



Hewlett Packard
Enterprise

P2000 G3 MSA Systems Controller TS252P005 Firmware Release Notes

Abstract

This package delivers firmware for P2000 G3 MSA array controllers and includes enhanced features and fixes to issues found during use and additional qualification testing.

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Documentation feedback

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Version:

- Controller firmware: TS252P005
- I/O module firmware: S200B28

① **IMPORTANT:** Beginning with TS230, firmware for all P2000 G3 MSA System controllers was merged into a common firmware stream, used on all protocols of P2000 G3 MSA controllers.

NOTE: The latest, approved companion versions of P2000 and MSA2000 drive enclosure firmware are included in this firmware package. When firmware on P2000 G3 MSA array controller enclosures is updated using this firmware package, firmware on cascaded P2000 or MSA2000 drive enclosures is also updated. If D2700 or MSA70 drive enclosures are cascaded from the P2000 G3 MSA array, firmware for those enclosures must be obtained and updated individually.

For a list of supported companion drive enclosure firmware, see [“Additional devices” \(page 4\)](#).

Update recommendation

Recommended

Supersedes

- Controller firmware: TS252P001

Versioning key:

AxxxByyy-zz

Where the following letters represent release information about the firmware version:

A MSA model. (TS=P2000 G3, M=MSA2000 G2, J=MSA2000)

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)

yy Major release number.

-zz Minor release number.

P2000 G3 MSA System controllers:

- P2000 G3 10GbE iSCSI MSA
- P2000 G3 1GbE iSCSI MSA
- P2000 G3 FC/iSCSI Combo MSA
- P2000 G3 Fibre Channel MSA
- P2000 G3 SAS MSA

Operating systems

Operating system	P2000 G3 MSA System controller model				
	FC	FC/iSCSI	SAS	iSCSI	10GbE iSCSI
Apple Mac OS X	X	X ¹			
Citrix XenServer 5.5, 5.6	X	X	X	X	
HP-UX 11.23, 11.31	X	X ¹	X ²		
OpenVMS 8.3, 8.4	X	X ¹			
Oracle Linux 5, 6	X	X	X	X	X

Operating system	P2000 G3 MSA System controller model				
	FC	FC/iSCSI	SAS	iSCSI	10GbE iSCSI
Red Hat Enterprise Linux 5, 6, 7	X	X	X	X	X
Solaris 10, 11	X	X	X	X	X
SuSE Linux Enterprise Server 10, 11	X	X	X	X	X
VMware 5.0, 5.1, 5.5	X	X	X	X	X
Windows 2012	X	X	X	X	X
Windows 2008	X	X	X	X	X

¹ Supported for FC connections only.

² HP-UX 11.31 only

NOTE:

- Support for additional operating systems may be approved after release of this firmware. For up-to-date, detailed operating system support information and known restrictions, see the Hewlett Packard Enterprise Storage Single Point Of Connectivity Knowledge (SPOCK) website at <http://www.hpe.com/storage/spock>. Enter your HPE Passport account credentials and then, in the left pane, select **View by Array**. In the displayed table of arrays, on the MSA row, use the **Refine** and the **Add to Selection** options to display the list of supported operating systems for your controller model.

Additional devices

Array controller enclosures support the cascading of drive enclosures. The following table lists supported drive enclosure models and firmware versions.

P2000 G3 MSA array controller firmware	Cascaded drive enclosure model	Recommended drive enclosure firmware
TS252	P2000 Drive Enclosure	S200B28
	MSA2000 Drive Enclosure	O320B13
	D2700 Drive Enclosure	0149 or 0150
	70 Modular Smart Array	2.28

- ⓘ **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 at <http://www.hpe.com/support/p2000G3msa>.

MSA VAAI Plug-in: important note for ESX environments

Beginning with the TS251R004 firmware release, the MSA VAAI Plug-in is no longer supported. The MSA controller firmware now uses T10 compliance in an ESX Environment.

In order to properly upgrade your ESX Environment, perform the following actions:

- Determine whether your ESXi/ESX 5.x host has the MSA VAAI Plug-in installed.
- Disable the MSA VAAI Plug-in.
- Remove the VAAI vSphere Installation Bundle (VIB).
- Remove all claim-rules associated with the MSA VAAI Plug-in.

NOTE: Failure to correctly remove the MSA VAAI Plug-in and associated claim-rules will result in degraded performance and possible loss of access to datastores.

MSA Security Considerations

This firmware contains security updates. After any security update is applied to your array, HPE highly recommends that you change user passwords.

Enhancements

The following features were added or enhanced in controller firmware TS252P005:
Upgraded OpenSSL to 1.0.2j.
Added description and help text for the new quarantine event (590).
Disabled in-band SCSI Enclosure Management Services (SES) protocol by default, alleviating controller issues in environments where SES devices were actively monitored.
Added support for SCSI Send Diagnostic command when in-band SES is disabled.
Improved HPE D2700 Disk Enclosure fan information in CLI.

The following features were added or enhanced in controller firmware TS252P001:
Disabled the RC4 cipher to resolve CVE-2015-2808.
Controller will automatically be restarted when it ceases operation due to a PCI communication problem.
Disabled 96-bit and MD5-based HMAC and CBC mode ciphers.
OpenSSL upgraded to 1.0.1q.
Disabled SSL compression to mitigate CRIME attacks (CVE-2012-4929 and CVE-2012-4930).
Implemented fixes for CVE-2013-5600 and CVE-2013-4548.
Disabled SSLv2.
Disabled weak SSL ciphers.
Disabled TCP timestamp response.
Certificate is signed using SHA-1 algorithm.
Enhanced handling of aborted ATS commands.

The following features were added or enhanced in controller firmware TS252R007:
Improved the vdisk scrub utility.
Improved array stability.
Added security enhancements to the system.
Ensured that potentially disruptive or data loss actions require user confirmation in the SMU.
Ensured that the secure HTTPS protocol is used for Remote Snap.
Improved security certificate values.
Improved recommended actions and descriptions for events.
Ensured that show license displays the licensing serial number.

The following features were added or enhanced in controller firmware TS252R007:

The secured HTTPS protocol is enabled by default, and a warning is generated when the unsecured HTTP protocol is enabled by the user.

Fixed date and time panel to reflect appropriate changes when NTP option is enabled or disabled.

Improved the help text for `show chap-records` and `show users` commands.

Improved the help text for certificate information in the SMU and CLI.

Improved array stability during controller reboots.

Fixes

The following issues were resolved in firmware version TS252P005:

Transient error caused array to incorrectly report '314 ERROR' event in event logs.

Replications stalled on primary volume due to issue with queue full condition.

Controller ceased to operate due to page fault.

iSCSI controllers provided incorrect maximum transfer size in the Vital Product Data (VPD).

Controller ceased to operate due to page fault in miol.

Custom OpenSSL certificate could not be used.

The CLI command `set network-parameters` did not update the link-speed and auto-negotiation when the duplex-mode is set to half and vice-versa.

After the controller was killed with PCIE Link fault, controller showed invalid state of partner.

Management interface reported lower speed connection after the interface was disconnected.

The SMU could become inaccessible requiring a management controller reboot.

Unable to create and use a custom certificate using the CLI command `create certificate` when the controller time is configured with non-zero NTP offset.

After controller ceased operation, configurations could be set to factory defaults.

Replication images scheduled for deletion were not properly removed following a power event.

Replication could become stopped or stuck, and controller could cease operation.

Failback took longer than 60 seconds to complete in SAS environments.

HPE D2700 Disk Enclosure and System Health reported as degraded after upgrade of controller firmware.

Vendor, product ID, and serial number was empty for hard drive events 314 and 55.

Rebuild continued on Quarantined vdisk and controller ceased operation.

Controller ceased operation due to aborts seen with VMWare ATS commands.

The following features were fixed in TS252P001:

MC NOT TALKING error message seen after doing multiple logins and logouts using scripts.

Systems upgraded from TS251 to TS252R007 are prevented from replicating from a primary system running GL200 because of an inability to attach the target system.

A drive with a low level hardware error requesting spin up results in loss of data access.

Creating replication volume would fail in the SMU if a space exists in the source volume name.

Both controllers ceased to operate while handling heavy XCOPY commands.

The following features were fixed in TS252P001:

FRU Event 314 for Power Supplies does not display the product ID or Serial Number.

Event 401 is not logged when logs reach warning threshold.

Uninstalling and reinstalling replication license file results in confusing digits in the license display.

The vdisk was quarantined on one controller by the other controller when both controllers are shutdown within one second.

Controller may cease operation during copy-on-write restart while a vdisk is being dequarantined.

The following features were fixed in TS252R007:

The host SAS port did not always report the correct Target ID.

The SMI-S returned incorrect date on some occasions.

When an illegal request was sent, an incorrect message stating that the disk is not supported was generated.

Event 8 drive warning did not always generate a 314 event.

The controller may fault when **Read Ahead Cache** was set to a non-default value.

The CLI command `show frus` reported power supply FRU status incorrectly.

Event 8 message provided an incorrect recommended action.

A controller would rarely fault due to double deletion of host IO.

SATA spare drives were not ready on some occasions.

There may be invalid data points in historical disk statistics.

There was insufficient PCIE link recovery between the controllers.

The array may hang when the controllers have overlapping commands.

A message was not provided informing there was an IP address conflict when a user assigned a host port IP address that conflicted with an internal IP address used by the controller.

The FRU status was shown as **Absent** instead of **N/A** for enclosure types MSA70 and D2700.

There was no warning while changing ownership of a vdisk manually with active host IO.

The 314 event for SMART event on disk reported incorrect disk drive location.

The scheduler was unable to delete snapshots on some occasions.

The CLI command `set email-parameters` did not preserve the current settings if the include-logs parameter was not specified.

The array health was incorrectly reported as good, even though the disk channel was critical.

Vdisks were lost after controller failover.

The CLI command `show frus` did not list the memory card.

The CLI command `show sensor-status` did not always report numeric status values correctly.

The sequential read performance of NRAID was impacted if HDD mode page 08h, Max Prefetch was set to less than 64Kb.

There was no event generated for fan failure on the D2700 enclosure.

The **write-back cache was disabled** event should have been a higher severity event than informational.

The overall system health was incorrectly shown as **OK** when an attached D2700 power supply was in a **Warning** state.

An incorrect error message was displayed when attempting to default-map a volume using a duplicate LUN number.

The SMU command `Create Volume-Set` failed when a default mapping LUN ID was not unique.

The following features were fixed in TS252R007:

The local replication between volumes owned by the same controller failed on some occasions.

An incorrect vdisk name was listed in event 485.

A faulty drive might crash a controller during firmware update.

Events for faulty compact flash card incorrectly indicated replacing the entire controller.

A controller may kill its partner when loading MSA 70 firmware from the SMU.

Event 314 reported incorrect location information for faulty drives.

Un-installation of a license would fail on some occasions.

In SMI-S alert indications, the power supply device ID keys were incorrect.

The SMI-S alert indication for a hard disk failure reported incorrect drive location.

The CLI command `show frus` did not show controller memory card information.

The user was unable to get the SKU (Stock Keeping Unit) part number through SNMP or SMI-S queries.

The power supply failure event did not include product ID and serial number (SN).

The SNMP event for disk failure had incorrect information in the event field.

The volumes created and mapped using Microsoft diskraid incorrectly showed 4 ports per controller for a 2-port FC controller.

The SMU **Configuration**→**System Settings**→**Host Interfaces** did not always display host port IPs correctly.

The CLI command `map volume` did not always return valid data.

The SMU user was unable to expand Raid-10 vdisk with two sub-vdisks at a time.

In the SMU, an incorrect warning message was displayed when attempting to create a snapshot after reaching the maximum volume limit in a vdisk.

The SMU user was unable to get logs when multiple login attempts exist with HTTPS.

In the CLI, no error message was generated using `create replication-set` command with a replication set name of more than 20 characters.

In the CLI, the recommended action message for the `show disks` command for partially reconstructed disks was incorrect.

The CLI command `show frus` command did not show top level SKU information.

After removing 2 drives in a RAID 6 vdisk, the remaining drives were not shown in the vdisk.

The SMI-S Life-Cycle Indications were not sent to Windows Server 2012 R2.

On some occasions, drives would incorrectly be set as leftover during PFU (Partner Firmware Upgrade).

Out-of-sync and partially reconstructed drives were not always reported correctly when using the `trust` command.

Some errors were encountered with SMU using HTTPS.

The power supply and fan location information was not correct in CLI API mode.

The power supply status was not be reported correctly after its removal.

The Management controller would occasionally stop functioning.

The CLI command `create volume-set` did not error correctly when some parameters were missing.

An error was generated when attempting to delete a replicated snapshot.

The CLI command `show fans` did not include all fans in the system.

The CLI command `show enclosures` did not report correctly when Storage Controller was in a shutdown state.

The following features were fixed in TS252R007:
Attempting to create a snapshot on a vdisk in a stopped state did not error correctly.
The System Health incorrectly displayed OK status when a controller was in a shutdown state.
The System Health erroneously displayed degraded status when the system was healthy.
An error message was not generated when attempting expansion of two vdisks concurrently.
A controller would occasionally fault when multiple drives were removed from a RAID 50 vdisk during expansion.
The CLI session would not always close properly after issuing the <code>logout</code> command.
The CLI command <code>create volume</code> did not error when attempted on a vdisk initializing offline.
After converting a master volume to a standard volume, the volume was still listed incorrectly as a master volume.
An incorrect message was generated confirming the success of a vdisk dequarantine operation when the operation failed.
An incorrect number of drives were displayed when an entire sub-vdisk was missing from a multilevel vdisk.
A snapshot creation failed when attempting to automatically create a snap-pool using the default name and a snap-pool with that name already existed.
The CLI command <code>set advanced-settings</code> accepted invalid numbers and characters for the <code>emp-poll-rate</code> parameter.
The CLI command <code>set enclosure</code> command accepted invalid numbers for the <code>rack-number</code> and <code>rack-position</code> parameters.
The CLI command <code>show master-volumes controller both</code> did not return master-volumes for both controllers.
The Controller would fault occasionally when a misconfigured drive was inserted.
Some single controller systems would not always provide a list of enclosures and disks after a firmware upgrade or downgrade, resulting in failures when creating volumes and replication sets and with replication using existing sets.
Creating a Remote Snap replication set would occasionally fail due to a slow SSL connection.
An error message was generated with the internal USB drive.

Important firmware notes

- The I/O module firmware version has been updated to S200B28. For the list of updates, refer to *HPE P2000 Large Form Factor Drive Enclosure I/O Module S200B28 Firmware Release Notes*.
- The P2000 G3 contains an embedded SMI-S provider for use by SMI-S client applications. The embedded provider is designed to support P2000 configurations with up to 24 hard drives and up to 250 mapping paths. A mapping path is defined as a P2000 volume presented through a P2000 target port to a Host initiator.
- Some drive firmware Smart Components built before the TS240 release may not be compatible with TS240 firmware, causing the Smart Component to stall. HPE recommends checking drive module firmware versions and upgrading them before upgrading controllers to TS240.
- Some drive firmware Smart Components may not be compatible with the current release and cause the Smart Component to stall. HPE recommends extracting the Smart Component and using the `.FLA` or `.LOD` file with the SMU to update the drive firmware.
- In environments using replication, all MSA P2000 G3 controllers must have the same firmware version installed. Running different firmware versions among MSA P2000 G3 controllers might prevent replications from occurring.
- To replicate between an P2000 G3 MSA system and an MSA 1040 or an MSA 2040 SAN system, the secondary volume must be exactly the same size as the primary volume. To ensure that the size is exactly the same when creating the secondary volume manually, use the CLI

`replicate volume` command as described in the *HPE P2000 CLI Reference Guide*, the *HPE MSA 1040 CLI Reference Guide*, and the *HPE MSA 2040 CLI Reference Guide*.

- When changing a replication set (for example, 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 hardware RAID, there are some cautions to 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.
- MSA70 disk enclosures are supported for use with P2000 G3 arrays running TS230 or later firmware, but must have firmware 2.28 or later installed. For more information on MSA70 firmware compatibility with different P2000 G3 array firmware versions, see the QuickSpecs for the MSA70 or P2000 G3, or see the *HP 70 Modular Smart Array Enclosure Firmware Release Notes*.
- For the FC/iSCSI MSA Controller, mapping a volume via iSCSI and FC to the same server is not a supported configuration. Many operating systems' multipath solutions will not correctly handle the multi-protocols. Do not map a LUN in this manner.

Installation instructions

The following sections discuss installing firmware:

- ["Installation notes and best practices" \(page 10\)](#)
- ["Installing firmware using Smart Components in Windows environments" \(page 11\)](#)
- ["Installing firmware using Smart Components in Linux environments" \(page 12\)](#)
- ["Installing firmware using the Storage Management Utility \(SMU\)" \(page 13\)](#)
- ["Installing firmware using FTP" \(page 13\)](#)
- ["Installation troubleshooting" \(page 14\)](#)

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 might become inoperative. If this occurs, contact technical support. The module might 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.

Before installing this firmware:

- If updating using a Smart Component, ensure that FTP and telnet are enabled on the arrays being updated.
- Create a full backup of system data. (Strongly recommended.)

- Schedule an appropriate time to install the firmware:
 - For single domain systems, I/O must be halted.
 - For dual domain 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 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, total process time may be as long as 180 minutes.
- Set the **Partner Firmware Update** option so that, in dual-controller systems, both controllers are updated. (For SMU and FTP updates only; Smart Components automatically enable/disable the PFU settings as needed.) When the Partner Firmware Update option is enabled, after the installation process completes and restarts the first controller, the system automatically installs the firmware and restarts the second controller. If Partner Firmware Update is disabled, after updating software 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 *HPE P2000 G3 MSA System 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, note the following:

- Ensure that both Ethernet connections are accessible before downgrading the firmware.
- When using a Smart Component firmware package, the process automatically disables Partner Firmware Update (PFU) and then downgrade the firmware on each controller separately (one after the other) through the Ethernet ports.
- When using a Binary firmware package, you must manually disable the Partner Firmware Update (PFU) and then downgrade the firmware on each controller separately (one after the other).
- Reverting from TS240 to firmware prior to TS230 is not supported.

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 command line interface (CLI).

GUI update method

1. Obtain the firmware package and save it to a temporary directory. Firmware is available for download at <http://www.hpe.com/support/p2000G3msa>.

2. Using Windows Explorer, navigate to the directory containing the download.
3. Double-click the executable file.
4. Follow the onscreen instructions. When prompted for logon information, enter credentials for an account with management access rights.
5. Wait for the installation to complete. During installation, each updated module automatically restarts. Upon completion, a confirmation message appears.

CLI update method

Execute the Smart Component by entering the following command:

```
CPxxxxxxx.exe /target <ip_address> /user <username> /passwd <password> /s
```

where

CPxxxxxxx.exe is the downloaded Smart Component filename
 ip_address is the management IP address of the array controller
 username is the username account with management rights
 password is the password for username

When prompted for logon information, enter credentials for an account with management access rights.

NOTE: Instead of command line parameters, you can use the following DOS environment variables:

- oa_address: Set this variable for the IP address of array controller.
 - oa_username : Set this variable for the username of array controller.
 - oa_password : Set this variable for the password of array controller.
-

Installing firmware using Smart Components in Linux environments

1. Obtain the firmware package and save it to a temporary directory. Firmware for all HPE products is available from the HPE Business Support Center website at <http://www.hpe.com/support/downloads>.
2. Open a Linux command console.
3. From the directory containing the downloaded file, enable execute access to this model by entering:

```
chmod +x CPxxxxxxx.scexe
```

where CPxxxxxxx.scexe represents the downloaded Smart Component filename.

4. Execute the Smart Component by entering a command similar to the following:

```
./CPxxxxxxx.scexe -e --target <ip_address> --user <manage_username>  
--passwd <manage_password>
```

NOTE:

- Use the `-e` or `-f` option when flashing a device, even if it is up to date.
 - 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.
-
5. Follow the onscreen instructions. When 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.

Installing firmware using the Storage Management Utility (SMU)

❗ **IMPORTANT:** Using the SMU to install firmware is supported only when upgrading from TS230 or later firmware. When upgrading from older firmware versions, install the firmware using the Smart Component.

1. Obtain the firmware package and save it to a temporary directory. Firmware is available for download at <http://www.hpe.com/support/p2000G3msa>.
2. If using a Smart Component, extract the contents of the Smart Component using one of the following methods:
 - In Windows—Click **Extract** on the first screen of the Smart Component.
 - In Linux—Enter a command using the following syntax:

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

where

```
./CPxxxxxxx.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: TSxxxRyyy-zz.bin
4. In single-domain environments, stop all I/O to vdisks in the enclosure before starting the firmware update.
5. Log in to the SMU and, in the Configuration View panel, right-click the system and then select **Tools > Update Firmware**.
A table displays currently installed firmware versions.
6. Click **Browse** and select the firmware file to install.
7. Click **Install Controller-Module Firmware File**.
8. Wait for the installation to complete. During installation, each updated module automatically restarts.
9. In the SMU display, verify that the expected firmware version is installed on each module.

Installing firmware using FTP

❗ **IMPORTANT:** Using FTP to install firmware is supported only when upgrading from TS230 or later firmware. When upgrading from older firmware versions, install the firmware using the Smart Component.

1. Obtain the firmware package and save it to a temporary directory. Firmware is available for download at <http://www.hpe.com/support/p2000G3msa>.
2. If using a Smart Component, extract the contents of the Smart Component using one of the following methods:
 - In Windows—Click **Extract** on the first screen of the Smart Component.
 - In Linux—Enter a command using the following syntax:

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

where

```
./CPxxxxxxx.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 file name is in the following format: `TS252P001.bin`
4. Using the SMU, prepare to use FTP:
 - a. Determine the network-port IP addresses of the system controllers.
 - b. Verify that the system FTP service is enabled.
 - c. Verify that the user you will log in as has permission to use the FTP interface and has manage access rights.
5. In single-domain 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 using the following syntax:
`ftp <controller-network-address>`. (For example: `ftp 10.1.0.9`)
 - b. Log in as an FTP user (user = `ftp`, password = `!ftp`).
 - c. Enter a command 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.
 - In the SMU, right-click the system in the Configuration View panel, and then select **Tools > Update Firmware**.
 - In the CLI, execute the `show version` or the `show enclosures` command.

Installation troubleshooting

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

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 the version information is still incorrect, proceed to the next troubleshooting step.
2. If the 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:
 - Updated system version information is displayed and the new firmware version shows that it was installed.
 - The Partner Firmware Update process automatically begins and installs the firmware on the second controller. When complete, the versions should be correct.
 - System version information is still incorrect. If system version information is still incorrect, proceed to the next troubleshooting step.

3. Verify that the 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.
 - If the `show disks` command fails to display the disks correctly, communications within the controller have failed. To reestablish communication, cycle power on the system and repeat the `show disks` command. (Do not restart the controllers; cycle power on the controller enclosure.)
 - If the `show disks` command from all controllers is successful, perform the firmware update process again.

Known issues and workarounds

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

Issue: Online help incorrectly indicated that spare drive scrub occurs every 24 hours instead of every 72 hours.

Workaround: None.

Issue: Live disk statistics IOPs do not match the ones displayed by Iometer.

Workaround: Use the host port or controller statistics IOPs.

Issue: FTP session disconnects or hangs on some occasions during firmware update.

Workaround: Enable auto negotiation on the management network ports.

Issue: Vdisk scrub may report errors incorrectly if it is started right after a power failure and there is still a lot of data in cache that needs to be written to the drives.

Workaround: Retry the vdisk scrub.

Issue: The MSA array does not detect D2700 enclosures in standby power state.

Workaround: Manually verify that power is enabled for the D2700 enclosures.

Issue: The `show expander-status` CLI command does not include D2700 I/O Module ports.

Workaround: Monitor I/O module health.

Issue: After firmware update to TS252, the e-mail notification for controller failure may not have part number (PN) and serial number (SN) information.

Workaround: Reboot both controllers in the system one after the other.

Issue: If drives that had been active members of a vdisk are added to a system, and that vdisk's name is the name of a vdisk currently present on the array, commands that use the vdisk name may fail. This prevents actions from affecting the wrong vdisk.

Workaround: Rename the vdisk, delete it, or use the vdisk serial number instead of its name in commands.

Issue: Vdisks created with the CLI whose name includes angle brackets cannot be used in the SMU to create volumes, snapshots, snap-pools or to perform a volume copy.

Workaround: Rename the vdisk using the CLI.

Issue: Drives in the arrayhead do not spin up after adding expansion unit.

Workaround: None, drives do not need to spin up in this instance.

Issue: In the **SMU Configuration > Services > SNMP Notification page** and **SMU Wizards > Configuration Wizard, Notification** step, clicking on the **Submit** or **Next** button without explicitly providing the community strings will replace the community strings with an actual sequence of asterisks.

Workaround: Explicitly supply the community strings.

Issue: Firmware downgrade using Smart Components from TS251R004 or newer version to TS250R023 or previous version does not succeed.

Workaround: First, downgrade the firmware from TS251R004 or newer version to TS250P003. Then, downgrade from TS250P003 to the destination version.

Issue: The *HPE P2000 G3 FC MSA System User Guide* describes the Cache LED on the rear panel in a way that might be confusing or misleading.

Workaround: Clarification of Cache Status LED details:

If the LED is blinking evenly, a cache flush is in progress. When a controller module loses power and the write cache contains data that has not been written to disk, the super-capacitor pack provides backup power to flush (copy) data from the write cache to the CompactFlash memory. When the cache flush is complete, the LED is no longer blinking.

Issue: Replications stop after a few iterations.

Workaround: Restart the management controller.

Issue: Newly installed drives reported errors.

Workaround: Replace the drive.

Issue: Historical data for a drive is cleared when a controller crashes.

Workaround: None.

Issue: A warning about the coin battery was not displayed in the 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 and MSA70 power supply information is incomplete in the SMU display.

Workaround: None

Issue: D2700 power supplies may report a status warning, when they are actually healthy.

Workaround: None

Issue: SMU reports an error of "input too long" when trying 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 4 characters to an image name if the replication occurs when the set is created. If replications are scheduled when the set is created, 4 characters are added as a prefix, and 6 characters are added for the unique snapshot name. In either case 5 characters are added for the exported snapshot name.

Issue: When updating drive firmware, a message is returned stating that the disk is unsupported.

Workaround: None. The message is incorrect.

Issue: When creating a volume in the SMU, if the user changes the units from GB to MB but does not change the volume size, the volume will be created in GB not MB.

Workaround: Validate the volume size after creating a new volume. If the volume was created with the wrong units, delete and re-create the volume.

Issue: The controller may take longer than expected to respond to SSH and Telnet requests.

Workaround: Restart the management controller.

Issue: The SMI-S modify volume name shows up as non supported in Windows Server Manager 2012.

Workaround: Modify the volume name using the SMU or CLI.

Issue: An error message may be displayed when restarting the controller, even when the controller restarted successfully.

Workaround: None

Issue: In the SMU **Configuration > Remove User** page, the User Name field is not enabled, even though the asterisk indicates it is required.

Workaround: Select the user from the list using the radio buttons. The User Name field will be automatically filled in.

Issue: The SMU may incorrectly report a healthy power supply in a cascaded D2700 disk enclosure with a Warning status.

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

Issue: Online LUN addition is not seen by clients using the P700m, P711m, P712m, or P721m controllers and the cciss driver in RHEL 5, SLES 10, and SLES 11 operating systems.

Workaround: Use the `rescan volumes` command on the `/proc` subsystem of the cciss driver to force a rescan of the cciss driver. For example:

```
echo "rescan volumes" > /proc/driver/cciss/cciss1
multipath -v 0
```

Issue: During firmware upgrade of the controller, events will be generated indicating a mismatch of the versions compared to the versions in the firmware bundle (Event 363, Severity Error). This is normal operation, as the checks are done during the management controller boot process. After the firmware upgrade is complete on both controllers, verify the versions are correct, and a new informational event the firmware versions match those in the firmware bundle (Event 363, Severity Informational).

Workaround: None

Issue: Historical disk and vdisk performance data is not persistent across controller power events.

Workaround: None

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 CLI live output `show vdisk-statistics` command. This 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 for when data is written from cache to disk or read from disk to cache.
- Historical data is obtained by using the summation of the disk statistics for the 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

Issue: Saving historical disk performance statistics from the SMU fails with an invalid time-range parameter.

Workaround: Change the start date/time of the time range. Make sure the start date/time is after the last reset and, for new systems, is after the system install time.

Issue: In environments using replication, if the controllers have different firmware versions installed, replications may be suspended.

Workaround: Ensure that all controllers in replicating systems have the same firmware version installed. When firmware on the controllers is the same version, suspended replications automatically resume.

Issue: When a previously used drive is inserted in the enclosure, it may retain information about vdisks, volumes and volume mappings from its previous use. However, the LUN numbers of these volume mappings may 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 desired.

Issue: In the SMU, while trying to modify a vdisk name, `/` is replaced by a space.

Workaround: None

Issue: In the CLI, the `create volume-set` command using the same `basename` parameter for more than 999 volumes generates an error.

Workaround: Do not exceed 999 when assigning the volume identifier number.

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: When a vdisk becomes critical, the array may 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 using the enclosure and slot number.

Issue: In the CLI, the `show master-volumes` command, a volume that has been converted to a standard volume is still included in the display.

Workaround: Log out and then log back in to the CLI.

Issue: In the SMU, global spares have a status of Up even if they are spun down using the drive spin down feature.

Workaround: None

Issue: In the CLI, the `set prompt` command allows you to enter more than 16 characters.

Workaround: None

Issue: In the SMU, when logging in using an unsupported browser, the returned display does not show the correct list of which browsers are supported.

Workaround: Use only the following supported browsers:

- Microsoft Windows Internet Explorer 8 or later
- Mozilla Firefox 18 or later

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

Workaround: Make these changes one at a time.

Issue: When installing a firmware update using the Smart Component, the installation routine may incorrectly report that the upgrade was unsuccessful.

Workaround: If the Smart Component installation routine states that a firmware load was unsuccessful, verify which version of firmware is installed using an array management utility, such as the SMU or CLI. If the version listed is the old version, run the Smart Component again.

Issue: Manually creating a replication-prepared (secondary) volume and associating it with a primary volume originally created with pre-TS230 firmware can fail. Automatically created secondary volumes do not have this problem.

Workaround:

- In the SMU, use the Replication Setup Wizard or the Replicate Volume task or, in the CLI, use the `create replication set` command to automatically create the secondary volume. (Preferred workaround)
- Issue the following commands in the CLI to specify the block size of the manually created secondary volume, ensuring that it is exactly the same size as the source volume (Alternative workaround):
 1. In CLI API format, use the `show volumes <volume-name>` command to determine the size of the pre-T230 volume in blocks. This is displayed by the "size-numeric" property.
 2. Use the `create volume` command and specify the size in blocks (obtained in Step 1) to create the replication-prepared volume.
 3. Create a replication set that associates the two volumes.

Issue: When using both the primary and secondary paths on both ports of the Qlogic iSCSI HBAs, failover does not work correctly on cable pulls.

Workaround: When setting up the Qlogic iSCSI HBAs, set up only the primary path for both ports.

Issue: When creating 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: For P2000 G3 Fibre Channel MSA systems connected directly to the server, the QLogic 8 Gb FC driver version 9.1.9.25 on Microsoft Windows Server 2008 R2 x64 does not see LUNs when the array is set up for point to point.

Workaround: Upgrade to the latest driver version available from HPE or change the array host ports to loop mode.

Issue: For P2000 G3 SAS MSA systems, failover is slow when more than 128 LUNs are accessed from a Red Hat Enterprise Linux 4.x or SuSE Linux Enterprise Server 10 SP3 client.

Workaround: Map less than 128 LUNs to SAS clients.

Issue: In the SMU, the Japanese version of some pages and some error messages displays English text.

Workaround: None.

Issue: The array incorrectly accepts a DNS name for the address of the NTP server in the Storage Management Utility. The array does not use DNS, and translates the name into an invalid "255.255.255.255" IP address.

Workaround: Instead of a network name, enter the NTP server IP address.

Issue: In the Command Line Interface, the array incorrectly accepts a DNS name for the address for the SMNP, SMTP, and NTP servers. The array does not use DNS, and cannot connect to the server correctly.

Workaround: Instead of network names, enter the IP addresses for the servers.

Issue: In Windows configurations, the IQN shown by the NC551 card during POST may not match the IQN seen in the array controller. This occurs when the NC551 was set up in a boot-from-storage configuration. After an operating system is installed, the POST message shows the IQN that is supplied by the iSCSI Software Initiator, but the NC551 BIOS continues to use the IQN setup to boot the OS.

Workaround: Using the NC551 BIOS Utility, remove the boot settings and then log back into the array with the new IQN. If the volume used for mapping was explicitly mapped to the host, recreate the mapping for the new IQN.

Issue: When accessing more than 128 LUNs using a Qlogic iSCSI HBA in boot-from-storage configurations, the system may hang when a reset is issued on the array.

Workaround: Access 128 LUNs or less via the Qlogic iSCSI HBA when using the card in boot-from-storage configurations.

Issue: RHEL 4.8 may not discover all multipath devices and partitions during boot or reboot.

Workaround: This issue is addressed by applying the updated device-mapper-multipath package described in RedHat Bug Fix Advisory RHBA-2009:1524-1, available at <http://rhn.redhat.com/errata/RHBA-2009-1524.html>.

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

Workaround: Review the events from both controllers.

Issue: During a firmware upgrade, the firmware bundle version may show incorrectly.

Workaround: Wait until the firmware upgrade process is complete before checking the firmware bundle version.

Issue: Java script issues are seen when using Microsoft Internet Explorer in multi-byte language locales, resulting in truncated messaging and hung pop-up windows. These issues will be resolved in a future firmware release.

Workaround: This is a display problem only. When a pop-up window remains on screen with no update for a prolonged period, close and then re-open the browser. The Internet Explorer English locale and the Firefox browser do exhibit the issues.

Issue: In SLES 11 environments, when using the iSCSI initiator tools included in SLES 11, the host occasionally does not correctly log into the iSCSI array on reboot, even when set to automatically connect.

Workaround: Restart the iSCSI service on the SLES 11 host. This can be done by entering the following command:
`/etc/init.d/open-iscsi restart`

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

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

Issue: SLES 11 SP1 may not create all devices during boot. This typically involves a system with a large number of LUNs, multiple LUN paths, and the SLES 11 SP1 open-iscsi utilities.

Workaround: Do one of the following:

- Install the following Novell patches:
 - `kpartx-0.4.8-40.23.1.x86_64.rpm`
 - `libvolume_id1-128-13.11.4.x86_64.rpm`
 - `multipath-tools-0.4.8-40.23.1.x86_64.rpm`
 - `open-iscsi-2.0.871-0.22.1.x86_64.rpm`
 - `udev-128-13.11.4.x86_64.rpm`
- Run the `/sbin/multipath -v 0` command to force multipathd to rescan all LUNs and paths and create any devices that were not correctly created before.

Issue: In rare conditions, the array controller may report that a supported 10 GbE SFP+, 10GbE Copper Cable, or 10GbE Direct Attach Cable is unsupported. This condition is most likely to occur when a SFP+, Copper Cable, or Direct Attach Cable is hot plugged into the controller while the controller is running. When this occurs, the following Warning message is recorded in the event logs: "An unsupported cable or SFP was inserted." At the same time, the host port does not show a status of "Down."

Workaround: Do the following:

1. Verify that the SFP+, Copper Cable, or Direct Attach Cable is a supported component. For support information, see the P2000 G3 QuickSpecs on the P2000 G3 product page: <http://www.hpe.com/support/p2000> .
2. If the components are listed as supported models, remove and reinsert the SFP+, Copper Cable, or Direct Attach cable.
3. If this does not correct the issue with the SFP+, Copper Cable, or Direct Attach Cable connected to the controller, either remove and reinsert the controller or power down and reapply power to the array.

Issue: RHEL 5 Update 5 does not shutdown properly when using the iSCSI initiator utilities shipped in RHEL 5 Update 5 to access the array.

Workaround: See issue 583218 on the Red Hat Bugzilla bug-tracking system https://bugzilla.redhat.com/show_bug.cgi?id=583218 for the current status of the issue and possible workarounds.

Issue: When using explicit LUN mapping, using 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 and, 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
31	124	47	79	63	57
32	120	48	78	64	56

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

Workaround:

1. Close down the terminal application. (Example: HyperTerminal)
2. Open Device Manager and disable the “Disk Array USB Port” under Ports (COM & 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 P2000 G3 support page.

Issue: In HP-UX 11.23, I/O may take a long time to complete.

Workaround: Ensure that the primary path is the first path in the PV-Links configuration.

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

Workaround: Using the Storage Manage Utility (SMU), open up 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 and 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 the secondary volume is detached and its vdisk stopped when the replication set was deleted, and then the vdisk of the secondary volume restarted. To correct this issue, reattach the secondary volume, set it as the primary volume, and delete the replication set.

Issue: An error message indicating “controller busy” occurs while creating a replication set.

Workaround: Creating a replication set immediately following another replication set creation may result in "Controller Busy." This is expected behavior. Wait and try the operation again at a later time.

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 may not have time to complete.

Issue: 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 may cause communications issues between the management controller and the storage controller.

Workaround: Cycle 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 (MC) of the array(s) involved in the tasks.

Issue: Cannot schedule volume copy operations, or scheduled volume copy operations for snapshots and standard volumes do not occur.

Workaround: Perform the volume copy manually. Scheduled volume copies of master volumes should complete successfully if the schedule permits completion of the volume copy before the next occurrence.

Issue: Debug logs are incomplete.

Workaround: Determine if the logs are incomplete by unzipping the log file retrieved from the array and examining the last line of the `store_YYYY_MM_DD_HH_MM_SS.logs` file for the lines: `End of Data] ></LOG_CONTENT></RESPONSE>`. If the file contains these two lines at the end of the file, it is complete and you can forward it to your service support organization for analysis. If the file does not contain these two lines at the end, it is incomplete and may not be useful. In this case, repeat the log collection process after a 5 minute delay. Should the second collection contain the above specified lines at the end of the file, send it to your service support organization for analysis along with the first set of logs. However, if the second file does not contain the above specified lines at the end of the file, reboot the system and try once more to collect the logs. Be sure to send all collected logs back to your service support organization with a brief note explaining the actions you took and the result.

Issue: In a dual controller system, log in to one of the controllers fails, but log in 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 may be lower or higher than expected for the workload.

Workaround: This is a reporting issue and not a performance issue. The correct values can be calculated 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.

Issue: The array controller may interpret a switch login as an HBA login and erroneously present the switch port as a discovered host. This does not affect storage functionality.

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

Issue: During firmware upgrade, FTP is aborted from a Windows client after starting the upgrade.

Workaround: This is a client side FTP application issue. If this issue persists try updating from the SMU, use another client, or use another FTP application.

Issue: Upgrading firmware failed with the error, "Unwritable cache data present."

Workaround: The controller is not in a state that can reliably perform an upgrade without losing data currently in cache. Resolve the unwritable cache issue and retry the upgrade.

Issue: While updating the array firmware via the Storage Management Utility, if the array must reboot the management controller the web page may not automatically log the user out completely resulting in a blank page.

Workaround: Refresh the browser window; if the login page is not displayed, close the browser and restart it to access the login page and complete the firmware update.

Issue: While performing a firmware update using the Storage Management Utility (SMU) to multiple arrays, the window showing the status of the upgrade may appear as a blank window.

Workaround: Updating multiple arrays at the same time can cause this issue. Perform one firmware update from one client at a time. Updating one array at a time from a client allows the window to refresh more accurately.

Supersedes history

Firmware version	P2000 G3 MSA model	Release date
TS252P001	All	March 2016
TS252R007	All	June 2015
TS251P006	All	August 2014
TS251P005	All	July 2014
TS251P004	All	June 2014
TS251P003	All	June 2014
TS251P002	All	May 2014
TS251R004	All	March 2014
TS250P003	All	September 2013
TS250P002	All	July 2013
TS250R023	All	April 2013
TS250R021	All	March 2013
TS240P004	All	November 2012
TS240P003	All	July 2012
TS240P001	All	June 2012
TS240R037	All	May 2012
TS230P008	All	November 2011
TS230P007	All	November 2011
TS230P006	All	August 2011

TS230R044	All	July 2011 (updated notes to announce support for all P2000 G3 MSA System controllers)
	P2000 G3 1GbE iSCSI MSA and P2000 G3 10GbE iSCSI MSA	June 2011
TS201P007	P2000 G3 FC MSA and P2000 G3 FC/iSCSI MSA	February 2011
TS201P004	2000 G3 FC MSA and P2000 G3 FC/iSCSI MSA	January 2011
TS220R004	P2000 G3 1GbE iSCSI MSA	November 2010
TS201R015	P2000 G3 FC MSA and P2000 G3 FC/iSCSI MSA	November 2010
TS201R014	P2000 G3 FC MSA and P2000 G3 FC/iSCSI MSA	September 2010
TS210R016	P2000 G3 10GbE iSCSI MSA	September 2010
TS200R021	P2000 G3 SAS MSA	June 2010