Veritas Volume Manager 5.1 SP1 Release Notes
HP-UX 11i v3

Contents

1 Veritas Volume Manager 5.1 SP1 Release Notes

This chapter discusses new features, licenses, system requirements, compatibility with previous releases, and known problems with Veritas Volume Manager (VxVM) 5.1 Service Pack 1 (SP1) which is supported on systems running HP-UX 11i v3.

This chapter addresses the following topics:

- "Product Description"
- "New Features in this Release"
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- "VEA Graphical User Interface and System Management Home Page (SMH)"
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Product Description

Veritas Volume Manager is a storage management tool that removes the physical limitations of disk storage so that you can configure, share, manage, and optimize storage I/O performance online without interrupting data availability. VxVM also provides easy-to-use, online storage management tools to reduce planned and unplanned downtime.

The Cluster Volume Manager (CVM) allows up to 32 nodes in a cluster to simultaneously access and manage a set of disks under VxVM control (VM disks). The same logical view of disk configuration and any changes to this is available on all the nodes. When the cluster functionality is enabled, all the nodes in the cluster can share VxVM objects such as shared disk groups. Private disk groups are supported in the same way as in a non-clustered environment.

Currently, VxVM 5.1 SP1 is available on independent media only but may later be integrated into the HP-UX 11i v3 Operating Environment.

New Features in this Release

New features included in VxVM 5.1 SP1

The following new features are supported in VxVM 5.1 SP1 on the HP-UX 11i v3 operating system:

- **Veritas Volume Manager persisted attributes**

  Starting with the VxVM 5.1 SP1 release, the `vxassist` command allows you to define a set of named volume allocation rules, which can be referenced in volume allocation requests. This command also allows you to record certain volume allocation attributes for a volume. These attributes are called persisted attributes. You can record the persisted attributes and use them in later allocation operations on the volume, such as increasing the volume.

- **Automatic recovery of volumes during disk group import**

  VxVM 5.1 SP1 allows automatic recovery of volumes during disk group import. After a disk group is imported, disabled volumes can be enabled by default. To control the recovery behavior, use the `vxdefault` command to turn on or off the `autostartvolumes` tunable. If you turn off the automatic recovery, the recovery behaves the same as in previous releases. This behavior is useful if you want to perform some maintenance after importing the disk group, and then start the volumes. To turn on the automatic recovery of volumes, specify

`autostartvolume=on`. After a disk group split, join, or move operation, VxVM enables and starts the volumes by default.

- **Cross-platform data sharing support for disks greater than 1 TB**

  In releases prior to VxVM 5.1 SP1, the `cdsdisk` format was supported only on disks up to 1 TB in size. Therefore, cross-platform disk sharing (CDS) was limited to disks of size up to 1 TB. VxVM 5.1 SP1 removes this restriction. It introduces CDS support for disks of size greater than 1 TB as well.

  > **NOTE:** The disk group version must be at least 160 to create and use the `cdsdisk` format on disks of size greater than 1 TB.

  > ① **IMPORTANT:** VxVM uses the Global Partition Table (GPT) format to initialize disks of size greater than 1TB in the `cdsdisk` format. HP Logical Volume Manager (LVM) and the `diskowner` command do not recognize disks formatted with the GPT layout. So, LVM and the `diskowner` command do not recognize disks of size greater than 1 TB.
  >
  > For more information, refer to "Known Problems And Workarounds" (page 12)

- **Default format for auto-configured disks has changed**

  Starting with the VxVM 5.1 SP1 release, VxVM will initialize all auto-configured disks with the `cdsdisk` format, by default. To change the default format, use the `vxdiskadm` command to update the `/etc/default/vxdisk` file.

- **Default naming scheme for devices is `Enclosure Based Naming Scheme(ebn)`**

  Starting with the VxVM 5.1 SP1 release, the default naming scheme for devices has changed to the `Enclosure Based Naming Scheme(ebn)`. The following example shows some sample device names on a system running VxVM 5.1 SP1:

  Example 1 Sample device names on a system using the `Enclosure Based Naming Scheme(ebn)` **(default in VxVM 5.1 SP1)**

  ```
  DEVICE TYPE DISK GROUP STATUS
  disk_0 auto:cdsdisk c4t0d0 dg1 online
  disk_1 auto:LVM - - LVM
  disk_2 auto:LVM - - LVM
  disk_3 auto:LVM - - LVM
  disk_4 auto:hpdisk rootdisk01 rootdg online
  ```

  To change the default naming scheme to the `Legacy Device Naming Scheme`, use the following command:

  ```
  # vxddladm set namingscheme=osn mode=legacy
  ```

  The following example shows some sample device names on a system using the `Legacy Device Naming Scheme`:

Example 2 Sample device names on a system using the `Legacy Device Naming Scheme`

```
DEVICE TYPE DISK GROUP STATUS
c0t6d0 auto:hpdisk rootdisk01 rootdg online
c3t6d0 auto:LVM - - LVM
c4t0d0 auto:cdsdisk c4t0d0 dg1 online
c4t3d0 auto:LVM - - LVM
c4t9d0 auto:LVM - - LVM
```

To change the default naming scheme to the `Agile Device Naming Scheme`, use the following command:

`# vxddladm set namingscheme=osn mode=new`

The following example shows some sample device names on a system using the `Agile Device Naming Scheme`:

Example 3 Sample device names on a system using the `Agile Device Naming Scheme`

```
DEVICE TYPE DISK GROUP STATUS
disk6 auto:hpdisk rootdisk01 rootdg online
disk7 auto:LVM - - LVM
disk11 auto:cdsdisk c4t0d0 dg1 online
disk10 auto:LVM - - LVM
disk9 auto:LVM - - LVM
```

Only in cases where customers upgrade from an earlier version to this version, `Operating System Native Naming Scheme(osn)` or the setting from the earlier release will override `ebn`. So, customers will continue to see the `osn` naming scheme.

New features included in CVM 5.1 SP1

- **Issuing CVM commands from the slave node**

  In releases prior to VxVM 5.1 SP1, CVM required that you issue configuration commands for shared disk groups from the master node of the cluster. Configuration commands change the object configuration of a CVM shared disk group. Examples of configuration changes include creating disk groups, importing disk groups, deporting disk groups, and creating volumes.

  Starting with the VxVM 5.1 SP1 release, you can issue commands from any node, even when the command changes the configuration of the shared disk group. You do not need to know which node is the master to issue the command. If you issue the command on the slave node, CVM ships the commands from the slave node to the master node. It then executes the command on the master node. CVM does not support executing all commands on the slave node.

- **Changing the CVM master online**

  CVM now supports changing the CVM master from one node in the cluster to another node, while the cluster is online. CVM migrates the master node, and re-configures the cluster. HP recommends that you switch the master when the cluster is not handling VxVM configuration changes or cluster re-configuration operations. In most cases, CVM aborts the operation to change the master, if CVM detects that any configuration changes are occurring in the VxVM or the cluster. After the master change operation starts re-configuring the cluster, other commands that require configuration changes will fail.

  For more information on changing the CVM master while the cluster is online, refer to the *Veritas Volume Manager 5.1 SP1 Administrator's Guide*. To locate this document, go to the

HP-UX Core docs page at: www.hp.com/go/hpux-core-docs. On this page, select **HP-UX 11i v3**.

System Requirements

Following are the hardware and software requirements for VxVM 5.1 SP1 on HP-UX 11i v3.

Supported Platforms

The Veritas Volume Manager 5.1 SP1 is supported on all servers that support HP-UX 11i v3. See *Supported Servers in Chapter 4, Hardware Specific Information* in the *HP-UX 11i v3 System Release Notes*. To locate this document go to the HP-UX Core docs page at: www.hp.com/go/hpux-core-docs. On this page, select **HP-UX 11i v3**.

Software Requirements

- **OS Version**

  HP-UX 11i v3 March 2011 Operating Environment Upgrade Release (OEUR)

- **Patches Required**

  For information on required and recommended patches before installing VxVM 5.1 SP1, see *Veritas 5.1 SP1 Installation Guide HP-UX 11i v3*.

  Table 1 lists the required and recommended patches.

  Table 1 Required and Recommended Patches

Patch	Available in HP-UX 11i v3 March 2011 OEUR
Required Patches	
PHKL_38651	Yes
PHKL_38952	Yes
PHKL_40944	Yes
PHKL_41086	Yes
PHSS_39898	Yes
Recommended Patches	
PHCO_41903	No
PHKL_40130	No
PHKL_40377	No
PHKL_41005	No
PHKL_41083	Yes
PHKL_41087	No
PHKL_41442	Yes

  These patches can be installed from http://www.itrc.hp.com.

Product Licensing

The following sections discuss the license requirements for VxVM 5.1 SP1.

VxVM 5.1 SP1 Licenses

Table 2 (page 8) lists the supported features available with Veritas Volume Manager 5.1 SP1 and the licenses required.

Table 2 License Versus VxVM Feature Availability

License	Feature Availability by Product
Base	Concatenation, spanning, rootability and root disk mirroring, multiple disk groups, striping, mirroring and VEA, coexistence with native volume manager.
Full	Base features plus volume resizing, DRL logging for mirrors, striping plus mirroring, mirroring plus striping, RAID-5, RAID-5 logging, hot sparing, hot-relocation, online relayout, Storage Expert, Device Discovery Layer, DMP.
HP-UX Serviceguard Storage Management and Storage Management for Oracle	Base and Full features plus Storage Intelligent Storage Provisioning, Dynamic LUN Expansion, Cross Platform Data Sharing.

NOTE: You must install all the required licenses, otherwise, you will not be able to use certain features of Veritas Volume Manager 5.1 SP1.

Table 3 Feature Enabled by Full VxVM

Feature	Veritas Volume Manager 5.1 SP1 for HP-UX 11i v3	Required VxVM License
Hot-relocation and unrelocation	Supported	Full
Mirroring (RAID-1)	Supported	Full
Maximum number of mirrors supported	Supported	Full
Online migration	Supported	Full
Online relayout	Supported	Full
Online resizing of volumes	Supported	Full
Path failover support (active/passive peripherals)	Supported	Full
RAID-5	Supported	Full
Striped Mirrors (RAID 1+0)	Supported	Full
Striping (RAID 0)	Supported	Full
Task monitor	Supported	Full

Features Enabled by SG-SMS Products

Table 4 lists the features available with the SG-SMS suite bundles.

Table 4 Features Enabled by HP Serviceguard Storage Management Licenses

Feature	T2774EB	T2777EB
Veritas File System	Yes	Yes
Multi-Volume File System - Allows more than 1 volume to comprise a file system. The VxFS intent log and other metadata can be placed on a separate volume(s), and files can be dynamically striped across multiple volumes, avoiding volume relayouts when adding storage. This does not license Dynamic Storage Tiering although both share many underlying technical components.	Yes	Yes
Veritas Volume Manager (Full)	Yes	Yes
Smartmove (volume resynchronization)	Yes	Yes

Table 4 Features Enabled by HP Serviceguard Storage Management Licenses *(continued)*

Feature	T2774EB	T2777EB
Thin Provisioning	Yes	Yes
Dynamic Multipathing (DMP) - Balance I/O across multiple paths between the server and the storage array to improve performance and availability, active/passive (A/P) failover for root disk	Yes	Yes
Improved usability for I/O statistics – More visibility for I/O statics per LUN, enclosure, and array.	Yes	Yes
ALUA support	Yes	Yes
Enclosure-Based Naming – Name LUNs (array volume ID)	Yes	Yes
Hot relocation – Automatically migrates data from failing disks to healthy disks, online.	Yes	Yes
Online Administration – Limits the amount of time storage required to be offline for maintenance by performing volume resizing (including shrinking), domain reconfiguration, backup, and off-host processing while the data remains online and available (online migraiton, volume resizing, online relayout). Provides task monitoring for VxVM tasks.	Yes	Yes
Oracle SmartSync Support - improves Oracle runtime and recovery performance with mirrored volumes. File system through Oracle Disk Manager (ODM) configuration.	Yes	Yes
Portable Data Containers (cross-platform data sharing) – Easily and quickly converts data for use on different operating systems. Makes it easy to migrate to new operating systems.	Yes	Yes
Site awareness / remote mirrors for campus clusters	Yes	Yes
Storage Foundation Management Server – Centralizes management of multiple servers to provide complete visibility to application, server, and storage resources.[1]	Yes	Yes
Veritas Enterprise Administrator (VEA)	Yes	Yes
Storage Expert – Script-based tool to check for unusual or non-recommended configurations	Yes	Yes
Dynamic LUN Expansion – Online LUN resize and automatic volume growth	Yes	Yes
Import Cloned LUN on the same host as the original LUN used with ShadowCopies, BCVs, and so on.	Yes	Yes
Dynamic Storage Tiering - Allows the administrator to identify and move infrequently used files online to less expensive storage, transparently to users and applications.[2]	Yes	Yes
Storage Checkpoints and Storage Rollback - Instantly create disk-based backups or file systems without adding storage. The backup can be easily restored by the user.[2]	Yes	Yes
Database Dynamic Storage Tiering – SF Enterprise 5.0	Yes	Yes
Flash Snap – Takes instant, full volume, or space-optimized snapshots of data for off-host processing, disk-based recovery, and backup. Only resynchronizes changed blocks for fast resynchronization. Online split/join of disk groups.	Yes	Yes
Database FlashSnap[2]	Yes	Yes
Storage Mapping	Yes	Yes
Extent Balanced File System	Yes	Yes

Table 4 Features Enabled by HP Serviceguard Storage Management Licenses *(continued)*

Feature	T2774EB	T2777EB
Cluster Volume Manager	No	Yes
Oracle RAC Extensions	No	Yes
I/O fencing	No	Yes
Mounting • Forced unmount of a file system (`vxumount -oforce`) • Snapshot mounts (`mount -osnapof`) • Mount with special mount options, such as `convosync`, `unbuffered`, `direct` and so on.	Yes	Yes
File Change Log • Logs file system activity for fast incremental backup and auditing	Yes	Yes
Online FileSystem Operations (`fsadm`) • File system resize • File system defragmentation • Single file or directory defragmentation • File System intent log resize	Yes	Yes
DMAPI - A VxFS interface that enables Hierarchical Storage Management (HSM). Also known as XDSM.	Yes	Yes
Big File Systems - A single file system of size greater than 2 TB and lesser than or equal to 32 TB.	Yes	Yes
File systems up to 256 TB	Yes	Yes
ODM, Quick I/O (QIO); Concurrent I/O (CIO)	Yes	Yes
Cluster File System	No	Yes

NOTE: Oracle SmartSync is not supported with VxVM raw volumes on HP-UX. It is supported only for database residing on VxFS file systems mounted on VxVM volumes which makes use of the Veritas Extension for Oracle Disk Manager (VRTSodm).

1   HP-UX client support.

2   Defaults to standalone support of Oracle database features.

* If used with a file system, the technical dependencies are that ODM is used for the I/O and that VxVM (Full) or higher (SF RAC) is present. The first dependency, in turn, requires that ODM be licensed.

NOTE: An SG-SMS license is required to use an ISP. For information on all the features supported by the SG-SMS license, see .

VEA Graphical User Interface and System Management Home Page (SMH)

The Veritas Enterprise Administrator (VEA) provides a Java-based graphical user interface for managing VxVM. VEA has two parts: a server and a client. The server must run on the system running VxVM. The client can run on the server machine or the client software can be installed on a different HP-UX 11i v2 system, to manage VxVM remotely. Note that only HP-UX 11i clients are supported.

You must use the VEA to manage VxVM disks graphically. For information on VEA, see the *Veritas Enterprise Administrator User's Guide.*

NOTE: System Administration Manager (SAM) is deprecated in HP-UX 11i v3. HP SMH is the system administration tool for managing HP-UX. HP SMH provides systems management functionality, at-a-glance monitoring of system component health and consolidated log viewing. HP SMH provides Graphical User Interface (GUI), Text User Interface (TUI), and Command Line Interface (CLI) for managing HP-UX. You can access these interfaces using the `/usr/sbin/smh` command.

When you run either the `/usr/sbin/sam` or `/usr/sbin/smh` command and the DISPLAY environment variable is set, HP SMH opens in the default web browser. If the DISPLAY environment variable is not set, HP SMH opens using its terminal interface.

Coexistence with HP Logical Volume Manager (LVM)

The Veritas Volume Manager for HP-UX coexists with HP Logical Volume Manager (LVM). Both LVM and VxVM utilities are aware of the other volume manager, and do not overwrite disks that are being managed by the other volume manager. As mentioned above, the administrative utilities (SAM and VEA) recognize and identify all disks on the system. A conversion utility, `vxvmconvert`, is provided for converting LVM volume groups to VxVM volume groups. For more information on using `vxvmconvert`, see the *Veritas Storage Foundation Advanced Features Administrator's Guide*.

Unsupported Features

The following features are not supported:

- Snapshot plexes created by the `vxassist` command are not supported starting from VxVM 5.0.1 onwards. A combination of snapshot plexes created by `vxassist` and `vxsnap` is also not supported in this release.

- Veritas Cluster Server (VCS)

- Veritas Volume Replicator (VVR)

Limitations of VxVM 5.1 SP1 on HP-UX 11i v3

The following limitations exist for VxVM 5.1 SP1 on HP-UX 11i v3:

- **DMP settings for NetApp storage attached environment**

  The default values for certain DMP tunables must be modified, to minimize the path restoration window and maximize high availability in the NetApp storage attached environment.

  Table 5 (page 11) shows the default values and new values for the DMP tunables.

  Table 5 DMP Tunables

Parameter name	Definition	Default value	New value
`dmp_restore_internal`	DMP restore daemon cycle	300 seconds	60 seconds
`dmp_path_age`	DMP path aging tunable	300 seconds	120 seconds

  NOTE: The change is persistent across reboots.

  To change the default settings, use the following commands:

  ```
  # vxdmpadm settune dmp_restore_internal=60
  # vxdmpadm settune dmp_path_age=120
  ```

  To verify the new settings, use the following commands:

  ```
  # vxdmpadm gettune dmp_restore_internal
  ```

```
# vxdmpadm gettune dmp_path_age
```

- VxVM 5.1 SP1 does not support boot disks of capacity greater than 1 TB.

Known Problems And Workarounds

Following are the known problems of VxVM 5.1 SP1 on HP-UX 11i v3:

NOTE: For information on the Known Problems and Workarounds in VxVM 5.0.1 in the HP-UX 11i v3 operating system, see *Veritas Volume Manager 5.0.1 Release Notes, HP-UX 11i v3, First Edition, November 2009*. To locate this document, go to the HP-UX Core docs page at: www.hp.com/go/hpux-core-docs. On this page, select **HP-UX 11i v3**.

- **Problem**

  The HP-UX native multipath plugin (NMP) driver does not recognize the hardware path that DMP has selected and selects the standby path for internal I/Os. This causes delays with VxVM device discovery and other VxVM commands.

  Also, VxVM does not support SAN booting with these arrays on HP-UX 11i v3.

  The issue occurs when an ALUA array that supports standby Asymmetric Access State (AAS), such as an LSI ALUA array, is connected to a HP-UX 11i v3 IA-64 (Itanium) machine and disks are labelled in Extensible Firmware Interface (EFI) format.

  Workaround

  Set the active path as the preferred path using the scsimgr utility.

- **Problem**

  If a disk was initialized by a previous VxVM version or defined with a smaller private region than the default of 32 MB, the public region data will be overridden when the disk is initialized using VxVM 5.1 SP1. For example, using the dgcfgrestore command to restore the VxVM disk group configuration on a disk which was initialized using a VxVM version prior to VxVM 5.1 SP1.

  Workaround

  Specify explicitly the length of privoffset, puboffset, publen, and privlen while initializing the disk.

- **Problem**

  If a path loses connectivity to the array, the path is marked with the NODE_SUSPECT flag. After the connectivity is restored, the restore daemon detects that the path is restored when the it probes the paths. The restore daemon clears the NODE_SUSPECT flag and makes the path available for I/O. The restore daemon probes the paths at the interval set with the tunable parameter dmp_restore_interval. If you set the dmp_restore_interval parameter to a high value, the paths are not available for I/O until the next interval.

  Workaround

  There is no workaround for this issue.

- **Problem**

  VxVM 5.1 SP1 includes several array names that differ from the array names in earlier releases. Therefore, if you upgrade from an earlier release to VxVM 5.1 SP1, changes in the enclosure attributes may not remain persistent. Any enclosure attribute set for these arrays may be reset to the default value after an upgrade to VxVM 5.1 SP1.

  Table 6 (page 13) shows the Hitachi arrays that have new array names.

Table 6 Hitachi arrays with new array names

Previous name	New name
TagmaStore-USP	Hitachi_USP
TagmaStore-NSC	Hitachi_NSC
TagmaStoreUSPV	Hitachi_USPV
TagmaStoreUSPVM	Hitachi_USPVM
\<New Addition\>	Hitachi_R700
Hitachi AMS2300 Series arrays	New array names are based on the Model Number 8x. For example, SMS_100, AMS_2100, AMS_2300, AMS_2500, etc.

In addition, the Array Support Library (ASL) for the enclosures XIV and 3PAR now converts the cabinet serial number that is reported, from Hex to Decimal, to correspond with the value shown on the GUI. The persistence of the enclosure name is achieved with the `/etc/vx/array.info` file, which stores the mapping between cabinet serial number and array name. Because the cabinet serial number has changed, any enclosure attribute set for these arrays may be reset to the default value after an upgrade to VxVM 5.1 SP1.

The cabinet serial numbers are changed for the following enclosures:

- IBM XIV Series arrays
- 3PAR arrays

Workaround

Before upgrading to VxVM 5.1 SP1, check for non-default settings in the array models having new array names or cabinet serial numbers, by using the following command:

```
vxdmpadm getattr enclosure <enclosure name>
```

If there are any enclosure attributes with non-default settings, manually re-configure them using the following command, after upgrading to VxVM 5.1 SP1:

```
vxdmpadm setattr enclosure <enclosure name>
```

- **Problem**

If a disk's media name is greater than or equal to 27 characters, certain operations, such as diskgroup split or join, can fail and an error similar to the following may be displayed:

```
VxVM vxdg ERROR : vxdg move/join dg1 dg2 failed subdisk_name : Record
already exists in disk group
```

VxVM uses disk media names to create subdisk names. If multiple subdisks are under the same disk, then the serial number, starting from 1, is generated and appended to the subdisk name so as to identify the given subdisk under the physical disk. The maximum length of the subdisk name is 31 characters. If the disk media name is long, then the name is shortened to make room for serial numbers. Therefore, two diskgroups can end up having same subdisk names due to this truncation logic, despite having unique disk media names across diskgroups. In such scenarios, the diskgroup split or join operation fails.

Workaround

To handle this issue, HP recommends that disk media name length must be less than 27 characters.

- **Problem**

While creating shared disk groups on slave nodes, by shipping the command issued by the slave node to the master node for execution (command shipping), the disk group creation can fail and an error similar to the following may be displayed:

```
vxdg ERROR V-5-1-585 Disk group dgnew: cannot create: Disk for disk
group not found
```

This issue can occur if the naming scheme on the slave node where the command was issued is the operating system's native scheme whereas the creation mode uses the new naming scheme.

Workaround

You can create the shared disk group from the slave node by changing the naming scheme to the operating system's native scheme while in the "Legacy" mode.

- **Problem**

  After you initialize a disk that is under the operating system's native LVM control and not under VxVM control by using the `pvcreate path_to_physical_disk` command, when the `vxdisk list disk_name` command is issued for the first time, an error similar to the following may be displayed:

  ```
  VxVM vxdisk ERROR V-5-1-539 Device xp10240_0263: get_contents failed:
  Disk device is offline
  ```

  Also, the `flags` field (displayed by the `vxdisk` command) is incorrectly populated. However, in the next instantiation of the same command, VxVM does not produce an error and the flags are correctly populated with the LVM tag.

  Workaround

  Issue the `vxdisk list disk_name` command a second time.

- **Problem**

  VxVM utilities may fail with the following error message:

  ```
  Memory allocation failure
  ```

  This error implies that there is insufficient memory for the `vxconfigd` daemon. A program's data segment size is enforced by the operating system tunable `maxdsiz`. The default value of `maxdsiz` is 1 GB. With this default `maxdsiz` value, the `vxconfigd` daemon can allocate a maximum of 1 GB of memory.

  Workaround

  You might need to increase the operating system `maxdsiz` tunable's value appropriately to increase the data storage segment for the programs.

  See the *maxdsiz*(5) manual page for more information.

  After increasing the value, you must stop and restart the `vxconfigd` daemon. Depending on the `maxdsiz` tunable value, `vxconfigd` can allocate a maximum of up to 2 GB of memory on PA machines, and 4 GB of memory on IA machines.

- **Problem**

  Thin reclamation on disks with the `hpdisk` format is not supported. An attempt to perform reclamation on such disks automatically aborts.

  Workaround

  There is no workaround for this issue.

- **Problem**

  If the LUN is larger than 1 TB and the system is using Tachyon HBAs, the `vxdisksetup` command fails to initialize the LUN to have the `cdsdisk` format and displays an error similar to the following:

  ```
  VxVM vxdisk ERROR V-5-1-5433 Device disk_name: init failed:
  Disk is not useable, bad format
  ```

Workaround

There is no workaround for this issue. Patch will be released in future to fix the issue.

- **Problem**

When the system boots for the first time, after installing VxVM 5.1 SP1 or after an upgrade from any older VxVM version to VxVM 5.1 SP1, the following warning messages may be displayed on the console:

```
Aug 17 19:26:28 vxvm:vxconfigd: V-5-1-0 ddl_migrate_to_devlist_instr:
Turning off NMP Alua mode failed for dmpnode 0x0 with ret = 13

Aug 17 19:26:28 vxvm:vxconfigd: V-5-1-0 ddl_add_disk_instr: Turning
off NMP Alua mode failed for dmpnode 0xffffffff with ret = 13

Aug 17 19:26:28 vxvm:vxconfigd: V-5-1-0 ddl_add_disk_instr: Turning
off NMP Alua mode failed for dmpnode 0xffffffff with ret = 13

Aug 17 19:26:28 vxvm:vxconfigd: V-5-1-0 ddl_add_disk_instr: Turning
off NMP Alua mode failed for dmpnode 0xffffffff with ret = 13
```

Workaround

These messages do not impact the setup and can be safely ignored. There is no workaround for this issue.

- **Problem**

When the system boots after installing VxVM 5.1 SP1, it may hang under the following conditions:

  ◦ The system has VxVM as root

  ◦ The boot disk of the system is connected through an interface that responds slowly.

For example, when the VxVM root disk is connected via the Magellan FC AH401A HBA and there are 3 or more SAN switches between the server and disk array. This configuration may result in Magellan driver timeout.

Workaround

  ◦ If VxVM 5.1 SP1 is not installed, complete the following steps on the system before beginning the installation process:

    1. `/usr/lib/vxvm/bin/vxpfto -t 120 -g rootdg`

    2. `vxdmpadm settune dmp_lun_retry_timeout=120`

  ◦ If VxVM 5.1 SP1 is cold installed without applying the settings mentioned in the previous point or the boot disk is connected through SAN interface, there is no workaround available.

- **Problem**

On some hardware configurations, VxVM 5.1 SP1 cannot initialize LUNs of size greater than 2 TB in `cdsdisk` format. If the initialization is attempted, an error similar to the following is displayed:

```
VxVM vxdisk ERROR V-5-1-5433 Device c17t0d1: init failed: Disk is
not useable, bad format
```

Workaround

For such hardware configurations, there is no workaround for initializing LUNs of size greater than 2 TB in `cdsdisk` format.

As an alternative, you can initialize LUNs of size greater than 2 TB in `hpdisk` format. But, disks of size greater than 2 TB cannot be set as the root disk.

> **NOTE:** If a LUN is initialized using the `hpdisk` format, it cannot be used as a cluster sharable disk for a CFS cluster.

- **Problem**

  SCSI queries sent on zoned out paths using the `scsimgr` utility experience a delay of more than 2 minutes in receiving a response from the SCSI layer. This issue occurs only when the AD355-60001 HBA and IBM SAN Volume Controller (SANVC) are used in the hardware configuration.

  Workaround

  There is no workaround for this issue. Fix will be available in HP-UX 11i v3 September 2011 OEUR.

- **Problem**

  After upgrading from HP-UX 11i v2 VxVM 5.0 to HP-UX 11i v3 VxVM 5.1 SP1, the `swverify Base-VxVM-51` command may display the following warning messages:

  ```
  WARNING: Directory "/opt/VRTSperl/non-perl-libs" should have mode
  "777" but the actual mode is "755".

  WARNING: Directory "/opt/VRTSperl/non-perl-libs/bin" should have
  mode "777" but the actual mode is "755".

  WARNING: Directory "/opt/VRTSperl/non-perl-libs/include" should have
  mode "777" but the actual mode is "755".

  WARNING: Directory "/opt/VRTSperl/non-perl-libs/lib" should have
  mode "777" but the actual mode is "755".

  WARNING: Fileset "VRTSperl.VRTSPERL,l=/opt/VRTSperl,r=5.10.0.13"
  had file warnings.
  ```

  Workaround

  These messages do not impact the upgrade and can be safely ignored. There is no workaround for this issue.

- **Problem**

  Starting with VxVM 5.1 SP1 release, VxVM uses the GPT layout for formatting disks of size greater than 1 TB in `cdsdisk` format. HP LVM versions lower than HP LVM B.11.31.1104 do not detect VxVM disks formatted with GPT layout. So, when a disk formatted with the GPT layout is initialized under LVM, it may result in data loss. There will be no warning messages displayed. This issue occurs on disks of size greater than 1 TB, formatted in `cdsdisk` format.

  Workaround

  Upgrade the version of HP LVM on the system to BaseLVM version B.11.31.1104.

- **Problem**

  Starting with VxVM 5.1 SP1 release, VxVM uses the GPT layout for formatting disks of size greater than 1 TB in `cdsdisk` format. The `diskowner` command does not recognize VxVM disks formatted using GPT layout. This issue occurs on disks of size greater than 1 TB or when a disk is resized to a size greater than 1 TB.

  Workaround

  Install the diskowner patch `PHCO_41903` on the system to fix the issue.

- **Problem**

  When the system boots after installing VxVM 5.1 SP1, HP VM guests which have VxVM as root may hang. This happens when there are no worker threads available to process the I/O errors that occur on the boot disk during the early boot stage.

Workaround

If Virtual I/O (VIO) is used, switch to Accelerated Virtual I/O (AVIO). If problem still persists, use a non-VxVM disk as the boot disk. Patch will be released in future to fix this issue.

- **Problem**

  In rare cases, the system may panic with the following stack trace:

  ```
  panic: all VFS_MOUNTROOTs failed: RDWR

  Stack Trace:

  IP Function Name

  0xe000000000802b90 vfs_mountroot+0x1b0

  0xe00000000856920 im_preinitrc+0x300

  0xe0000000009e6a70 DoCalllist+0x230

  End of Stack Trace
  ```

  Workaround

  Rebooting the system *may* fix the issue.

- **Problem**

  After installing VxVM 5.1 SP1, the following message may be displayed on the console:

  ```
  "hpalua claim_device: preferred bit is not set for the device
  /dev/rdsk/c23t1d2.Please refer the document Storage Foundation
  Hardware Technote for the same."
  ```

  This message may be displayed for all the LUNs present on the system. It is generated because the `Preferred path/mode` is not set for the LUNs.

  Workaround

  Using Command View, set the `Preferred path/mode` to [Controller A/B - Failover/Fail-back] instead of the default [No Preference] .

- **Problem**

  VxVM disk groups with a disk group version of 160 cannot be restored using Ignite-UX version C.7.12.

  Archive creation (when disk groups with a disk group version of 160 are present on the system) does not display any error/warning indicating restore operation will fail.

  Workaround

  Use the selective archival feature provided by Ignite-UX to archive only the disk groups with a disk group version less than 160. For more information, refer to the *Ignite-UX Administration Guide for HP-UX 11i, March 2011*.

  Future versions of Ignite-UX may support archive/restore operations of VxVM disk groups with a disk group version of 160 or above.

  For the most up-to-date information on the Ignite-UX product, refer to the latest version of the *Ignite-UX Release Notes HP-UX 11i*.

  To locate these documents, go to the HP-UX Software Deployment docs page at: http://www.hp.com/go/sw-deployment-docs. On this page, select **HP-UX Ignite-UX**.

- **Problem**

  When upgrading from VxVM 5.0 on HP-UX 11i v3 to VxVM 5.1 SP1 on HP-UX 11i v3 using the `update-ux` command, the following warning may be logged in the `/var/opt/swm/swm.log` file:

  ```
  WARNING: The following was found while selecting software:
  ```

- The following software has dependencies that could not be found
in the source or target:

- PHCO_40305.VMPRO-PRG,r=1.0 depends on
PHCO_40294.VXVM-RUN,a=HP-UX_B.11.31_IA,p=SD |
PHCO_40294.VXVM-RUN,a=HP-UX_B.11.31_PA,p=SD

Workaround

This message can be safely ignored.

To avoid the message, you can remove the patch PHCO_40305 from the software depot that
is provided as input to the update-ux command, before starting the upgrade.

- **Problem**

  The vxbrk_rootmir command fails with the following error if VxVM volume names contain
  quoted strings ("):

  VxVM vxbrk_rootmir INFO V-5-2-4023 06:52: Checking specified disk(s)
  for presence and type

  VxVM vxbrk_rootmir INFO V-5-2-4679 06:52: Using new-style DSF names

  VxVM vxbrk_rootmir INFO V-5-2-4043 06:52: Mirroring root disk

  VxVM vxrootmir INFO V-5-2-2501 06:52: Gathering information on the
  current VxVM root configuration

  VxVM vxprint ERROR V-5-1-625 Error compiling pattern: unrecognized
  variable name

  Workaround

  Do not use quoted strings (") in volume names.

- **Problem**

  When a DRD upgrade is attempted from VxVM versions earlier than VxVM 5.0.1 to VxVM
  5.I SP1, the DRD clone does not boot although the DRD update completes successfully.

  Workaround

  The issue is due to a problem in the VRTSvxvm preinstall script. Patch will be released in
  future to fix this issue.

- **Problem**

  When the Veritas Enterprise Administrator is started from the command line using the
  /opt/VRTSob/bin/vea& command, the following message is logged in the /var/adm/
  syslog/syslog.log file:

  Allocator: INFO:File /etc/default/vxassist: Can not open

  Workaround

  The message does not impact any functionality and can be safely ignored. There is no
  workaround for this issue.