

HP LeftHand OS Version 12.0 Release Notes

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Description

These release notes describe Version 12.0 software for the HP StoreVirtual Storage product, which contains the following components:

- LeftHand OS Software Version 12.0.00.0725
- HP StoreVirtual Centralized Management Console Version 12.0.00.0725
- HP StoreVirtual LeftHand OS Command Line Interface (CLI) Version 12.0.0.543
- HP StoreVirtual REST API Version 12.0.00.0725
- HP StoreVirtual VSA for VMware vSphere and HP StoreVirtual VSA for Microsoft Hyper-V software Version 12.0.00.0725
- HP StoreVirtual Failover Manager for VMware vSphere and HP StoreVirtual Failover Manager for Microsoft Hyper-V software Version 12.0.00.0725
- HP StoreVirtual Application Integration Solution Pack Version 12.0.00.0725
 - HP StoreVirtual Application Aware Snapshot Manager Version 12.0.0.507
 - StoreVirtual DSM for Microsoft Windows MPIO Version 12.0.0.359 (installs Microsoft certified DSM driver Version 12.0.0.354)
 - StoreVirtual Multi-Path Extension Module (MEM) for vSphere Version 12.0.0.55
 - HP StoreVirtual Recovery Manager Version 1.4.0.491
 - HP StoreVirtual Storage Replication Adapter (SRA) 2.0 Version 12.0.0.218
- HP LeftHand SNMP MIBs Version 12.0.00.0725

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 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 HP StoreVirtual Storage software upgrade to HP StoreVirtual Storage Version 12.0.

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

Supersedes information

HP StoreVirtual Storage Version 12.0 supersedes all previous versions on StoreVirtual 4000 Storage, P4000 G2 SAN Solutions, StoreVirtual VSA (including StoreVirtual VSA 2014), and P4000 VSA.

Languages

Version 12.0 software supports the following languages:

- English
- Simplified Chinese
- Japanese
- Korean
- Spanish

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

Enhancements

LeftHand OS Version 12.0 includes the following enhancements:

- Space Reclamation—Reclaim space on thinly and fully provisioned volumes used by Windows Server 2012 or later, and vSphere 5 or later
- StoreVirtual Multi-Path Extension Module (MEM) for vSphere—Provides data path optimization similar to StoreVirtual DSM for Microsoft MPIO
- REST API for StoreVirtual—Enables automation and scripting of clusters, provisioning and volume management
- StoreVirtual VSA term license management—Enforces term licensing for StoreVirtual VSAs
- Support for SCVMM 2012 R2

Fixes

- You can now use the CLI command `deleteSnmpCommunityString` to delete a community string that does not contain an IP mask. Previously, this situation required either using the command and not specifying an IP mask or running the `ClearSnmpSettings` command.
- After changing the administrative user password, the user is correctly logged out of the management group and must log in again. Previously, the user was not logged out, which resulted in the following: events and alarms became unavailable, email settings could not be updated, and values in the performance dashboards displayed as N/A.
- The online help is added for the System Preferences window.
- When creating a management group, you can successfully enter the DNS name for an NTP server. Previously, you had to resolve this issue by entering the IP address of the NTP server instead, or navigating to the management group Time tab and clicking Refresh All.
- The HP Support Alerts window in the installer wizard now correctly displays characters and the font set for the Japanese language.

- The hpsa driver in the HP Customized ESXi image (which can be used to upgrade a ProLiant server from vSphere 5.1 Update 1 (U1) to a later version) has been updated to correct an issue with RDMs. Previously, this issue prevented the StoreVirtual VSA's virtual machine from starting and required a workaround of manually deleting existing RDMs and then adding them again.
- When creating a bond with the type of Adaptive Load Balancing and attempting to set one of the NICs as preferred, the message that displays is now displayed in the applicable language. Previously, the message (A slave of Balance -alb cannot be set as preferred) only displayed in English.
- Due to driver limitations for 10 GbE SFP+ Emulex cards that prevents support for speed and flow control, the CMC was updated so that the **Speed, Duplex** field is disabled (grayed out) on the **Edit Speed, Duplex and Frame Size** dialog box when editing a NIC. Without this field disabled, and if edits were made, it could cause the NIC to become unusable.
- The CMC has been updated to enable users to add, remove, or reorder storage systems in a cluster from one window (Add and Remove Storage Systems). Previously, there were separate screens for each task, which required one task to be completed (and the data restriped) before proceeding with another task.
- When a store process on a storage system goes down, you can now change the communication interface on that storage system. Previously, you had to wait until the store process was back up before being able to change the communication interface.
- The recovery operation for SRA/SRM completes successfully and does not display the "Duplicate LUN 0" message, which previously prevented the recovery operation from completing.
- When splitting the P4800 G2 10 GbE NICS into a custom configuration for iSCSI and management, the TCP speed/duplex reports the correct status.
- Using the CLI, you cannot create an administrative group with a reserved name (for example, root, sanmon, or hpsmh). If you attempt to use a reserved name, an error message will display.
- A fix was implemented to prevent a rare occurrence where two hosts with the same IQN, a primary host and a DR host, were mistakenly connected to the same volume, which caused the primary side stores to become unavailable.
- The format of syslog messages now includes the severity.
- Fixed an issue where VMware 4.1 and 5.x hosts displayed multiple dead paths with non-0 LUN numbers.

11.5 patch fixes included in 12.0

Patch 45002 — This patch fixes an issue with the SRA Reprotect operation for cross-version management groups on HP StoreVirtual systems running LeftHand OS 11.5.

Patch 45003 — This patch corrects cluster utilization levels reported through the CMC on systems running LeftHand OS 11.5.

Patch 45004 — This patch resolves an issue where the REST API, used by OpenStack Cinder drivers, becomes unresponsive.

Patch 45005 — This patch updates the HP System Management Homepage to version 7.4.0-13, which fixes SSL vulnerabilities, on HP StoreVirtual systems running LeftHand OS 11.5.

Patch 45006 — This patch fixes an issue with performance statistics not displaying correctly for clusters that contained StoreVirtual VSAs and that were not configured for Adaptive Optimization.

Patches supported with 12.0

NOTE: Although these patches are supported with 12.0, the individual patch release notes may not specifically list 12.0 support.

- 10059-10 (Remote Copy patch)
- 10111
- 10118
- 10125
- 10126
- 10127
- 10128
- 10129
- 10133
- 10138
- 10144
- 10161
- 10165
- 10166
- 10167
- 10170 (localization patch)
- 10171-02
- 10173
- 10176-02

Prerequisites

The patches listed in [Table 1 \(page 6\)](#) are prerequisites for upgrading to 12.0 and they are installed automatically through the Online Upgrade feature. Firmware patches are only installed if necessary for your hardware. See [“Installation and upgrades” \(page 14\)](#) for information about workarounds for firmware and hardware upgrades.

Table 1 Prerequisite patches for upgrading

Patch	Description
10136-00	Delivers the latest HP Smart Array P410 RAID controller firmware (5.70).
10137-00	Delivers the latest HP Smart Array P410i RAID controller firmware (5.70).
10147-00	Only installable on 10.5 systems and required for any upgrades from 10.5.
10174-00	This patch updates the Emulex 10 GbE NIC firmware version to 4.9.311.

NOTE: Patches 10136 and 10137, which contain a firmware update for the RAID controller on specific platforms, are automatically applied during the 12.0 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 12.0. Firmware upgrades require rebooting the storage systems. Completing required firmware upgrades first ensures the Version 12.0 upgrade is accomplished more quickly. Review HP SPOCK 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 2012
 - Windows Server 2012 R2
 - VMware
 - vSphere 4.1
 - vSphere 5.0 and 5.1
 - vSphere 5.5
- 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, 5.1 or 5.5
 - 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

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 12.0 can be performed from the following released versions:

- Version 11.5
- Version 11.0
- Version 10.5

Upgrading a management group from 8.5, 9.x, or 10.0 to 12.0 requires two upgrades - first to Version 10.5 and then to Version 12.0. Use the Online Upgrades feature to complete the upgrade:

1. When prompted by the CMC to upgrade first to Version 10.5, select the option to upgrade to Version 10.5, including applicable patches.
Wait for the 10.5 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 12.0.
3. Select the option to upgrade to Version 12.0, including applicable patches.
Wait for the upgrade to complete. When finished, the system will be running Version 12.0.

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>

- ① **IMPORTANT:** HP Insight Remote Support 7.0.8 (with Content Level Update 1) supports LeftHand OS 12.0.

HP Insight Control for VMware vCenter 7.2.3 or later is required for storage management in vCenter with management groups running LeftHand OS 12.0.

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 9).

Table 2 Cross-version compatibility

	LeftHand OS version						
	8.x	9.0	9.5	10.0	10.5	11.x	12.x
CLI							
8.x	✓	✓	✓				
9.x	✓	✓	✓	✓			
10.x		✓	✓	✓	✓	✓	✓
11.x			✓	✓	✓	✓	✓
12.x			✓	✓	✓	✓	✓
Remote Copy¹							
9.0	✓						
9.5	✓	✓					
10.0	✓	✓	✓	✓			
10.5	✓	✓	✓	✓	✓		
11.x	✓	✓	✓	✓	✓	✓	✓
12.x	✓	✓	✓	✓	✓	✓	✓
Application Aware Snapshot Manager							
8.x	✓						
9.0	✓	✓					
9.5	✓	✓	✓				
10.0	✓	✓	✓	✓			

Table 2 Cross-version compatibility *(continued)*

	LeftHand OS version						
10.5	✓	✓	✓	✓	✓		
11.x			✓	✓	✓	✓	✓
12.x			✓	✓	✓	✓	✓

¹ 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 ¹				
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				✓	✓

¹ 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 12.0 can join management groups running LeftHand OS versions 11.5, 11.0, and 10.5. You cannot add a storage system running 11.5 or earlier software to a management group that is running 12.0 software.

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 12.0.
- 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.

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

Workarounds

HP StoreVirtual LeftHand OS Command Line Interface

- **CLI command is available to create a remote snapshot schedule**

Creating a remote snapshot schedule uses the same command as creating a snapshot schedule. The following example will be added to the *HP StoreVirtual LeftHand OS Command Line Interface User Guide* in a future release.

```
createSnapshotSchedule scheduleName="schedule0"
starttime="2014-12-09T15:03:00Z" recurperiod="1800" volumeName="volume0"
remoteVolume="volume0" retentioncount=5 remoteip="10.254.114.160"
remoteUserName="admin" remotePassWord="secret"
remoteCluster="Cluster_Name" remoteretentioncount=3
```

- **Output for the `getgroupinfo` command indicates an unlicensed feature**

When issuing the `getgroupinfo` command for a management group, you may see the following status information at the end of the output:

```
STATUS
```

```
value 32774
```

```
description Unlicensed
```

This message indicates that the license key for a feature you are using in your SAN has not been licensed yet. Once you apply the license key, this status message will no longer display. In a future release, more detailed information will be provided for the description.

- **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 Centralized Management Console

- **After deleting a NIC bond in a single node cluster, the cluster status displays the error `VIP Error: VIP lock failed`**

To clear the VIP lock, reboot the storage system. Before rebooting the storage system in a single node cluster, be sure to plan for volumes to go offline and for iSCSI connections to be disconnected.

If you need the manager running on the storage system, contact HP Support for assistance with restarting the store process in the LeftHand OS.

- **Snapshot schedules which were paused for upgrade to 12.0 did not resume after the upgrade finished**

In some circumstances, snapshot schedules may not resume after upgrading to Version 12.0 and applying patches. To resolve this issue, manually resume the snapshot schedules.

- **The Server Cluster wizard may add too many servers to cluster**

While creating the New Server Cluster and clicking the New Server button, if you wait for some time before continuing the task, existing servers appear in the New Server Cluster table. Those existing servers will be added to the server cluster if they are not removed from the list.

To ensure that only the desired servers are selected for the new server cluster:

1. On the Servers Details tab, click **Tasks→New Server** to create the individual servers for the server cluster.
2. When all the individual servers are created, click **Tasks→New Server Cluster** and click **Add Server** to select the desired servers for the server cluster.

- **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.

- **When creating an administrative group, the permission level given to the first management area (Management Groups, RAID, Drive Hot Swap) applies to all other management areas, regardless of what permissions are assigned to the other areas**

A new user assigned to an administrative group with mixed permissions will have the same permissions for all areas that the group has set for the first area. For example, if the group has Read-Only permissions for Management Groups, RAID, Drive Hot Swap, and Full permissions for Network (TCP/IP, SNMP, DNS, Time), a user assigned to that group will have Read-Only permissions for Network as well as for Management Groups, RAID, Drive Hot Swap.

To avoid this issue, create groups with the same permissions in all areas, rather than mixed permissions.

- **Exported System Summary file contents are delimited by 'tohten' (Japanese comma) character**

To import the System Summary data into another application using the .csv format, replace 'tohten' with ',' using a text editor.

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 #xxxxx 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 12.0 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.

Notifications and alerts

- **No alert is issued if DNS servers are unavailable**

This issue will be addressed in a future release.

- **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.

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.

- **Alert for Fibre Channel port down displays incorrect cluster membership**

If a Fibre Channel storage system in a management group is rebooted or otherwise loses connectivity to the Fibre Channel fabric, it will generate an alert for each port on the storage system. If there are multiple clusters in the management group, the alerts will report the incorrect cluster membership for the 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.

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).
- **Mixed versions of firmware and drivers may cause diminished reliability of data transfer, including dropped packets**

When updating NIC driver and firmware, it is a best practice to match the driver and firmware versions. If this is not possible, HP recommends using a driver version that is newer than the firmware version.

- **Memory upgrade instructions need clarifying**

The "Upgrading memory" section in the *HP StoreVirtual Storage Upgrade Guide* describes two scenarios in which a memory upgrade may be required (StoreVirtual VSA general memory usage or Space Reclamation) and lists the affected platforms in a table entitled, "Memory required." A memory upgrade would only be required if either of the scenarios listed is applicable to your environment, which will be indicated by the CMC. Further, the P4500 G2 28.8 TB platform is incorrectly listed as needing a memory upgrade. This platform ships with 6 GB of memory and would not need an upgrade to support Space Reclamation. This content will be corrected in a future release.

- **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.

- When installing the CMC on SUSE Linux Enterprise Server 12, the installation wizard opens in console mode**
 SUSE Linux Enterprise Server 12 does not install Java by default, so the CMC installer opens in console mode and displays the message, "Graphical Installers are not supported by the VM. The console mode will be used instead."
 There are two possible solutions to this issue:
 - Continue the installation using the console mode.
 - Install the package `libXtst6-32bit-1.2.2-3.60.x86_64.rpm` on SUSE Linux Enterprise Server 12. The CMC installer will open in GUI mode.
- CMC post-qualification fails to detect failed upgrade**
 In some circumstances, an online upgrade fails and the Upgrade Summary reports that the upgrade was successful. However, the version reported in the Upgrade Summary is incorrect. To resolve this issue, retry the upgrade.
- 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, 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.
- After upgrading from 10.5 to 11.x or later, the Performance Monitor does not show any data for the management group that was created using a 10.5 CMC**
 This issue is fixed but requires that you complete the following one-time configuration steps after completing the upgrade from 10.5 to 11.x or later. If you are upgrading from 11.0 to 11.5, this issue does not occur.
 - Select **Performance Monitor Tasks**→**Reset to Defaults**.
 - Select **Performance Monitor Tasks**→**Save Statistics Settings**.
 - Verify the settings by observing the Performance Monitor.
- 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.
- No warning that 10.x or later upgrade does not complete when the management group contains unsupported platforms**
 If a management group contains storage systems that do not support an upgrade to 10.x or later and you attempt to upgrade the management group to 10.x or later, the upgrade will not complete. Further, there will not be a warning or message that the upgrade cannot complete. To resolve this issue, you must migrate the systems that cannot be upgraded to 10.x or later out of the management group. Supported systems are the HP StoreVirtual P4x00 G2 and HP StoreVirtual 4x30.
- A CMC on a Windows 2008 Server is unable to automatically discover storage systems if the firewall is on**
 Disable the Windows Firewall on the computer on which the CMC is installed.

- **Upgrading the CMC from Version 9.5 and earlier to Version 10.5 or later is not supported on 64-bit OpenJDK on RHEL**

When upgrading the CMC from Version 9.5 or earlier to 10.5 or later, the following error message is displayed: Not Supported – OpenjDK 64-Bit Server VM on amd64 Linux not supported. If you are already running a CMC on RHEL with 64-bit OpenJDK, you may see other issues with the CMC.

To resolve this issue, install Oracle Java Version 1.6 or greater.

- **On Windows 2008 Server, if proxy is configured, the StoreVirtual VSA installer cannot connect to the ESX Server**

If proxy settings are configured on the Windows 2008 Server on which you are attempting to run the StoreVirtual VSA installer, the installer is unable to connect to the ESX Server. Before running the StoreVirtual VSA installer, you must disable any proxy settings on the Windows 2008 Server.

iSCSI

- **iSCSI sessions fail if server configuration is changed**

Due to a code enhancement, if any of the following items for the iSCSI server configuration are changed, all server connections will be disconnected:

- iSCSI initiator node name
- CHAP required or not required
- CHAP name, target secret, and initiator secret (if CHAP is required)

This change ensures that the connections be re-established as soon as changes are implemented.

Networking

- **Storage goes down and ping timeouts are observed on a StoreVirtual 4330 running LeftHand OS version 11.0 using NC552SFP when reinserting a network cable to an H3C5820 or HP5820 Switch**

StoreVirtual 4330 storage systems, configured with bonds on 10 GB network cards, intermittently lose ping to these systems.

To resolve this issue, ensure that all ports connected to StoreVirtual 4330 storage systems are part of a separate VLAN.

- **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.

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.

Remote Copy

- **While cross-version Remote Copy is occurring from 10.0 or later to 8.5 management groups, if copying halts because the cluster is full, the CMC displays the "See Alarms Window" error message, although the 8.5 management group does not have the Alarms window**

The Alarms and Events feature in Version 9.x or later is not compatible with pre-9.x versions of software. Review the Alarms window for Version 9.x or later management groups. If you are operating in a mixed SAN environment with management groups earlier than Version 9.x, also review the Alerts window.

Snapshots

- **An Active Directory user with read-only permissions can pass the Authentication Console credentials test, but application-managed snapshots will fail**

The Application Aware Snapshot Manager Authentication Console does not differentiate between read-only users and those who have authorization to create snapshots. The LeftHand OS will deny the Application Aware Snapshot Manager the right to create snapshots on behalf of a read-only user; therefore, snapshots are not taken.

To resolve this issue, enter an Active Directory user with administrator capabilities into the Authentication Console.

- **Application-managed snapshots do not work on SMB file shares presented by a Windows Failover Cluster**

With Windows Server 2012, SQL Server is not quiesced when an application-managed snapshot is taken on an SMB file share that is presented by a Windows Failover Cluster. The snapshot appears as if it is a managed snapshot, but because SQL Server was not quiesced, it is not a true managed snapshot.

SRA

- **Reprotect is failing when using the SRM plug-in version 5.0.1 with Version 12.0**

Due to a timing issue with the SRM plug-in version 5.0.1's interaction with the SRA, the following error message may be displayed:

```
Error - The operation was only partially completed for the protection group 'name' since a protected VM belonging to it was not successful in completing the operation. Cannot protect virtual machine 'name' because its config file '[name] NAME.vmx' is located on a non-replicated or non-protected datastore..."
```

To resolve this issue, restart the VMware vCenter Site Recovery Manager Server.

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.

- **Reserved memory value for the HP StoreVirtual Failover Manager for Microsoft Hyper-V is incorrect in the HP StoreVirtual Storage User Guide and HP StoreVirtual Storage Online Help**

Reserve at least 2 GB of memory for the StoreVirtual Failover Manager for Hyper-V.

- **Configuration requirements for the HP StoreVirtual Failover Manager for VMware vSphere are incorrect in the HP StoreVirtual Storage User Guide and HP StoreVirtual Storage Online Help**

The following requirements apply to the StoreVirtual Failover Manager for vSphere for Version 12.0

- VMware vSphere Version 5.0, 5.1, and 5.5
- 2 GB of RAM

- **Upgrading ProLiant servers using the HP Customized ESXi image causes StoreVirtual VSA RDMs to disappear**

When upgrading an HP ProLiant server from vSphere 5.1 Update 1 (U1) to 5.1 Update 2 (U2) using the HP Customized ESXi image, the upgrade process installs a new version of the hpsa driver. The new driver enumerates LUNs differently than the previous driver, so the vmdk no longer points to the correct raw device (RDM). This prevents the StoreVirtual VSA's virtual machine (VM) from starting, and an error message from ESXi displays, indicating that the VM could not start. If all the StoreVirtual VSAs in a cluster were hosted on the same server, then they would all be offline. This issue will be fixed in a future version of the hpsa driver.

To resolve this issue, delete the existing RDMs and add them back in ESXi, as follows:

1. Using vSphere Client (or web client), select the ESX host's Configuration tab and select **Advanced Settings** in the Software section.
2. Select **RdmFilter** and clear the box **RdmFilter.HbalsShared**. This allows local disks to be used as RDMs.
3. Click **OK** to save this change.
4. You may need to rescan the disks in order to see the RDMs. If so, on the same Configuration tab, select **Storage** in the Hardware section. Click **Rescan All**.
5. Select the StoreVirtual VSA VM on the host and click **Edit Settings**.
6. For each Hard disk device listed as a Mapped Raw LUN, record the Physical LUN, which will look like the following:
vm1.0200020000600508b1001cb1602e32a696902775a54c4f47494341.
7. Record the Virtual Device Node (SCSI target ID) for each device.
8. Click **Remove the device**. Repeat as necessary for all RDMs.
9. Click **OK** on the Virtual Machine Properties to accept these changes and free up the SCSI IDs for those devices.
10. Add the RDMs back by clicking **Add**.
 - a. Select **Hard Disk** and click **Next**.
 - b. Select **Raw Device Mappings** and click **Next**.
 - c. Select the device that corresponds to the Physical LUN information saved in step 6. The corresponding device to the example would be naa.600508b1001cb1602e32a696902775a5. Click **Next**.
 - d. Select **Store with Virtual Machine** and click **Next**.
 - e. Select **Physical Compatibility** and click **Next**.
 - f. Select the SCSI ID recorded in step 7 and click **Next**. (Correlating the target ID back to the volume is not critical. StoreVirtual software writes the WWID to the volume label and the system will figure out which volume is which on boot).
 - g. Click **Finish**, and repeat for any additional RDMs.

11. Click **OK** to save all the changes.

12. Power on the StoreVirtual VSA.

- **StoreVirtual VSA CPU guidance and other best practices**

For detailed information about designing and configuring the HP StoreVirtual VSA solution, see the technical white paper entitled *HP StoreVirtual Storage VSA Installation and Configuration Guide*, which is available at the following location:

<http://h20195.www2.hp.com/v2/GetDocument.aspx?docname=4AA4-8440ENW>

- **The StoreVirtual VSA installer creates StoreVirtual VSA for vSphere with no data disks**

The following error occurs:

```
Reconfigure virtual machine "name" A general system error occurred:  
Failed to create journal file provider: Failed to open  
"/var/log/vmware/journal/1379975011.25" for write: No such file or  
directory
```

Information about this error is in VMware KB articles KB 1019598 and KB 2033073.

To resolve this issue, redeploy the StoreVirtual VSA.

- **Windows 2012 Event Viewer Event ID 4010 reports an unsupported configuration of the Hyper-V Linux Integration Services (LIS) in the StoreVirtual VSA 2014**

You can ignore this warning message. This configuration has been thoroughly tested by HP Storage. This issue will be addressed in a future release.

- **NIC in StoreVirtual VSA on Hyper-V is not running at wire-speed when attached to a 10 Gb Windows 2012 Hyper-V vSwitch**

When aStoreVirtual VSA for Hyper-V NIC is connected to a 10 Gb Windows 2012 Hyper-V Switch, it does not run at the full potential of the physical NIC. Currently, there is no workaround. The issue is being investigated by Microsoft.

- **The HP StoreVirtual VSA for Hyper-V installer does not block the selection of disks already in use**

Verify available disks prior to installation and select only available disks.

- **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.

- **Hyper-V reports Linux Integration Services (LIS) tools are out of date**

For HP StoreVirtual VSAs and Failover Managers running on Hyper-V, the Networking Tab of the Hyper-V Manager will show that the network status is Degraded (Integration services upgrade required) and the IP address of the StoreVirtual VSA or Failover Manager will not be displayed. This is a limitation of the LIS component version 3.4 released by Microsoft. The HP StoreVirtual management software (CMC, CLI) can be used to obtain valid networking information and status until Microsoft releases a version of LIS that supports network monitoring.

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

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