



Hewlett Packard
Enterprise

HPE MSA 1040, MSA 2040, and MSA 2042 Storage GL225P002-02 Firmware Release Notes

Abstract

This package delivers firmware for the MSA 1040, MSA 2040, and MSA 2042 Storage systems, and includes enhanced features and fixes to issues found during use and additional qualification testing.

Part Number: 723983-401
Published: May 2019
Edition: 1

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Description

This package delivers firmware for MSA 1040, MSA 2040, and MSA 2042 Storage systems.

ⓘ **IMPORTANT:** For a list of supported companion drive enclosure firmware, see [Additional devices](#) on page 5.

Versioning key:

AAxxxByyy-zz

The following letters represent firmware version release information:

Firmware version	Description
AA	MSA model (VL=MSA 2050/2052; VE=MSA 1050; GL=MSA 1040/2040/2042; TS=P2000 G3)
xxx	Firmware version. This value changes for major, scheduled releases. Depending on the MSA model, this number may also indicate model protocol.
B	Type of release. (R=Regular release, P=Planned update to a regular release, S=Special release)
YYY	R, P, or S release number.
-zz	Minor release number.

Update recommendation

Update Recommendation: Recommended

Supersede information

Supersedes: GL225P001

Product models

HPE MSA 1040 Controllers

- MSA 1040 SAS Controller
- MSA 1040 FC Controller
- MSA 1040 1G iSCSI Controller
- MSA 1040 10G iSCSI Controller

MSA 2040 Controllers

- MSA 2040 SAN Controller
- MSA 2040 SAS Controller

Operating systems

This release is supported on the following operating systems:

- Microsoft Windows Server 2008
- Microsoft Windows Server 2008 R2
- Microsoft Windows Server 2008 Hyper-V
- Microsoft Windows Server 2012
- Microsoft Windows Server 2012 R2
- Microsoft Windows Server 2012 Hyper-V
- Microsoft Windows Server 2016
- Red Hat Enterprise Linux 5
- Red Hat Enterprise Linux 6
- Red Hat Enterprise Linux 7
- SUSE Linux Enterprise Server 11
- SUSE Linux Enterprise Server 12
- HP-UX 11.31
- VMware ESXi 5.0/5.1/5.5/6.0/6.5

For more information about operating systems supported by the HPE MSA 1040/2040/2042 arrays, see the HPE Storage Single Point Of Connectivity Knowledge (SPOCK) website at <http://www.hpe.com/storage/spock>.

Languages

Languages supported for this release:

- English
- Spanish
- French
- German
- Italian
- Korean
- Japanese
- Dutch
- Chinese (traditional)
- Chinese (simplified)
- Arabic

- Portuguese
- Russian

Additional devices

MSA 1040/2040 array controller enclosures support the cascading of drive enclosures. The following table lists supported drive enclosure models and firmware versions.

MSA 1040/2040 array controller firmware	Cascaded drive enclosure model	Recommended drive enclosure firmware
GL225R003	HPE P2000 drive enclosures	S200B41
GL225P001	MSA 2040 drive enclosures	S200B41
GL225P002-02	MSA 2050 drive enclosures	
	D2700 drive enclosure	0149 or higher

❗ **IMPORTANT:** After updating array controller firmware or after connecting new drive enclosures to an existing controller enclosure, verify the firmware compatibility of all devices. If needed, obtain and install the supported controller or drive enclosure firmware. Firmware is available for download from the following website:

<https://www.hpe.com/storage/MSAFirmware>

MSA security considerations

Hewlett Packard Enterprise highly recommends that you change user passwords.

This version of firmware disables unsecured web access by default. This setting is applied on new controllers from the factory, or after using the `restore defaults` CLI command. Use the secured web access (HTTPS) to avoid access issues.

MSA notification best practices

To effectively monitor the health of the MSA array it is a best practice to enable notifications via SNMP, email, or syslog settings in the user interfaces. Periodic validation of notification settings should be performed after firmware load or component replacement to guard against changes in infrastructure or configuration settings.

Enhancements

The following features were added or enhanced in controller firmware GL225P001:

Updated OpenSSH to 7.8p1.

Updated OpenSSL to 1.0.2p.

Fixes

The following features were fixed in controller firmware GL225P002-02:

Authenticated session security vulnerability.

The following features were fixed in controller firmware GL225P001:

Pool is offline despite all pool disk-groups online.

Storage system ceases operation due to exceeding the 255 SCSI registrant limit.

Controller ceases operation during SCRUB task due to excessive discovered parity errors.

Replication fails with: **Error Message:** The scheduler was unable to complete the replication.
- Insufficient resources exist.

Pool and volumes were inaccessible due to failed read of pool metadata.

Disk-groups might show QTOF after recovery from a power outage.

Scheduled Replication may fail due to a timing issue resulting in a `volume not found` error message.

Aborts may be seen with heavy host IO during Snapshot and replication image creation.

Loss of management access to the storage system due to volume mapping using Microsoft SCVMM.

Controller ceases operation due to frequent Snapshots on a pool in excess of 100TB.

Management interface reports `getting data from storage controller. Please wait.`

RAID 50 disk-group may remain quarantined even after dequarantine command is issued.

All Pools and volumes are offline due to a disk-group reporting unreadable metadata (BLPT error).

Issues and workarounds

The following is a cumulative list of known issues and workarounds:

Issue: Snapshots may not auto delete when priority is changed from notify-only to delete.

Workaround: Manually delete snapshots when snapshot limit is exceeded.

Issue: During creation of SNMP v3 user, the authentication type may change.

Workaround: Verify and reset authentication type for newly created SNMP v3 users.

Issue: After deleting large amounts of data in a replicated volume, the secondary system will not reflect the space reclamation immediately.

Workaround: The secondary system will take an extended time to reclaim the space.

Issue: Creating a replication set may result with an error of "A duplicate name specified" when a volume-group with the same name is present on the system.

Workaround: Create a replication set with a unique name.

Issue: Health alerts email has odd character for controller identifier in the sent from controller statement.

Workaround: Verify which controller the alert was sent from by examining the IP noted for the controller.

Table Continued

Issue: Replication status in the SMU and CLI differs in primary and secondary arrays when secondary array is in failover.

Workaround: Verify correct status by examining the events which show the correct information for both primary and secondary system.

Issue: HPE System Insight Manager may display incomplete array information. Possible inconsistencies include:

- Listing both Linear and Virtual snapshots.
- Not listing the SnapPool information.
- Not showing the RAID level information for the Virtual Volumes.
- Shows as UNKNOWN for the volume is visible to host.
- Capacity information is not correct.

Workaround: None.

Issue: CLI help for de-quarantine shows example of virtual disk groups, but virtual disk groups cannot be de-quarantined without support assistance.

Workaround: None.

Issue: A long user name will partially hide the session timer in the SMU v3.

Workaround: None.

Issue: The `modify peer-connection` section in the SMU v3 Help incorrectly states that a new name can have 80 bytes. The correct maximum number of bytes is 32 bytes for peer names. Anything over 32 bytes will be rejected.

Workaround: None.

Issue: The confirmation message received in the SMU v3 Configuration Wizard does not clearly indicate which services are disabled when notifying the user that disabling an interface will disable the interface.

Workaround: None. The selected services are disabled. Verify services in the SMU v3.

Issue: After installing a license file in the SMUv2, the **Browse** button for installing a second license file may not change locations.

Workaround: Refresh the browser session.

Issue: The downgrade of firmware may fail due to enabled features that are only available in the latest firmware being unavailable in previous firmware versions. **Workaround:** None.

Issue: After performing a `trust` command in the CLI, hosts may not be able to write to volumes.

Workaround: Perform a `rescan` from the CLI.

Table Continued

Issue: Operations are allowed in the primary system on a replication set when the same replication set is not available in secondary system.

Workaround: To identify if operations are successful, review Events.

Issue: The maximum number of characters that can be used in modify schedule is not included in the SMU v3 Help.

Workaround: The maximum number of characters is limited to 26.

Issue: HPE SIM may not display the management controller version for the second controller in the versions table.

Workaround: None.

Issue: When trying to modify a peer with a remote address of a system for which another peer connection exists, you get the error `Error: The replication set was not found.`

Workaround: Verify that the remote system is part of the peer connection you are attempting to modify.

Issue: The amount of space reported as used in a snap-pool may be larger than the sum of all snapshot data contained in the snap-pool.

Workaround: None. The space calculation difference is due to allocation granularity differences in snapshots compared to the snap-pool.

Issue: If NTP is enabled, using `set controller-date` in the CLI will not perform any validation of the date format.

Workaround: When setting the controller date with NTP enabled, ensure that you use a valid date format.

Issue: The CLI command `show network-parameters` shows 'link-speed' as '10mbps' and 'duplex-mode' as 'half' when Ethernet port is unplugged or controller is uninstalled.

Workaround: No workaround required, ignore invalid output.

Issue: The CLI command `set volume` is allowing the use of the invalid double-quote and comma characters.

Workaround: Do not use the double-quote or comma characters.

Issue: In the SMU v3, the SNMP Read and Write community strings allow the use of the invalid single-quote character.

Workaround: Do not use the single-quote character.

Issue: The version of a failing FRU may not be in the event logs.

Workaround: Look at the label on the FRU for the version number.

Issue: In the save logs operation of the SMU, if a single-quote character is used in any field, the retrieved logs will be empty.

Workaround: Do not include single quotes when using the save logs operation.

Table Continued

Issue: A long user name will be partially hidden under the sign-out button.

Workaround: None.

Issue: In the SMU, the forward slash character may be replaced with a space character.

Workaround: Enter fields that require the use of a forward slash through the CLI.

Issue: The use of the angled brackets when creating vdisks names is erroneously allowed in the CLI.

Workaround: Do not use angled brackets when creating vdisks names in the CLI.

Issue: An erroneous event is generated when telnet is disabled or enabled in the SMU.

Workaround: Ignore the erroneous event.

Issue: Minimal discovery information is retrieved from SNMP v1 when SNMP v3 is enabled.

Workaround: None.

Issue: The creation of CHAP records erroneously accepts names not in IQN format.

Workaround: Use only valid IQN formatted names.

Issue: Event Code 522 does not display the name of the volume when the `show events` command is run.

Workaround: None.

Issue: In the SMU v2 during the add replication set operation, an error message can be shown twice.

Workaround: Ignore duplicated error message.

Issue: Cannot perform actions on multiple replication sets in the SMU at the same time.

Workaround: Perform actions on replication sets one at a time.

Issue: Disk scrub status is not available when displaying disk information.

Workaround: Review event logs for disk scrub status.

Issue: Drives in LEFTOVER state may not illuminate amber fault LED.

Workaround: Validate drive status in the user interfaces.

Issue: SMI-S will report the device id of IOMs in disk enclosures as "0" for the B controller and "1" for the A controller.

Workaround: Use the ElementName to determine whether the A or B controller is in use.

Issue: The CLI command `show fans` displays fan status as up for a removed power supply.

Workaround: Use the CLI command `show power-supplies` to see the state of the power supplies.

Table Continued

Issue: The SMU v2 interface does not enable the option to set a volume as a primary volume for local replications.

Workaround: Use the CLI.

Issue: A controller crash may occur if backend cabling is misconfigured.

Workaround: Follow the documented cable configuration guidelines.

Issue: Some 314 events are not being reported by SNMP trap for the partner controller.

Workaround: Register for events for both controllers.

Issue: The SMU returns an error stating a value must be an unsigned integer when creating a volume set and the number of volumes is blank or not a number.

Workaround: Enter a valid number in the number of volumes field.

Issue: In step 4 of the SMU v2 provisioning wizard, the size field may not immediately update after entering the number of volumes.

Workaround: Press the **TAB** key twice to have the field updated.

Issue: The SMU does not allow all valid special characters to be used in email notification sender name.

Workaround: Use the CLI command `set email-parameters .`

Issue: Messages are not translated while collecting logs.

Workaround: None.

Issue: In virtual storage Remote Snap, the secondary site could experience issues that could cause the replication to suspend.

Workaround: The replication will automatically resume in 10 minutes or the user can manually resume it.

Issue: In single controller mode, resetting all statistics can results in a message that the request cannot be completed because the other controller is not up. - Failed to reset controller statistics .

Workaround: Ignore the error message, all statistics that can be reset are reset.

Issue: Firmware update status messages in the SMU are not translated.

Workaround: None.

Issue: The **Add Initiator to Host** panel in the SMU v3 can display "no host" as an option.

Workaround: Ignore the erroneous option.

Table Continued

Issue: The CLI command `clear disk-metadata` shows a successful command stating the command completed successfully, but that the metadata was not cleared.

Workaround: Run the command again to clear the disk metadata.

Issue: Configuring multiple iSCSI ports causes a failure to mount LUN in SCVMM.

Workaround: Configure a single iSCSI port.

Issue: When using telnet in a Linux environment, while logged in as **manage**, a `Ctrl+left arrow` or `Ctrl+right arrow` keystroke combination freezes the telnet session.

Workaround: Do not use a `Ctrl+left arrow` or `Ctrl+right arrow` keystroke combination in Linux. Type the tilde character `~` to return control to telnet, use a Windows telnet client, or start a new telnet session and avoid the keystroke combination that causes the problem.

Issue: Modifying user roles in the SMU v3 is disabled.

Workaround: Utilize the SMU v2 or CLI to modify user roles.

Issue: In SMU v3, **Topics** are not accessible on-screen resolutions less than 1024x768.

Workaround: Use a resolution of 1024x768 or higher.

Issue: Images for IOMs are not displayed for JBODs in the Rear System View of the SMU v3.

Workaround: Information for JBODs can be gathered by other means in the CLI or SMU v2.

Issue: In SMU v2, online help states character limit as 32, but the System will only allow 15 characters.

Workaround: Limit host names to 15 characters.

Issue: The characters `*` and `.` are special characters and are not allowed in the name field for linear volumes in SMU v3.

Workaround: Create linear volumes in SMU v3 without special characters.

Issue: In a system downgraded to GL105, there is a system limit of 4 snap pools per system.

Workaround: Issue a **Restore Defaults** after downgrading to GL105 - this will cause the snap pool limit to change from 4 to 128.

Issue: Unable to de-quarantine the vdisk during vdisk expansion.

Workaround: Follow best practices when performing vdisk expansion.

Issue: The SMU v3 help does not specify the limitations of disks for disk-group expansion.

Workaround: Consult the **About RAID Levels** topic in the SMU v2 online help for linear vdisk expansion limits.

Table Continued

Issue: When expanding a volume from the SMU v2, the remaining space in the vdisk is inconsistent with the corresponding value shown if the volume is expanded from the SMU v3 or CLI.

Workaround: None, the size is different.

Issue: Context-sensitive Help pages may not pop up correctly.

Workaround: Use the Help topics to navigate to the correct topic.

Issue: In the SMU v3, the formatting of the settings in step 9 of 9 in Configuration Wizard is misaligned.

Workaround: None.

Issue: Field validation on pop ups in the SMU v3 may occur prior to field data being entered.

Workaround: Enter the field data and the validation errors will disappear.

Issue: The user is unable to abort the background media scrub from the SMU v2.

Workaround: Abort the background media scrub from the CLI.

Issue: In SMU v3, the Snapshot schedule prefix has a maximum length of 24 bytes instead of 26 bytes as stated in the online help.

Workaround: Limit the Snapshot prefix length to 24 bytes in SMU v3 or use the SMU v2 or CLI.

Issue: During volume-copy, the default new volume name for the first volume copy appends C02 in SMU v3.

Workaround: Manually modified name as desired.

Issue: Forward slashes are replaced by spaces in SMU v2 and v3 in the **Set System Information** page.

Workaround: Set the fields through the CLI.

Issue: Hover panels may not refresh automatically.

Workaround: Navigate away and navigate back to refresh the hover panel.

Issue: In the SMU v3, in step 7 of 9 of Configuration Wizard, there is no error message when invalid characters are entered in the **Sender Domain** field.

Workaround: Use only valid characters in the **Sender Domain** field.

Issue: When performing a volume copy and the destination volume exists, the error message shows the source volume rather than the destination volume.

Workaround: Provide a unique destination volume name.

Issue: In the SMU v3 **User Management Page** , the copy option does not copy all fields.

Workaround: Verify all fields of the newly created user.

Table Continued

Issue: When setting the pool thresholds in SMU v3, an error message may be displayed if the mid threshold is beneath the low threshold.

Workaround: Ensure that the mid threshold is higher than the low threshold.

Issue: **Licensing Version Number** shows **Not Found** when the system is in Fail Over.

Workaround: Install the license when the system is not in a failover state.

Issue: In SMU v3, setting the **New Volume Prefix** field is ineffectual in the schedule for **Copy Volume** .

Workaround: Use the default fields or set the fields through the CLI.

Issue: In-port and out-ports are displayed as "In 0 and out 0" for all enclosures in SMU v2 & SMU v3.

Workaround: None.

Issue: The host-group name cannot be changed in the SMU if the host-group was created or modified in the CLI with an * in its name.

Workaround: Do not use the * character in host-group names.

Issue: The SMU v3 allows the user to add volumes with different mappings than those in the volume group.

Workaround: Verify that all mappings are consistent within a volume-group.

Issue: In the CLI, when a snapshot name with special characters in its name it may not error correctly.

Workaround: Do not include special characters in snapshot names.

Issue: When using the Provisioning wizard to create volumes, volume size may not be correct.

Workaround: Verify volume sizes after using Provisioning wizard.

Issue: VAAI XCOPY performance may be reduced.

Workaround: Verify that all paths to storage are functional.

Issue: The `show pool-statistics historical count n` command shows statistics for n-1 count.

Workaround: Increase the count parameter by one.

Issue: In SMU v2, when changing the SNMP user's locale from non-English to English, the previous locale may be retained.

Workaround: Verify the locale and use SMU v3 or CLI to update the locale.

Issue: After successfully creating a user in the SMU v2, the user may get an error message about the user name and password.

Workaround: None, the user is created correctly.

Table Continued

Issue: Unable to create a replication set from GL105 to GL2xx when a storage pool exists at the secondary systems.

Workaround: Use the CLI and supply the WWN or IP addresses of the primary and secondary systems to create replication set successfully.

Issue: Replication image status or progress information of the primary system is not displayed in SMU.

Workaround: View the status from the secondary system.

Issue: In SMU v3, the 'Add disk-group' page may be blank in single controller mode.

Workaround: Refresh the browser in SMU or retry the operation in CLI.

Issue: Attempting to create pools with same name as offline pools fails.

Workaround: Correct or remove the offline pool.

Issue: In SMU v3, a volume group may be created using invalid characters.

Workaround: Do not include invalid characters in volume group name in SMU v3.

Issue: Invalid replication images may exist in the secondary system if the replication set is deleted when the secondary vdisk is in shutdown state.

Workaround: Convert the secondary volume to a primary volume and delete the replication set.

Issue: Password creation for a user may fail if single quote characters are used.

Workaround: Do not use single quotes in passwords.

Issue: Events with event ID 551, 552, 553, 554 and 557 are generated without the severity icon.

Workaround: Event severity can be viewed using the CLI.

Issue: In SMU v3, after creating user with manage and monitor roles, only the manage role will be displayed for that user.

Workaround: None, monitor role is implied with manage role.

Issue: Unexpected pop-up window with an erroneous error message is displayed when attempting to save logs from SMU v2 or SMU v3.

Workaround: Ignore that error message and proceed with downloading logs.

Issue: In SMU v3, the user is unable to change the encryption status of SMI-S from the Configuration Wizard.

Workaround: Change SMI-S encryption status outside of the configuration wizard.

Issue: Disk performance statistics are inaccurate when scrub is in progress.

Workaround: None.

Table Continued

Issue: Formatting and display issues exist in locales other than English.

Workaround: None.

Issue: In rare cases, PFU may fail to update the partner controller.

Workaround: Verify the firmware versions and restart the controller with incorrect firmware version.

Issue: In SMU v3, negative values may be displayed in the **Capacity Utilization > Reserve** column.

Workaround: Use the CLI to confirm the correct values.

Issue: SMI-S commands my result in **Failed: Certificate Authority not recognized** errors.

Workaround: Open a browser to port 5989 of the array's management IP; if no SSL certificate is present, wait a few minutes or restart the MC to resolve the issue.

Issue: English strings are seen in other locales.

Workaround: None.

Issue: Failed to set date and time through the **SMU v3 system > Configuration > System Settings > Date, Time** panel.

Workaround: If neither the **Enabled** or **Disabled** NTP radio button is selected, select one setting and then set the date and time.

Issue: Unable to change mapping in locales other than English.

Workaround: Choose a new Access type, which will appear in English in the drop-down for all locales. Once an English value is selected, the mapping can occur.

Issue: Replication wizard help is not displayed for step 3 of 5 in locales other than English.

Workaround: Read the help in the English locale or reference the SMU users guide.

Issue: Configuration wizard help is not displayed for step 7 of 9 in locales other than English.

Workaround: Reference the SMU users guide.

Issue: Creating a new virtual disk-group when existing linear disk-groups exist that are named A, B, a, or b causes the virtual disk-group to be unmanageable.

Workaround: Change the name of existing linear disk-groups to something other than A, B, a, or b, and remove and re-add the virtual disk-group.

Issue: The CLI command `set prompt` is not allowing `&` to be set as a prompt.

Workaround: Use another prompt in place of `&`.

Table Continued

Issue: When trying to create a virtual disk-group larger than 64 TB an error will be shown and the disk-group will not be created.

Workaround: Create virtual disk-groups of 64 TB or smaller size to add to pools.

Issue: After swapping controllers in the same array enclosure, both controllers may show the same management IP.

Workaround: Correct the IP for each management port one at a time.

Issue: When the SNMP community string is left blank in the SMU, the previous value will be used.

Workaround: Do not leave the SNMP community string blank.

Issue: An error occurs disabling Drive Spin Down with a nonzero delay.

Workaround: When disabling the drive spin down feature, you must also set the delay to zero.

Issue: If the code load health checker determines that firmware should not be loaded, no event will be logged.

Workaround: Determine code load health by running the CLI command `check firmware-upgrade-health`.

Issue: There is no option to turn on/off LEDs through SMU v3.

Workaround: Use the CLI or SMU v2 to turn on/off LEDs.

Issue: The description of RAID type is not displayed in the hover tip in IE in SMU v3.

Workaround: Look up RAID type through help, or use another supported browser.

Issue: There can be a discrepancy between the replication image count in volume and snap-pool properties.

Workaround: Use the snap-pool properties to verify the counts.

Issue: Interface changes may not occur when using the modify user panel in the SMU.

Workaround: Use the CLI to change interface settings.

Issue: SMU v3 Home Page graphical representation on the bottom left side of the page shows the system health as **OK** for two controllers when there is single controller in the system.

Workaround: Use the system tab to determine health of the installed controller.

Issue: In the SMU, a volume with less than 500 GB rounds to 0 TB when snapshots are enabled.

Workaround: Use the CLI if you require snapshots of smaller volumes.

Issue: Some initiator entries may remain when deleting large number of initiators in the SMU v2 interface.

Workaround: Retry deleting the remaining initiators.

Table Continued

Issue: The login page displays `Warning The system is currently unavailable` when partner controller is shutting down.

Workaround: Allow the partner controller to shut down and failover completely and retry accessing the system.

Issue: After completing the SMU configuration wizard, date and time changed events is generated even though no modification to date and time was done.

Workaround: Recommend enabling NTP on the array.

Issue: When the health is degraded, the information can be truncated when hovering over the system health on the SMU v3 Home Page.

Workaround: Use the System Topic to investigate the health of the components.

Issue: System table view refreshes automatically, going back to first pages after 10-15 seconds.

Workaround: None.

Issue: Transfer rate is not shown in SMU v3 when selecting a disk in the system topic.

Workaround: Transfer rate can be found in the CLI using the `detail` option to the `show disks` command, or in SMU v2 under the enclosures.

Issue: Mapping a large set of linear disk-group based volumes may take longer in SMU v3 compared to SMU v2.

Workaround: None.

Issue: SNMP event strings use the `disk-group` terminology in place of `vdisk`.

Workaround: None.

Issue: Attempting to map volumes above the limit of the controller can produce an error of `An invalid LUN was specified`.

Workaround: None.

Issue: The `reset all-statistics` command did not reset the `pool` and `disk` statistics.

Workaround: Reset the `pool` and `disk` statistics independently.

Issue: The SMU v3 **Home** page does not display the units in MB when a user's `unit preference` is changed to MB.

Workaround: The **Home** page automatically scales based on the sizes in use.

Issue: Thin provisioning notification may not be sent when a virtual pool is smaller than 500 GB.

Workaround: None.

Table Continued

Issue: The **Browse** button fails to open the file selection pop-up in the license screen.

Workaround: Refresh the browser.

Issue: The error message for setting or creating a host name does not list \ as an unallowed character.

Workaround: Do not use a \ character in the host-name.

Issue: D2700 power supply voltages are displayed as all zeros.

Workaround: None.

Issue: Remote Snap fails to create remote volume when the locale of the remote system is set to something other than English.

Workaround: Ensure that the remote system is set to English locale.

Issue: An incomplete error message is displayed when invalid characters are given in the **Sender name** for email notifications stating that a space is included.

Workaround: Check the help to find the invalid characters.

Issue: The output of `show disks detail` command returns Drive Spin Down Count as 1 for SSDs.

Workaround: Ignore the Drive Spin Down Count for SSDs.

Issue: Attempting to modify an existing replication schedule shows an error that `Start date/time cannot be set to earlier than the current date/time` .

Workaround: Enter a data/time in the future for the new Start time for modified schedule.

Issue: Mapping over 500 volumes at the same time in the SMU v3 may not complete all mappings.

Workaround: If possible, perform large number of volume mappings in chunks to avoid timeout and other errors. When mapping many volumes from the SMU, avoid refreshing the browser while the operation is in progress.

Issue: The SMU v3 create initiator window shows message in red text.

Workaround: The initial validation error message does not affect functionality, proceed with entering the ID and name and the initiator will be created.

Issue: Using an initiator nickname of `all` is incorrectly allowed and will delete all initiators if the nickname is used in the delete initiators command.

Workaround: Do not create an initiator with a nickname of `all` . If a nickname of `all` has been used, delete the initiator using the unique identifier.

Issue: In rare circumstances after creating virtual disk groups one or more of them may appear in the wrong pool in the SMU v3 Pools Topic.

Workaround: Refresh the browser window and SMU should reflect the disk groups in their proper pools.

Table Continued

Issue: If an error occurs during virtual disk group creation, it may not be possible to remove it through the SMU v3.

Workaround: Use the CLI to remove a disk group that cannot be removed through the SMU v3.

Issue: The SMU Install License Panel refers to temporary license functionality, but this functionality is not available.

Workaround: Request temporary licensing from your representative.

Issue: After adding disk-groups, the performance charts displayed in the SMU v3 show incorrect data.

Workaround: Gather disk statistics using the CLI or reset the performance statistics.

Issue: Unable to create snapshot using **Now** or **Scheduled** option after creating a schedule on another volume when using IE 11.

Workaround: Use a different browser than IE 11, or refresh the browser session.

Issue: Unable to change the **End Schedule** details when modifying a snapshot schedule when using IE 11.

Workaround: Use a different browser than IE 11, or refresh the browser session.

Issue: Some panes and drop-down menus may not display correctly in locales other than English.

Workaround: Use the CLI to complete operations or use the English locale.

Issue: Remote Snap schedule fails to create if the system time minutes are greater than the scheduled start time minutes.

Workaround: Create the schedule when the system time minutes are less than the scheduled start minutes.

Issue: In the SMU v2, events are not sorted in either ascending or descending order when the code column is clicked in the system events.

Workaround: The codes are sorted alphabetically, so 100 will appear before 2 in the list. Manually search for the desired code.

Issue: Removing a controller from the remote system can cause a condition where the remote system object cannot be deleted.

Workaround: Add back the missing controller, so that it is a dual controller system again. If using a replacement controller, ensure that both controllers have the same software version. Wait up to 3 minutes and retry the delete remote-system. In the rare case that it does not work, restart both systems and retry.

Issue: When creating a second replication set, the **Apply** button is not working on IE11 browser.

Workaround: Refresh the browser.

Issue: Unable to enable or disable encrypted SMI-S using the configuration wizard in the SMU v3.

Workaround: Use the CLI, SMU v2, or SMU v3 system services panel to enable or disable encrypted SMI-S.

Table Continued

Issue: Unable to finish the configuration wizard in SMU v3 if an invalid iSNS address is supplied in step 8 of the wizard even if the value is corrected.

Workaround: To get out of the configuration wizard, click **Cancel** or clear the **Enable iSNS** option, then apply the correct iSNS.

Issue: Error message is not displayed when an incorrect date/time is entered through configuration wizard step 2 of 9.

Workaround: If the **Next** button is not enabled on step 2 of the configuration wizard, check that the date/time is correct.

Issue: When the UID LED button on a D2700 disk enclosure has been physically pressed (enabled), attempting to clear the LED in the user interface will result in an error message stating the LED is already in the requested state.

Workaround: Physically press (disable) the UID LED button on the D2700.

Issue: D2700 Standby Power State is not clearly reported.

Workaround: None.

Issue: Array firmware SmartComponents may not upgrade the partner controller after successfully upgrading the accessible controller when only one management controller is available.

Workaround: Retry the SmartComponent. If that still fails, verify the array health by running the command `check firmware-upgrade-health` and correct the health issues.

Issue: The CLI, SMU, or SMI-S interfaces become slow or unresponsive.

Workaround: Restart the Management Controller from either the CLI or SMU on an operating controller.

Issue: Prior to the successful completion of a volume-related task, such as creating a snapshot, a volume copy, or replicating a volume, one or two `ERROR` events might be displayed.

Workaround: Examine the events. If the task action subsequently occurs, ignore the `Scheduler: The specified volume was not found` event.

Issue: When several vdisks are deleted, a "ghost" vdisk with a serial number of all zeroes briefly appears.

Workaround: Wait a few minutes for the "ghost" vdisk to disappear on its own.

Issue: Event logs do not reflect the successful upgrade of disk enclosure firmware on the other controller even though the upgrade was successful.

Workaround: Use the CLI command `show enclosures` to ensure that the EMP versions are correct. In the SMU, refresh the browser session and check the EMP versions.

Issue: A phantom FC host briefly appears after hosts are renamed on iSCSI ports.

Workaround: None. The phantom FC host with an id of all zeroes will disappear shortly.

Table Continued

Issue: The CLI command `show enclosures` reports health is OK when it should be DEGRADED due to leftover drives.

Workaround: Use the CLI command `show system` to observe the correct health.

Issue: Deleting a replication set might affect other schedules related to the primary volume.

Workaround: When you delete a replication set, ensure that any other schedules or tasks related to the same primary volume are not adversely affected. If they are affected, reconfigure the affected schedule or task to the intended configuration.

Issue: In the **Create Volume** screen in the SMU, if the **Volume size** slider is moved all the way to the right, the **Enable Snapshots** check box is checked, and the **Standard Policy** button is selected, the maximum value in the size field might be greater than possible and the action will fail.

Workaround: Ensure that the size specified in the **Create Volume** screen does not exceed 80% of the vdisk available space.

Issue: SMI-S Indication subscription to the array fails.

Workaround: Run the CLI command `reset smis-configuration both` and then retry the operation. After running this command, any hosts registered through SMI-S need to be registered again.

Issue: SMI-S does not support default mapping.

Workaround: Use explicit mapping.

Issue: Saving disk performance statistics with a specific time range fails when you use the FTP interface.

Workaround: Use the **Reset or Save Disk Performance Statistics** panel of the SMU to collect statistics, or do not restrict the log to a specific time range.

Issue: After explicitly mapping a LUN, other hosts that are not mapped to the LUN report seeing the `Reported LUN Data Has Changed` unit attention.

Workaround: No workaround is required. This will not affect data access on the other hosts.

Issue: You are unable to delete users who have manage-level capabilities but do not have CLI access.

Workaround: From another manage-level user, enable CLI access for the user to be deleted and then delete the user.

Issue: If servers are connected to the array running SLES 11 SP3 and using Emulex FC HBAs, these servers might not correctly reinstate paths into the correct multipath device.

Workaround: Change the following in the `multipath.conf` file:

1. Remove the `uid_attribute ID_SERIAL` entry in the defaults section if it exists.
 2. Add the following to the defaults section: `getuid_callout /lib/udev/scsi_id --whitelisted --device=/dev/%n .`
 3. Restart the multipath service.
-

Table Continued

Issue: Event messages might include erroneous characters appended to the end of schedule or task names.

Workaround: Derive the real task or schedule name by ignoring the erroneous characters at the end of the string.

Issue: When **Number of volumes to create** is changed in the Provisioning Wizard, the corresponding **Volume size** slider value is updated but the text box is not updated.

Workaround: The volumes are created based on the calculation used to update the **Volume size** slider value. If you need a different **Volume size** than the slider calculation, move the slider to the appropriate size or manually update the text box with the size.

Issue: Windows 2008 R2 SP1 Clustered Hyper-V VMs might experience loss of paths due to high load with a high number of LUNs assigned to the Cluster and VMs.

Workaround: Where possible, reduce the number of LUNs used on each cluster node or exposed VM. After any path loss situations, verify that the correct number of paths exist.

Issue: In the SMU, mapping a volume to a LUN results in a generic `Error: Command failed` response.

Workaround: Verify that the LUN number is not already in use for that host, or in the case of default mapping, that the LUN number is not already in use on that port.

Issue: When using Internet Explorer, if you attempt to upload a firmware image where the path contains a dot (.), the upload fails with an error that the file is the wrong type.

Workaround: Ensure that the file path does not contain a dot (.), or use another supported browser.

Issue: In the SMU, the Full Disk Encryption (FDE) passphrase does not accept a phrase that contains spaces.

Workaround: If spaces are required in the passphrase, use the CLI commands to set the passphrase.

Issue: After repurposing a drive in the SMU, the Repurpose Disk List might take a longer time than expected to refresh the information.

Workaround: Refresh the browser, or log out and log back in to the browser.

Issue: Using Internet Explorer 9, you are unable to apply setting changes in **Configuration > Advanced Settings > Disk**, because the EMP Polling Rate is blank.

Workaround: Select a valid value from the EMP Polling Rate drop-down rather than leaving it blank, and click **Apply**. The system default EMP Polling Rate is 5 seconds.

Issue: The HPE Integrity Smart Array P411 SAS Controller only brings up one PHY when connected to the array, which causes the array to show the port as degraded.

Workaround: None.

Issue: The SMU might not allow a snap-pool to be deleted if master volumes associated with that snap-pool are deleted while the vdisk containing the snap-pool is offline, such as after a multidisk raid failure.

Workaround: Use the CLI `delete snap-pool` command to delete the snap-pool.

Table Continued

Issue: The values of the **SNMP Notification** page are not updated correctly in the SMU after clicking **Apply**.

Workaround: Refresh the browser.

Issue: Modifying the start time of an existing one-time schedule to earlier than the current time causes the schedule not to run at the scheduled time.

Workaround: When modifying a schedule, do not set the start time of a one-time schedule to earlier than the current time.

Issue: The CLI command `show frus` might show an OK status for a RAID controller that is not installed.

Workaround: None.

Issue: Single-controller systems converted from dual-controller systems might show unhealthy components from the missing controller.

Workaround: Restart the management controller.

Issue: The user session is not terminated when the user is deleted.

Workaround: After deleting the user, immediately restart both management controllers.

Issue: Some of the mapping panels in the SMU might default the access mode to `no-access` while others default to `read-write`.

Workaround: Always ensure that the access mode for mapping is set as desired before clicking **Apply**.

Issue: After a firmware upgrade, the bundle version might not reflect all component versions of the bundle correctly.

Workaround: Reload the firmware bundle.

Issue: When the system has an unwriteable cache, components of a firmware upgrade fail.

Workaround: Ensure that there is no unwriteable cache, and reload the firmware bundle.

Issue: Online help text for a replication volume status of `Offline` indicates that the volume can be accessed.

Workaround: Online help should read, `Offline: the volume cannot be accessed and is unusable due to an error.`

Issue: When you are logged in to SMU with Japanese locale, the Table of Contents for help text is not valid.

Workaround: None.

Issue: When a system is configured as single-controller, controller B ports are also displayed in the output of CLI command `show ports`.

Workaround: None.

Table Continued

Issue: Online LUN addition is not seen by clients using the P711m, P712m, or P721m controllers and the HPE cciss driver in RHEL 5 operating systems.

Workaround: Use the `rescan volumes` command on the `/proc` subsystem of the cciss driver to force a rescan of the cciss driver, and then update `multipath`. For example: `echo "rescan volumes" > /proc/driver/cciss/cciss1/multipath -v 0`

Issue: Online LUN addition is not seen by clients using the P711m, P712m, or P721m controllers and the cciss driver in SLES 11 SP2 and SP3 operating systems.

Workaround: Use the `hpacucli` or `hpssacli` utility to force the SmartArray to rescan for LUNs. Do this by issuing a command for the utility to list the logical drives from the SmartArray that is connected to the MSA storage.

NOTE: There will be no logical drives found in the utility, but the LUNs will now be discovered in the operating system. Use the following commands in the utility: `ctrl slot=X ld all show`, where X is the slot number for the SmartArray connected to the MSA. Then force multipath to create to devices by running `multipath -v 0`.

Table Continued

Issue: When you use explicit LUN mapping, long IQN names for the iSCSI Initiator can cause the array to map the LUN incorrectly. A predefined area is used to store explicit LUN mapping information per LUN; with longer IQN names, this area can be exhausted. This issue is not dependent on the number of paths to the LUN.

Workaround: Shorten the IQN name on the nodes. The following formula is used to calculate the maximum IQN name length, based on the number of hosts being explicitly mapped to a LUN on the array:

$$\text{Maximum IQN Character Length} = (4083 / n) - 7 \text{ (Where } n = \text{number of hosts nodes explicitly mapped to a LUN on the array.)}$$

NOTE: By specification, 223 is the maximum IQN length allowed.

The following table provides the calculated values based on the number of hosts being explicitly mapped to a LUN on the array:

Number of hosts explicitly mapped to a LUN and the maximum IQN character length		Number of hosts explicitly mapped to a LUN and the maximum IQN character length		Number of hosts explicitly mapped to a LUN and the maximum IQN character length	
1–17	223	33	116	49	76
18	219	34	113	50	74
19	207	35	109	51	73
20	197	36	106	52	71
21	187	37	103	53	70
22	178	38	100	54	68
23	170	39	97	55	67
24	163	40	95	56	65
25	156	41	92	57	64
26	150	42	90	58	63
27	144	43	87	59	62
28	138	44	85	60	61
29	133	45	83	61	59
30	129	46	81	62	58

*Table Continued
Table Continued*

Number of hosts explicitly mapped to a LUN and the maximum IQN character length		Number of hosts explicitly mapped to a LUN and the maximum IQN character length		Number of hosts explicitly mapped to a LUN and the maximum IQN character length	
31	124	47	79	63	57
32	120	48	78	64	56

Issue: Red Hat Enterprise Linux Server 5 that uses the P711m, P712m, and P721m SmartArray adapters connected to an MSA 2040 SAS array might not create all multipath (`mpath`) partitions correctly, after rebooting the client when the array is under heavy load and there are many multipath devices.

Workaround: After booting the server, scan for new multipath partitions by running the command, `multipath -v 0` . If the partitions are still not created, try flushing the multipath devices and recreating the devices by issuing the command `multipath -F` followed by `multipath -v 0`.

Issue: All paths might not be reinstated correctly after a failback condition occurs, when a c-Class BladeSystem is connected through the SmartArray P711m, P712m, or P721m to an MSA 2040 SAS array in an ESX 5.x environment. A failback condition can occur due to cable replacement, SAS switch zoning changes, controller replacement, controller shutdown and reboot, or firmware upgrades.

Workaround: Force a rescan of all paths in the vSphere client, CLI, or PowerShell utilities. Consult VMWare documentation on the correct procedure.

Issue: If the auto-write-back setting is disabled using the `set auto-write-through-trigger` CLI command, the controller reboots into write-through mode.

Workaround: Manually set the cache parameters to write back and re-enable auto-write-back setting as applicable.

Issue: When the controller is in write-through mode, snap-pool space is not freed for some time after snapshots are deleted.

Workaround: Set the cache parameters to write-back on the controller to allow space to free more quickly.

Issue: Storage controller restart (for example, the CLI command `restart sc both`) causes the management controller to restart.

Workaround: None.

Issue: Replications scheduled with time constraints might not occur within the scheduled time, and the scheduler might expire before it reaches the desired number of replications.

Workaround: Do not use the scheduler with time or date constraints.

Issue: If you remove controllers from a chassis that is running manual IP configuration, and if you install those controllers in a chassis that is configured for DHCP and then return them to the original chassis, the controllers retain the DHCP configuration instead of the Manual IP configuration saved in the chassis midplane.

Workaround: If you move controllers between chassis, verify the IP configuration.

Table Continued

Issue: When direct-attached to an Emulex FC HBA, a link might not be established.

Workaround: Ensure that all affected array and HBA ports are using auto or loop topology. For the array, this must be accomplished using the CLI.

Issue: Controller temperature Event 307 occurs without a sensor location.

Workaround: None.

Issue: FTP code load is unsuccessful.

Workaround: Restart the management controller.

Issue: When a background media scrub is run on the spares, vdisk spares are displayed as vdisk members in the SMU.

Workaround: None.

Issue: In the SMU in the **Enclosure Overview** screen, a spare disk that is performing disk scrub displays DRSC appended to How Used in the properties table, causing an undescribed value of VDISK SPDRSC.

Workaround: None.

Issue: SMU erroneously reports successful deletion of a host with volume maps.

Workaround: Remove the host mappings and verify that the host was deleted.

Issue: After you attempt a firmware update, controllers revert to the old version.

Workaround: Do not make configuration changes during firmware updates.

Issue: When using IE9 in compatibility mode to access the SMU, a message appears on the login page that states the browser is unsupported.

Workaround: Disable IE9 compatibility mode.

Issue: A newly installed drive reports errors.

Workaround: Replace the drive.

Issue: A warning about the coin battery was not displayed in the Storage Management Utility (SMU) events log.

Workaround: Reset the controller date and time to be current, and restart the management controller.

Issue: D2700 I/O module port status is not included in the SMU display.

Workaround: None.

Issue: D2700 power supply information is incomplete in the SMU display.

Workaround: None.

Table Continued

Issue: SMU reports an error of `input too long` when you try to map a volume that is part of a replication image.

Workaround: Shorten the length of the Snapshot Name. Selecting defaults in the SMU adds four characters to an image name if the replication occurs when the set is created. If replications are scheduled when the set is created, four characters are added as a prefix, and six characters are added for the unique snapshot name. In either case, five characters are added for the exported snapshot name.

Issue: During the drive firmware update, a message is returned stating that the disk is unsupported.

Workaround: The message is incorrect. Use the Hard Disk Drive (HDD) firmware (FW) Smart Component to update FW, if available.

Issue: When creating a volume in the SMU, if you change the units from GB to MB but do not change the volume size, the volume will be created in GB rather than MB.

Workaround: Validate the volume size after creating a volume. If the volume was created with the wrong units, delete and recreate the volume.

Issue: The SMI-S modify volume name appears as nonsupported in Windows Server Manager 2012.

Workaround: Use the SMU or CLI to modify the volume name.

Issue: When you select **Configuration > Remove User** in the SMU, the **User Name** field is not enabled, even though the asterisk indicates that it is required.

Workaround: Use the radio buttons to select the user from the list. The **User Name** field will be automatically completed.

Issue: The SMU might incorrectly display a warning status for a healthy power supply in a cascaded HPE D2700 disk enclosure.

Workaround: Use the CLI `show power-supplies` command to verify the power supply status.

Issue: Vdisk Data Transferred and Data Throughput numbers appear to be much higher when using the CLI `historical show vdisk-statistics [vdisk] historical` command, compared to the CLI live output `show vdisk-statistics` command. This issue is caused by the way that the historical and live values are calculated.

- Live values are calculated based on the vdisk as viewed from the controller cache perspective. In the live statistics, performance numbers are obtained by accounting when data is written from cache to disk or data is read from disk to cache.
- Historical data is obtained by using the summation of disk statistics for disks in the vdisk. The historical vdisk data shows transfers to and from the disks in the vdisk that include the overhead of any RAID transfers, as well as any host activity.

Because I/Os from the RAID engine are included, numbers for the historical data appear higher than the numbers for the live data.

Workaround: None.

Table Continued

Issue: If a previously used drive is inserted in the enclosure, it might retain information about vdisks, volumes, and volume mappings from its previous use. However, the LUN numbers of these volume mappings might conflict with LUN numbers currently in use in volume mappings on the system. If this occurs, the system resolves those conflicts by removing the mappings.

Workaround: Remap the volumes, as necessary.

Issue: When you modify a vdisk name in the SMU, / (slash) is replaced by a space.

Workaround: None.

Issue: In the CLI, the `show sensor-status` command does not show warning levels or indicate fan status.

Workaround: None.

Issue: Power supply voltage readings for cascaded D2700 drive enclosures are not reported in the SMU.

Workaround: None.

Issue: If a vdisk becomes critical, the array might generate multiple events.

Workaround: None.

Issue: In event messages, power supplies are referred to by different terminology. Sometimes power supply 1 is reported as `left` and sometimes reported as `1`. Likewise, power supply 2 is sometimes reported as `right` and sometimes reported as `2`.

Workaround: None.

Issue: A serial number was not generated for SMART drive `Event 55`.

Workaround: Identify the drive by using the enclosure and slot number.

Issue: In the CLI, the `show master-volumes` command includes a volume that has been converted to a standard volume.

Workaround: Log out, and log in again to the CLI.

Issue: Global spares have a status of `Up` in the SMU, even if they are spun down using the drive spin-down feature.

Workaround: None.

Issue: On the **Configuration > Advanced Settings > Microsoft Windows Server 2008 R2 > System Utilities** page, changing the **Vdisk Scrub** and **Managed Logs** settings at the same time might result in an error.

Workaround: Make these changes one at a time.

Table Continued

Issue: When you create a volume set with the volumes mapped to LUNs, if there is a LUN conflict, the array stops mapping volumes to LUNs but creates the volumes as requested.

Workaround: Ensure that there are no LUN conflicts before creating the volume set with mapping, or map the remaining volumes to LUNs after the conflict.

Issue: SLES 11 might require multiple minutes (15+/-) to create all multipath devices during boot. This typically involves a system with many LUNs and multiple LUN paths.

Workaround: None. Wait for the system to complete LUN and path discovery.

Issue: Under rare circumstances, some events from one controller are not seen on the other controller.

Workaround: Review the events from both controllers.

Issue: The USB CLI becomes unusable after a Management Controller reboot in Windows environments.

Workaround:

1. Close down the terminal application (for example, HyperTerminal).
 2. Open Device Manager, and disable the `Disk Array USB Port` under **Ports** (COM and LPT).
 3. Re-enable the `Disk Array USB Port`. If the problem persists, reboot the host.
-

Issue: The mini-USB CLI port on the array controller does not work.

Workaround: Install a device driver for the mini-USB CLI port. This driver is packaged as a Smart Component and is available for download on the MSA 2040 support page.

Issue: There is no indication that a LUN has failed-over to the other controller.

Workaround: Using the Storage Manage Utility (SMU), open system events and scan for failover events. When using the CLI, use the `show events` command.

Issue: A replication is initiated, but only a snapshot on the primary volume occurs, or the replication is queued.

Workaround: Ensure that all systems involved have valid replication licenses installed. Ensure that all volumes and vdisks involved in the replication have started, are attached, and are in good health, including vdisks that contain the snap pools for the volumes involved. A replication normally queues when a previous replication involving the same volumes is active.

Issue: A replication set was deleted but is later shown with the primary volume status of `Offline` and the status-reason is record-missing.

Workaround: This generally occurs when you detach the secondary volume, delete the replication set (which stops the vdisk), and restart the vdisk of the secondary volume. To correct this issue, reattach the secondary volume, set it as the primary volume, and delete the replication set.

Issue: A `Controller Busy` error message occurs while you create a replication set.

Workaround: Creating replication sets immediately one after the other might result in `Controller Busy`. This is expected behavior. Wait and try the operation again at a later time.

Table Continued

Issue: In the SMU, the **Vdisk > Provisioning > Create Multiple Snapshots** task allows a secondary volume to be selected but fails the operation.

Workaround: User-initiated snapshots are not allowed on secondary volumes. Do not select a secondary volume.

Issue: A scheduled replication is missing, or replications are queued but do not complete.

Workaround: A best practice is to schedule no more than four volumes to start replicating at the same time and for those replications to recur no less than 30 minutes apart. If you schedule more replications to start at the same time or schedule replications to start more frequently, some scheduled replications might not have time to complete.

Issue: You are unable to perform a local replication (a replication where the primary volume and the secondary volume reside on the same system) with a single vdisk.

Workaround: Create a second vdisk for the secondary volume.

Issue: Deleting the replication set from the destination system fails.

Workaround: Delete the replication set from the source system (the system where the primary volume resides.)

Issue: A replication set is missing the primary volume, and the replication set cannot be deleted.

Workaround: Set the remaining volume in the set to be the primary volume. You should then be able to delete the replication set.

Issue: On rare occasions, deleting a vdisk when volumes are in the process of rolling back might cause communications issues between the management controller and the storage controller.

Workaround: Cycle the power on the array to resolve the issue. To avoid this situation, allow the rollbacks to complete, or delete the volumes before deleting the vdisk.

Issue: Scheduled tasks are not occurring, and there is no indication of a problem in the schedules or the tasks.

Workaround: Restart both management controllers of the arrays involved in the tasks.

Issue: In a dual-controller system, the login to one of the controllers fails, but the login to the other controller succeeds. **Workaround:** Log in to the other controller and restart the inaccessible management controller using the CLI `restart mc` command or the **SMU Tools > Shut Down or Restart Controller** page.

Issue: IOPS and Bytes per second might be lower or higher than expected for the workload.

Workaround: This is a reporting issue and not a performance issue. Calculate the correct values by using the change in the `Number of Reads` and `Number of Writes` over time to determine IOPS and the change in `Data Read` and `Data Written` over time to determine Bytes per second.

Table Continued

Issue: The array controller might interpret a switch login as a host bus adapter (HBA) login and erroneously present the switch port as a discovered host. This issue does not affect storage functionality.

Workaround: Either identify the erroneous host and do not attempt to use it. You can also use `Disable Device Scan` on switch ports connected to the array controller, and restart the array controller.

Issue: SMI-S Alert Indication for Power Supplies and Disks returns an invalid device ID in the `AlertingManagedElement` attribute.

Workaround: Use the `show events` CLI command to identify the failed device.

Important firmware notes

- Windows Server 2012 management integration:
 - Hewlett Packard Enterprise recommends that you update the Windows cache by using the cmdlet, `Update-StorageProviderCache -DiscoveryLevel Full -Name <storageProviderName>` manually, after attempting any storage provision operations that use the MSA management interface.
 - Hewlett Packard Enterprise recommends that you use the MSA management interface (Storage Management Utility or Command Line Interface) to modify volume mappings, delete volumes, or modify volume names. Manually update Windows cache by using the cmdlet, `Update-StorageProviderCache -DiscoveryLevel Full -Name <storageProviderName>`.
- System Center VMM integration:
 - Running operations concurrently is supported, except for Windows 2008 R2, up to the limit of four concurrent operations. This includes creating objects (e.g., LUNs, clones, snapshots) and registering objects to hosts or four node clusters.
- Windows Server 2012 management and System Center VMM integration:
 - Hewlett Packard Enterprise recommends that you disable Windows Indication subscription, if SCVMM or Windows Server 2012 manages only MSAs and not any other arrays. To disable the Indication subscription, modify the registry key `HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\Current Version\Storage Management\EnableIndications` value from 1 to 0 and restart Windows Standards Based Storage Management Service.
 - If you want to enable the Indication subscription at Windows Server 2012, Hewlett Packard Enterprise recommends that you configure the Indication based on the instructions provided at <http://blogs.technet.com/b/filecab/archive/2013/05/22/using-indications-with-the-windows-standards-based-storage-management-service-smi-s.aspx>
- The MSA 2040 contains an embedded SMI-S provider for use by SMI-S client applications. The embedded provider is designed to support MSA 2040 configurations with up to 24 hard drives and up to 250 mapping paths. A mapping path is defined as an MSA 2040 volume presented through an MSA 2040 target port to a host initiator.
- Smart Array SAS HBAs are not supported with SMI-S based applications that include System Center VMM and Windows Server 2012 Integrations.

- Some older drive firmware Smart Components may not be compatible with the MSA 2040 and cause the Smart Component to stall. If this occurs, Hewlett Packard Enterprise recommends extracting the Smart Component and using the
 .FLA
 or
 .LOD
 file with the SMU to update the drive firmware.
- When changing a replication set (e.g., adding or removing a replication volume or deleting the replication set), do so from the source system; when aborting, suspending, or resuming a replication, do so from the destination system.
- When changing the primary volume of a replication set, do so from the destination system first, then, perform the change on the source system.
- When using Windows Dynamic Disk (software RAID) on top of a hardware RAID, cautions must be considered. For more information, see the section
 real world: dynamic versus basic disks
 on the topic at <http://technet.microsoft.com/en-us/library/dd163558.aspx>
- Failover and failback times are affected by the number of system volumes; the more volumes there are on the system, the more time is required for failover and failback to complete.

Installation instructions

The following sections discuss installing firmware:

- [Installation notes and best practices](#) on page 33
- [Installing firmware using Smart Components in Windows environments](#) on page 35
- [Installing firmware using Smart Components in Linux environments](#) on page 36
- [Installing firmware using the Storage Management Utility \(SMU\)](#) on page 37
- [Installing firmware using FTP](#) on page 38
- [Installation troubleshooting](#) on page 39

Installation notes and best practices

⚠ WARNING: Do not cycle power or restart devices during a firmware update. If the update is interrupted or there is a power failure, the module could become inoperative. If this occurs, contact technical support. The module may need to be returned to the factory for reprogramming.

⚠ CAUTION: Before upgrading firmware, ensure that the system is stable and is not being reconfigured or changed in any way. If changes are in progress, monitor them and wait until they are completed before proceeding with the upgrade.

ⓘ IMPORTANT: In dual-module enclosures, both controllers or both I/O modules must have the same firmware version installed. Running different firmware versions on installed modules may cause unexpected results.

! **IMPORTANT:** Hewlett Packard Enterprise recommends using the Windows or Linux SmartComponent to install firmware updates on the system.

Before installing this firmware:

- If using a Smart Component, ensure that FTP and telnet are enabled on the arrays being updated.
- Create a full backup of system data. (A full backup is strongly recommended.)
- Schedule an appropriate time to install the firmware:
 - For single-controller systems, I/O operations must be halted.
 - For dual-controller systems, because the online firmware upgrade is performed while host I/Os are being processed, I/O load can impact the upgrade process. Select a period of low I/O activity to ensure that the upgrade completes as quickly as possible and avoid disruptions to hosts and applications due to timeouts.

- Allocate sufficient time for the update:

It takes approximately 45 minutes for the firmware to load and for the automatic restart to complete on the first controller module. When dual modules are installed, the full process time is approximately 90 minutes. If cascaded drive enclosures are also being updated, the total process time may be as long as 180 minutes.

- For dual-controller systems, the Smart Component automatically enables/disables the

Partner Firmware Update

(PFU) settings as necessary to update both controllers. However, if you use the SMU or FTP instead of the Smart Component, perform the following actions based on the PFU setting to ensure that both controllers are updated:

- If the PFU is enabled: after the installation process completes and then restarts the first controller, the system automatically installs the firmware and restarts the second controller.
- If the PFU is disabled: after updating firmware on one controller, you must manually update the second controller.

During the installation process:

Monitor the system display to determine update status and see when the update is complete.

After the installation process is complete and all systems have automatically restarted:

- Verify system status in the system's management utility, and confirm that the new firmware version is listed as installed.
- Review system event logs.
- Updating array controller firmware may result in new event messages that are not described in earlier versions of documentation. For comprehensive event message documentation, see the most current version of the MSA event descriptions reference guide.
- The Smart Component update process logs messages to `\CPQSYSTEM\Log\cpqsetup.log` on the system drive in Windows and `/var/cpq/Component.log` in Linux.

When reverting to a previous version of firmware:

- Ensure that both Ethernet connections are accessible before downgrading the firmware.
- When using a Smart Component firmware package, the process automatically disables the PFU and then downgrades the firmware on each controller separately (one after the other) through the Ethernet ports.
- If you are using a binary firmware package, manually disable the **Partner Firmware Update** option. Then, downgrade the firmware on each controller separately (one after the other).

Installing firmware using Smart Components in Windows environments

This is a self-extracting executable module. You can execute this module from the Windows graphical user interface (GUI) or the Windows command prompt.

GUI update method

Procedure

1. Obtain the firmware package, and save it to a temporary directory. Firmware for all HPE products is available from the Hewlett Packard Enterprise Business Support Center Website at <http://www.hpe.com/support/downloads>.
2. In single-controller environments, stop all I/O to vdisks in the enclosure before starting the firmware update.
3. Using Windows Explorer, navigate to the directory containing the download.
4. Double-click the executable file.
5. Follow the on-screen instructions. After you are prompted for logon information, enter credentials for an account with management access rights.
6. Wait for the installation to complete. During installation, each updated module automatically restarts. Upon completion, a confirmation message is displayed.

Command line update method

- Obtain the firmware package, and save it to a temporary directory. Firmware for all products is available from the Hewlett Packard Enterprise Business Support Center Website at <http://www.hpe.com/support/downloads>.
- In single-controller environments, stop all I/O to vdisks in the enclosure before starting the firmware update.
- In a Windows command prompt, navigate to the directory containing the download.
- Execute the Smart Component by entering the following command:
- `CPxxxxxxx.exe /target <ip_address> /user <username> /passwd <password> /s`
- If you are prompted for logon information, enter credentials for an account with management access rights.
- Wait for the installation to complete. During installation, each updated module automatically restarts. Upon completion, a confirmation message appears if this is not a silent installation.

Installing firmware using Smart Components in Linux environments

Procedure

1. Obtain the firmware package, and save it to a temporary directory. Firmware for all products is available from the Hewlett Packard Enterprise Business Support Center Website at <http://www.hpe.com/support/downloads>.
 2. In single-controller environments, stop all I/O to vdisks in the enclosure before starting the firmware update.
 3. Open a Linux command console.
 4. From the directory containing the downloaded file, enable execute access to this model by entering:
 5. `chmod +x CPxxxxxxx.scexe`
 6. where `CPxxxxxxx.scexe` represents the downloaded Smart Component filename.
 7. Execute the Smart Component by entering a command similar to the following:
 8. `./CPxxxxxxx.scexe -e --target <ip_address> --user <manage_username> --passwd <manage_password>`
-

NOTE:

- To force output from the command when flashing a device:
 - Use `-e`
(reflash): flash even if the device is already up to date.
 - Use `-f`
(force): always flash applicable devices.
 - Use the `-g` option when downgrading.
 - Use the `-h` option to see online help for the command.
 - If the user name or password contains an exclamation mark (!), enclose the string in single quotes, or enter a backslash (\) before the exclamation point. For example,
`'!manage'`
or
`\!manage`
.
-

9. Follow the on-screen instructions. If prompted for logon information, enter credentials for an account with management access rights.
10. Wait for the installation to complete. During installation, each updated module automatically restarts. Upon completion, a confirmation message appears if this is not a silent installation.

Installing firmware using the Storage Management Utility (SMU)

Procedure

1. Obtain the firmware package, and save it to a temporary directory. Firmware for all products is available from the Hewlett Packard Enterprise Business Support Center Website at <http://www.hpe.com/support/downloads>.
2. If using a Smart Component, extract the contents of the Smart Component by using one of the following methods:
 - a. In Windows—Click **Extract** on the first screen of the Smart Component.
 - b. In Linux—Enter a command by using the following syntax:

```
./CPxxxxxx.scexe --unpack=<folder name>
```

where

```
./CPxxxxxx.scexe
```

represents the Smart Component filename

```
<folder name>
```

represents the filename of the destination folder for the extracted binary file
3. Locate the firmware file in the downloaded/extracted folder. The firmware filename is in the following format: `GLxxxRyyy-zz.bin`.
4. In single-controller environments, stop all I/O to vdisks in the enclosure before starting the firmware update.
5. Log in to the SMU. In the **Configuration View** panel, right-click the system and then select **Tools > Update Firmware**.
6. A table is displayed that shows currently installed firmware versions.
7. Click **Browse**, and select the firmware file to install.
8. Click **Install Controller-Module Firmware File**.
9. Wait for the installation to complete. During installation, each updated module automatically restarts.
10. In the SMU display, verify that the expected firmware version is installed on each module.

Installing firmware using FTP

Procedure

1. Obtain the firmware package, and save it to a temporary directory. Firmware for all products is available from the Hewlett Packard Enterprise Business Support Center Website at <http://www.hpe.com/support/downloads>.
2. If you are using a Smart Component, extract the contents of the Smart Component by using one of the following methods:
 - a. In Windows—Click **Extract** on the first screen of the Smart Component.
 - b. In Linux—Enter a command by using the following syntax:

```
./CPxxxxxx.scexe --unpack=<folder name>
```

where

```
./CPxxxxxx.scexe
```

represents the Smart Component filename
<folder name> represents the filename of the destination folder for the extracted binary file
3. Locate the firmware file in the downloaded/extracted folder. The firmware filename is in the following format: GLxxxRyyy-zz.bin.
4. Using the SMU, prepare to use the FTP:
 - a. Determine the network-port IP addresses of system controllers.
 - b. Verify that the system FTP service is enabled.
 - c. Verify that the user login has permission to use the FTP interface and has manage access rights.
5. In single-controller environments, stop I/O to vdisks in the enclosure before starting the firmware update.
6. Open a command prompt (Windows) or a terminal window (UNIX), and navigate to the directory containing the firmware file to load.
 - a. Enter a command with the following syntax:

```
ftp <controller-network-address>. (For example: ftp 10.1.0.9)
```
 - b. Log in as a user with the manage role. The default settings include the FTP user with a manage role. .
 - c. Enter a command by using the following syntax:

```
put <firmware-file> flash
```

where **<firmware-file>** represents the binary firmware filename
7. Wait for the installation to complete. During installation, each updated module automatically restarts.
8. If needed, repeat these steps to load the firmware on additional modules.
9. Quit the FTP session.
10. Verify that the expected firmware version is installed on each module.

- a. In the SMU, right-click the system in the **Configuration View** panel, and then select **Tools > Update Firmware**.
- b. In the Command Line Interface (CLI), execute the `show version` or the `show enclosures` command.

Installation troubleshooting

If you experience issues during the installation process, do the following:

Procedure

1. When viewing system version information in the SMU System Overview panel, if an hour has elapsed and the components do not show that they were updated to the new firmware version, refresh the browser. If version information is still incorrect, proceed to the next troubleshooting step.
2. If version information does not show that the new firmware has been installed, even after refreshing the browser, restart all system controllers. For example, in the CLI, enter the `restart mc both` command. After the controllers have restarted, one of three things happens:
 - a. Updated system version information is displayed, and the new firmware version shows that it was installed.
 - b. The Partner Firmware Update process automatically begins and installs the firmware on the second controller. When complete, the versions should be correct.
 - c. System version information is still incorrect. If system version information is still incorrect, proceed to the next troubleshooting step.
3. Verify that all system controllers are operating properly. For example, in the CLI, enter the `show disks` command, and read the display to confirm that the displayed information is correct.
 - a. If the `show disks` command fails to display the disks correctly, communications within the controller have failed. To re-establish communication, cycle power on the system, and repeat the `show disks` command. (Do not restart the controllers; cycle power on the controller enclosure.)
 - b. If the `show disks` command from all controllers is successful, perform the Firmware Update Process again.

Websites

MSA Manuals

<https://www.hpe.com/info/MSAdocs>

MSA Firmware

<https://www.hpe.com/storage/MSAFirmware>

MSA Drive Firmware

<https://www.hpe.com/storage/MSADriveFirmware>

MSA Forum

<https://www.hpe.com/forum/MSA>

MSA Support Material Access

https://support.hpe.com/hpsc/doc/public/display?docLocale=en_US&docId=emr_na-c05349541

Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix

<https://www.hpe.com/storage/spock>

Storage white papers and analyst reports

<https://www.hpe.com/storage/whitepapers>

To subscribe to eNewsletters and alerts:

<https://www.hpe.com/support/e-updates>

To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center More Information on Access to HPE Support Materials page:

<https://www.hpe.com/support/AccessToSupportMaterials>

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