

# HP LeftHand OS Version 12.5 Release Notes

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## Description

These release notes describe Version 12.5 software for the HP StoreVirtual Storage product, which contains the following components:

- HP LeftHand OS Software Version 12.5.00.0563
- HP StoreVirtual Centralized Management Console Version 12.5.00.0547
- HP StoreVirtual LeftHand OS Command Line Interface (CLI) Version 12.5.0.328
- HP StoreVirtual REST API Version 1.3
- HP StoreVirtual VSA for VMware vSphere, HP StoreVirtual VSA for Microsoft Hyper-V, and HP StoreVirtual VSA for KVM Version 12.5.00.0563
- HP StoreVirtual Failover Manager for VMware vSphere, HP StoreVirtual Failover Manager for Microsoft Hyper-V, and HP StoreVirtual Failover Manager for KVM software Version 12.5.00.0563
- HP StoreVirtual Application Integration Solution Pack Version
  - HP StoreVirtual Application Aware Snapshot Manager Version 12.5.0.323
  - StoreVirtual DSM for Microsoft Windows MPIO Version 12.0.00.369 (installs Microsoft certified DSM driver Version 12.0.0.371)
  - StoreVirtual Multi-Path Extension Module (MEM) for vSphere Version 12.0.0.61
  - HP StoreVirtual Recovery Manager Version 1.5.0.324
  - HP StoreVirtual Storage Replication Adapter (SRA) 2.0 Version 12.5.0.181
- HP LeftHand SNMP MIBs Version 12.5.00.0563

These release notes are current as of the published date.

## Platforms supported for this release

- HP StoreVirtual VSA 2014 for VMware vSphere
- HP StoreVirtual VSA 2014 for Microsoft Hyper-V
- HP StoreVirtual VSA 2014 for KVM
- HP StoreVirtual VSA for vSphere
- HP StoreVirtual VSA for Hyper-V
- HP StoreVirtual 4335
- HP StoreVirtual 4730
- HP StoreVirtual 4730 FC
- HP StoreVirtual 4630
- HP StoreVirtual 4530
- HP StoreVirtual 4330
- HP StoreVirtual 4330 FC
- HP StoreVirtual 4130
- HP P4900 G2
- HP P4800 G2
- HP P4500 G2

- HP P4300 G2
- HP P4000 VSA

## Update recommendation

HP recommends that all customers running an earlier version of software upgrade to Version 12.5.

As a best practice, HP recommends upgrading software during times of non-peak activity to minimize any potential application impact.

## Supersedes information

Version 12.5 supersedes all previous versions on StoreVirtual 4000 Storage, P4000 G2 SAN Solutions, StoreVirtual VSA (including StoreVirtual VSA 2014), and P4000 VSA.

## Languages

Version 12.5 software supports the following languages:

- English
- Simplified Chinese
- Japanese
- Korean
- Spanish

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**NOTE:** The client version of the CLI is localized. The on-system CLI and the storage system Configuration Interface are not localized.

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## Enhancements

Version 12.5 includes the following enhancements:

- Two-node quorum, which allows for a Quorum Witness in a two-node configuration. The status of Quorum Witness is displayed in the output of the `getNSMInfo` and `getGroupInfo` commands.
- Support for iSCSI split network. Information about the split network (which network interface being used) is displayed in the `getNSMInfo` (NSM category) and `getGroupInfo` (NIC category) commands.
- HP StoreVirtual VSA KVM for Red Hat Enterprise Linux 6.6 and CentOS 6.6.
- VMware vSphere 6.0 support for MEM.
- Support for SCVMM 2012 R2.

## Fixes

- Added support for TLS v1.2 to partially fix the OpenSSL security vulnerability (POODLE).
- The "Upgrading memory" section in the *HP StoreVirtual Storage Upgrade Guide* was corrected to accurately reflect the scenarios in which memory must be upgraded. Further, the table of P4300 G2 and P4500 G2 models that was previously listed was removed.
- The alert that displays when a Fibre Channel port is down now correctly displays the cluster membership.
- After deleting a NIC bond in a single node cluster, the cluster status no longer displays an error message (VIP Error: VIP lock failed). The software was updated to retrieve the updated interface name (instead of the cached interface name) and recreate the VIP if it gets deleted.
- When creating a new server cluster using the Server Cluster wizard, the wizard will no longer list existing servers to the New Server Cluster table.

- The file contents of the Exported System Summary are now correctly delimited by a comma (,). Previously, the contents were incorrectly delimited by “tohten” (Japanese comma character).
  - The issue in which StoreVirtual 4330 Storage systems would intermittently lose ping when configured with 10 GB network cards has been fixed in a patch containing updated Emulex firmware and driver versions. The issue was originally fixed in Patch 35023 (for Version 10.5) and Patch 40017 (for Version 11.0). However, newer Emulex driver/firmware patches have been released that supersede those patches - Patch 50002 (for Version 12.0), Patch 45012 (for Version 11.5), and Patch 35028 (for Version 10.5).
  - Previously, when upgrading a ProLiant server using the HP Customized ESXi image, it caused the StoreVirtual VSA RDMs to disappear. The hpsa driver has been updated and can be downloaded from the links listed in the "Contents of the HP supplied VMware ESXi images" document, located at:  
<http://h20564.www2.hp.com/hpsc/doc/public/display?docId=c04403538>  
 Locate the scsi-hpsa driver at version 5.x.0-60 or later for the VMware ESXi version you are running. The updated driver resolves this issue.
  - When swapping an existing storage system with another storage system that is not in the cluster and you select the **Maintain storage-system site relationship** option on the Swap Cluster Storage Systems window, the swap will complete successfully. If, there is a VIP error, the swap will still complete and a critical alarm about the VIP appears.
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- NOTE:** The **Maintain storage-system site relationship** option is not currently documented in the "Exchange a storage system in a cluster" section of the *HP StoreVirtual Storage User Guide*. The option will be documented in a future release of the guide.
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- In a Remote Copy configuration in which the management groups on the primary storage are running LeftHand OS v11.5 or earlier and the management groups on the remote (secondary) storage are running LeftHand OS v12.5, the Remote Copy feature now works correctly. This is fixed in LeftHand OS version 12.5.00.0563.

## 12.0 Patch Set 01

The following fixes in 12.0 Patch Set 01 are included in Version 12.5.

### LeftHand OS

- Restripping volumes no longer causes the volume usage to be reported incorrectly.
- The network statistics log is now copied to the /var/log directory (where all logs are collected). Previously, because the log was not copied to this directory, network errors could not be analyzed and thresholds were created to produce network alarms.
- When modifying flow-control settings for a bond, it will now complete successfully. Previously, modifying the settings failed with the message, "The flow control was not set. An unknown error occurred".
- After upgrading to LeftHand OS 11.5, the CMC displayed a warning about parity initialization even though there were no issues with disks or logical volumes. This fix removes the warning.

## HP StoreVirtual VSA

- Improved the message that displays when the 4 TB StoreVirtual VSA is nearing expiration. The improvement is to help users determine the action they need to take.

## Rest API

- Repaired an issue that previously caused the CMC to stop collecting entries for the REST API debug and Audit log files.

## SSDs

- Removed the minimum drive firmware check for SSD drives, which previously caused the CMC to generate a warning alarm that the drive firmware was an older version ("down-rev").

## 12.0 patch fixes included in 12.5

Patch 50001 – This patch resolves an issue in which the LeftHand OS 12.0 CMC does not display the correct iLO firmware version after upgrading to iLO version 2.03.

Patch 50003 – This patch fixes the issue of setting the frame size when the NIC used on the VSA system is an E1000 (Intel 82545EM Gigabit) Ethernet NIC.

Patch 50011 – This patch fixes an issue with a subset of volumes going offline when rebalancing occurs after upgrading to LeftHand OS v12.0.

Patch 50012 – This patch fixes an issue with data corruption that may occur on a remote volume when copying from a RAID5 or RAID6 volume and the primary source is down.

## Patches supported with 12.5

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**NOTE:** Although these patches are supported with 12.5, the individual patch release notes may not specifically list 12.5 support.

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- 10059-11 (Remote Copy patch)
- 10111
- 10118
- 10125
- 10126
- 10128
- 10129
- 10133
- 10138
- 10171-02
- 10173
- 10175
- 10176-02
- 10177 (localization patch)
- 10178
- 10179
- 10181
- 10183

## Prerequisites

The patches listed in [Table 1 \(page 7\)](#) are prerequisites for upgrading to 12.5 and they are installed automatically through the Online Upgrade feature. Firmware patches are only installed if necessary for your hardware. See [“Installation and upgrades” \(page 16\)](#) for information about workarounds for firmware and hardware upgrades.

**Table 1 Prerequisite patches for upgrading**

Patch	Description
10136	Delivers the latest HP Smart Array P410 RAID controller firmware (5.70).
10137	Delivers the latest HP Smart Array P410i RAID controller firmware (5.70).
10147	Ensure s that any patch or LeftHand OS upgrade applied after version 10.5 is successful. Only installable on 10.5 systems and required for any upgrades from 10.5.
10174	This patch updates the Emulex 10 GbE NIC firmware version to 4.9.311.
10184	This patch updates the iLO 2 firmware to version 2.27 on P4000 G2 systems.
10185	This patch updates the iLO 3 firmware to version 1.82 on the P4800 G2 system.
10186	This patch updates the iLO 4 firmware to version 2.10 on HP StoreVirtual 4x3x systems.
30528	This patch updates the Emulex 10 GbE NIC firmware to version 10.2.477.10 and driver to version 10.2.477.6. Only installable on 10.5 systems and required for any upgrades from 10.5.
45012	This patch updates the Emulex 10 GbE NIC firmware to version 10.2.477.10 and driver to version 10.2.477.6. Only installable on 11.5 systems and required for any upgrades from 11.5.
50002	This patch updates the Emulex 10 GbE NIC firmware to version 10.2.477.10 and driver to version 10.2.477.6. Only installable on 12.0 systems and required for any upgrades from 12.0.

**NOTE:** Patches 10136 and 10137, which contain a firmware update for the RAID controller on specific platforms, are automatically applied during the 12.5 upgrade. These patches are applied before the LeftHand OS software is upgraded and they require a reboot. Depending on the size of your configuration, the patch installation could take a few minutes to a few hours to complete. Plan the upgrade accordingly.

HP recommends upgrading firmware before upgrading to Version 12.5. Firmware upgrades require rebooting the storage systems. Completing required firmware upgrades first ensures that the Version 12.5 upgrade is accomplished more quickly. Review the HP Single Point of Connectivity Knowledge (SPOCK) website for firmware updates at:

<http://www.hp.com/storage/spock>

## System requirements

### HP StoreVirtual Centralized Management Console (CMC)

- For the CMC complete installation, 35 MB disk space and 50 MB RAM during runtime
- Minimum monitor resolution for the CMC is 1024 x 600

### Microsoft System Center Virtual Machine Manager (SCVMM) 2012 SP1

Integration is available on System Center Virtual Machine Manager 2012 SP1 running on Windows Server 2012. Hyper-V hosts in this configuration may run:

- Windows Server 2008 R2
- Windows Server 2012

**NOTE:** Windows Server 2012 R2 is not supported with SCVMM 2012 SP1.

## HP StoreVirtual Application Integration Solution Pack

- HP StoreVirtual Application Aware Snapshot Manager
  - Windows
    - Windows Server 2008
    - Windows Server 2008 R2
    - Windows Server 2008 R2 Core
    - Windows Server 2012
    - Windows Server 2012 R2
    - Windows Server 2012 R2 Core
    - Microsoft .NET 3.5 or later
  - VMware
    - vSphere 4.1
    - vSphere 5.0 and 5.1
    - vSphere 5.5
    - vSphere 6.0
- StoreVirtual DSM for Microsoft Windows MPIO
  - Windows Server 2008
  - Windows Server 2008 R2
  - Windows Server 2012
  - Windows Server 2012 R2
- HP StoreVirtual LeftHand OS Command Line Interface (CLI)
  - 10 MB available space
  - Windows Server 2008
  - Windows Server 2008 R2
  - Windows Vista
  - Windows 7
  - Windows Server 2012
  - Windows Server 2012 R2



- HP StoreVirtual Recovery Manager
  - Microsoft .NET 3.5 or later on the installer client
  - SAN/iQ Version 9.5 or LeftHand OS Versions 10.x or later
- HP StoreVirtual Storage Replication Adapter (SRA)
  - Microsoft .NET 3.5 or later
  - SAN/iQ Version 9.5 or LeftHand OS Versions 10.x or later
  - VMware® vCenter Server™ Site Recovery Manager™ version 5.0.1 or later, 5.1 or later, 5.5, 5.8, 6.0
  - Site Recovery Manager running on two sites

### **HP StoreVirtual VSA**

- Windows Server
  - Windows Server 2008 SP2 (except Server Core installations)
  - Windows Server 2008 R2
  - Windows Server 2012
  - Windows Server 2012 R2
- VMware vSphere
  - vSphere 5.0, 5.1, and 5.5
  - vSphere 6.0
- Linux (KVM)
  - CentOS 6.6
  - Red Hat Enterprise Linux 6.6

## Upgrading the SAN

Automatic Online Upgrades are supported in Version 9.x or later. See the *HP StoreVirtual Storage Upgrade Guide* for more information.

### Supported upgrade paths

Direct upgrades to Version 12.5 can be performed from the following released versions:

- Version 12.0
- Version 11.5
- Version 10.5

Upgrading a management group from 9.x or 10.0 to 12.5 requires two upgrades. For 9.x, upgrade to 10.5 first, and then upgrade to 12.5. For 10.0, upgrade to 11.5 first, and then upgrade to 12.5. Use the Online Upgrades feature to complete the upgrade:

1. When prompted by the CMC to upgrade first to either Version 10.5 or 11.5, select the option to upgrade to the applicable version, including applicable patches.  
Wait for the upgrade to complete.

2. There are increased memory requirements for the StoreVirtual VSA in Version 11.x, as listed in the *HP StoreVirtual Storage VSA Installation and Configuration Guide*. Ensure that you increase the memory in the StoreVirtual VSAs before upgrading to Version 12.5.
3. Select the option to upgrade to Version 12.5, including applicable patches.  
Wait for the upgrade to complete. When finished, the system will be running Version 12.5.

## Upgrades and Manager Quorum Alarms

In LeftHand OS Version 10.0, the notifications for optimum manager configuration in a management group moved from the Best Practice Summary to Alarms. Therefore, after upgrading to Version 10.0 or later, you might receive alarms about manager configurations that do not meet the recommended best practice.

## Compatibility/interoperability

For a complete list of supported LeftHand OS software releases and application software compatibility, including for the Failover Manager, Microsoft Windows Server, and VMware vSphere, see the *HP StoreVirtual Compatibility Matrix*, which is located at:

<http://www.hp.com/go/StoreVirtualcompatibility>

- ⓘ **IMPORTANT:** HP Insight Remote Support 7.0.8 (with Content Level Update 1) supports LeftHand OS 12.5.
- HP Insight Control for VMware vCenter 7.2.3 or later is required for storage management in vCenter with management groups running LeftHand OS 12.5.

## Cross-version compatibility for Remote Copy, the CLI, and the Application Aware Snapshot Manager

The LeftHand OS versions and versions supported for these features and applications are listed in Table 2 (page 10).

**Table 2 Cross-version compatibility**

	LeftHand OS version						
	8.x	9.0	9.5	10.0	10.5	11.x	12.x
<b>CLI</b>							
8.x	✓	✓	✓				
9.x	✓	✓	✓	✓			
10.x		✓	✓	✓	✓	✓	✓
11.x			✓	✓	✓	✓	✓
12.x			✓	✓	✓	✓	✓
<b>Remote Copy<sup>1</sup></b>							
9.0	✓						
9.5	✓	✓					
10.0	✓	✓	✓	✓			
10.5	✓	✓	✓	✓	✓		
11.x	✓	✓	✓	✓	✓	✓	✓
12.x	✓	✓	✓	✓	✓	✓	✓
<b>Application Aware Snapshot Manager</b>							

**Table 2 Cross-version compatibility** (continued)

	LeftHand OS version						
8.x	✓						
9.0	✓	✓					
9.5	✓	✓	✓				
10.0	✓	✓	✓	✓			
10.5	✓	✓	✓	✓	✓		
11.x			✓	✓	✓	✓	✓
12.x			✓	✓	✓	✓	✓

<sup>1</sup> When using Remote Copy with management groups running different versions of the LeftHand OS, the management group that is the destination for the remote copy must be running the later version. For example, a management group running version 10.5 can create a remote copy to a management group running 12.0. See the *HP StoreVirtual Storage Upgrade Guide* for more information.

## SRA and Site Recovery Manager compatibility

**Table 3 StoreVirtual SRA and vCenter Site Recovery Manager compatibility**

	HP StoreVirtual Storage Replication Adapter <sup>1</sup>				
VMware vCenter Site Recovery Manager version	9.5	10.0	10.5	11.x	12.x
5.0	✓				
5.0.1 or later		✓	✓	✓	✓
5.1 or later	✓	✓	✓	✓	✓
5.5			✓	✓	✓
5.8				✓	✓
6.0				✓	✓

<sup>1</sup> If you run the HP StoreVirtual SRA Version 11.x or 10.x with Site Recovery Manager 5.0, the Recovery operation will not work and the Site Recovery Manager services on the recovery site will stop working. There is no way to make the Recovery operation work with Site Recovery Manager 5.0; this is a known issue in Site Recovery Manager 5.0 and was fixed by VMware in Site Recovery Manager 5.0.1. You must uninstall the Site Recovery Manager and the HP StoreVirtual SRA on both the protected and recovery sites, and then install the Site Recovery Manager Version 5.0.1 or Version 5.1 and the supported HP StoreVirtual SRA Version (11.x or 10.x).

## Mixed LeftHand OS software versions in management groups

HP StoreVirtual Storage management groups can accommodate storage systems that are running different versions of the LeftHand OS software. However, you can only add storage systems that are running a greater software version to a management group that is running an earlier software version. Storage systems with LeftHand OS 12.5 can join management groups running LeftHand OS versions 12.0, 11.5, and 10.5. Storage systems with LeftHand OS 12.5 cannot join management groups running LeftHand OS versions 10.5 and earlier.

If you partially upgrade an HP StoreVirtual Storage management group, the management group will continue to run on the earlier software version until the entire cluster is upgraded. To determine the version of your management group, see the *HP StoreVirtual Storage Upgrade Guide*.

## Using Space Reclamation

- Space Reclamation must be enabled manually after upgrading to Version 12.5 (if it was not previously enabled in Version 12.0).
- Ensure that your storage systems are running normally after upgrading and before enabling Space Reclamation. Once Space Reclamation is enabled, you cannot downgrade to earlier versions of the LeftHand OS.
- Space Reclamation increases the memory utilization of the LeftHand OS. StoreVirtual VSAs may require additional memory allocation to use Space Reclamation. Also, some P4000 G2 storage systems may require a memory upgrade to run Space Reclamation. More information is available at [www.hp.com/go/P4000G2memory](http://www.hp.com/go/P4000G2memory).

Information about Space Reclamation is available in the *HP StoreVirtual Storage User Guide* and the *HP StoreVirtual Storage Online Help*.

## Workarounds

### Fibre Channel

- **After rebooting a storage system, volumes do not immediately display as mounted in the CMC**  
When viewing the Servers category, Volume and Snapshots tab, the Active Connection status of volumes reflected in the CMC may take approximately 10 seconds to update following the reboot of a Fibre Channel storage system.
- **Set boot from SAN using the Emulex HBA**  
To use boot from SAN with the Emulex HBA, use Emulex OneCommand and set the boot LUN to 5.
- **For a Fibre Channel volume, the Performance Monitor reports 0 . 0 for the first volume statistics when a second volume is created and mounted on the same server**  
This happens because the path of first volume gets changed when the second volume is mounted, so the Performance Monitor displays 0 . 0 for the older path. To solve this issue, remove the older path and add the new path of the first volume to see the correct performance values.
- **Windows Server 2012 Hyper-V cluster shows disk errors on the active node during scheduled application-managed snapshots when using Fibre Channel**  
The snapshot process quiesces the volume, then takes the snapshot, then mounts the snapshot using Fibre Channel, then unmounts the snapshot. Unmounting the snapshot breaks the Fibre Channel connection, and this sometimes generates MPIO and disk errors in the Windows Event log. You can ignore these errors. The snapshot completed successfully.

### HP StoreVirtual Centralized Management Console

- **Incorrect volume information displayed in the CMC after storage system is brought back online**  
After bringing a storage system back online after a scheduled shutdown, the CMC may display volume information for a different volume in the same management group but in a different cluster. To resolve this issue, close and re-open the CMC.
- **Active Directory user credentials fail login on a Version 11.0 node in a mixed-version management group**  
This issue will occur when the management group contains nodes running Versions 10.x and 11.0. Version 11.0 is not supported in a mixed-version management group. To resolve the issue, either upgrade all nodes in the management group to the same version (11.0 or later) or upgrade the affected node to Version 11.5.

- **When a node is added to a two-node system configured with Quorum Witness, the NFS file share used for Quorum Witness is deleted without warning**

Per design, the addition of a third node eliminates the need for Quorum Witness and the Quorum Witness file share is automatically deleted. However, no warning is displayed to advise of the deletion.

- **Snapshot schedules which were paused for upgrade to 12.x did not resume after the upgrade finished**

In some circumstances, snapshot schedules may not resume after upgrading to Version 12.x and applying patches. To resolve this issue, manually resume the snapshot schedules.

- **The CMC displays an error message when changing settings in a management group or storage system**

When performing any operation that modifies settings for a storage system or a management group in the CMC, the following message may display:

Unable to get email settings because of CIM or management gateway issue  
Click **OK** to close the message. The operation you are performing will complete successfully.

- **Volume and snapshot status in a management group does not change to unavailable when the evaluation period expires**

When the evaluation license period for a management group expires, you will no longer have access to volumes in the management group. However, the volume and snapshot status will still display as online. The events for license expiration have changed to Warning (at 60 days) and Critical (at 15 days) to notify you that the license is going to expire. To avoid losing access to volumes, be sure to install a permanent license before the evaluation license expires.

## HP StoreVirtual DSM for Microsoft Windows MPIO

- **StoreVirtual DSM may leave an entry in the Windows event log indicating that it cannot find message resources**

The StoreVirtual DSM attempts to make log entries without having the proper error code messages available from the LeftHand OS and other sources. These entries show in the Windows event log as the following message:

```
The description for Event ID #xxxx from source LefthandDSM cannot be found. Either the component that raises this event is not installed on your local computer or the installation is corrupted. You can install or repair the component on the local computer.
```

These messages do not indicate an issue with the StoreVirtual DSM and can be ignored.

- **Installing the Version 12.x StoreVirtual DSM on a Microsoft Cluster Node configured for Fibre Channel may cause the failover cluster instance to become inaccessible**

Due to an issue with the Microsoft DSM, when installing the StoreVirtual DSM, and after the required reboot of the storage system, the Fibre Channel-configured Microsoft failover cluster cannot be discovered, opened, or managed.

To resolve this issue, uninstall the StoreVirtual DSM and rediscover the Microsoft cluster instance. In some cases, the Microsoft cluster may not be discoverable, and may have to be reconfigured.

## HP StoreVirtual LeftHand OS Command Line Interface

- **If an invalid volume name is entered when issuing the createVolume command, the error message does not clearly explain the issue**

When this issue occurs, the error message that displays is "Unexpected Error", which does not clarify the problem. A more descriptive error message will be displayed in a future release.

- **If an invalid cluster name is entered when issuing the createCluster command, the error message does not clearly explain the issue**

When this issue occurs, the error message that displays is "Unexpected Error", which does not clarify the problem. A more descriptive error message will be displayed in a future release.

- **A disassociated Active Directory user can still execute CLI commands**

After a user is removed from an Active Directory group, the user can still successfully execute CLI commands. To resolve this issue, perform one of the following actions:

- Reboot the entire management group.
- Create and run a script containing five `getnsminfo` commands from five different authorized users on the storage system that the user is logged in to. This will flush the user out of the cache.

## HP StoreVirtual MEM for VMware

- **Static discovery targets are not removed after deleting the volume and rebooting the ESXi 6.0 server**

To resolve this issue, you must manually delete the static discovery targets in the Static entries table. The deletion initiates an HBA rescan. After the rescan, the targets are removed.

- **After removing a VSA from a cluster containing VSAs, the CMC shows a failed MEM session for a volume that is connected to an ESXi server**

To resolve this issue, perform a rescan on the ESXi server. The failed MEM session may continue to display for up to one hour in the CMC (Sessions tab) but it will eventually be removed.

- **Additional best practices for using the HP StoreVirtual MEM for VMware**

In addition to the best practices already included in the *HP StoreVirtual Storage Multipathing Deployment Guide* (<http://www.hp.com/support/StoreVirtualManuals>), the following best practices also apply:

- Disable DelayedACK on the ESXi server. See the "ESX/ESXi hosts might experience read or write performance issues with certain storage arrays" Knowledge Base article, available at: [http://kb.vmware.com/selfservice/microsites/search.do?language=en\\_US&cmd=displayKC&externalId=1002598](http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=1002598)
- Use the following guidelines to determine when to implement the StoreVirtual MEM for VMware or Native VMware Multipathing:  
The StoreVirtual MEM for VMware is recommended for:
  - Multi-site storage clusters (where network latency between sites is greater)
  - Configurations using SSD drives for Random workloads and latency is below 3 ms
  - Configurations using HDD drives for Random workloads and latency is below 30 ms

Native VMware Multipathing is recommended for:

- Volumes that are accessed by ESXi and Windows virtual machines (for example, for VMware Consolidated Backup)
- Configurations requiring connections through storage routers
- Large VMware clusters (large storage clusters or multiple server NICs)

## HP StoreVirtual SRA

- **SRA tasks (test, failover, reprotect) fail if a volume name within the management group contains special characters**

If you plan to use the Storage Replication Adapter, ensure that all volume names do not contain special characters, which include:

! @ # \$ % ^ & \* ( )

## HP StoreVirtual VSA

- **If using a distributed switch, StoreVirtual VSA for VMware vSphere installer displays the error Unusable network encountered**

The HP StoreVirtual VSA for VMware vSphere Installer does not support distributed switches and will not display a distributed switch as an option.

To resolve this issue, set up a standard switch before deploying a StoreVirtual VSA for vSphere. Select the standard switch while deploying the StoreVirtual VSA for vSphere installer.

- **Adding a 1 TB StoreVirtual VSA to management group containing 50 TB StoreVirtual VSAs generates error messages**

A management group that contains an improperly licensed StoreVirtual VSA may trigger a 60 day trial message.

Purchase a license for the StoreVirtual VSA during the 60 day trial period. At the end of the 60 day trial period, functionality will be disabled.

- **When using StoreVirtual VSAs, creating a management group with the wizard, and selecting Create Volume on the Create Management Group wizard, the CMC reports Insufficient Space to Make Requested Change**

To resolve this issue, do not create a volume using the wizard. Wait approximately 10 minutes for the cluster category, System Use tab, to update the report of Raw space and Usable space to match the drive capacity of the StoreVirtual VSAs in the cluster. Once the space reporting is updated, create a volume using the Cluster Tasks or Volume Tasks menu, or using the right-click menu on the cluster or volume category.

## Hardware and platforms

- **In the HP StoreVirtual 4730, when two drives are unavailable and the hot spare is rebuilding, the Device status is not reported properly on the RAID Setup tab in the CMC**

The status remains at 0% `estimating`. However, you can see the updated RAID rebuilding status, with the percentage completed and estimated time remaining, on the storage system Hardware Information tab.

- **Failed drive status in HP StoreVirtual 4730 shows as Hot spare down, Off or removed**

When a drive is removed in an HP StoreVirtual 4730, that drive status is incorrectly reported as `Hot spare down, Off or removed`. However, the hot spare drive status is either active or rebuilding against the failed drive at that point in time. The removed drive is the only drive that is off or removed.

## Installation and upgrades

- **Registering a storage system using Import License Keys fails with an incomplete error message**

When using the Import License Key feature, if the license key file contains an incorrectly formatted license key, an error message appears stating, "The following license key file does not match the feature key of any system." The error message does not describe the requirements for properly formatted license keys. The error message will be improved in a future release.

The license key information includes the required file name format and optional characters for tracking purposes as follows:

  - Required—The file name format must contain the storage system MAC address using only upper case alphanumeric characters (for example, 00.15.5D.D4.F5.04.dat).
  - Optional—Additional file name characters may be added by the StoreVirtual administrator to help manage or track feature key usage (for example, DatacenterB\_Rack3\_00.15.5D.D4.F5.04.dat).
- **On RHEL 6.6–32 bit, upgrading the CMC from 11.5 to 12.0 using Online Upgrade does not use the custom CMC installed path**

While upgrading the CMC, if it is installed into a custom directory, for example `C:\Users\Administrator\Desktop\UI`, the installer does not select that custom directory for the upgrade. The installer wizard presents the default directory in the **Choose Install Folder** window. You must navigate to the custom directory to have the CMC upgraded into the existing location.
- **The CMC becomes unresponsive after stopping an online upgrade using F11**

Under certain conditions, you may stop an active upgrade process by pressing **F11**. This action is only available when a discreet upgrade operation is taking an unexpectedly long period of time (approximately 5 minutes). Pressing **F11** aborts the upgrade process, but it causes the CMC to be unresponsive. To resolve this issue, close and relaunch the CMC.
- **During the online upgrade from 10.5 to 11.x or later, if the storage system encounters an error such as a disk failure, and is powered off after the second stage of the upgrade has started on the storage system, the storage system becomes unavailable and the CMC becomes unresponsive**

Stop the CMC using the Windows Task Manager. Contact HP Support for assistance with the storage system issue.
- **The HP Support Alerts window in the installer wizard uses incorrect characters and font set for Japanese**

This issue only occurs on the HP Support Alerts page. You can use the CMC without any other font issues.



## Networking

- **If you create a bonded interface on the primary site while Remote Copy is occurring, the routing information for the bond will be deleted**

After creating the bond, enter the routing information and Remote Copy will work successfully.

- **The CMC allows a storage system or VSA to be added when its LeftHand OS network interface is on a different subnet than the management group's LeftHand OS network interface**

Prior to adding a node to a management group, ensure that the traffic type of its network interface is configured the same as other nodes in the management group. If this issue occurs, use the Configuration Interface to do one of the following:

- Configure the IP addresses correctly.
  - Remove the node from the management group, configure the node's IP addresses correctly, and then add it to the management group again.
- **When deleting the ALB bond on a storage system that has been upgraded from 9.5 to 11.5, both NIC ports become disabled**

The ports lose the assigned IP addresses and the CMC cannot find the storage system. To resolve this issue, log in to the Configuration Interface using iLO or KVM solution (Keyboard, Video, Mouse), or connect to the StoreVirtual VSA using Hyper-V Manager or vSphere Client and reassign the IP addresses to the storage system interfaces.

- **10 GB NIC status in TCP status shows failed after changing the NIC Flow Control settings**

Do not configure the flow control or speed settings on 10 GB network interface cards. If you attempt to change the setting, the change does not take effect.

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**NOTE:** The default flow control setting on rack mount storage systems is off. The default flow control setting on blade storage systems is on.

---

To recover from this situation, call HP Support for assistance.

## Notifications and alerts

- **The email alarm does not clear when a DNS server is fixed or comes back online**

The following warning may display when the system attempts to send an email alert:

```
EID_GLOBAL_CONFIG_MISCONFIGURED: The 'Email' configuration status is 'Misconfigured'. If DNS and the email server are unavailable briefly, the email configuration is deleted. When DNS and the email server become available again, this message displays because the email configuration no longer exists. You must reconfigure the email configuration to stop this warning message and begin receiving email alerts again.
```

## Snapshots

- **An application-managed snapshot cannot be taken when Symantec BackUp Exec is simultaneously running on the server where the volumes are mounted**

If this issue occurs, the CMC will indicate that a point-in-time snapshot should be taken. When Symantec BackUp Exec has completed the backup, you can successfully take an application-managed snapshot. As a best practice, ensure that application-managed snapshots are not scheduled or taken at the same time a backup is being performed.

- **When a remote snapshot schedule is first created, the Remote Snapshot Details window displays "N/A" for Completion Time and "Never" for Next Occurrence**

This issue only occurs when the schedule is created. To resolve the issue:

1. In the CMC, select the applicable volume.
2. Select the **Schedules** tab and then select the affected schedule.
3. Select **Schedule Details** and then select **Edit Schedule**.
4. No actual changes need to be made. Click **OK**.

The schedule details should now display correctly.

## Space Reclamation

- **Space is not reclaimed from a volume that was created before Space Reclamation was enabled on the management group**

In this scenario, the CMC does not indicate that the space has been reclaimed after data is deleted from the volume. This issue only occurs with volumes connected to a Windows host server. To avoid this issue, you must first disconnect and then reconnect all volumes in the management group from the host server. The content in the "Enabling Space Reclamation" section of the *HP StoreVirtual Storage User Guide* does not currently include this step. This will be fixed in a future update of the guide. The complete, corrected text is as follows:

After enabling Space Reclamation on the LeftHand OS, perform the following steps from the Windows host server to enable Space Reclamation on all existing volumes:

1. Disconnect and then reconnect all volumes from the Windows host server.
2. Run defragmentation on existing volumes from the host OS, to ensure that you are maximizing the available spaces to be reclaimed.

---

**NOTE:** This is not an issue on volumes that are created after Space Reclamation has been enabled.

---

## Related information

The latest StoreVirtual documentation is available at:

- HPSC: <http://www.hp.com/support/StoreVirtualManuals>
- Storage Information Library: <http://www.hp.com/go/storage/docs>

For additional information, see the following StoreVirtual white papers:

- *HP StoreVirtual Storage VSA Installation and Configuration Guide*:  
<http://www8.hp.com/h20195/v2/GetDocument.aspx?docname=4AA4-8440ENW>
- *Configuring HP LeftHand Storage with Microsoft Windows Server*:  
<http://www8.hp.com/h20195/v2/getDocument.aspx?docname=4AA2-5502ENW>
- *HP LeftHand Storage with VMware vSphere: Design considerations and best practices*:  
<http://www8.hp.com/h20195/v2/GetDocument.aspx?docname=4AA3-6918ENW>
- *HP StoreVirtual 4000 Storage: Network design considerations and best practices*:  
<http://www8.hp.com/h20195/v2/GetDocument.aspx?docname=4AA2-5615ENW>

## HP Technical Support

For worldwide technical support information, see the HP support website:

<http://www.hp.com/support>

Before contacting HP, collect the following information:

- Product model names and numbers
- Technical support registration number (if applicable)

- Product serial numbers
- Error messages
- Operating system type and revision level
- Detailed questions

Receive support alerts announcing product support communications, driver updates, software releases, firmware updates, and customer replaceable component information, in your e-mail by signing up at:

<http://www.hp.com/go/myadvisory>

To change options for support alerts you already receive, click the link to **Sign in** on the right.

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