICE V-16-1-53021 message after the hastart command is run.
1427100	Fixed an issue where LDom CfgFile did not work with LDom 1.0.3.
1424927	Optimized GAB connect messages.
1414709	The hagrp -offline command and hares -offline command now behave similarly when you bring the last resource in a service group offline.
1404384	Global groups can switch over to a node where WAC is not running, when PreSwitch is set to 1 and HAD runs properly.
1403471	Reduced time for global cluster fault detection.
1397738	Support provided for Solaris 8 and Solaris 9 branded zones.
1397692	Removed a condition where VCS engine clients hung in connect when the target system was down.
1395905	Changes implemented to close device file for device vxdmpconfig.
1394624	LLT: fixed an issue where the lltdlv thread spun indefinitely.
1392826	Fixed an issue where the Share agent was 10x slower on 5.0 MP1 with 300+ Share resources in a service group. Note: This fix changes basic VCS functionality, it is critically important for you to implement these changes for all service groups that contain NFSRestart resources. You must set the value of the PreOnline attribute to 1 for all service groups that contain NFSRestart resources. Failure to set the service group's PreOnline attribute to a value of 1 results in broken NFSRestart resource configurations. The ha commands to change this attribute are: # haconf -makerw # hagrp -modify servicegroup_name PreOnline 1 # haconf -dump -makero/para>
1379299	LLT: fixed llt_recordmac() messages.

Storage Foundation for Oracle RAC fixed issues

Table 1-28 describes fixed issues in Storage Foundation for Oracle RAC 5.0 MP3 RP5, which are included in this release.

Table 1-28 Storage Foundation for Oracle RAC 5.0 MP3 RP5 fixed issues

Fixed issues	Description
2348279	Fixed the issue that after rolling back from SFRAC 50MP3RP5 to 50MP3RP4, getting error message
2325686	Fixed the issue that dbed_update fails for Oracle 11gR2
2319343	Fixed the issue that SFRAC support Solaris Local zones
2276515	Fixed the issue that VCSMMDEBUG shows garbage entries after Oracle CRS has unregistered from VCSMM.
2266848	Fixed the issue that Oracle instance crashed,failure occurred at: vcsipc_dosnd
2053302	Fixed the issue with working of MTU attribute in PrivNIC & MultiPrivNIC resource

Table 1-29 describes fixed issues in Storage Foundation for Oracle RAC 5.0 MP3 RP4, which are included in this release.

Table 1-29 Storage Foundation for Oracle RAC 5.0 MP3 RP4 fixed issues

Fixed issues	Description
2042503	Fixed an issue in CVMvoldg in SFRAC environment.
1996675	PrivNIC agent does not allow the same MTU to be set on two interfaces.
1973843	After Stopping vcsmm on Solaris 10,while unloading vcsmm module getting can't unload the module: Device busy.
1945042	In WAIT, Don't call lmx poll when vcsipc done queue is not empty and remove light weight tracing.
1935473	LMX should register with NULL canput for performance.
1928571	Remove internal name built during linking libvcsmm (Oracle 11gR2).
1633841	The hacf -verify command does not prompt for incorrect entries for Multiprivnic resource.

Table 1-29 Storage Foundation for Oracle RAC 5.0 MP3 RP4 fixed issues *(continued)*

Fixed issues	Description
1934897	Is the PrivNIC Agent on Sun supported on Sun 10GbE NICs (nxge interfaces) with native 64k MTU default value supported.

Table 1-30 describes fixed issues in Storage Foundation for Oracle RAC 5.0 MP3 RP3, which are included in this release.

Table 1-30 Storage Foundation for Oracle RAC 5.0 MP3 RP3 fixed issues

Fixed issues	Description
1877596	Fix for Panic lmx buffer modified after being freed.
1847747	Enhancement for PrivNIC Agent.
1847605	Fix for the cssd agent monitor interval specifications.
1845377	Fix for the control script of Live Upgrade.
1845337	Fix for message of mmpl_reconfig_ioctl: dev_ioctl failed error on console and in /var/adm/message after reboot.
1845330	Fix for the issue of starting vcsmm port if /etc/vcsmmtab is not present.
1845328	Fix for issues of vcsmmdebug `options` command.
1840224	Enhancements for MultiPrivNIC Agent.

Table 1-31 describes fixed issues in Storage Foundation for Oracle RAC 5.0 MP3 RP2, which are included in this release.

Table 1-31 Storage Foundation for Oracle RAC 5.0 MP3 RP2 fixed issues

Fixed issues	Description
1593859	Reduced the time it takes for Oracle to start with VCSIPC.
1525117	Fixed an issue in which the MultiPrivNIC agent was not able to plumb the IP address on the configured devices.
1382034	Fixed an issue in which the MultiPrivNIC agent failed over the IP address even when it was not required.

Table 1-31 Storage Foundation for Oracle RAC 5.0 MP3 RP2 fixed issues *(continued)*

Fixed issues	Description
1597480	The LMX code now calls the tstop() function calling the tstart() function to avoid a race condition.

Table 1-32 describes fixed issues in Storage Foundation for Oracle RAC 5.0 MP3 RP1, which are included in this release.

Table 1-32 Storage Foundation for Oracle RAC 5.0 MP3 RP1 fixed issues

Fixed issues	Description
1379299	LLT: fixed llt_recordmac() messages.

Veritas Cluster Server agents for Veritas Volume Replicator fixed issues

There are no fixed issues for Veritas Cluster Server agents for Veritas Volume Replicator in 5.0 MP3 RP5 release.

Table 1-33 describes fixed issues in Veritas Cluster Server agents for the Veritas Volume Replicator 5.0 MP3 RP4 release.

Table 1-33 Veritas Cluster Server agents for Veritas Volume Replicator 5.0 MP3 RP4 fixed issues

Fixed issues	Description
1940257	Fixed the issue that fdsetup cannot correctly parse disk names containing characters.

There are no fixed issues for Veritas Cluster Server agents for Veritas Volume Replicator in 5.0 MP3 RP3 release.

Table 1-34 describes fixed issues in Veritas Cluster Server agents for the Veritas Volume Replicator 5.0 MP3 RP2 release.

Table 1-34 Veritas Cluster Server agents for Veritas Volume Replicator 5.0 MP3 RP2 fixed issues

Fixed issues	Description
1671357	Enabled the RVGPrimary agent to migrate a VVR primary to secondary in the case of having multiple secondaries.
1433149	Fixed issues related to the OnlineTimeout attribute with RVGPrimary and RVGSharedPri agents.
1295115	Enabled the fdsetup wizard to set up a firedrill SG in a secured VVR-GCO environment.
1255362	The RVG Snapshot agent now picks up volumes that are not in the RVG.

Veritas Enterprise Administrator fixed issues

There are no fixed issues for Veritas Enterprise Administrator in 5.0 MP3 RP5 release.

Table 1-35 describes fixed issues in Veritas Enterprise Administrator 5.0 MP3 RP4 release.

Table 1-35 Veritas Enterprise Administrator fixed issues

Fixed issues	Description
2009322	VRTSddlpr - Shared object search path in ddl.so includes /net/...
1965998	VRTSob - vxsvc core dumping upon startup after upgrade to 5.0 MP3 RP2.
1961540	VRTSvmpro - vmprov does not calculate disk nolable state correctly.
1914596	VRTSob - isisd will not start, core file generated.

Storage Foundation and High Availability known issues

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

- Storage Foundation and High Availability known issues
- Veritas Volume Manager known issues

Storage Foundation and High Availability known issues

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

Installer hangs occasionally when using RSH to install 5.0 Maintenance Pack 3 Release Patch 5 on Solaris 8 (2067709)

The installer sometimes hangs when you use RSH to install 5.0 MP3 RP5 on the Solaris 8 operating system. Zombie processes in Perl multi-threading cause the hang.

Workaround:

Reinstall 5.0 MP3 RP5.

Storage Foundation Manager 1.1.1 Central Server

The procedure to centrally manage Storage Foundation 5.0 MP3 RP5 hosts on Storage Foundation Manager 1.1.1 can be viewed at the following URL:

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

Veritas Volume Manager known issues

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

STK6x50 array in A/PF mode can get spurious path failures (1471740)

For an STK6x50 array in A/PF mode, if any open is done on any paths during failover, the open may fail. The paths may be marked as failed. The DMP node may then go into failed state, potentially causing any plexes associated with the node to become detached.

Workaround:

If a plex becomes detached, manually clear the FAILING flag on the disk and reattach the plex.

Evaluate the need for intelligence in vxattachd to clear stale keys on failover/shared dg's in CVM and non CVM environment (1880279)

The sites/plexes might not be automatically reattached when the faulted disks are reconnected. Some of the dmp events might be ignored by the auto reattach daemon (vxattachd) due to the overflow of the events buffer. The auto reattach daemon might fail to reattach the site/disk in the presence of stale PGR keys in the disks.

Workaround:

Manually remove the stale keys that are still present on the reconnected faulted disks and then fire the `vxreattach` command to initiate the reattach.

vxsnap failed to prepare the volume set (2365466)

The `vxsnap` preparation on a volume set failed to create `dco` volume because it is unable to allocate the required space.

Workaround:

Whenever `vxsnap` prepare fails with space allocation issue, use the following the command to resolve it:

```
# vxsnap -g diskgroup prepare vset alloc=device_name
```

Where *device_name* can be picked up from the list of devices available in that diskgroup.

Veritas File System known issues

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

2235668 (2213282): Unable to grow the File System on svm volume

This issue will be seen only on Solaris10 update8 > > (sol10u8) and above.

If the underlying volume is Solaris Volume Manger (SVM) and the size of the volume is > 1 TB, then operations like resize of file system through fsadm will fail with the following error:

```
UX:vxfs fsadm: ERROR: V-3-20058: read_vtoc failed with return value -7
```

Workaround:

An ONEOFF patch 5.0MP3RP5ONEOFF (146882-60) is available which contains the fix for this issue.

Storage Foundation Cluster File System known issues

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

Mounting a filesystem as 'seconly' using cfsmount command may fail (2041070)

Mounting a filesystem as seconly using cfsmount command may fail with the following error:

```
Error: V-35-50: Could not mount [<volume name>] at <mount point>
on <node name>   Look at VCS engine_A.log on <node name> for
possible errors for resource cfsmount1
```

Due to a timing issue in the cfsmount script, the seconly file system has tried to be mounted before the primary mount operation is complete, which fails with the above mentioned error.

Storage Foundation for Oracle known issues

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

dbdst_preset_policy may fail (2053719)

dbdst_preset_policy fails with the following error message:

```
Valid license is not found
```

Workaround:

There is no workaround for this issue.

vxstorage_stats and dbed_analyzer might dump core (1899723)

vxstorage_stats and dbed_analyzer might dump core in some cases when the gapsnapshot plugin tries to claim the disk object.

Workaround:

To resolve this issue, enter the following commands:

- `# cd /opt/VRTSvxms/lib/map`
- `# mv libgapdisk.so libgapdisk.so_bak`
- `# mv libgapsnapshot.so libgapsnapshot.so_bak`

The database fails over during Flashsnap operations (1469310)

In an SFHA environment, if the database fails over during Flashsnap operations such as the `dbed_vmsnap -o resync` command and various error messages appear. This issue occurs because Flashsnap commands do not create a VCS resource for the SNAP disk group. As such, when the database fails over, only the primary disk group is moved to another node.

Workaround:

There is no workaround for this issue. The error messages depend on the timing of the database failover.

To fix the problem, you need to bring the FlashSnap state to SNAP_READY. Depending on the failure, you may have to use base VxVM commands to reattach mirrors. After mirrors are attached, you need to wait until the mirrors are in SNAPDONE state. Re-validate the snapplan again.

patchrm fails when removing VRTSdbcom and VRTSdbed patches (1726470)

The `patchrm` command fails because of missing backout data when removing the 5.0 MP3 RP5 versions of the VRTSdbcom and VRTSdbed patches. See Sun CR 6581364 for more information.

Workaround:

To uninstall the patches:

1. Uninstall the VRTSdbcom and VRTSdbed package, as appropriate to your setup.
2. Install 5.0 GA version of the VRTSdbcom and VRTSdbed package.
3. Run the dbed_patch_50ga script:

   ```
   # cd  /<dvd1-sol_sparc>/storage_foundation_for_oracle/scripts
   # ./dbed_patch_50ga
   ```

4. Install the 5.0 MP3 patch for the VRTSdbcom and VRTSdbed package.

Storage Foundation for DB2 known issues

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

patchrm fails when removing VRTSdbcom and VRTSdb2ed patches (1726470)

The `patchrm` command fails because of missing backout data when removing the 5.0 MP3 RP5 versions of the VRTSdbcom and VRTSdb2ed patches. See Sun CR 6581364 for more information.

Workaround:

To uninstall the patches:

1. Uninstall the VRTSdbcom and VRTSdb2ed package, as appropriate to your setup.
2. Install 5.0 GA version of the VRTSdbcom and VRTSdb2ed package.
3. Run the dbed_patch_50ga script:

```
# cd  /<dvd1-sol_sparc>/storage_foundation_for_oracle/scripts
# ./dbed_patch_50ga
```

4. Install the 5.0 MP3 patch for the VRTSdbcom and VRTSdb2ed package.

vxstorage_stats and dbed_analyzer might dump core (1899723)

vxstorage_stats and dbed_analyzer might dump core in some cases when the gapsnapshot plugin tries to claim the disk object.

Workaround:

To resolve this issue, enter the following commands:

- `# cd /opt/VRTSvxms/lib/map`
- `# mv libgapdisk.so libgapdisk.so_bak`
- `# mv libgapsnapshot.so libgapsnapshot.so_bak`

The database fails over during Flashsnap operations (1475719)

In an SFHA environment, if the database fails over during Flashsnap operations such as the `dbed_vmsnap -o resync` command and various error messages appear. This issue occurs because Flashsnap commands do not create a VCS resource for the SNAP disk group. As such, when the database fails over, only the primary disk group is moved to another node.

Workaround:

There is no workaround for this issue. The error messages depend on the timing of the database failover.

To fix the problem, you need to bring the FlashSnap state to SNAP_READY. Depending on the failure, you may have to use base VxVM commands to reattach mirrors. After mirrors are attached, you need to wait until the mirrors are in SNAPDONE state. Re-validate the snapplan again.

Storage Foundation for Oracle RAC known issues

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

dbed_clonedb error when oracle pfile including DB_UNIQUE_NAME parameter(2317766)

A dbed_clonedb error occurs when the oracle pfile includes the DB_UNIQUE_NAME parameter.

Workaround:

1. Shut down the clone database using sqlplus.
2. Edit the clone database's pfile.
3. Modify `DB_UNIQUE_NAME` parameter and make it same as `DB_NAME` parameter.
4. Startup clone database using modified pfile.

Issue with PrivNIC.cf and MultiPrivNIC.cf files (2053877)

When SF Oracle RAC 5.0 MP3 RP5 is installed, updated PrivNIC.cf and MultiPrivNIC.cf files do not get copied to /etc/VRTSvcs/conf/config directory.

Workaround:

You have to manually copy these files from /etc/VRTSvcs/conf directory to /etc/VRTSvcs/conf/config directory:

```
# cp -p /etc/VRTSvcs/conf/PrivNIC.cf \
/etc/VRTSvcs/conf/config/PrivNIC.cf
# cp -p /etc/VRTSvcs/conf/MultiPrivNIC.cf \
/etc/VRTSvcs/conf/config/MultiPrivNIC.cf
```

An issue with upgrading Storage Foundation for Oracle RAC using Live Upgrade (1912245)

During the process of Live Upgrade from Storage Foundation for Oracle RAC 5.0 MP3 to 5.0 MP3 RP5 the device files of LLT, GAB and vxfen gets removed.

Workaround:

Symantec provides a hotfix for 5.0 MP3 issue.

See "Upgrading SF for Oracle RAC using Live Upgrade" on page 144.

Joining a new node to the cluster may fail (1390591)

If StorageTek 2540 machine is configured in A/PF mode, joining a new node to the cluster may fail if the cluster has a failover in progress.

Workaround:

There is no workaround.

Startup of the Oracle database may fail

The database 10.2.0.4 might not start resulting in the following error:

```
ORA-600 KSFDNFY2] [ODM ERROR V-41-4-4-49-22 INVALID ARGUMENT] DB STARTUP).
```

Workaround:

To resolve this issue apply Oracle patch 7195403.

The messages such as processes failed to stop can be found in logs.

For Solaris 8, 9 and 10, after installing the rolling patches, some messages such as *processes fail to stop* can be found in logs. But it has no impact on rolling patches installation.

Workaround:

There is no impact on patch installation. No workaround is required.

At times the patch in 5.0MP3RP5 for VRTSat fails to get installed, removing the base package as well.

Workaround:

1. Install the base VRTSat package from 5.0MP3 media
2. Check that the package has got installed properly.

   ```
   # pkginfo -il VRTSat
   ```

3. Add the VRTSat patch from 5.0MP3RP5 media.

   ```
   # patchadd 123722-02
   ```

4. Check that the patch is installed properly.

   ```
   # showrev -p | grep 123722-02
   ```

5. and the package is also of proper status

   ```
   # pkginfo -il VRTSat
   ```

Veritas Cluster Server known issues

The following are the Veritas Cluster Server issues that are known in this release.

node 2 is fencing and panic unexpectedly when node 1 panics (2047996)

Symptom: Gracefully shutting down the control domain of node 0 causes the guest domain of node 0 to crash.

Analysis: Even though the guest domain can continue to function when the control domain is shutdown, the heartbeats between node 0 and node 1 are lost as the control domain shuts down. As a result, the cluster forms two separate sub-clusters without the sub-clusters being able to see each others' heartbeats. I/O fencing resolves the split brain situation and determines that only one sub-cluster continues to function while the other sub-cluster should panic. Therefore, the panic of node 0 is expected behavior.

Workaround:

None; this is expected behavior. However, Symantec recommends keeping the control domain highly available for the proper function of the SFCFS and SFRAC stack in the guest domains. If you have set up a virtual private LLT heartbeats between the two guests (node 0 and node1), the guest will not crash.

OS cannot reboot successfully after fencing is enabled on Solaris 8 (2048744)

Symptom: OS cannot reboot successfully after fencing is enabled.

Description: Since UFS does not have journaling enabled by default, it is expected that the file system goes into an inconsistent state after a system crash.

Workaround:

Enable journaling for UFS or use VxFS instead.

Uninitialized value messages observed in engine_A.log (2061292)

Symptom: SambaServer and NetBios agents throw messages such as uninitialized value into engine log during offline or clean.

Description: Due to a program error in offline and clean entrypoints for SambaServer and NetBios agents these messages gets logged to engine log. These messages does not impact the agent functionality.

Workaround:

Ignore these messages as there is no harm to the agent functionality.

Sybase cannot start in solaris non-global zones (2062336)

Symptom: The Sybase and SybaseBk agent resources fail to online inside Solaris zone.

Description: When the Solaris non global zone reboots, the Sybase and SybaseBk agent resources fails to come online during the first attempt. However in the sub-sequent attempts the resources come online successfully. The issue is particularity seen when VxFS file system is used for non-global zone root.

Workaround:

As a workaround set the OnlineRetryLimit attribute of the Sybase and SybaseBK resource types to a higher value (for example: 2). When OnlineRetryLimit is set to 1 or more, if the attempt to online a resource is unsuccessful, the agent attempts to online the Sybase and SybaseBk resource till OnlineRetryLimit is reached.

Following HA commands can be used to set the OnlineRetryLimit attribute:

- `# hatype -modify Sybase OnlineRetryLimit 2`

- `# hatype -modify SybaseBk OnlineRetryLimit 2`

Software limitations

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

Veritas Enterprise Administrator-Veritas Volume Replicator software limitations

There are no software limitations for Veritas Enterprise Administrator-Veritas Volume Replicator in this release.

Veritas File System software limitations

There are no software limitations for Veritas File System in this release.

Storage Foundation Cluster File System software limitations

There are no software limitations in this release of Storage Foundation Cluster File System.

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 RP5. Otherwise, prior backups cannot be restored using the 5.0 MP3 RP5 restore script.

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

See "Storage Foundation for Oracle fixed issues" on page 41. 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.

No support for running DBED commands on Cluster File System

Storage Foundation for DB2 does not support running DBED commands on Cluster File System.

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 RP5. Otherwise, prior backups cannot be restored using the 5.0 MP3 RP5 restore script.

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

See "Storage Foundation for DB2 fixed issues " on page 44. for incident 1425261.

Veritas Cluster Server software limitations

There are no software limitations for Veritas Cluster Server in this release.

Changes in behavior for Storage Foundation High Availability

The following sections describe changes in product behavior in this release.

About the installrp script

From version 5.0 MP3 RP5, Veritas Storage Foundation and High Availability Solutions provides a new upgrade script.

To upgrade from Veritas Storage Foundation and High Availability Solutions version 5.0 MP3 or later, the recommended upgrade method is to use the new upgrade script.

The installrp script allows you to upgrade all the patches associated with the packages installed. After using the installrp script you will need to reboot your system.

installrp script options

Table 1-36shows command line options for the product upgrade script.

Table 1-36 Available command line options

Command line options	Function
[<system1> <system2>...]	Specifies the systems on which to run the upgrade options. If not specified, the command prompts for a system name.
[-precheck]	The -precheck option is used to confirm that systems meet the products install requirements before installing.
[-responsefile <response_file>]	The -responsefile option is used to perform automated installations or uninstallations using information stored in a file rather than prompting for information. <response_file> is the full path of the file that contains configuration definitions. The -enckeyfile option is required with the -responsefile option when the response file contains encrypted passwords.
[-patchpath <patch_path>]	The -patchpath option is used to define the complete path of a directory available to all install systems (usually NFS mounted) that contains all patches to be installed by installrp.
[-tmppath <tmp_path>]	The -tmppath option is used to select a directory other than /var/tmp as the working directory for installrp. This destination is where initial logging is performed and where filesets are copied on remote systems before installation.
[-logpath <log_path>]	The -logpath option is used to select a directory other than /opt/VRTS/install/logs as the location where installrp log files, summary file, and response file are saved.

Table 1-36 Available command line options *(continued)*

Command line options	Function
[-rootpath <root_path>]	The -rootpath option is used to re-root the install of all packages to the given path. On Solaris, -rootpath passes -R <root_path> to pkgadd. On Solaris, -rootpath passes -R <root_path> to pkgadd.
[-keyfile <ssh_key_file>]	The -keyfile option specifies a key file for SSH. When this option is used, -i <ssh_key_file> is passed to every SSH invocation.
[-rsh]	The -rsh option is used when rsh and rcp are to be used for communication between systems instead of ssh and scp. When the -rsh option is not used, systems must be pre-configured such that ssh commands between systems execute without prompting for passwords or confirmations.
[-listpatches]	The -listpatches option is used to display product patches in correct installation order.

Changes in Veritas Cluster Server behavior

The following sections describe changes in Veritas Cluster Server behavior for this release.

hazonesetup command usage is changed to accept parallel service groups for zone configurations

Symantec has enhanced the hazonesetup command with additional command line parameter to accept the type of the service group to be created for zone configurations.

The new usage for `hazonesetup`command is as shown below:

```
# /opt/VRTSvcs/bin/hazonesetup SG res Zone passwd parallel Systems
```

Where

- SG: Name of the service group you want to configure
- res: Name of the zone resource in VCS configuration

- Zone: Name of the zone configured on the system
- passwd: Password for the VCS user you want to create for zone
- parallel: Set to 1 if you want to configure parallel service group, 0 otherwise
- Systems: Names of systems on which service group can run

With this enhancement, the hazonesetup command localizes the ZoneName attribute for the Zone resource when executing the command by passing '1' in the parallel argument.

Mandatory configuration change for the NFS and NFSRestart resources

You must perform the following instructions for VCS configurations that have NFSRestart resources. Failure to perform these instructions can result in NFS/NFSRestart resources not functioning correctly.

Symantec implemented this change to prevent the invocation of NFSRestart-related triggers when no NFSRestart resources in the VCS configuration.

To copy the nfs_preonline and nfs_postoffline files

- Copy the `nfs_preonline` and `nfs_postoffline` files to the `/opt/VRTSvcs/bin/triggers` directory.

```
# cp /opt/VRTSvcs/bin/sample_triggers/nfs_preonline \
/opt/VRTSvcs/bin/triggers
# cp /opt/VRTSvcs/bin/sample_triggers/nfs_postoffline \
/opt/VRTSvcs/bin/triggers
```

Attributes to control the scheduling of class and priority of agent entry points

Symantec has introduced four new attributes—EPPriority, EPClass, OnlinePriority, and OnlineClass—to enable you to control the scheduling of class and priority of the agent functions or entry points. The new attributes OnlineClass and OnlinePriority are used to set the scheduling class and priority for the online entry point. The new attributes EPClass and EPPriority are used to set the scheduling class and priority for all entry points, except the online entry point.

These attributes provide a single interface to tune the scheduling parameters for all entry points (except the online entry point). It does not matter if they are implemented as C-based or script-based entry points. The OnlineClass and

OnlinePriority attributes provide the same functionality for only the online entry point.

It is usually required that the monitor, clean, offline and the other entry points running on an application have a higher scheduling class or priority without which they would compete with the application for system resources. However, running the online entry point with a higher scheduling class or priority may create problems because applications inherit the scheduling parameters from the application vendors, who specify that the applications are run using the default operating system scheduling parameters. Also, the online entry point is usually invoked before you start the application and the system is not very busy.

Hence, you must usually set the values of EPPriority and EPClass attributes to a higher value than the default value. You must usually set the value of the OnlinePriority and OnlineClass attribute to the default operating system scheduling values.

Note: You must either use all four new attributes or set them to -1 to go back to using the older Agent* and Script* attributes. A combination of the two different sets of attributes is not supported.

Table 1-37 indicates the values that apply to these new attributes.

Table 1-37 Attribute values to schedule class and priority of agent entry points

Attributes	Values
OnlineClass / EPClass	The default value for the attribute is -1. This indicates that this attribute is not in use and hence VCS will use the older AgentClass / AgentPriority and ScriptClass / ScriptPriority attributes.

Table 1-37 Attribute values to schedule class and priority of agent entry points *(continued)*

Attributes	Values
OnlinePriority / EPPriority	The default value for this attribute is -1. This indicates that this attribute is not in use and hence, VCS will use the older AgentClass/Priority and ScriptClass/Priority attributes. If the value of this attribute is 0, it indicates the base operating system priority for the configured scheduling class. For example, on Solaris, if the EPClass attribute is TS*, and the value of the EPPriority attribute is set to 0, then the base priority for entry points is set to 59 by the operating system. Similarly on Solaris, if scheduling class is RT*, then base priority is 100. If the value of this attribute varies from -60 to 60 (except 0 and -1), it increases or decreases the base priority by the configured value. For example, on Solaris, if EPClass is set to TS* and EPPriority is set to -20, then the scheduling priority of the entry point would be 39 (59 base value and - 20 configured value). *TS (for Solaris) = TimeShare scheduling class *RT (for Solaris) = RealTime scheduling class

New attribute AEPTimeout

The new attribute EntryPointTimeout is used to pass the entry point timeout value as a parameter to agent entry points in their argument list. This is an internal attribute and you are not required to change the value of this attribute. This attribute is strictly for the use of agent developers.

New attribute WaitForRecovery in Sybase agent

Added a new attribute WaitForRecovery in Sybase agent. If this attribute is enabled, during the online function, the agent waits till recovery has been completed and all databases that can be made online are brought online. Sybase agent type definition should be updated in order to use the WaitForRecovery attribute.

New attribute RunFsck in Zone agent

An attribute RunFsck has been added to the zone agent type. If the attribute is enabled then the zone online entry point looks for the VxFS filesystems in the zone configuration files and runs full FSCK before attempting to boot the zone. Once all FSCKs are completed the zone agent issues the `zoneadm -z <zone_name> boot` command.

Note: You may need to adjust the OnlineTimeout attribute for the zone type depending on the number of VxFS file systems configured and the time they take for full FSCK.

Changes in Storage Foundation for Oracle RAC behavior

The following sections describe changes in Storage Foundation for Oracle RAC behavior for this release.

Storage Foundation for Oracle RAC supports Solaris non-global zone

In this release you can install Storage Foundation for Oracle RAC in a zone environment.

See the *Setting up Veritas Storage Foundation™ for Oracle® RAC in a zone environment Guide* for more information.

Downloading the rolling patch archive

The patches included in the 5.0 MP3 RP5 release are available for download from the Symantec website. After downloading the 5.0 MP3 RP5 file, use gunzip and tar to uncompress and extract.

For the 5.0 MP3 RP5 download archive and instructions, see the following TechNote on the Symantec Technical Support Web site:

For Solaris SPARC,

http://www.symantec.com/docs/TECH46439

For Solaris x64,

http://www.symantec.com/docs/TECH50452

Patches included in this rolling patch

This section describes the Solaris SPARC and x64 patches included in this rolling patch.

Veritas Cluster Server patches

Veritas Cluster Server database agent patches

Storage Foundation patches

Veritas File System patches

Veritas Cluster Server patches

This section describes the VCS Solaris SPARC and x64 patches.

Solaris SPARC

Table 1-38 describes the Solaris SPARC VCS patches that are included in this rolling patch:

Table 1-38 VCS 5.0 MP3 RP5 Solaris SPARC patches

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
142607-05	Contains fixes for: VRTScscm	10 MB			X
139359-05	Contains fixes for: VRTSllt, VRTSgab, VRTSvxfen	7.5 MB			X
139358-05	Contains fixes for: VRTSvcs, VRTSvcsag	86 MB			X
139357-05	Contains fixes for: VRTSllt, VRTSgab, VRTSvxfen, VRTSvcs, VRTSvcsag, VRTScscm	105 MB		X	

Table 1-38 VCS 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139356-05	Contains fixes for: VRTSllt, VRTSgab, VRTSvxfen, VRTSvcs, VRTSvcsag, VRTScscm	105 MB	X		
123722-02	VRTSat 5.0MP3: Maintenance Patch for Authentication Server	88 MB	X	X	X

Solaris x64

Table 1-39 describes the Solaris x64 VCS patches that are included in this rolling patch:

Table 1-39 VCS 5.0 MP3 RP5 Solaris x64 patches

Patches	Description	Size	Solaris 10
142608-05	Contains fixes for: VRTScscm	10 MB	X
139361-05	Contains fixes for: VRTSvcs, VRTSvcsag	84 MB	X
139360-05	Contains fixes for: VRTSllt, VRTSgab, VRTSvxfen	6 MB	X

Veritas Cluster Server database agent patches

This section describes the Veritas Cluster Server database agent patches for Oracle, Sybase, and DB2 SPARC and x64 patches.

Solaris SPARC

Table 1-40 describes the Solaris SPARC VCS patches that are included in this rolling patch:

Table 1-40 VCS 5.0 MP3 RP5 Solaris SPARC patches

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
141286-06	Contains fixes for: VRTSvcssy	424 KB	X	X	X
141285-07	Contains fixes for: VRTSvcsdb	360 KB	X	X	X
141284-06	Contains fixes for: VRTSvcsor, VRTScsocw	17 MB	X	X	X

Solaris x64

Table 1-41 describes the Solaris x64 VCS patches that are included in this rolling patch:

Table 1-41 VCS 5.0 MP3 RP5 Solaris x64 patches

Patches	Description	Size	Solaris 10
141289-05	Contains fixes for: VRTSvcssy	376 KB	X
141288-05	Contains fixes for: VRTSvcsor, VRTScsocw	21 MB	X
141287-06	Contains fixes for: VRTSvcsdb	360 KB	X

Storage Foundation patches

This section describes the Storage Foundation Solaris SPARC and x64 patches.

Solaris SPARC

Table 1-42 describes the Solaris SPARC Storage Foundation patches that are included in this rolling patch:

Table 1-42 SF 5.0 MP3 RP5 Solaris SPARC patches

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
142607-05	VCS: cscm	9 MB			X
141745-01	VCS Agents for VVR 5.0: MP3RP2 for VVR 5.0	303 KB	X	X	X
141279-01	VRTSmapro 5.0MP3RP2: Rolling Patch for 5.0MP3 for Solaris 8, 9 and 1	49 KB	X	X	X
140661-01	VRTSobgui 5.0MP3RP2: Maintenance Patch for VEA GUI	126 MB	X	X	X
140657-01	VRTSdsa 5.0MP3RP2: Maintenance Patch for VRTSdsa 5.0	45 KB	X	X	X
139744-01	VRTSccg 5.0MP3RP1: Maintenance Patch for VRTSccg	401 MB	X	X	X
139743-01	VRTSaa 5.0MP3RP1: Maintenance Patch for VRTSaa	1.1 MB	X	X	X

Table 1-42 SF 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139742-03	VRTSobc33 5.0MP3RP2: Maintenance Patch for VEA Server	86 MB	X	X	X
139741-03	VRTSob 5.0MP3RP2: Maintenance Patch for VEA Server	21 MB	X	X	X
139737-02	VRTSdcli 5.0MP3RP3: Rolling Patch 03 for VRTSdcli 5.0MP3	28 MB	X	X	X
139358-05	SunOS 5.10: fixes for vcs, vcsag	84 MB			X
139357-05	VCS: gab llt vxfen vcs vcsag cscm	101 MB		X	
139356-05	VCS: gab llt vxfen vcs vcsag cscm	101 MB	X		
139354-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3	1.4 MB	X	X	X
128078-02	VRTSfsman 5.0MP3: Maintenance Patch for File System 5.0	476 KB	X	X	X

Table 1-42 SF 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
123823-06	5.0MP3RP2: Rolling patch 02 for VRTSddlpr 5.0 MP3	6.5 MB	X	X	X
123821-06	VRTSalloc 5.0MP3RP3: Rolling Patch for VRTSalloc 5.0MP3	16 MB	X	X	X
123740-07	VRTSvmpro 5.0MP3RP3: Rolling Patch for VRTSvmpro 5.0MP3	15 MB	X	X	X
123722-02	5.0MP3RP1 Maintenance Patch for Authentication Server	88 MB	X	X	X
123202-08	VRTSvxfs 5.0MP3RP3: Maintenance Patch for File System 5.0-Sun5.10	32 MB			X
123201-08	VRTSvxfs 5.0MP3RP3: Maintenance Patch for File System 5.0-Sun5.9	33 MB		X	

Table 1-42 SF 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
123200-08	VRTSvxfs 5.0MP3RP3: Rolling Patch for File System 5.0MP3-Sun5.8	33 MB	X		
122058-15	VRTSvxvm 5.0MP3RP4: Rolling Patch 03 for Volume Manager 5.0MP3	198 MB	X	X	X
121714-05	VRTSfspro 5.0MP3RP4: Supplemental General Patch for Solaris 8, 9 and 10	7.6 MB	X	X	X

Solaris x64

Table 1-43 describes the Solaris x64 Storage Foundation patches that are included in this rolling patch:

Table 1-43 VCS 5.0 MP3 RP5 Solaris x64 patches

Patches	Description	Size	Solaris 10
142608-05	VCS: cscm	8.9 MB	X
141280-01	VRTSmapro 5.0MP3RP2_x86: Rolling Patch for Solaris 10	49 KB	X
140662-01	VRTSobgui_x86 5.0MP3RP2: Maintenance Patch for VEA GUI	113 MB	X

Table 1-43 VCS 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
140658-01	VRTSdsa 5.0MP3RP2_x86: Maintenance Patch for VRTSdsa 5.0	45 MB	X
139748-01	VRTSccg._x86 5.0MP3RP1: Maintenance Patch for VRTSccg	344 KB	X
139747-01	VRTSaa._x86 5.0MP3RP1: Maintenance Patch for VRTSaa	1.0 MB	X
139746-03	VRTSobc33_x86 5.0MP3RP2: Maintenance Patch for VEA Server	85 MB	X
139745-03	VRTSob_x86 5.0MP3RP2: Maintenance Patch for VEA Server	19 MB	X
139738-02	VRTSdcli 5.0MP3RP3_x86: Rolling Patch 03 for VRTSdcli 5.0MP3	29 MB	X
139361-05	VCS: vcs vcsag	83 MB	X
139360-05	VCS: gab llt vxfen	5 MB	X
139355-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3_x86	1.3 MB	X
128091-02	VCS Agents for VVR 5.0: MP3RP2 for VVR 5.0 on 5.10_x86	304 KB	X

Table 1-43 VCS 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
128080-02	VRTSfsman 5.0MP3: Maintenance Patch for File System 5.0_x86	439 KB	X
127363-05	VRTSvmpro 5.0MP3RP3_x86: Rolling Patch for VRTSvmpro 5.0MP3Sun5.10_x86	13 MB	X
127362-03	VRTSddlpr 5.0MP3RP2_x86: Rolling Patch 02 for VRTSddlpr 5.0 MP3	7.1 MB	X
127361-04	VRTSalloc 5.0MP3RP3_x86: Rolling Patch for VRTSalloc 5.0MP3Sun5.10_x86	17 MB	X
127342-03	VRTSfspro 5.0MP3RP3_x86: Multiple Fixes Patch for VRTSfspro 5.0	7.3 MB	X
127337-06	VRTSvxfs 5.0MP3RP3_x86: Maintenance Patch for File System 5.0-Sun5.10	26 MB	X
127336-06	VRTSvxvm 5.0MP3RP4_x86: Rolling Patch 03 for VRTSvxvm 5.0MP3Sun5.10_x86	142 MB	X

Veritas File System patches

This section describes the Veritas File System Solaris SPARC and x64 patches.

Solaris SPARC

Table 1-44 describes the Solaris SPARC Veritas File System patches that are included in this rolling patch:

Table 1-44 VxFS 5.0 MP3 RP5 Solaris SPARC patches

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
140661-01	VRTSobgui 5.0MP3RP2: Maintenance Patch for VEA GUI	129 MB	X	X	X
140657-01	VRTSdsa 5.0MP3RP2: Maintenance Patch for VRTSdsa 5.0	96 KB	X	X	X
139744-01	VRTSccg 5.0MP3RP1: Maintenance Patch for VRTSccg	492 KB	X	X	X
139743-01	VRTSaa 5.0MP3RP1: Maintenance Patch for VRTSaa	1.2 MB	X	X	X
139742-03	VRTSobc33 5.0MP3RP2: Maintenance Patch for VEA Server	86 MB	X	X	X
139741-03	VRTSob 5.0MP3RP2: Maintenance Patch for VEA Server	21 MB	X	X	X

Table 1-44 VxFS 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139737-02	VRTSdcli 5.0MP3RP3: Rolling Patch 03 for VRTSdcli 5.0MP3	28.9 MB	X	X	X
128078-02	VRTSfsman 5.0MP3: Maintenance Patch for File System 5.0	624 KB	X	X	X
123722-02	5.0MP3RP1 Maintenance Patch for Authentication Server	89.9 MB	X	X	X
123202-08	VRTSvxfs 5.0MP3RP3: Maintenance Patch for File System 5.0-Sun5.10	32 MB			X
123201-08	VRTSvxfs 5.0MP3RP3: Maintenance Patch for File System 5.0-Sun5.9	33 MB		X	
123200-08	VRTSvxfs 5.0MP3RP3: Rolling Patch for File System 5.0MP3-Sun5.8	33 MB	X		

Table 1-44 VxFS 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
121714-05	VRTSfspro 5.0MP3RP4: Supplemental General Patch for Solaris 8, 9 and 10	7.8 MB	X	X	X

Solaris x64

Table 1-45 describes the Solaris x64 Veritas File System patches that are included in this rolling patch:

Table 1-45 VxFS 5.0 MP3 RP5 Solaris x64 patches

Patches	Description	Size	Solaris 10
128080-02	VRTSfsman 5.0MP3: Maintenance Patch for File System 5.0_x86	1456 KB	X
140662-01	VRTSobgui_x86 5.0MP3RP2: Maintenance Patch for VEA GUI	233520 KB	X
140658-01	VRTSdsa 5.0MP3RP2_x86: Maintenance Patch for VRTSdsa 5.0	256 KB	X
139748-01	VRTSccg._x86 5.0MP3RP1: Maintenance Patch for VRTSccg	944 KB	X
139747-01	VRTSaa._x86 5.0MP3RP1: Maintenance Patch for VRTSaa	2336 KB	X

Table 1-45 VxFS 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
139746-03	VRTSobc33_x86 5.0MP3RP2: Maintenance Patch for VEA Server	174752 KB	X
139745-03	VRTSob_x86 5.0MP3RP2: Maintenance Patch for VEA Server	38784 KB	X
139738-02	VRTSdcli 5.0MP3RP3_x86: Rolling Patch 03 for VRTSdcli 5.0MP3	60144 KB	X
127342-03	VRTSfspro 5.0MP3RP3_x86: Multiple Fixes Patch for VRTSfspro 5.0	15184 KB	X
127337-06	VRTSvxfs 5.0MP3RP3_x86: Maintenance Patch for File System 5.0-Sun5.10	52304 KB	X

Veritas Volume Manager and Volume Replicator patches

This section describes the Veritas Volume Manager and Veritas Volume Replicator Solaris SPARC and x64 patches.

Solaris SPARC

Table 1-46 describes the Solaris SPARC Veritas Volume Manager and Veritas Volume Replicator patches that are included in this rolling patch:

Table 1-46 VxVM and VVR 5.0 MP3 RP5 Solaris SPARC patches

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
141745-01	VCS Agents for VVR 5.0: MP3RP2 for VVR 5.0	303 KB	X	X	X
140661-01	VRTSobgui 5.0MP3RP2: Maintenance Patch for VEA GUI	126 MB	X	X	X
140657-01	VRTSdsa 5.0MP3RP2: Maintenance Patch for VRTSdsa 5.0	45 KB	X	X	X
139744-01	VRTSccg 5.0MP3RP1: Maintenance Patch for VRTSccg	401 MB	X	X	X
139743-01	VRTSaa 5.0MP3RP1: Maintenance Patch for VRTSaa	1.1 MB	X	X	X
139742-03	VRTSobc33 5.0MP3RP2: Maintenance Patch for VEA Server	84 MB	X	X	X
139741-03	VRTSob 5.0MP3RP2: Maintenance Patch for VEA Server	21 MB	X	X	X

Table 1-46 VxVM and VVR 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139737-02	VRTSdcli 5.0MP3RP3: Rolling Patch 03 for VRTSdcli 5.0MP3	28 MB	X	X	X
139354-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3	1.4 MB	X	X	X
123823-06	5.0MP3RP2: Rolling patch 02 for VRTSddlpr 5.0 MP3	6.5 MB	X	X	X
123821-06	VRTSalloc 5.0MP3RP3: Rolling Patch for VRTSalloc 5.0MP3	16 MB	X	X	X
123740-07	VRTSvmpro 5.0MP3RP3: Rolling Patch for VRTSvmpro 5.0MP3	15 MB	X	X	X
123722-02	5.0MP3RP1 Maintenance Patch for Authentication Server	88 MB	X	X	X

Table 1-46 VxVM and VVR 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
122058-15	VRTSvxvm 5.0MP3RP5: Rolling Patch 05 for Volume Manager 5.0MP3	197 MB	X	X	X
121714-05	VRTSfspro 5.0MP3RP4: Supplemental General Patch for Solaris 8, 9 and 10	7.6 MB	X	X	X

Solaris x64

Table 1-47 describes the Solaris x64 Veritas Volume Manager and Veritas Volume Replicator patches that are included in this rolling patch:

Table 1-47 VxVM and VVR 5.0 MP3 RP5 Solaris x64 patches

Patches	Description	Size	Solaris 10
140662-01	VRTSobgui_x86 5.0MP3RP2: Maintenance Patch for VEA GUI	113 MB	X
140658-01	VRTSdsa 5.0MP3RP2_x86: Maintenance Patch for VRTSdsa 5.0	45 MB	X
139748-01	VRTSccg._x86 5.0MP3RP1: Maintenance Patch for VRTSccg	344 KB	X
139747-01	VRTSaa._x86 5.0MP3RP1: Maintenance Patch for VRTSaa	1.0 MB	X

Table 1-47 VxVM and VVR 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
139746-03	VRTSobc33_x86 5.0MP3RP2: Maintenance Patch for VEA Server	85 MB	X
139745-03	VRTSob_x86 5.0MP3RP2: Maintenance Patch for VEA Server	19 MB	X
139738-02	VRTSdcli 5.0MP3RP3_x86: Rolling Patch 03 for VRTSdcli 5.0MP3	29 MB	X
139355-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3_x86	1.3 MB	X
128091-02	VCS Agents for VVR 5.0: MP3RP2 for VVR 5.0 on 5.10_x86	304 KB	X
127363-05	VRTSvmpro 5.0MP3RP3_x86: Rolling Patch for VRTSvmpro 5.0MP3Sun5.10_x86	13 MB	X
127362-03	VRTSddlpr 5.0MP3RP2_x86: Rolling Patch 02 for VRTSddlpr 5.0 MP3	7.1 MB	X
127361-04	VRTSvxvm 5.0MP3RP3_x86: Rolling Patch 03 for VRTSvxvm 5.0MP3Sun5.10_x8	17 MB	X
127342-03	VRTSfspro 5.0MP3RP3_x86: Multiple Fixes Patch for VRTSfspro 5.0	7.3 MB	X

Table 1-47 VxVM and VVR 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
127336-06	VRTSvxvm 5.0MP3RP5_x86: Rolling Patch 05 for VRTSvxvm 5.0MP3Sun5.10_x86	141 MB	X

Storage Foundation Cluster File System patches

This section describes the Storage Foundation Cluster File System Solaris SPARC and x64 patches.

Solaris SPARC

Table 1-48 describes the Solaris SPARC Storage Foundation Cluster File System patches that are included in this rolling patch:

Table 1-48 SFCFS 5.0 MP3 RP5 Solaris SPARC patches

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
142607-05	VCS: cscm	9648 KB			X
141745-01	VCS Agents for VVR 5.0: MP3RP2 for VVR 5.0	476 KB	X	X	X
140661-01	VRTSobgui 5.0MP3RP2: Maintenance Patch for VEA GUI	129608 KB	X	X	X
140657-01	VRTSdsa 5.0MP3RP2: Maintenance Patch for VRTSdsa 5.0	96 KB	X	X	X

Table 1-48 SFCFS 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139755-05	VRTScavf 5.0MP3RP3: Maintenance Patch for Cluster Server Agents 5.0	840 KB			X
139754-05	VRTScavf 5.0MP3RP3: Maintenance Patch for Cluster Server Agents 5.0	840 KB		X	
139753-05	VRTScavf 5.0MP3RP3: Maintenance Patch for Cluster Server Agents 5.0	836 KB	X		
139744-01	VRTSccg 5.0MP3RP1: Maintenance Patch for VRTSccg	492 MB	X	X	X
139743-01	VRTSaa 5.0MP3RP1: Maintenance Patch for VRTSaa	1256 KB	X	X	X
139742-03	VRTSobc33 5.0MP3RP2: Maintenance Patch for VEA Server	86176 KB	X	X	X

Table 1-48 SFCFS 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139741-03	VRTSob 5.0MP3RP2: Maintenance Patch for VEA Server	21244 KB	X	X	X
139737-02	VRTSdcli 5.0MP3RP3: Rolling Patch 03 for VRTSdcli 5.0MP3	28948 KB	X	X	X
139359-05	VCS: gab llt vxfen	6944 KB			X
139358-05	VCS: vcs vcsag	87260 KB			X
139357-05	VCS: gab llt vxfen vcs vcsag cscm	105224 KB		X	
139356-05	VCS: gab llt vxfen vcs vcsag cscm	105164 KB	X		
139354-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3	1664 KB	X	X	X
128078-02	VRTSfsman 5.0MP3: Maintenance Patch for File System 5.0	624 KB	X	X	X

Table 1-48 SFCFS 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
123823-06	5.0MP3RP2: Rolling patch 02 for VRTSddlpr 5.0 MP3	6740 KB	X	X	X
123821-06	VRTSalloc 5.0MP3RP3: Rolling Patch for VRTSalloc 5.0MP3	16756 KB	X	X	X
123740-07	VRTSvmpro 5.0MP3RP3: Rolling Patch for VRTSvmpro 5.0MP3	16304 KB	X	X	X
123722-02	5.0MP3RP1 Maintenance Patch for Authentication Server	89916 KB	X	X	X
123202-08	VRTSvxfs 5.0MP3RP3: Maintenance Patch for File System 5.0-Sun5.10	32192 KB			X
123201-08	VRTSvxfs 5.0MP3RP3: Maintenance Patch for File System 5.0-Sun5.9	33412 KB		X	

Table 1-48 SFCFS 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
123200-08	VRTSvxfs 5.0MP3RP3: Rolling Patch for File System 5.0MP3-Sun5.8	33336 KB	X		
123090-03	VRTSgms 5.0MP3RP2 Maintenance Patch for Group Messaging Services 5.0	248 KB			X
123089-03	VRTSgms 5.0MP3RP2 Maintenance Patch for Group Messaging Services 5.0	320 KB		X	
123088-03	VRTSgms 5.0MP3RP2 Maintenance Patch for Group Messaging Services 5.0	316 KB	X		
123087-05	VRTSglm 5.0MP3RP3 Maintenance Patch for Group Lock Manager 5.0	652 KB			X
123086-05	VRTSglm Maintenance Patch for Group Lock Manager 5.0	968 KB		X	

Table 1-48 SFCFS 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
123085-05	VRTSglm 5.0MP3RP3 Maintenance Patch for Group Lock Manager 5.0	952 KB	X		
122058-15	VRTSvxvm 5.0MP3RP3: Rolling Patch 03 for Volume Manager 5.0MP3	203728 KB	X	X	X
121714-05	VRTSfspro 5.0MP3RP4: Supplemental General Patch for Solaris 8, 9 and 10	7856 KB	X	X	X

Solaris x64

Table 1-49describes the Solaris x64 Storage Foundation Cluster File System patches that are included in this rolling patch:

Table 1-49 SFCFS 5.0 MP3 RP5 Solaris x64 patches

Patches	Description	Size	Solaris 10
142608-05	VCS: cscm	10328 KB	X
140662-01	VRTSobgui_x86 5.0MP3RP2: Maintenance Patch for VEA GUI	116760 KB	X
140658-01	VRTSdsa 5.0MP3RP2_x86: Maintenance Patch for VRTSdsa 5.0	128 KB	X

Table 1-49 SFCFS 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
139756-05	VRTScavf 5.0MP3RP3_x86: Maintenance Patch for Cluster Server Agents 5.0	1048 KB	X
139748-01	VRTSccg._x86 5.0MP3RP1: Maintenance Patch for VRTSccg	472 KB	X
139747-01	VRTSaa._x86 5.0MP3RP1: Maintenance Patch for VRTSaa	1168 KB	X
139746-03	VRTSobc33_x86 5.0MP3RP2: Maintenance Patch for VEA Server	87376 KB	X
139745-03	VRTSob_x86 5.0MP3RP2: Maintenance Patch for VEA Server	19392 KB	X
139738-02	VRTSdcli 5.0MP3RP3_x86: Rolling Patch 03 for VRTSdcli 5.0MP3	30072 KB	X
139361-05	VCS: vcs vcsag	85984 KB	X
139360-04	VCS: gab llt vxfen	6064 KB	X
139355-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3_x86	1592 KB	X
128091-02	VCS Agents for VVR 5.0: MP3RP2 for VVR 5.0 on 5.10_x86	640 KB	X

Table 1-49 SFCFS 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
128080-02	VRTSfsman 5.0MP3: Maintenance Patch for File System 5.0_x86	728 KB	X
127363-05	VRTSvmpro 5.0MP3RP3_x86: Rolling Patch for VRTSvmpro 5.0MP3Sun5.10_x86	14232 KB	X
127362-03	VRTSddlpr 5.0MP3RP2_x86: Rolling Patch 02 for VRTSddlpr 5.0 MP3	7328 KB	X
127361-04	VRTSalloc 5.0MP3RP3_x86: Rolling Patch for VRTSalloc 5.0MP3Sun5.10_x86	15920 KB	X
127342-03	VRTSfspro 5.0MP3RP3_x86: Multiple Fixes Patch for VRTSfspro 5.0	7592 KB	X
127341-03	VRTSgms 5.0MP3RP2_x86: Maintenance Patch for GMS 5.0	248 KB	X
127337-06	VRTSvxfs 5.0MP3RP3_x86: Maintenance Patch for File System 5.0-Sun5.10	26152 MB	X
127336-06	VRTSvxvm 5.0MP3RP3_x86: Rolling Patch 03 for VRTSvxvm 5.0MP3Sun5.10_x86	147168 KB	X

Storage Foundation for Oracle RAC patches

This section describes the Storage Foundation for Oracle RAC Solaris SPARC and x64 patches.

Solaris SPARC

Table 1-50 describes the Solaris SPARC Storage Foundation for Oracle RAC patches that are included in this rolling patch:

Table 1-50 SF for Oracle RAC 5.0 MP3 RP5 Solaris SPARC patches

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
121714-05	VRTSfspro 5.0MP3RP4: Supplemental General Patch for Solaris 8, 9 and 10	7.6 MB	X	X	X
122058-15	VRTSvxvm 5.0MP3RP5: Rolling Patch 03 for Volume Manager 5.0MP3	199 MB	X	X	X
123085-05	VRTSglm 5.0MP3RP5 Maintenance Patch for Group Lock Manager 5.0	864 KB	X		
123086-05	VRTSglm Maintenance Patch for Group Lock Manager 5.0	880 KB		X	

Table 1-50 SF for Oracle RAC 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
123087-05	VRTSglm 5.0MP3RP5 Maintenance Patch for Group Lock Manager 5.0	560 KB			X
123088-03	VRTSgms 5.0MP3RP2 Maintenance Patch for Group Messaging Services 5.0	233 KB	X		
123089-03	VRTSgms 5.0MP3RP2 Maintenance Patch for Group Messaging Services 5.0	234 KB		X	
123090-03	VRTSgms 5.0MP3RP2 Maintenance Patch for Group Messaging Services 5.0	168 KB			X
123200-08	VRTSvxfs 5.0MP3RP5: Rolling Patch for File System 5.0MP3-Sun5.8	33 MB	X		
123201-08	VRTSvxfs 5.0MP3RP5: Maintenance Patch for File System 5.0-Sun5.9	33 MB		X	

Table 1-50 SF for Oracle RAC 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
123202-08	VRTSvxfs 5.0MP3RP5: Maintenance Patch for File System 5.0-Sun5.10	32 MB			X
123722-02	5.0MP3RP1 Maintenance Patch for Authentication Server	88 MB	X	X	X
123740-07	VRTSvmpro 5.0MP3RP3: Rolling Patch for VRTSvmpro 5.0MP3	16 MB	X	X	X
123821-06	VRTSalloc 5.0MP3RP3: Rolling Patch for VRTSalloc 5.0MP3	16 MB	X	X	X
123823-06	VRTSddlpr 5.0MP3RP2: Rolling patch 02 for VRTSddlpr 5.0 MP3	6.5 MB	X	X	X
128078-02	VRTSfsman 5.0MP3: Maintenance Patch for File System 5.0	476 KB	X	X	X

Table 1-50 SF for Oracle RAC 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139354-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3	1.4 MB	X	X	X
139356-05	VCS 5.0MP3RP5 Patch	101 MB	X		
139357-05	VCS 5.0MP3RP5 Patch	101 MB		X	
139358-05	VCS 5.0MP3RP5 Patch	85 MB			X
139359-05	VCS 5.0MP3RP5 Patch	6.0 MB			X
139362-03	VRTSdbms3 5.0MP3RP3: Rolling Patch	78 KB	X	X	X
139366-05	VRTSdbcom 5.0MP3RP3 Rolling Patch for 5.0MP3	71 MB	X	X	X
139367-04	VRTSdbed 5.0MP3RP3 Rolling Patch for 5.0MP3 for Solaris	12 MB	X	X	X
139737-02	VRTSdcli 5.0MP3RP3: Rolling Patch 03 for VRTSdcli 5.0MP3	28 MB	X	X	X

Table 1-50 SF for Oracle RAC 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139741-03	VRTSob 5.0MP3RP2 Maintenance Patch for VEA Server	21 MB	X	X	X
139742-03	VRTSobc33 5.0MP3RP2 Maintenance Patch for VEA Server	84 MB	X	X	X
139743-01	VRTSaa 5.0MP3RP1 Maintenance Patch for VRTSaa	1.1 MB	X	X	X
139744-01	VRTSccg 5.0MP3RP1 Maintenance Patch for VRTSccg	401 MB	X	X	X
139753-05	VRTScavf 5.0MP3RP5: Maintenance Patch for Cluster Server Agents 5.0	584 KB	X		
139754-05	VRTScavf 5.0MP3RP5: Maintenance Patch for Cluster Server Agents 5.0	585 KB		X	

Table 1-50 SF for Oracle RAC 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139755-05	VRTScavf 5.0MP3RP5: Maintenance Patch for Cluster Server Agents 5.0	586 KB			X
140657-01	VRTSdsa 5.0MP3RP2: Maintenance Patch for VRTSdsa 5.0	45 KB	X	X	X
140661-01	VRTSobgui 5.0MP3RP2 Maintenance Patch for VEA GUI	126 MB	X	X	X
141284-06	VRTSvcsor VRTScsocw 5.0MP3RP5 Patch	17 MB	X	X	X
141745-01	VCS Agents for VVR 5.0MP3RP2 for VVR 5.0	303 KB	X	X	X
142607-05	VCS 5.0MP3RP5 Patch	8.9 MB			X
142615-05	VRTSdbac 5.0MP3RP5 Rolling Patch 05 for VRTS 5.0 MP3	9.2M	X		
142616-05	VRTSdbac 5.0MP3RP5 Rolling Patch 05 for VRTS 5.0 MP3	9.3M		X	

Table 1-50 SF for Oracle RAC 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
142617-05	VRTSdbac 5.0MP3RP5 Rolling Patch 05 for VRTS 5.0 MP3	8.2M			X

Solaris x64

Table 1-51 describes the Solaris x64 Storage Foundation for Oracle RAC patches that are included in this rolling patch:

Table 1-51 SF for Oracle RAC 5.0 MP3 RP5 Solaris x64 patches

Patches	Description	Size	Solaris 10
127336-06	VM 5.0_x64_MP3RP5: Rolling Patch 05 for Volume Manager 5.0MP3_x86	144 MB	X
127337-06	VRTSvxfs 5.0MP3RP_x86: Rolling Patch for File System 5.0MP5	26 MB	X
127341-03	VRTSgms 5.0MP3RP2_x86: Maintenance Patch for GMS 5.0	248 KB	X
127342-03	VRTSfspro 5.0MP3RP5_x86: Multiple Fixes Patch for VRTSfspro 5.0	7.4 MB	X
127361-04	VRTSalloc 5.0MP3RP5MP3RP5_x86: Rolling Patch for VRTSalloc 5.0MP3Sun5.10_x86	16 MB	X

Table 1-51 SF for Oracle RAC 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
127362-03	VRTSddlpr 5.0MP3RP2_x86: Rolling Patch 02 for VRTSddlpr 5.0 MP3	7.2 MB	X
127363-05	VRTSvmpro 5.0MP3RP5_x86: Rolling Patch for VRTSvmpro 5.0MP3Sun5.10_x86	14 MB	X
128080-02	VRTSfsman 5.0MP3 Maintenance Patch for File System 5.0_x86	728 KB	X
128091-02	VRTSvcsvr 5.0 MP3 RP5: Rolling patch 02 for VCS agents for Veritas Volume Replicator 5.0	640 KB	X
139355-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3_x86	1.6 MB	X
139360-05	SunOS 5.10: fixes for gab, llt, vxfen	6.0 MB	X
139361-05	SunOS 5.10: fixes for vcs, vcsag	84 MB	X
139363-03	VRTSdbms3 5.0MP3RP5_x86: Rolling Patch for Solaris 10	106 KB	X
139371-04	VRTSdbcom 5.0MP3RP5_x86: Rolling Patch for 5.0 MP3	11 MB	X

Table 1-51 SF for Oracle RAC 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
139372-04	VRTSdbed 5.0MP3RP5_x86: Rolling Patch for 5.0MP3	3.9 MB	X
139738-02	VRTSdcli 5.0MP3RP5_x86: Rolling Patch 02 for VRTSdcli 5.0MP3	29 MB	X
139745-03	VRTSob_x86 5.0MP3RP5: Maintenance Patch for VEA Server	19 MB	X
139746-03	VRTSobc33_x86 5.0MP3RP5: Maintenance Patch for VEA Server	85 MB	X
139747-01	VRTSaa._x86 5.0MP3RP5: Maintenance Patch for VRTSaa	1.0 MB	X
139748-01	VRTSccg._x86 5.0MP3RP5: Maintenance Patch for VRTSccg	472 KB	X
139756-05	VRTScavf 5.0MP3RP5_x86: Maintenance Patch for Cluster Server agents 5.0	1 MB	X
140658-01	VRTSdsa 5.0MP3RP2_x86: Maintenance Patch for VRTSdsa 5.0	128 MB	X
140662-01	VRTSobgui_x86 5.0MP3RP2: Maintenance Patch for VEA GUI	114 MB	X

Table 1-51 SF for Oracle RAC 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
141288-05	VRTSvcsor VRTScsocw 5.0MP3RP5 Patch	21 MB	X
142608-05	VCS 5.0MP3RP5 Patch	10 MB	X
142622-05	VRTSdbac 5.0MP3RP5 Rolling Patch 05 for VRTS 5.0 MP3	6.9M	X

Storage Foundation for DB2 patches

This section describes the Storage Foundation for DB2 Solaris SPARC patches.

Solaris SPARC

Table 1-52 describes the Solaris SPARC Storage Foundation for DB2 patches that are included in this rolling patch:

Table 1-52 SF for DB2 5.0 MP3 RP5 Solaris SPARC patches

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
142607-05	VCS: cscm	9 MB			X
141745-01	VCS Agents for VVR 5.0: MP3RP2 for VVR 5.0	303 KB	X	X	X
141285-07	VCS: vcsdb	159 KB	X	X	X
140661-01	VRTSobgui 5.0MP3RP2: Maintenance Patch for VEA GUI	126 MB	X	X	X

Table 1-52 SF for DB2 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139370-02	VRTSd2gui 5.0MP3RP2: Rolling Patch for 5.0MP3 for Solaris 8, 9 and 10	15 MB	X	X	X
140657-01	VRTSdsa 5.0MP3RP2: Maintenance Patch for VRTSdsa 5.0	45 KB	X	X	X
139744-01	VRTSccg 5.0MP3RP1: Maintenance Patch for VRTSccg	401 MB	X	X	X
139743-01	VRTSaa 5.0MP3RP1: Maintenance Patch for VRTSaa	1.1 MB	X	X	X
139742-03	VRTSobc33 5.0MP3RP2: Maintenance Patch for VEA Server	84 MB	X	X	X
139741-03	VRTSob 5.0MP3RP2: Maintenance Patch for VEA Server	21 MB	X	X	X
139737-02	VRTSdcli 5.0MP3RP3: Rolling Patch 03 for VRTSdcli 5.0MP3	28 MB	X	X	X

Table 1-52 SF for DB2 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139369-03	VRTSdb2ed 5.0MP3RP3 Rolling Patch for 5.0MP3 for Solaris 8, 9 and 10	3.9 MB	X	X	X
139366-05	VRTSdbcom 5.0MP3RP3 Rolling Patch for 5.0MP3 for Solaris 8, 9 and 10	71 MB	X	X	X
139362-03	VRTSdbms3 5.0MP3RP3: Rolling Patch for Solaris 8, 9 and 10	78 KB	X	X	X
139359-05	VCS: gab llt vxfen	6 MB			X
139358-05	VCS: vcs vcsag	85 MB			X
139357-05	VCS: gab llt vxfen vcs vcsag cscm	101 MB		X	
139356-05	VCS: gab llt vxfen vcs vcsag cscm	101 MB	X		
139354-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3	1.4 MB	X	X	X

Table 1-52 SF for DB2 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
128078-02	VRTSfsman 5.0MP3: Maintenance Patch for File System 5.0	476 KB	X	X	X
123823-06	5.0MP3RP2: Rolling patch 02 for VRTSddlpr 5.0 MP3	6.5 MB	X	X	X
123821-06	VRTSalloc 5.0MP3RP3: Rolling Patch for VRTSalloc 5.0MP3	16 MB	X	X	X
123740-07	VRTSvmpro 5.0MP3RP3: Rolling Patch for VRTSvmpro 5.0MP3	15 MB	X	X	X
123722-02	5.0MP3RP1 Maintenance Patch for Authentication Server	88 MB	X	X	X
123202-08	VRTSvxfs 5.0MP3RP3: Maintenance Patch for File System 5.0-Sun5.10	32 MB			X

Table 1-52 SF for DB2 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
123201-08	VRTSvxfs 5.0MP3RP3: Maintenance Patch for File System 5.0-Sun5.9	33 MB		X	
123200-08	VRTSvxfs 5.0MP3RP3: Rolling Patch for File System 5.0MP3-Sun5.8	33 MB	X		
122058-15	VRTSvxvm 5.0MP3RP3: Rolling Patch 03 for Volume Manager 5.0MP3	198 MB	X	X	X
121714-05	VRTSfspro 5.0MP3RP4: Supplemental General Patch for Solaris 8, 9 and 10	7.6 MB	X	X	X

Solaris x64

Table 1-53 describes the Solaris x64 Storage Foundation for DB2 patches that are included in this rolling patch:

Table 1-53 SF for DB2 5.0 MP3 RP5 Solaris x64 patches

Patches	Description	Size	Solaris 10
142608-05	VCS: cscm	8.9 MB	X
141287-06	VCS: vcsdb	159 KB	X

Table 1-53 SF for DB2 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
140662-01	VRTSobgui_x86 5.0MP3RP2: Maintenance Patch for VEA GUI	113 MB	X
140658-01	VRTSdsa 5.0MP3RP2_x86: Maintenance Patch for VRTSdsa 5.0	45 MB	X
139748-01	VRTSccg._x86 5.0MP3RP1: Maintenance Patch for VRTSccg	344 KB	X
139747-01	VRTSaa._x86 5.0MP3RP1: Maintenance Patch for VRTSaa	1.0 MB	X
139746-03	VRTSobc33_x86 5.0MP3RP2: Maintenance Patch for VEA Server	85 MB	X
139745-03	VRTSob_x86 5.0MP3RP2: Maintenance Patch for VEA Server	19 MB	X
139738-02	VRTSdcli 5.0MP3RP3_x86: Rolling Patch 03 for VRTSdcli 5.0MP3	29 MB	X
139371-04	VRTSdbcom 5.0MP3RP3_x86: Rolling Patch for 5.0 MP3	11 MB	X
139363-03	VRTSdbms3 5.0MP3RP3_x86: Rolling Patch for Solaris 10	78 KB	X

Table 1-53 SF for DB2 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
139361-05	VCS: vcs vcsag	83 MB	X
139360-05	VCS: gab llt vxfen	5 MB	X
139355-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3_x86	1.3 MB	X
128091-02	VCS Agents for VVR 5.0: MP3RP2 for VVR 5.0 on 5.10_x86	304 KB	X
128080-02	VRTSfsman 5.0MP3: Maintenance Patch for File System 5.0_x86	439 KB	X
127363-05	VRTSvmpro 5.0MP3RP3_x86: Rolling Patch for VRTSvmpro 5.0MP3Sun5.10_x86	13 MB	X
127362-03	VRTSddlpr 5.0MP3RP2_x86: Rolling Patch 02 for VRTSddlpr 5.0 MP3	7.1 MB	X
127361-04	VRTSalloc 5.0MP3RP3_x86: Rolling Patch for VRTSalloc 5.0MP3Sun5.10_x86	17 MB	X
127342-03	VRTSfspro 5.0MP3RP3_x86: Multiple Fixes Patch for VRTSfspro 5.0	7.3 MB	X
127337-06	VRTSvxfs 5.0MP3RP3_x86: Maintenance Patch for File System 5.0-Sun5.10	26 MB	X

Table 1-53 SF for DB2 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
127336-06	VRTSvxvm 5.0MP3RP3_x86: Rolling Patch 03 for VRTSvxvm 5.0MP3Sun5.10_x86	142 MB	X

Storage Foundation for Oracle patches

This section describes the Storage Foundation for Oracle Solaris SPARC and x64 patches.

Solaris SPARC

Table 1-54 describes the Solaris SPARC Storage Foundation for Oracle patches that are included in this rolling patch:

Table 1-54 SF for Oracle 5.0 MP3 RP5 Solaris SPARC patches

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
142607-05	VCS: cscm	9 MB			X
141745-01	VCS Agents for VVR 5.0: MP3RP2 for VVR 5.0	303 KB	X	X	X
140661-01	VRTSobgui 5.0MP3RP2: Maintenance Patch for VEA GUI	126 MB	X	X	X
140657-01	VRTSdsa 5.0MP3RP2: Maintenance Patch for VRTSdsa 5.0	45 KB	X	X	X

Table 1-54 SF for Oracle 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139744-01	VRTSccg 5.0MP3RP1: Maintenance Patch for VRTSccg	401 MB	X	X	X
139743-01	VRTSaa 5.0MP3RP1: Maintenance Patch for VRTSaa	1.1 MB	X	X	X
139742-03	VRTSobc33 5.0MP3RP2: Maintenance Patch for VEA Server	84 MB	X	X	X
139741-03	VRTSob 5.0MP3RP2: Maintenance Patch for VEA Server	21 MB	X	X	X
139737-02	VRTSdcli 5.0MP3RP3: Rolling Patch 03 for VRTSdcli 5.0MP3	28 MB	X	X	X
139368-04	VRTSorgui 5.0MP3RP3 Rolling Patch for 5.0MP3 for Solaris 8, 9 and 10	14 MB	X	X	X
139367-04	VRTSdbed 5.0MP3RP3 Rolling Patch for 5.0MP3 for Solaris 8, 9 and 10	12 MB	X	X	X

Table 1-54 SF for Oracle 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139366-05	VRTSdbcom 5.0MP3RP3 Rolling Patch for 5.0MP3 for Solaris 8, 9 and 10	71 MB	X	X	X
139362-03	VRTSdbms3 5.0MP3RP3: Rolling Patch for Solaris 8, 9 and 10	78 KB	X	X	X
139359-05	VCS: gab llt vxfen	6 MB			X
139358-05	VCS: vcs vcsag	85 MB			X
139357-05	VCS: gab llt vxfen vcs vcsag cscm	101 MB		X	
139356-05	VCS: gab llt vxfen vcs vcsag cscm	101 MB	X		
139354-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3	1.4 MB	X	X	X
128078-02	VRTSfsman 5.0MP3: Maintenance Patch for File System 5.0	476 KB	X	X	X

Table 1-54 SF for Oracle 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
123823-06	5.0MP3RP2: Rolling patch 02 for VRTSddlpr 5.0 MP3	6.5 MB	X	X	X
123821-06	VRTSalloc 5.0MP3RP3: Rolling Patch for VRTSalloc 5.0MP3	16 MB	X	X	X
123740-07	VRTSvmpro 5.0MP3RP3: Rolling Patch for VRTSvmpro 5.0MP3	15 MB	X	X	X
123722-02	5.0MP3RP1 Maintenance Patch for Authentication Server	88 MB	X	X	X
123202-08	VRTSvxfs 5.0MP3RP3: Maintenance Patch for File System 5.0-Sun5.10	32 MB			X
123201-08	VRTSvxfs 5.0MP3RP3: Maintenance Patch for File System 5.0-Sun5.9	33 MB		X	

Table 1-54 SF for Oracle 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
123200-08	VRTSvxfs 5.0MP3RP3: Rolling Patch for File System 5.0MP3-Sun5.8	33 MB	X		
122058-15	VRTSvxvm 5.0MP3RP3: Rolling Patch 03 for Volume Manager 5.0MP3	198 MB	X	X	X
121714-05	VRTSfspro 5.0MP3RP4: Supplemental General Patch for Solaris 8, 9 and 10	7.6 MB	X	X	X

Solaris x64

Table 1-55 describes the Solaris x64 Storage Foundation for Oracle patches that are included in this rolling patch:

Table 1-55 SF for Oracle 5.0 MP3 RP5 Solaris x64 patches

Patches	Description	Size	Solaris 10
142608-05	VCS: cscm	8.9 MB	X
140662-01	VRTSobgui_x86 5.0MP3RP2: Maintenance Patch for VEA GUI	113 MB	X
140658-01	VRTSdsa 5.0MP3RP2_x86: Maintenance Patch for VRTSdsa 5.0	45 MB	X

Table 1-55 SF for Oracle 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
139748-01	VRTSccg._x86 5.0MP3RP1: Maintenance Patch for VRTSccg	344 KB	X
139747-01	VRTSaa._x86 5.0MP3RP1: Maintenance Patch for VRTSaa	1.0 MB	X
139746-03	VRTSobc33_x86 5.0MP3RP2: Maintenance Patch for VEA Server	85 MB	X
139745-03	VRTSob_x86 5.0MP3RP2: Maintenance Patch for VEA Server	19 MB	X
139738-02	VRTSdcli 5.0MP3RP3_x86: Rolling Patch 03 for VRTSdcli 5.0MP3	29 MB	X
139373-04	VRTSorgui 5.0MP3RP3_x86: Rolling Patch for Solaris 10	9.6 MB	X
139372-04	VRTSdbed 5.0MP3RP3_x86: Rolling Patch for 5.0MP3	3.6 MB	X
139371-04	VRTSdbcom 5.0MP3RP3_x86: Rolling Patch for 5.0 MP3		X
139363-03	VRTSdbms3 5.0MP3RP3_x86: Rolling Patch for Solaris 10	11 MB	X

Table 1-55 SF for Oracle 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
139361-05	VCS: vcs vcsag	83 MB	X
139360-05	VCS: gab llt vxfen	5 MB	X
139355-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3_x86	1.3 MB	X
128091-02	VCS Agents for VVR 5.0: MP3RP2 for VVR 5.0 on 5.10_x86	304 KB	X
128080-02	VRTSfsman 5.0MP3: Maintenance Patch for File System 5.0_x86	439 KB	X
127363-05	VRTSvmpro 5.0MP3RP3_x86: Rolling Patch for VRTSvmpro 5.0MP3Sun5.10_x86	13 MB	X
127362-03	VRTSddlpr 5.0MP3RP2_x86: Rolling Patch 02 for VRTSddlpr 5.0 MP3	7.1 MB	X
127361-04	VRTSalloc 5.0MP3RP3_x86: Rolling Patch for VRTSalloc 5.0MP3Sun5.10_x86	17 MB	X
127342-03	VRTSfspro 5.0MP3RP3_x86: Multiple Fixes Patch for VRTSfspro 5.0	7.3 MB	X
127337-06	VRTSvxfs 5.0MP3RP3_x86: Maintenance Patch for File System 5.0-Sun5.10	26 MB	X

Table 1-55 SF for Oracle 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
127336-06	VRTSvxvm 5.0MP3RP3_x86: Rolling Patch 03 for VRTSvxvm 5.0MP3Sun5.10_x86	142 MB	X

Storage Foundation for Sybase patches

This section describes the Storage Foundation for Sybase Solaris SPARC and x64 patches.

Solaris SPARC

Table 1-56 describes the Solaris SPARC Storage Foundation for Sybase patches that are included in this rolling patch:

Table 1-56 SF for Sybase 5.0 MP3 RP5 Solaris SPARC patches

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
142607-05	VCS: cscm	9 MB			X
141745-01	VCS Agents for VVR 5.0: MP3RP2 for VVR 5.0	303 KB	X	X	X
141286-06	VCS: VRTSvcssy	274 KB	X	X	X
141279-01	VRTSmapro 5.0MP3RP2: Rolling Patch for 5.0MP3 for Solaris 8, 9 and 1	49 KB	X	X	X
141272-01	VRTSsybed 5.0MP3RP2: Rolling Patch for 5.0MP3 for Solaris 8, 9 and 10	46 KB	X	X	X

Table 1-56 SF for Sybase 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
140661-01	VRTSobgui 5.0MP3RP2: Maintenance Patch for VEA GUI	126 MB	X	X	X
140657-01	VRTSdsa 5.0MP3RP2: Maintenance Patch for VRTSdsa 5.0	45 KB	X	X	X
139744-01	VRTSccg 5.0MP3RP1: Maintenance Patch for VRTSccg	401 MB	X	X	X
139743-01	VRTSaa 5.0MP3RP1: Maintenance Patch for VRTSaa	1.1 MB	X	X	X
139742-03	VRTSobc33 5.0MP3RP2: Maintenance Patch for VEA Server	84 MB	X	X	X
139741-03	VRTSob 5.0MP3RP2: Maintenance Patch for VEA Server	21 MB	X	X	X
139737-02	VRTSdcli 5.0MP3RP3: Rolling Patch 03 for VRTSdcli 5.0MP3	28 MB	X	X	X
139359-05	VCS: gab llt vxfen	6 MB			X

Table 1-56 SF for Sybase 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
139358-05	VCS: vcs vcsag	85 MB			X
139357-05	VCS: gab llt vxfen vcs vcsag cscm	101 MB		X	
139356-05	VCS: gab llt vxfen vcs vcsag cscm	101 MB	X		
139354-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3	1.4 MB	X	X	X
128078-02	VRTSfsman 5.0MP3: Maintenance Patch for File System 5.0	476 KB	X	X	X
123823-06	5.0MP3RP2: Rolling patch 02 for VRTSddlpr 5.0 MP3	6.5 MB	X	X	X
123821-06	VRTSalloc 5.0MP3RP3: Rolling Patch for VRTSalloc 5.0MP3	16 MB	X	X	X
123740-07	VRTSvmpro 5.0MP3RP3: Rolling Patch for VRTSvmpro 5.0MP3	15 MB	X	X	X

Table 1-56 SF for Sybase 5.0 MP3 RP5 Solaris SPARC patches *(continued)*

Patches	Description	Size	Solaris 8	Solaris 9	Solaris 10
123722-02	5.0MP3RP1 Maintenance Patch for Authentication Server	88 MB	X	X	X
123202-08	VRTSvxfs 5.0MP3RP3: Maintenance Patch for File System 5.0-Sun5.10	32 MB			X
123201-08	VRTSvxfs 5.0MP3RP3: Maintenance Patch for File System 5.0-Sun5.9	33 MB		X	
123200-08	VRTSvxfs 5.0MP3RP3: Rolling Patch for File System 5.0MP3-Sun5.8	33 MB	X		
122058-15	VRTSvxvm 5.0MP3RP3: Rolling Patch 03 for Volume Manager 5.0MP3	198 MB	X	X	X
121714-05	VRTSfspro 5.0MP3RP4: Supplemental General Patch for Solaris 8, 9 and 10	7.6 MB	X	X	X

Solaris x64

Table 1-57 describes the Solaris x64 Storage Foundation for Sybase patches that are included in this rolling patch:

Table 1-57 SF for Sybase 5.0 MP3 RP5 Solaris x64 patches

Patches	Description	Size	Solaris 10
142608-05	VCS: cscm	8.9 MB	X
141289-05	VCS: VRTSvcssy	226 KB	X
141281-01	VRTSsybed 5.0MP3RP2_x86: Rolling Patch for Solaris 10	46 KB	X
141280-01	VRTSmapro 5.0MP3RP2_x86: Rolling Patch for Solaris 10	49 KB	X
140662-01	VRTSobgui_x86 5.0MP3RP2: Maintenance Patch for VEA GUI	113 MB	X
140658-01	VRTSdsa 5.0MP3RP2_x86: Maintenance Patch for VRTSdsa 5.0	45 MB	X
139748-01	VRTSccg._x86 5.0MP3RP1: Maintenance Patch for VRTSccg	344 KB	X
139747-01	VRTSaa._x86 5.0MP3RP1: Maintenance Patch for VRTSaa	1.0 MB	X
139746-03	VRTSobc33_x86 5.0MP3RP2: Maintenance Patch for VEA Server	85 MB	X

Table 1-57 SF for Sybase 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
139745-03	VRTSob_x86 5.0MP3RP2: Maintenance Patch for VEA Server	19 MB	X
139738-02	VRTSdcli 5.0MP3RP3_x86: Rolling Patch 03 for VRTSdcli 5.0MP3	29 MB	X
139361-05	VCS: vcs vcsag	83 MB	X
139360-05	VCS: gab llt vxfen	5 MB	X
139355-01	VRTSvmman 5.0MP3RP1: Rolling Patch 01 for Volume Manager 5.0MP3_x86	1.3 MB	X
128091-02	VCS Agents for VVR 5.0: MP3RP2 for VVR 5.0 on 5.10_x86	304 KB	X
128080-02	VRTSfsman 5.0MP3: Maintenance Patch for File System 5.0_x86	439 KB	X
127363-05	VRTSvmpro 5.0MP3RP3_x86: Rolling Patch for VRTSvmpro 5.0MP3Sun5.10_x86	13 MB	X
127362-03	VRTSddlpr 5.0MP3RP2_x86: Rolling Patch 02 for VRTSddlpr 5.0 MP3	7.1 MB	X
127361-04	VRTSalloc 5.0MP3RP3_x86: Rolling Patch for VRTSalloc 5.0MP3Sun5.10_x86	17 MB	X

Table 1-57 SF for Sybase 5.0 MP3 RP5 Solaris x64 patches *(continued)*

Patches	Description	Size	Solaris 10
127342-03	VRTSfspro 5.0MP3RP3_x86: Multiple Fixes Patch for VRTSfspro 5.0	7.3 MB	X
127337-06	VRTSvxfs 5.0MP3RP3_x86: Maintenance Patch for File System 5.0-Sun5.10	26 MB	X
127336-06	VRTSvxvm 5.0MP3RP3_x86: Rolling Patch 03 for VRTSvxvm 5.0MP3Sun5.10_x86	142 MB	X

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 host and install 5.0 MP3 RP5. Review the 5.0 MP3 Installation Guide and Release Notes for your product.

See the *Veritas Storage Foundation™ for Oracle® RAC 5.0 MP3 RP5 Application Note: Installing or upgrading to Oracle RAC 11g Release 2* for installing or upgrading Oracle RAC 11gR2.

To install the Veritas software for the first time:

1 Mount the 5.0 MP3 product image or disc and navigate to the folder that contains the installation program. Choose one of the following to start the installation:

- For Storage Foundation:

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

- For Storage Foundation Cluster File System:

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

- For Storage Foundation for Oracle:

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

- For Storage Foundation for Oracle RAC:

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

- For Veritas Cluster Server:

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

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

2 Review the installation prerequisites for upgrading to 5.0 MP3 RP5.

See "Prerequisites for upgrading to 5.0 MP3 RP5" on page 138.

3 Mount the 5.0 MP3 RP5 product image or disc and navigate to the folder that contains the installation program.

```
# ./installrp [-rsh] node1 node2 ... nodeN
```

See "About the installrp script" on page 75.and See "installrp script options" on page 76. for more information.

4 Reboot the nodes.

```
# /usr/sbin/shutdown -g0 -y -i6
```

5 Navigate to the folder that contains the installation program. Run the same 5.0 MP3 installation script that you used in step 1, this time specifying the `-configure` option to configure the software.

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

- For Storage Foundation:

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

- For Storage Foundation Cluster File System:

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

- For Storage Foundation for Oracle:

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

- For Storage Foundation for Oracle RAC:

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

- For Veritas Cluster Server:

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

Prerequisites for upgrading to 5.0 MP3 RP5

The following list describes prerequisites for upgrading to the 5.0 MP3 RP5 release:

- For any product in the Storage Foundation stack, regardless of your operating system, you must have the 5.0 MP3 release installed before you can upgrade that product to the 5.0 MP3 RP5 release.
- Each system must have sufficient free space to accommodate patches.
- Before you begin the upgrade, check the readiness of the nodes that you plan to upgrade. The command to start the pre-upgrade check is:

  ```
  ./installrp -precheck [-rsh] node1 node2 ... nodeN
  ```

Supported upgrade paths

- 5.0 MP3 to 5.0 MP3 RP5
- 5.0 MP3 RP1 to 5.0 MP3 RP5
- 5.0 MP3 RP2 to 5.0 MP3 RP5
- 5.0 MP3 RP3 to 5.0 MP3 RP5
- 5.0 MP3 RP4 to 5.0 MP3 RP5

Upgrading 5.0 MP3 to 5.0 MP3 RP5

This section describes how to upgrade from 5.0 MP3 to 5.0 MP3 RP5 on a cluster or a standalone system.

- Installing or upgrading to Oracle RAC 11gR2.
  See the Veritas Storage Foundation™ for Oracle® RAC 5.0 MP3 RP5 Application Note: Installing or upgrading to Oracle RAC 11g Release 2.
- Upgrading Veritas products using Live Upgrade
  Use the Live Upgrade procedures to upgrade Veritas products 5.0 MP3 to 5.0 MP3 RP5.
- Upgrading SF for Oracle RAC using Live Upgrade

Use the procedures to upgrade SF for Oracle RAC 5.0 MP3 to 5.0 MP3 RP5 using Live Upgrade.

- Performing a phased upgrade to 5.0 MP3 RP5 on a cluster
  Use the procedures to perform a phased upgrade to 5.0 MP3 RP5 on a cluster that has VCS, SFHA, SF for Oracle HA or SF for DB2 HA, SFCFS, or SF for Oracle RAC installed and configured.
- Performing a full upgrade to 5.0 MP3 RP5 on a cluster
  Use the procedures to perform a full upgrade to 5.0 MP3 RP5 on a cluster that has VCS, SFHA, SF for Oracle HA or SF for DB2 HA, SFCFS, or SF for Oracle RAC installed and configured.
- Upgrading to 5.0 MP3 RP5 on a standalone system
  Use the procedure to upgrade to 5.0 MP3 RP5 on a system that has Storage Foundation, SF for Oracle, or SF for DB2 installed.

Upgrading Veritas products using Live Upgrade

This section describes how to upgrade 5.0 MP3 to 5.0 MP3 RP5 using Live Upgrade.

Supported Live Upgrade paths:

- Upgrading Veritas Products without Solaris OS upgrade:
  - Upgrading Veritas products from 5.0 MP3 to 5.0 MP3 RP5
  - Upgrading Veritas products from 5.0MP3RPx to 5.0 MP3 RP5

  Note: Here *x* is the Rolling Patch version.

  See "Upgrading Veritas products using Live Upgrade to 5.0 MP3 RP5 without Operating System upgrade" on page 140.
- Upgrading Veritas Products with Solaris OS upgrade
  - Upgrading Veritas products from 5.0 MP3 to 5.0 MP3 RP5
  - Upgrading Veritas products from 5.0MP3RPx to5.0 MP3 RP5

  Note: Here *x* is the Rolling Patch version.

  See " Upgrading Veritas products using Live Upgrade to 5.0 MP3 RP5 with Operating System upgrade" on page 142.

Prerequisites to upgrade to 5.0 MP3 RP5 using Live Upgrade:

- The node should have an alternate boot disk that is identical to the primary boot disk.
- Installation disc for 5.0 MP3 and 5.0 MP3 RP5 to be installed on the ABE.
- Installation disc for target OS to be installed on ABE.
- The latest list of required patches is available in the Oracle Solaris Live Upgrade Software:
  Patch Requirements (Doc ID 1004881.1) document in My Oracle Support (https://support.oracle.com/).
- If OS upgrade is involved, then remove the currently installed SUNWluu, SUNWlur and SUNWlucfg packages and install SUNWluu, SUNWlur, SUNWlucfg packages from target OS. Also replace SUNWluzone if zones are involved.
- The `vxlustart` script takes around 2-3 hours to complete uninterrupted. Symantec recommends having a network connection that does not time out in the interim.

Upgrading Veritas products using Live Upgrade to 5.0 MP3 RP5 without Operating System upgrade

This section describes how to upgrade SF, SFHA, SFCFS or SFCFSHA from 5.0 MP3 or 5.0 MP3 RPx (x<5) to 5.0 MP3 RP5 using Live Upgrade where OS upgrade is not involved.

To upgrade your Veritas product using Live Upgrade without OS being upgraded

1. Ensure that 5.0MP3 or 5.0MP3 RPx is installed and configured on PBE.

   See Veritas product 5.0MP3 Installation Guide and 5.0MP3 RPx Release Notes for more information.

2. On each node of the cluster run the `vxlustart -V` command to ensure there are no problems before beginning the Live Upgrade process.

   If the `vxlustart -V` command reports success, proceed with running the `vxlustart` command.

   If the `vxlustart -V` command reports errors, correct the problem, and run the `vxlustart -V` command again.

   Note: This `vxlustart -V` command does not catch failures that are reported by Solaris Live Upgrade commands.

3 Run the `vxlustart` command to start the Live Upgrade for your Veritas product:

```
# ./vxlustart -v -u 5.10 -U -d disk_name
```

4 Run the `installrp` command to upgrade your Veritas product:

```
# ./installrp -rootpath /altroot.5.10
```

5 Run the `vxlufinish` command to complete the Live Upgrade:

- If the primary root disk is not encapsulated, run the following command:

  ```
  # ./vxlufinish -u target_os_version
  ```

- If the primary root disk is encapsulated by VxVM, run the following command:

  ```
  # ./vxlufinish -u target_os_version -g disk_group
  ```

6 After upgrading to 5.0 MP3 RP5 on ABE (e.g */altroot.5.10*), copy the latest `types.cf` file to the config directory.

```
#  cp /altroot.5.10/etc/VRTSvcs/conf/types.cf \
/altroot.5.10/etc/VRTSvcs/conf/config/types.cf
```

Also if you have Oracle, Sybase, or DB2 configured, copy the corresponding types definition file to the config directory.

```
# cp /altroot.5.10/etc/VRTSagents/ha/conf/Agent/AgentTypes.cf \
/altroot.5.10/etc/VRTSvcs/conf/config/AgentTypes.cf
```

7 Restart all the nodes in the cluster. The boot environment on the alternate disk is activated when you restart the nodes.

```
# shutdown -g0 -y -i6
```

8 Verify that the alternate boot environment is active.

```
# lustatus
```

9 In a cluster environment, make sure that all the GAB ports are up.

Note: Different ports appear for different products.

```
# gabconfig -a
```

Upgrading Veritas products using Live Upgrade to 5.0 MP3 RP5 with Operating System upgrade

This section describes how to upgrade SF, SFHA, SFCFS or SFCFSHA from m 5.0 MP3 or 5.0 MP3 RPx (x<5) to 5.0 MP3 RP5 using Live Upgrade where OS upgrade is involved.

To upgrade your Veritas product using Live Upgrade with OS upgraded

1 Ensure that 5.0 MP3 or 5.0 MP3 RPx is installed and configured on PBE.

See your Veritas product 5.0 MP3 Installation Guide or 5.0 MP3 RPx Releases Notes for more information.

2 On each node of the cluster run the `vxlustart -V` command to ensure there are no problems before beginning the Live Upgrade process.

If the `vxlustart -V` command reports success, proceed with running the `vxlustart` command.

If the `vxlustart -V` command reports errors, correct the problem, and run the `vxlustart -V` command again.

Note: This `vxlustart -V` command does not catch failures that are reported by Solaris Live Upgrade commands.

3 Run the `vxlustart` command to start the Live Upgrade for your Veritas product:

```
# ./vxlustart -v -u target_os_version -s os_image_path -d disk_name
```

4 If you are upgrading from a lower version of Solaris (8 or 9) to a higher version of Solaris (9 or 10), uninstall Veritas products on ABE by selecting each package, else go to step 5.

```
# pkgrm -R /altroot.5.10 VRTSvcs
```

You can get the list packages that need to be removed from ABE by doing running the following command on PBE.

```
# pkginfo -R /altroot.5.10 | grep VRTS
```

5 Reinstall Veritas product version 5.0 MP3 again on ABE using –require `CPI_5.0MP3_P4.pl`.

```
# ./installprod -rootpath /altroot.5.10 -require CPI_5.0MP3_P4.pl
```

Note: The `CPI_5.0MP3_P4.pl` script can be download from Symantec Patch Central: https://sort.symantec.com/patch/detail/4820

---

6 Run the `installrp` command to install 5.0 MP3 RP5 patches for your Veritas product

```
# ./installrp -rootpath  /altroot.5.10
```

7 On each of the node run the the `vxlufinish` command to complete the Live Upgrade:

- If the primary root disk is not encapsulated, run the following command:

  ```
  # ./vxlufinish -u target_os_version
  ```

- If the primary root disk is encapsulated by VxVM, run the following command:

  ```
  # ./vxlufinish -u target_os_version -g disk_group
  ```

8 After upgrading to 5.0 MP3 RP5 on ABE (e.g */altroot.5.10*), copy the latest `types.cf` file to the config directory.

```
# cp /altroot.5.10/etc/VRTSvcs/conf/types.cf
/altroot.5.10/etc/VRTSvcs/conf/config/types.cf
```

Also if you have Oracle, Sybase, or DB2 configured, copy the corresponding types definition file to the config directory.

```
# cp /altroot.5.10/etc/VRTSagents/ha/conf/Agent/AgentTypes.cf
/altroot.5.10/etc/VRTSvcs/conf/config/AgentTypes.cf
```

9 Restart all the nodes in the cluster. The boot environment on the alternate disk is activated when you restart the nodes.

```
# shutdown -g0 -y -i6
```

10 Verify that the alternate boot environment is active.

```
# lustatus
```

11 In a cluster environment, make sure that all the GAB ports are up.

Note: Different ports appear for different products.

```
# gabconfig -a
```

Upgrading SF for Oracle RAC using Live Upgrade

This section describes how to upgrade SF for Oracle RAC 5.0 MP3 to 5.0 MP3 RP5 using Live Upgrade.

Prerequisites

- The node should have an alternate boot disk that is identical to the primary boot disk.
- Installation disc for SF for Oracle RAC 5.0 MP3 and 5.0 MP3 RP5 to be installed on the ABE.
- Installation disc for target OS to be installed on ABE.
- The upgrade supports root disc encapsulation.

- Verify that all the required OS patches for Live Upgrade are installed on the PBE in the Patch Requirements document (Doc ID 1004881.1) in My Oracle Support:

  https://support.oracle.com/

- If the upgrade is from Solaris 5.9 to 5.10, remove the currently installed SUNWluu, SUNWlur and SUNWlucfg packages and install SUNWlucfg, SUNWluu, SUNWlur and SUNWbzip packages from Solaris 10.
- The `vxlustart` script takes around 2-3 hours to complete uninterrupted. Symantec recommends to have a network connection that does not time out in the interim.

Upgrading using Live Upgrade from SF for Oracle RAC 5.0 MP3 or 5.0 MP3 RPs on Solaris 9 to 5.0 MP3 RP5 on Solaris 10 in a 2 node SF for Oracle RAC cluster

---

Note: In an SF for Oracle RAC cluster, each node can be upgraded individually using Live Upgrade procedure. However, the nodes will not form the cluster until all of the nodes are upgraded to new version of the product. At the end of live upgrade of the last node, all the nodes would have booted from the ABE and join the cluster.

Refer to minimum down time upgrade procedure in the SF Oracle RAC Installation and configuration guide for more details on the steps to be performed for managing applications during the upgrade.

On the PBE SF for Oracle RAC 5.0 MP3 should be installed and configured with Oracle.

To upgrade SF for Oracle RAC using Live Upgrade with the hotfix

1 On each of the nodes, run `vxlustart` with the `-V` option to detect any problems that might prevent a successful upgrade. If this command reports success, proceed with running the vxlustart command. If it reports errors, correct the problem, and run the `vxlustart -V` command again.

Note: This option does not catch failures that are reported by Solaris Live Upgrade commands.

```
# ./vxlustart -V -u 5.10 -s /mnt
```

where */mnt* is the location where you mounted the Solaris 10 software disc.

You may use the following additional options depending on your need:

```
-f    to force the vtoc creation on the alternate disk
-m    use the already existing vtoc on the disk.
-U    Only to upgrade vxvm.
```

See the `vxlustart` manual page for more information.

2 On each of the nodes, run vxlustart command to start the Live Upgrade:

```
# ./vxlustart -v -u 5.10 -s /mnt
```

3 In case of OS upgrade and since the patches are different for Solaris 9 and Solaris 10 for SF for Oracle RAC 5.0 MP3, you will need to uninstall the SF for Oracle RAC package from the alternate boot disk manually. Use following command to uninstall the SF for Oracle RAC 5.0 MP3 package from alternate root disk:

```
# pkgrm -R /altroot.5.10 VRTScsocw VRTSdbac VRTSodm \
VRTSgms VRTScavf VRTSglm VRTSgapms VRTSvail VRTSvxmsa \
VRTSdbed VRTSdbcom VRTSdbms3 VRTSvcsor VRTScmccc VRTScmcs \
VRTSacclib VRTScscm VRTScscw VRTScssim VRTScutil VRTSvcsmn \
VRTSvcsmg VRTSvcsag VRTSvcs VRTSvxfen VRTSgab VRTSllt VRTSfsmnd \
VRTSfssdk VRTSfsman VRTSvrw VRTSweb VRTSvcsvr VRTSvrpro \
VRTSddlpr VRTSvdid VRTSvmpro VRTSalloc VRTSdcli VRTSvmman \
VRTSspt VRTSaa VRTSmh VRTSccg VRTSobgui VRTSfspro VRTSdsa \
VRTSob VRTSobc33 VRTSat VRTSpbx VRTSvxfs VRTSicsco \
VRTSvxvm VRTSjre15 VRTSvlic VRTSperl
```

4 Reinstall the SF for Oracle RAC 5.0 MP3 package on the alternate disk using the `-require CPI_5.0MP3_P4.pl` option:

```
# ./installsfrac -rootpath /altroot.5.10 -require \
CPI_5.0MP3_P4.pl
```

Note: The `CPI_5.0MP3_P4.pl` script can be downloaded from Patch Central: https://sort.symantec.com/patch/detail/4820

This reinstalls all the SF for Oracle RAC 5.0 MP3 packages to ABE.

5 Install SF Oracle RAC 5.0 MP3 RP5 patches on the alternate disk:

```
# ./installrp -rootpath /altroot.5.10
```

6 Copy the `PrivNIC.cf` and `MultiPrivNIC.cf` files:

```
# cp -p /altroot.5.10/etc/VRTSvcs/conf/PrivNIC.cf \
/altroot.5.10/etc/VRTSvcs/conf/config/PrivNIC.cf
# cp -p /altroot.5.10/etc/VRTSvcs/conf/MultiPrivNIC.cf \
/altroot.5.10/etc/VRTSvcs/conf/config/MultiPrivNIC.cf
```

7 On each of the nodes, verify the SF for Oracle RAC packages on PBE and ABE and inspect the installer logs for any failure:

```
# pkginfo -l VRTSdbac
# pkginfo -R /altroot.5.10 -l VRTSdbac
```

8 On each of the nodes, complete the Live Upgrade procedure using the `vxlufinish` command:

```
# ./vxlufinish -u 5.10
```

Note: In case the node crashes or reboots before the `vxlufinish` command completes successfully, you can remount the alternate disk and restart Live Upgrade, enter the following commands:

```
# ./vxlustart -r -u 5.10
```

```
# ./vxlufinish -u 5.10
```

---

9 Reboot the nodes. The nodes will be booted from ABE when they come up.

```
# shutdown -g0 -y -i6
```

Note: In case the node does not boot from ABE due to any reason, the following trouble shooting step may be performed to recover.

Boot from PBE from the PROM, enter the following commands:

```
# ./vxlustart -r -u 5.10

# touch ./altroot.5.10/vx_lu.5.10/.ran_vx_lustart

# ./vxlufinish -u 5.10

# shutdown -g0 -y -i6
```

---

10 On each of the cluster node, verify that ABE is the active boot environment on the ABE:

```
# lustatus
```

11 On one of the nodes, verify that each of the nodes have joined the cluster by entering the following command:

```
# gabconfig -a
```

Performing a phased upgrade to 5.0 MP3 RP5 on a cluster

Performing a phased upgrade 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.

In the following procedures a "subcluster" is a rough division of the cluster into two parts. Split the cluster so that your high priority service groups can remain online during the upgrade of the first subcluster.

The following are the stages of performing a phased upgrade on a cluster:

1 Select a group of one or more cluster nodes to upgrade (group A), and leave a group of one or more nodes running (group B).

2 Move all the service groups from the group A to group B.

3 For the nodes in group A, start the upgrade using the installrp script.

4 Get the nodes in group B ready.

5 Activate the nodes in group A, then bring the service groups online.

6 Upgrade the nodes in group B.

Depending on your cluster's configuration, select one of the following procedures to upgrade to 5.0 MP3 RP5:

- Performing a phased upgrade to 5.0 MP3 RP5 for VCS
- Performing a phased upgrade to 5.0 MP3 RP5 on a Storage Foundation HA cluster
- Performing a phased upgrade to 5.0 MP3 RP5 on a Storage Foundation Cluster File System cluster
- Performing a phased upgrade to 5.0 MP3 RP5 on a Storage Foundation for Oracle RAC cluster

Performing a phased upgrade to 5.0 MP3 RP5 for VCS

The following procedure describes performing a phased upgrade for VCS.

To perform a phased upgrade to 5.0 MP3 RP5 for VCS

1 Log in as superuser.

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

3 Switch all the service group to the nodes running in the second sub-cluster (group B).

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

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

```
# haconf -makerw
```

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

```
# 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 18 for these nodes.

Note: Step 9 through step11 are applicable only if you plan to upgrade the operating system. Otherwise skip to step 13 as installrp takes care of stopping VCS, VXFEN, GAB and LLT.

---

9 Stop VCS on each node in the selected group:

```
# hastop -local
```

10 Stop the VCS command server in the selected group of nodes:

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

where *pid_of_CmdServer* is the process ID of CmdServer.

11 Stop cluster fencing, GAB, and LLT in the selected group of nodes:

For Solaris 8, 9 and 10:

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

12 If required, you can upgrade the operating system on the nodes in the selected group at this stage and patch them to a supported kernel version.

See "System requirements" on page 8.

13 For Solaris 10, on nodes that run non-global zones, check if the non-global zones are in the running state. Boot the non-global zones that are not in the running state.

- Check the zoneís state. On each node, type:

  ```
  # zoneadm list -icv
  ```

- Boot the zone if it is not in the running state. On each node, type:

  ```
  # zoneadm -z zone_name boot
  ```

  where *ZONE_NAME* is the name of the non-global zone.

14 On the first sub-cluster (group A), mount the 5.0 MP3 RP5 product disc and navigate to the folder that contains the installation program. Use `installrp` command to upgrade VCS to 5.0 MP3 RP5:

```
# ./installrp node1 node2 ...
```

If ssh is not configured then enter:

```
# ./installrp -rsh node1 node2 ...
```

Note: Do not restart the nodes in the first sub-cluster until you reach step 16.

15 On the second sub-cluster (group B), stop VCS, I/O fencing, GAB, and LLT.

For Solaris 8, 9 and 10:

```
# hastop -local
# /etc/init.d/vxfen stop
# /etc/init.d/gab stop
# /etc/init.d/llt stop
```

16 On the first sub-cluster (group A), restart the nodes:

```
# shutdown -g0 -y -i6
```

17 On the nodes that you have rebooted, seed the nodes.

```
# gabconfig -xc
```

18 Make the VCS configuration writable again from any node in the selected group:

```
# haconf -makerw
```

19 Unfreeze the service group operations on each node where you upgraded VCS:

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

20 Make the VCS configuration read-only:

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

21 Bring the service group online on the original node in the first sub-cluster (group A):

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

22 On the second sub-cluster (group B), mount the 5.0 MP3 RP5 product disc and navigate to the folder that contains the installation program.

Note: Before executing installrp command, if you need to upgrade OS on second sub-cluster (group B), follow step 9 through step 12 and upgrade the OS.

Use `installrp` command to upgrade VCS to 5.0 MP3 RP5:

```
# ./installrp node3 node4 ...
```

If ssh is not configured then enter:

```
# ./installrp -rsh node3 node4 ...
```

23 Restart the nodes in the second sub-cluster.

```
# shutdown -g0 -y -i6
```

24 Switch the service groups back to the original node in the second sub-cluster(group B)

```
# hagrp -switch service_group -sys nodename
```

Performing a phased upgrade to 5.0 MP3 RP5 on a Storage Foundation HA cluster

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

To perform a phased upgrade to 5.0 MP3 RP5 on a Storage Foundation HA cluster:

1 Log in as superuser.

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

3 Switch the service group to a node that is running in the second group (group B).

```
# 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 on which to upgrade the operating system:

```
# 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 19 for these nodes.

Note: Step 9 through step 11 are applicable only if you plan to upgrade the operating system. Otherwise skip to step 13 as installrp takes care of stopping VCS, VXFEN, GAB and LLT.

---

9 Stop VCS on each node in the selected group:

```
# hastop -local
```

10 Stop the VCS command server in the selected group of nodes:

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

where *pid_of_CmdServer* is the process ID of CmdServer.

11 Stop cluster fencing, GAB, and LLT in the selected group of nodes:

For Solaris 8, 9 and 10:

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

12 If required, apply the OS kernel patches on the nodes in the selected group.

See “System requirements” on page 8.and Oracle's documentationfor the procedures.

13 Mount the 5.0 MP3 RP5 product disc and navigate to the folder that contains the installation program. Use `installrp` command to upgrade 5.0 MP3 RP5:

```
# ./installrp node1 node2 ...
```

If ssh is not configured then enter:

```
# ./installrp -rsh node1 node2 ...
```

Note: Do not restart the nodes in the first sub-cluster until you reach step 15.

---

14 On the second sub-cluster (group B), stop VCS, I/O fencing, GAB, and LLT.

For Solaris 8, 9 and 10:

```
# hastop -local
# /etc/init.d/vxfen stop
# /etc/init.d/gab stop
# /etc/init.d/llt stop
```

15 On the first sub-cluster (group A), restart the nodes:

```
# shutdown -g0 -y -i6
```

16 On the nodes that you have rebooted, seed the nodes.

```
# gabconfig  -xc
```

17 Make the VCS configuration writable again from any node in the selected group:

```
# haconf -makerw
```

18 Unfreeze the service group operations on each node for which you upgraded the operating system:

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

19 Make the VCS configuration read-only:

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

20 Online the service group to the original node:

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

21 Repeat step 9 through step 13 for the second sub-cluster (group B).

22 Restart the nodes in the second sub-cluster.

```
# shutdown -g0 -y -i6
```

23 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 RP5 installation.

For more information See "Software limitations" on page 74.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 41. or Storage Foundation for DB2 fixed issues for incident 1425261.

24 If you are going to use the DBED feature, run the `sfua_db_config -o setperm` command to set the correct permissions, owner, and group for the following directories:

```
/var/vx/vxdba
/var/vx/vxdba/logs
/var/vx/vxdba/locks
```

Note: If you do not perform this step the DBED features will not work.

Performing a phased upgrade to 5.0 MP3 RP5 on a Storage Foundation Cluster File System cluster

The following procedure describes performing a phased upgrade on an SFCFS cluster.

To perform a phased upgrade to 5.0 MP3 RP5 on an SFCFS cluster:

1 Log in as superuser.

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

3 Switch the failover groups to a node that is running in the second group (group B).

```
# hagrp -switch failover_service_group -to nodename
```

4 Select a group of nodes that are to be upgraded first (group A), and follow step 5 through step 19 and step 22 to step 33 for these nodes.

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

```
# haconf -makerw
```

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

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

7 Make the configuration read-only:

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

8 On each node in the selected group, enter the following command to check if any Storage Checkpoints are mounted:

```
# df -F vxfs
```

If any Storage Checkpoints are mounted, on each node in the selected group unmount all Storage Checkpoints.

```
# umount /checkpoint_name
```

9 On each node in the selected group, enter the following command to check if any VxFS file systems are mounted:

```
# df -F vxfs
```

If any VxFS file systems are present, on each node in the selected group unmount all of the VxFS file systems:

```
# umount /filesystem
```

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

- Stop all applications that are involved in replication. For example, if a data volume contains a file system, unmount it.
- On the Primary node, use the vxrlink status command to verify that all RLINKs are up-to-date:

```
# vxrlink -g disk_group status rlink_name
```

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

11 Verify that no volumes remain open, enter the following command:

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

12 Stop VCS on each node in the selected group:

```
# hastop -local
```

13 Stop the VCS command server in the selected group:

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

where *pid_of_CmdServer* is the process ID of CmdServer.

14 Stop ODM, cluster fencing, GAB, and LLT in the selected group in the following order:

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

15 Check if the VEA service is running in the selected group:

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

If the VEA service is running, stop it:

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

16 If required, apply the OS kernel patches on the nodes in the selected group.

See "System requirements" on page 8.and Oracle's documentationfor the procedures.

17 Repeat step 5 through step 16 if the system reboots after upgrading the operating system. You need to perform this to stop the components that started by the init scripts, if any.

18 Before you begin the upgrade, you can check the readiness of the nodes where you plan to upgrade. The command to start the pre-upgrade check is:

```
# ./installrp -precheck node1 node2 ... nodeN
```

where *node1* is galaxy and *node2* is nebula and ssh is not configured, for example:

```
# ./installrp -precheck -rsh galaxy nebula
```

The program proceeds in a noninteractive mode to examine the systems for licenses, filesets, disk space, system-to-system communications, etc.

If the precheck determines the nodes ready for upgrade, continue with the upgrade. If the precheck discovers issues with the nodes, resolve the issues, and return to the precheck. Then use this command to start upgrade:

```
# ./installrp node1 node2 ... nodeN
```

If ssh is not configured then enter:

```
# ./installrp -rsh node1 node2 ... nodeN
```

where node1 is galaxy and node2 is nebula, for example:

```
# ./installrp -rsh galaxy nebula
```

19 After all of the nodes in the selected group are upgraded (group A), on the second group of nodes (group B), stop the failover service group. Downtime starts for failover service groups.

```
# hagrp -offline failover_service_group -sys nodename
```

20 After all of the nodes in the selected group are upgraded (group A), repeat the step 5 to step 16 on second set of unupgraded node (group B).

21 Reboot the upgraded nodes in selected group A:

```
# shutdown -y -g0 -i6
```

22 If necessary, reinstate any missing mount points in the /etc/vfstab file on each upgraded node in selected group A.

23 On the nodes that you have upgraded, seed the nodes.

```
# gabconfig -xc
```

24 Make the VCS configuration writable again from any node in the selected group A:

```
# haconf -makerw
```

25 Enter the following command on each node in the selected group A to unfreeze HA service group operations:

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

26 Make the configuration read-only:

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

27 Autoenable and online the failover service group to upgraded nodes in selected group A:

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

28 Bring the CVM service group online on each node in the selected group A:

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

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

```
# vxvol -g disk_group startall
```

30 If you stopped any RVGs in step 10, restart each RVG:

```
# vxrvg -g disk_group start rvg_name
```

31 Remount all VxFS file systems on all nodes in the selected group:

```
# mount /filesystem
```

32 Remount all Storage Checkpoints on all nodes in the selected group:

```
# mount /checkpoint_name
```

33 Repeat step 18 on second set of nodes.

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

Performing a phased upgrade to 5.0 MP3 RP5 on a Storage Foundation for Oracle RAC cluster

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

The phased upgrade methodology involves upgrading half of the nodes in the cluster at a time.

The examples in the procedures assume a four-node SF Oracle RAC cluster with the nodes galaxy and nebula constituting the first half of the cluster and the nodes jupiter and mercury constituting the second half of the cluster.

Note: Before starting the upgrade on the first half of the cluster, back up the configuration files.

To upgrade to 5.0 MP3 RP5 on a SF Oracle RAC cluster

1. Log in as superuser.
2. Switch failover groups from the first half of the cluster from galaxy to the second half of the cluster to jupiter and mercury. For example:

```
# hagrp -switch failover_group -to jupiter
# hagrp -switch failover_group -to mercury
```

3. On the first half of the cluster, stop Oracle database:
   - If the Oracle RAC instance is managed by VCS:

```
# hagrp -offline oracle_group -sys galaxy
# hagrp -offline oracle_group -sys nebula
```

   - If the Oracle RAC instance is not managed by VCS, log in as the Oracle user on one of the nodes in the first half of the cluster and shut down the instances:

```
$ $ORACLE_HOME/bin/srvctl stop instance -d database_name \
-i instance_name
```

4. On the first half of the cluster, stop all applications that are not configured under VCS. Use native application commands to stop the application.
5. If VCS does not control CRS, enter the following command on each node of the cluster to stop CRS:

```
$ $CRS_HOME/bin/crsctl stop crs
```

6 On the first half of the cluster, unmount the VxFS and CFS file systems that are not managed by VCS.

Ensure that no processes are running that make use of mounted shared file system or shared volumes. To verify that no processes use the VxFS or CFS mount point, enter the following commands:

```
# mount | grep vxfs
# fuser -cu /mount_point
# umount /mount_point
```

7 On first half of the cluster stop all VxVM and CVM volumes for each diskgroup that are not managed by VCS:

```
# vxvol -g disk_group stopall
```

Verify that no volumes remain open:

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

8 On first half of the cluster, stop VCS:

```
# hastop -local
```

9 Verify that only ports a, b, d and o are open:

```
# gabconfig -a
GAB Port Memberships
=======================================================
Port a gen 6b5901 membership 01
Port b gen 6b5904 membership 01
Port d gen 6b5907 membership 01
Port o gen 6b5905 membership 01
```

10 Mount the 5.0 MP3 RP5 product image or disc and navigate to the folder that contains the installation program. On the first half of the cluster, enter the `installrp` script:

```
# ./installrp galaxy nebula
```

If ssh is not configured then enter:

```
# ./installrp -rsh galaxy nebula
```

Note: After you complete the upgrade of the first half of the cluster, no GAB ports will be showing in the output when you run the gabconfig -a command.

---

11 Copy PrivNIC.cf and MultiPrivNIC.cf files on all nodes of first half of the cluster:

```
# cp -p /etc/VRTSvcs/conf/PrivNIC.cf \
/etc/VRTSvcs/conf/config/PrivNIC.cf
# cp -p /etc/VRTSvcs/conf/MultiPrivNIC.cf \
/etc/VRTSvcs/conf/config/MultiPrivNIC.cf
```

12 On the first half of the cluster, relink the SF Oracle RAC libraries with Oracle.

Refer to Veritas Storage Foundation for Oracle RAC 5.0 MP3 Installation and Configuration Guide for more information.

13 On the first half of the cluster, restart the nodes:

```
# shutdown -g0 -y -i6
```

Note: After first half of the cluster restarts, ports a, b, d, and o form membership with the second half of the cluster. HAD does not form membership since it reports an engine version mismatch.

---

14 On the second half of the cluster, stop the Oracle database:

- If the Oracle RAC instance is managed by VCS:

  ```
  # hagrp -offline oracle_group -sys jupiter
  # hagrp -offline oracle_group -sys mercury
  ```

- If the Oracle RAC instance is not managed by VCS, log in as the Oracle user on one of the nodes in the second half of the cluster and shut down the instances:

```
$ $ORACLE_HOME/bin/srvctl stop instance -d database_name \
-i instance_name
```

Note: The downtime starts now.

15 On the second half of the cluster, stop all applications that are not configured under VCS. Use native application commands to stop the application.

16 If VCS does not control CRS, enter the following command on each node of the cluster to stop CRS:

```
$ $CRS_HOME/bin/crsctl stop crs
```

17 On the second half of the cluster, unmount the VxFS or CFS file systems that are not managed by VCS. Ensure that no processes are running that make use of mounted shared file system or shared volumes. To verify that no processes use the VxFS or CFS mount point:

```
# mount | grep vxfs
# fuser -cu /mount_point
# umount /mount_point
```

18 On the second half of the cluster, stop all VxVM and CVM volumes for each disk group that are not managed by VCS:

```
# vxvol -g disk_group stopall
```

Verify that no volumes remain open:

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

19 On the second half of the cluster, stop VCS:

```
# hastop -local
```

20 On each node in the first half of the cluster, start VCS:

```
# hastart
```

21 If the service groups turn to be autodisabled, enable the groups:

```
# hagrp -autoenable group_name -sys nodex
```

22 On the first half of the cluster, bring the VCS service groups online:

For failover service groups:

```
# hagrp -online group_name -any
```

Note: The downtime ends here.

Once the cvm service group comes online, the GAB ports v, w, and f come online; all the service groups pertaining to the CFS mounts also come online automatically. The failover service groups must be brought online manually using the above command.

23 On the first half of the cluster, manually mount the VxFS or CFS file systems that are not managed by VCS.

24 On the first half of the cluster, start all applications that are not managed by VCS. Use native application commands to start the applications..

25 If CRS in not in control of VCS, then start CRS manually on all nodes on first half of cluster.

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

If Oracle RAC instances are not managed by VCS, then start instances manually on first half of cluster.

```
$ $ORACLE_HOME/bin/srvctl start instance -d database_name \
-i instance-name
```

26 Navigate to the folder that contains the installation program. On the second half of the cluster, enter the installrp script:

```
# ./installrp jupiter mercury
```

If ssh is not configured then enter:

```
# ./installrp -rsh jupiter mercury
```

27 Copy PrivNIC.cf and MultiPrivNIC.cf files on all nodes of first half of the cluster:

```
# cp -p /etc/VRTSvcs/conf/PrivNIC.cf \
  /etc/VRTSvcs/conf/config/PrivNIC.cf
  # cp -p /etc/VRTSvcs/conf/MultiPrivNIC.cf \
  /etc/VRTSvcs/conf/config/MultiPrivNIC.cf
```

28 On the second half of the cluster, relink the SF Oracle RAC libraries with Oracle.

Refer to Veritas Storage Foundation for Oracle RAC 5.0 MP3 Installation and Configuration Guide for more information.

29 Restart the nodes in the second half of the cluster.

```
# shutdown -g0 -y -i6
```

When the nodes in the second half of the cluster come up, all the GAB ports a, b, d, o, h, v, w and f will be online. All the CFS mount service groups also come online automatically.

30 On the second half of the cluster, manually mount the VxFS and CFS file systems that are not managed by VCS.

31 On the second half of the cluster, start all applications that are not managed by VCS. Use native application commands to start the applications.

32 If CRS in not in control of VCS, then start CRS manually on all nodes on second half of cluster.

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

If Oracle RAC instances are not managed by VCS, then start instances manually on second half of cluster.

```
$ $ORACLE_HOME/bin/srvctl start instance -d database_name \
-i instance-name
```

33 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 RP5 installation.

For more information See "Software limitations" on page 74. 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 informationSee "Storage Foundation for Oracle fixed issues" on page 41. or Storage Foundation for DB2 fixed issues for incident 1425261.

34 If you are going to use the DBED feature, run the sfua_db_config -o setperm command to set the correct permissions, owner, and group for the following directories:

- `/var/vx/vxdba`
- `/var/vx/vxdba/logs`

- /var/vx/vxdba/locks

Note: If you do not perform this step the DBED features will not work.

Performing a full upgrade to 5.0 MP3 RP5 on a cluster

Performing a full upgrade 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 performing a full upgrade on a cluster:

1. Freeze service group operations and stop VCS on the cluster.
2. Take the nodes offline and install the software patches.
3. Bring the nodes online to restart cluster failover services.

Depending on your cluster's configuration, select one of the following procedures to upgrade to 5.0 MP3 RP5:

- Performing a full upgrade to 5.0 MP3 RP5 on a VCS cluster
- Performing a full upgrade to 5.0 MP3 RP5 on a Storage Foundation HA cluster
- Performing a full upgrade to 5.0 MP3 RP5 on a Storage Foundation Cluster File System cluster
- Performing a full upgrade to 5.0 MP3 RP5 on a Storage Foundation for Oracle RAC cluster

Performing a full upgrade to 5.0 MP3 RP5 on a VCS cluster

Note: If you have any volumes under VxVM and VxFS you need to stop them before upgrading which means your application will require downtime.

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

To perform a full upgrade to 5.0 MP3 RP5 on VCS cluster:

1. Log in as superuser.
2. List the service groups in your cluster and their status. On any node, type:

```
# hagrp -state
```

3 Take the ClusterService service group offline if it is running. On any node, type:

```
# hagrp -offline -force ClusterService -sys nodename
```

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

```
# haconf -makerw
```

5 Freeze all service groups. On any node, type:

```
# hagrp -freeze service_group -persistent
```

where service_group is the name of the service group. Note that the ClusterService group cannot be frozen.

6 Save the configuration (`main.cf`) file with the groups frozen. On any node, type:

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

7 Make a backup copy of the current main.cf and all types.cf configuration files. For example, on one node in the cluster, type:

```
# cp /etc/VRTSvcs/conf/config/main.cf \
/etc/VRTSvcs/conf/main.cf.save
# cp /etc/VRTSvcs/conf/config/types.cf \
/etc/VRTSvcs/conf/types.cf.save
```

8 If you do not plan to upgrade OS at this time skip step 13.

9 Stop VCS on all nodes:

```
# hastop -all
```

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 fencing, GAB, and LLT.

For Solaris 8,9 and 10:

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

12 If required, apply the OS kernel patches.

See "System requirements" on page 8.and Oracle's documentationfor the procedures.

13 For Solaris 10, on nodes that run non-global zones, check if the non-global zones are in the running state. Boot the non-global zones that are not in the running state.

- Check the zone's state. On each node, type:

  ```
  # zoneadm list -icv
  ```

- Boot the zone if it is not in the running state. On each node, type:

  ```
  # zoneadm -z zone boot
  ```

  where zone is the name of the non-global zone.

14 Mount the 5.0 MP3 RP5 product disc and navigate to the folder that contains the installation program. Use installrp command to upgrade 5.0 MP3 RP5:

```
# ./installrp node1 node2 ...
```

If ssh is not configured then enter:

```
# ./installrp -rsh node1 node2 ...
```

15 Verify that the patches have been installed. On each node, type:

```
# showrev -p | grep patch_id
```

16 If the cluster has NFS or NFSREstart resources, copy the `nfs_preonline` and `nfs_postoffline` files to the `/opt/VRTSvcs/bin/triggers` directory:

```
# cp /opt/VRTSvcs/bin/sample_triggers/nfs_preonline \
  /opt/VRTSvcs/bin/triggers
  # cp /opt/VRTSvcs/bin/sample_triggers/nfs_postoffline \
  /opt/VRTSvcs/bin/triggers
```

17 Restart all the nodes in the cluster. On each node type the following command:

```
# shutdown -g0 -y -i6
```

18 After VCS has started, perform the following steps:

- Verify all resources have been probed. On any node, type:

```
# hastatus -summary
```

- Unfreeze all service groups. On any node, type:

```
# haconf -makerw
# hagrp -unfreeze service_group -persistent
# haconf -dump -makero
```

  where service_group is the name of the service group.

19 Bring online the ClusterService service group, if necessary. On any node type:

```
# hagrp -online ClusterService -sys nodename
```

Performing a full upgrade to 5.0 MP3 RP5 on a Storage Foundation HA cluster

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

To perform a full upgrade to 5.0 MP3 RP5 on a Storage Foundation HA cluster

1 Log in as superuser.

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

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

```
# haconf -makerw
```

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

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

5 Make the VCS configuration read-only:

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

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

7 If you planned to upgrade OS follow step 7, through step 10. Otherwise skip to step 12. Stop VCS:

```
# hastop -all
```

8 Stop the VCS command server:

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

where *pid_of_CmdServer* is the process ID of CmdServer.

9 Stop cluster fencing, GAB, and LLT.

For Solaris 8, 9 and 10:

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

10 If required, apply the OS kernel patches.

See "System requirements" on page 8.and Oracle's documentationfor the procedures.

11 Offline any online service groups that have open volumes by issuing:

```
# hagrp -offline service_group -sys nodename
```

12 Mount the 5.0 MP3 RP5 product disc and navigate to the folder that contains the installation program. Use `installrp` command to upgrade 5.0 MP3 RP5:

```
# ./installrp node1 node2 ...
```

If ssh is not configured then enter:

```
# ./installrp -rsh node1 node2 ...
```

13 After all of the nodes in the cluster are upgraded, shut down and reboot each of the nodes. After the nodes come up, application failover capability is available.

14 Make the VCS configuration writable again from any node:

```
# haconf -makerw
```

15 Unfreeze the service group operations on each node:

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

16 Make the VCS configuration read-only:

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

17 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 RP5 installation.

For more information See "Software limitations" on page 74. 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 41. or See "Storage Foundation for DB2 fixed issues " on page 44. for incident 1425261.

18 If you are going to use the DBED feature, run the `sfua_db_config -o setperm` command to set the correct permissions, owner, and group for the following directories:

- `/var/vx/vxdba`
- `/var/vx/vxdba/logs`
- `/var/vx/vxdba/locks`

Note: If you do not perform this step the DBED features will not work.

Performing a full upgrade to 5.0 MP3 RP5 on a Storage Foundation Cluster File System cluster

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

To perform a full upgrade to 5.0 MP3 RP5 on an SFCFS cluster

1 Log in as superuser.

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

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

```
# haconf -makerw
```

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

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

5 Make the configuration read-only:

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

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

```
# df -F vxfs
```

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

```
# umount /checkpoint_name
```

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

```
# df -F vxfs
```

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

```
# umount /filesystem
```

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

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

  ```
  # vxrvg -g disk_group stop rvg_name
  ```

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

  ```
  # vxrlink -g disk_group status rlink_name
  ```

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

9 Stop activity to all VxVM volumes.

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

10 On each node, stop all VxVM volumes by entering the following command for each disk group:

```
# vxvol -g disk_group stopall
```

Verify that no volumes remain open:

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

11 Stop VCS

```
# hastop -all
```

12 If you planned to upgrade OS follow step 12 and step 13. Otherwise skip to step 16.

On each node, stop the VCS command server:

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

where *pid_of_CmdServer* is the process ID of CmdServer.

13 On each node, stop ODM, cluster fencing, GAB, and LLT in the following order:

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

14 If required, apply the OS kernel patches.

See "System requirements" on page 8.and Oracle's documentationfor the procedures.

15 On each node, 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
```

16 Mount the 5.0 MP3 RP5 product disc and navigate to the folder that contains the installation program. Use installrp command to upgrade 5.0 MP3 RP5:

```
# ./installrp node1 node2 ...
```

If ssh is not configured then enter:

```
# ./installrp -rsh node1 node2 ...
```

17 After all of the nodes in the cluster are upgraded, shut down and reboot each of the upgraded nodes. After the nodes come back up, application failover capability is available.

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

19 Make the VCS configuration writable again from any node:

```
# haconf -makerw
```

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

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

21 Make the configuration read-only:

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

22 Bring the CVM service group online on each node:

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

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

```
# vxvol -g disk_group startall
```

24 If you stopped any RVGs in step 10, restart each RVG:

```
# vxrvg -g disk_group start rvg_name
```

25 Remount all VxFS file systems on all nodes:

```
# mount /filesystem
```

26 Remount all Storage Checkpoints on all nodes:

```
# mount /checkpoint_name
```

Performing a full upgrade to 5.0 MP3 RP5 on a Storage Foundation for Oracle RAC cluster

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

To upgrade to 5.0 MP3 RP5 on an SFRAC cluster

1 Log in as superuser.

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

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

```
# haconf -makerw
```

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

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

5 Make the configuration read-only:

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

6 If VCS does not control CRS, enter the following command on each node of the cluster to stop CRS:

```
$ $CRS_HOME/bin/crsctl stop crs
```

7 Stop VCS.

```
# hastop -all
```

8 Stop the VCS command server:

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

where pid_of_CmdServer is the process ID of CmdServer.

9 If required, apply the OS kernel patches.

See "System requirements" on page 8. and Oracle's documentationfor the procedures.

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

---

10 On each node of the cluster, enter the following command to check if any VxFS file systems are mounted:

```
# df -F vxfs
```

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

  ```
  # umount /filesystem
  ```

- On each node of the cluster, verify that all file systems have been cleanly unmounted:

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

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

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

  ```
  # fsck -F vxfs filesystem
  # mount -F vxfs filesystem 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.
```

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

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

11 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.

12 On each node of the cluster, stop all VxVM volumes by entering the following command for each disk group:

```
# vxvol -g disk_group stopall
```

Verify that no volumes remain open:

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

13 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
```

14 Mount the 5.0 MP3 RP5 product disc and navigate to the folder that contains the installation program. Use `installrp` command to upgrade 5.0 MP3 RP5:

```
# ./installrp node1 node2 ...
```

If ssh is not configured then enter:

```
# ./installrp -rsh node1 node2 ...
```

15 After the entire cluster is upgraded, reboot all of the nodes of the cluster.

```
# /usr/sbin/shutdown -g0 -y -i6
```

16 Copy `PrivNIC.cf` and `MultiPrivNIC.cf` files on all the cluster nodes:

```
#  cp -p /etc/VRTSvcs/conf/PrivNIC.cf \
/etc/VRTSvcs/conf/config/PrivNIC.cf
# cp -p /etc/VRTSvcs/conf/MultiPrivNIC.cf \
/etc/VRTSvcs/conf/config/MultiPrivNIC.cf
```

17 After all ports have come up, from any node in the cluster, make the VCS configuration writable:

```
# haconf -makerw
```

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

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

19 Make the configuration read-only:

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

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

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

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

```
# vxvol -g disk_group startall
```

22 If CRS is not controlled by VCS, enter the following command on each node to start CRS.

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

23 Remount all VxFS file systems on all nodes:

```
# mount /filesystem
```

24 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
```

25 Relink Oracle's CRS and database libraries for Storage Foundation for Oracle RAC:

- Run the following command:

  ```
  # /opt/VRTS/install/installsfrac -configure
  ```

  If ssh is not configured then enter:

  ```
  # /opt/VRTS/install/installsfrac -rsh -configure
  ```

- Choose the correct relinking option for your version of Oracle:

  ```
  Relink Storage Foundation for Oracle RAC for Oracle 9i
  Relink Storage Foundation for Oracle RAC for Oracle 10g Release 1
  Relink Storage Foundation for Oracle RAC for Oracle 10g Release 2
  Relink Storage Foundation for Oracle RAC for Oracle 11g
  ```

26 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 RP5 installation.

For more information See "Software limitations" on page 74. 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 informationSee "Storage Foundation for Oracle fixed issues" on page 41. or See "Storage Foundation for DB2 fixed issues " on page 44. for incident 1425261.

27 If you are going to use the DBED feature, run the sfua_db_config -o setperm command to set the correct permissions, owner, and group for the following directories:

- `/var/vx/vxdba`
- `/var/vx/vxdba/logs`
- `/var/vx/vxdba/locks`

Note: If you do not perform this step the DBED features will not work.

Upgrading to 5.0 MP3 RP5 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 upgrade to 5.0 MP3 RP5 on a standalone system

1 Log in as superuser.

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

3 If required, apply the OS kernel patches.

See "System requirements" on page 8. and Oracle's documentationfor the procedures.

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

```
# df -F vxfs
```

5 Unmount all Storage Checkpoints and file systems:

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

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

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

  ```
  # vxrvg -g disk_group stop rvg_name
  ```

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

  ```
  # vxrlink -g disk_group status rlink_name
  ```

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

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

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

```
# vxvol -g disk_group stopall
```

Verify that no volumes remain open:

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

9 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
```

10 For Solaris 10, on nodes that run non-global zones, check if the non-global zones are in the running state. Boot the non-global zones that are not in the running state.

- Check the zone's state. On each node, type:

```
# zoneadm list -icv
```

- Boot the zone if it is not in the running state. On each node, type:

```
# zoneadm -z zone boot
```

  where zone is the name of the non-global zone.

11 Mount the 5.0 MP3 RP5 product disc and navigate to the folder that contains the installation program. Use installrp command to upgrade 5.0 MP3 RP5:

```
# ./installrp node1 node2 ...
```

If ssh is not configured then enter:

```
# ./installrp -rsh node1 node2 ...
```

12 Shut down and restart the system.

13 If necessary, reinstate any missing mount points in the `/etc/vfstab` file.

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

```
# vxvol -g disk_group startall
```

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

```
# vxrvg -g disk_group start rvg_name
```

16 Remount all VxFS file systems and Storage Checkpoints:

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

17 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
```

Reencapsulate the disk which was unencpasulated before installation.

18 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 RP5 installation.

For more information See "Software limitations" on page 74. 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 41. or See "Storage Foundation for DB2 fixed issues " on page 44. for incident 1425261.

19 If you are going to use the DBED feature, run the `sfua_db_config -o setperm` command to set the correct permissions, owner, and group for the following directories:

- `/var/vx/vxdba`
- `/var/vx/vxdba/logs`
- `/var/vx/vxdba/locks`

Note: If you do not perform this step the DBED features will not work.

Verifying software versions

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

```
# showrev -p | grep VRTS
```

Removing 5.0 MP3 RP5

Roll back of the 5.0 MP3 RP5 to the release 5.0 MP3 version is not supported for certain products. 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.

You can roll back 5.0 MP3 RP5 to the release 5.0 MP3 version for Veritas Cluster Server.

Note: Symantec recommends using the following steps to roll back. There is no uninstallrp to roll back the patches.

Rolling back 5.0 MP3 RP5 to 5.0 MP3 for Veritas Cluster Server

Use the following procedure to roll back VCS 5.0 MP3 RP5 to VCS 5.0 MP3 on your cluster manually.

See the Veritas Cluster Server 5.0 MP3 Installation Guide to uninstall VCS.

Caution: Use this procedure only when rolling back VCS. Do not roll back VCS when it is part of other products that rely on VCS, for example Storage Foundation Clustered File System or Storage Foundation for Oracle RAC.

To roll back 5.0 MP3 RP5:

1. List the service groups in your cluster and their status. On any node, type:

   ```
   # hagrp -state
   ```

2. Take the ClusterService service group offline if it is running. On any node, type:

   ```
   # hagrp -offline -force ClusterService -sys system
   ```

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

   ```
   # haconf -makerw
   ```

4 Freeze all service groups. On any node, type:

```
# hagrp -freeze service_group -persistent
```

where *service_group* is the name of the service group.

Note: The ClusterService group cannot be frozen.

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

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

6 Make a backup copy of the current main.cf and all types.cf configuration files. For example, on one node in the cluster, type:

```
# cp /etc/VRTSvcs/conf/config/main.cf \
/etc/VRTSvcs/conf/main.cf.save
# cp /etc/VRTSvcs/conf/config/types.cf \
/etc/VRTSvcs/conf/types.cf.save
```

7 Shut down VCS. On any node, type:

```
# /opt/VRTSvcs/bin/hastop -all -force
```

8 Shut down CmdServer. On each node, type:

```
# /opt/VRTSvcs/bin/CmdServer -stop
```

9 Verify that VCS has shut down. On any node, type:

- # **/sbin/gabconfig -a**

  The output resembles:

  ```
  GAB Port Memberships
  Port a gen 23dc0001 membership 01
  ```

  The output shows no membership for port h.

10 For Solaris 10, on nodes that run non-global zones, check if the non-global zones are in the running state. Boot the non-global zones that are not in the running state.

- Check the zone's state. On each node, type:

```
# zoneadm list -icv
```

- Boot the zone if it is not in the running state. On each node, type:

  ```
  # zoneadm -z zone boot
  ```

  where *zone* is the name of the non-global zone.

  Note: Do not configure one or more Solaris zones to boot from the shared storage.

11 Unconfigure vxfen if the VCS cluster uses the fencing option. On each node, type:

```
# /sbin/vxfenconfig -U
```

12 Unload vxfen. On each node, perform the following steps:

- Identify the vxfen kernel module, for example:

  ```
  # modinfo|grep vxfen
  210 7ba44000 39488 258 1 vxfen (VRTS Fence 5.0MP3RP5)
  ```

- Unload vxfen using the module number.

  ```
  # modunload -i 210
  ```

13 Unconfigure GAB. On each node, type:

```
# /sbin/gabconfig -U
```

14 Unload GAB. On each node, perform the following steps:

- Identify the GAB kernel module. For example:

  ```
  # modinfo | grep gab
  149 50cc6000 2b451 112 1 gab (GAB device 5.0MP3RP5)
  ```

- Unload GAB using the module number:

  ```
  # modunload -i 149
  ```

15 Unconfigure LLT. On each node, perform the following steps:

- Type:

```
# /sbin/lltconfig -U
```

- Type y on each node in response to the message.

16 Unload LLT. On each node, perform the following steps:

- Identify the LLT kernel module. For example:

```
# modinfo | grep llt
147 50ca4000 d6bc 110 1 llt (LLT 5.0MP3RP5)
```

- Unload LLT using the module number:

```
# modunload -i 147
```

17 Remove the VCS 5.0 MP3 RP5 patches. On each node, type:

- For Solaris SPARC 8:

```
# patchrm 139356-05
```

- For Solaris SPARC 9:

```
# patchrm 139357-05
```

- For Solaris SPARC 10:

```
# patchrm 142607-05
# patchrm 139359-05
# patchrm 139358-05
```

- For Solaris x64:

```
# patchrm 139361-05
# patchrm 139360-05
# patchrm 142608-05
```

Note: For Solaris SPARC 8, 9, 10, if you must remove the 5.0 MP3 RP5 Authentication Service patch (123722-02), you must uninstall the entire VCS product stack, then reinstall VCS.

If you have VRTSvcsor/VRTSvcsdb/VRTSvcssy patches installed on the system, remove these patches before removing the VCS patches.

Solaris SPARC:

141284-06 (VRTSvcsor)

141285-07 (VRTSvcsdb)

141286-06 (VRTSvcssy)

Solaris X64:

141288-05 (VRTSvcsor)

141287-06 (VRTSvcsdb)

141289-05 (VRTSvcssy)

18 Verify that the patches have been removed. On each node, type:

```
# showrev -p | grep VRTS
```

19 If the LLT, GAB, or VXFEN modules cannot be stopped or unloaded following the patch removal, reboot all nodes in the cluster.

20 If you do not perform step 19, start the VCS components manually. On each node, type:

```
# /sbin/lltconfig -c
# /sbin/gabconfig -cx
# /sbin/vxfenconfig -c
# /opt/VRTSvcs/bin/hastart
```

Note: You do not have to start vxfen unless you use the fencing option.

21 After VCS has started, perform the following steps:

- Verify all resources have been probed. On any node, type:

  ```
  # hastatus -summary
  ```

- Unfreeze all service groups. On any node, type:

```
# haconf -makerw
# hagrp -unfreeze service_group -persistent
# haconf -dump -makero
```

where service_group is the name of the service group.

22 Bring online the ClusterService service group, if necessary. On any node type:

```
# hagrp -online ClusterService -sys system
```

where system is the node name.

Rolling back 5.0 MP3 RP5 to 5.0 MP3 for Storage Foundation for Oracle RAC

Use the following procedure to roll back SF for Oracle RAC 5.0 MP3 RP5 to 5.0 MP3.

Note: Before rolling back SFRAC from 5.0MP3RP5, make sure to remove zone specific configuration details from the VCS configuration files because lower versions of SFRAC do not support zones.

To roll back 5.0 MP3 RP5

1 Stop Oracle and CRS on each node of the cluster.

- If CRS is controlled by VCS, log in as superuser on each system in the cluster and enter the following command:

  ```
  # hastop -all
  ```

- If CRS is not controlled by VCS, enter the following command on each node of the cluster to stop CRS:
  - For Oracle10g and 11gR1:

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

  - For Oracle11gR2:

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

- Unmount all VxFS file system used by a database or application and enter the following command to each node of the cluster:

```
# hastop -local
```

2 Stop cluster fencing, VCSMM, LMX, ODM, and GAB:

```
# /etc/init.d/vxfen stop
# /etc/init.d/vcsmm stop
# /etc/init.d/lmx stop
# /etc/init.d/odm stop
# /etc/init.d/gab stop
```

3 On each node, unload the vxfen, LMX, GAB, VCSMM, GMS, and GLM kernel modules if they are still loaded.

- Verify if the vxfen kernel module is loaded. For example:

```
# modinfo|grep vxfen
210 7ba44000 39488 258 1 vxfen (VRTS Fence 5.0MP3RP5)
```

If the vxfen kernel module is loaded then unload it. For example:

```
# modunload -i 210
```

- Verify if the LMX kernel module is loaded. For example:

```
# modinfo | grep lmx
239 ffffffff1253000  13a30 236   1  lmx (LLT Mux '5.0MP3RP5')
```

If the LMX kernel module is loaded then unload it. For example:

```
# modunload -i 239
```

- Verify if the VCSMM kernel module is loaded. For example:

```
# modinfo | grep vcsmm
312 78bc0000  43ae8 293   1  vcsmm (VRTSvcsmm 5.0MP3Rp5)
```

If the VCSMM kernel module is loaded then unload it. For example:

```
# modunload -i 312
```

- Verify if the GMS kernel module is loaded. For example:

```
# modinfo | grep gms
311 78289c91   4867 292   1  vxgms (VxGMS 5.0MP3 (SunOS))
```

If the GMS kernel module is loaded then unload it. For example:

```
# modunload -i 311
```

- Verify if the GLM kernel module is loaded. For example:

```
# modinfo | grep vxglm
310 78b68000  24268 291   1  vxglm (VxGLM 5.0MP3 (SunOS 5.10))
```

If the GLM kernel module is loaded then unload it. For example:

```
# modunload -i 310
```

- Verify if the GAB kernel module is loaded. For example:

```
# modinfo | grep gab
149 50cc6000 2b451 112 1 gab (GAB device 5.0MP3RP5)
```

If the GAB kernel module is loaded then unload it. For example:

```
# modunload -i 149
```

4 Stop LLT:

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

Verify if the LLT kernel module is loaded. For example:

```
# modinfo|grep llt
147 50ca4000 d6bc 110 1 llt (LLT 5.0MP3RP5)
```

If the LLT kernel module is loaded then unload it. For example:

```
# modunload -i 147
```

5 Rolling back to 5.0 MP3 on Storage Foundation for Oracle RAC. On all nodes, enter:

Note: Execute `patchrm` for the following patches as listed below:

- For Solaris 8 SPARC:

```
122058-15 123722-02 123740-07 123821-06 123823-06 128078-02
139354-01 139362-03 139366-05 139367-04 139737-02 139741-03
139742-03 139743-01 139744-01 140657-01 140661-01 141284-06
141745-01 123085-05 123088-03 123200-08 139356-05 139753-05
142615-05 121714-05
```

- For Solaris 9 SPARC:

```
122058-15 123722-02 123740-07 123821-06 123823-06 128078-02
139354-01 139362-03 139366-05 139367-04 139737-02 139741-03
139742-03 139743-01 139744-01 140657-01 140661-01 141284-06
141745-01 123086-05 123089-03 123201-08 139357-05 139754-05
142616-05 121714-05
```

- For Solaris 10 SPARC:

```
122058-15 123722-02 123740-07 123821-06 123823-06 128078-02
139354-01 139362-03 139366-05 139367-04 139737-02 139741-03
139742-03 139743-01 139744-01 140657-01 140661-01 141284-06
141745-01 123087-05 123090-03 123202-08 139358-05 139359-05
139755-05 142607-05 142617-05 121714-05
```

- For Solaris 10 x64:

```
127336-06 127337-06 127341-03 127342-03 127361-04 127362-03
127363-05 128080-02 128091-02 139355-01 139360-05 139361-05
139363-03 139371-04 139372-04 139738-02 139747-01 139748-01
139756-05 140658-01 141288-05 142608-05 142622-05 139745-03
139746-03 140662-01
```

6 Copy `PrivNIC.cf` and `MultiPrivNIC.cf` files on all the cluster nodes:

```
# cp -p /etc/VRTSvcs/conf/PrivNIC.cf \
/etc/VRTSvcs/conf/config/PrivNIC.cf
# cp -p /etc/VRTSvcs/conf/MultiPrivNIC.cf \
/etc/VRTSvcs/conf/config/MultiPrivNIC.cf
```

Note: If you had configured non-global zones in SF for Oracle RAC 5.0 MP3 RP5, they can not function in SF for Oracle RAC 5.0 MP3, because non-global zones are not supported in SF for Oracle RAC 5.0 MP3. If you configured non-global zones in version 5.0 MP3 RP5, modify the VCS configuration, so that the applications that were configured to run inside non-global zones, can be configured to run outside of these non-global zones.

---

7 After all 5.0 MP3 RP5 patches are removed, reboot the nodes:

```
# /usr/sbin/shutdown -g0 -y -i6
```

Note: The following steps need to be executed to online the service groups.

8 After the nodes get rebooted in Rolling Back procedure, execute the following step on all nodes of the cluster.

```
# add_drv -v -f -m '* 0666 root sys' vxglm
```

9 Execute following command on any one node of the cluster.

```
# hastop -all
```

10 Start VCS by executing following command on each node of the cluster.

```
# hastart
```

Removing 5.0 MP3 RP5 on Storage Foundation or Storage Foundation Cluster File System

You can use the following procedure to uninstall 5.0 MP3 RP5 on Storage Foundation or Storage Foundation Cluster File System (SFCFS).

To uninstall 5.0 MP3 RP5 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 Storage Checkpoints and file systems:

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

4 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/bootdg/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:

- 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.

- 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.

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

```
# df -F vxfs
```

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

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

  ```
  # vxrvg -g disk_group stop rvg_name
  ```

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

  ```
  # vxrlink -g disk_group status rlink_name
  ```

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

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

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

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

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

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

9 Stop VCS along with all the resources. Then, stop the remaining resources manually:

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

10 If cluster fencing was originally configured in enabled mode, type the following on all the nodes:

```
# rm /etc/vxfenmode
```

11 Unmount `/dev/odm`:

```
# umount /dev/odm
```

12 Unload the ODM module:

```
# modinfo | grep odm
279 ffffffff1294000  185d8  26   1  odm (VRTS ODM
5.0.30.00,REV=MP3A25_x)
```

If the odm kernel module is loaded then unload it. For example:

```
# modunload -i 279
```

13 Unload the cluster fencing (vxfen) module:

```
# modinfo|grep vxfen
210 7ba44000 39488 258 1 vxfen (VRTS Fence 5.0MP3RP5)
```

If the vxfen kernel module is loaded then unload it. For example:

```
# modunload -i 210
```

14 Stop GAB and LLT in the following order:

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

15 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
```

16 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 or Veritas Storage Foundation Cluster File System, enter the following commands:

```
# cd /opt/VRTS/install
# ./uninstallsfcfs [-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. The -rsh option is required if you are using the remote shell (RSH) rather than the secure shell (SSH) to uninstall the software simultaneously on several systems.

Note: Provided that the remote shell (RSH) or secure shell (SSH) has been configured correctly, this command can be run on a single node of the cluster to install the software on all the nodes of the sub-cluster. After uninstalling the Veritas software, refer to the appropriate product's 5.0 MP3 Installation Guide document to reinstall the 5.0 MP3 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 RP5 on Storage Foundation for Oracle RAC

You can use the following procedure to uninstall the 5.0 MP3 RP5 on Storage Foundation for Oracle RAC systems.

To uninstall the 5.0 MP3 RP5 on SF Oracle RAC

1 Stop Oracle and CRS on each node of the cluster.

- If CRS is controlled by VCS, log in as superuser on each system in the cluster and enter the following command:

  ```
  # hastop -all
  ```

- If CRS is not controlled by VCS, enter the following command on each node of the cluster to stop CRS:
  - For Oracle10g and 11gR1:

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

  - For Oracle11gR2:

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

- Unmount all VxFS file system used by a database or application and enter the following command to each node of the cluster:

  ```
  # hastop -local
  ```

2 Uninstall Storage Foundation for Oracle RAC.

```
# cd /opt/VRTS/install
# ./uninstallsfrac [-rsh] node1 node2 ... nodeN
```

The -rsh option is required if you are using the remote shell (RSH) rather than the secure shell (SSH) to uninstall the software simultaneously on several systems.

See the Veritas Storage Foundation for Oracle RAC 5.0 MP3 Installation and Configuration Guide for more information.

After uninstalling the packages, refer to the Storage Foundation for Oracle RAC 5.0 MP3 Installation and Configuration Guide to reinstall the 5.0 MP3 software.

3 After removing the patches, reboot the nodes:

```
# /usr/sbin/shutdown -g0 -y -i6
```

Documentation addendum

The following is an addition to the *Veritas Cluster Server Bundled Agents Reference Guide*.

Disk agent

Monitors a physical disk or a partition.

You can use the Disk agent to monitor a physical disk or a slice that is exported to LDoms (available using LDoms 1.2 or later).

For LDoms with a physical disk or slice based boot image, a dependency must exist between the guest domain and primary domain. You configure the primary domain as the master of the guest domain. Perform the following:

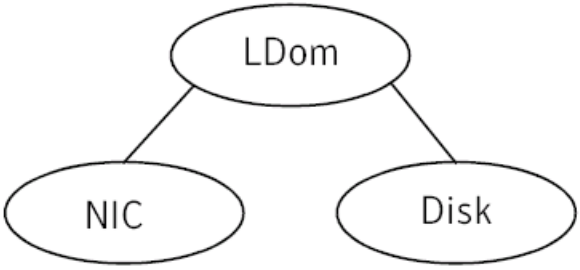
- Set the failure-policy of primary (control) domain to stop. For example, in the primary domain enter the following command to set the dependent domain to stop when the primary domain faults:

```
# ldm set-domain failure-policy=stop primary
```

- Set the primary domain as the master for the guest domain:

```
# ldm set-domain master=primary guestldom
```

Figure 1-1 Sample service group that includes a Disk resource on Solaris



Agent functions

Monitor	Performs read I/O operations on the raw device to determine if a physical disk or a partition is accessible.

State definitions

ONLINE	Indicates that the disk is working normally.
FAULTED	Indicates that the disk has stopped working or is inaccessible.

UNKNOWN Indicates that a problem exists either with the configuration or the ability to determine the status of the resource.

Attributes

Table 1-58 Required Attributes

Required attribute	Description
Partition	Indicates which partition to monitor. Specify the partition with the full path beginning with a slash (/). For Solaris, if this path is not specified, the name is assumed to reside in /dev/rdsk/. Example: `"/dev/rdsk/c2t0d0s2"` Type and dimension: string-scalar

Resource type definition

```
type Disk (
    static int OfflineMonitorInterval = 60
    static str ArgList[] = { Partition }
    static str Operations = None
    str Partition
)
```

Documentation errata

The following sections describe documentation errata.

Veritas Cluster Server User Guide (2278673)

In the "VCS environment variables" section, read the default value of VCS_SERVICE environment variable as "vcs-app" instead of "vcs".

Veritas Cluster Server Installation Guide

In the "Removing files from the temporary file system that was used for the zone root" section, use the following command instead of the command in the guide:

```
# zoneadm -z inactive_local_zonename attach -u
```

Manual pages errata

One manual page has been updated in this Rolling Patch to include corrections for errors or omissions.

vxdisk(1M) (1528116)

The rm keyword description should be as follows:

```
rm Removes the specified disk access records, by disk access name.
```

The scandisks keyword description should be as follows:

```
scandisks
 Initiates the rescanning of devices in the operating system
 device tree by VxVM. If necessary, DMP reconfiguration is
 triggered.  This allows VxVM to configure and multipath disks
 dynamically.

 By default, VxVM performs ASL configuration for all of the
 devices when performing device discovery. To restrict ASL
 configuration for newly added disks that are not already known
 to VxVM, specify the -f option.
```

Veritas Cluster Server database installation and configuration guides errata

The latest product documentation is available on the Symantec website:

http://sort.symantec.com/documents:

- Veritas Cluster Server Agent for DB2 Installation and Configuration Guide
- Veritas Cluster Server Agent for Oracle Installation and Configuration Guide
- Veritas Cluster Server Agent for Sybase Installation and Configuration Guide

For these Installation and Configuring Guides 5.0, the following procedures have updated instructions:

- To install the agent
- To remove the agent