



Hewlett Packard
Enterprise

HPE 3PAR OS 3.3.1 MU2 Patch 40

Release Notes

Abstract

This release notes document is for 3.3.1 MU2 P40.

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Notices

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Purpose

The HPE 3PAR Patch number 40 provides several critical quality improvements.

❗ **IMPORTANT:** See the [HPE 3PAR OS and Service Processor Software Update Guide \(HPE 3PAR OS 3.3.1 HPE 3PAR Service Processor 5.x\)](#) for instructions on updating your specific software.

Guidance

This is a critical patch.

Prerequisites

- Minimum Service Processor required: SP-5.0.3 + latest SP Patch.
- Base OS: 3.3.1 MU2. See the Requires field in the Patch details.

Patch details

Patch ID: P40

Synopsis: Provides several critical quality improvements

Date: September 17, 2018, 16:13:32 PDT

Description: See the Release Notes for details about this patch

Affected Packages: tpd-adlc, tpd-cli, tpd-kernelpatch, tpd-libauth, tpd-libcli, tpd-libtpdtcl, tpd-sysmgr, tpd-update, tpd-prerevert

Obsoletes: OS-3.3.1.410-P30, OS-3.3.1.410-P38

Requires: OS-3.3.1.410-MU2, OS-3.3.1.410-P30, OS-3.3.1.410-P32

Build Version: 3.3.1.467

Patches Included: None

Patches Partially Superseded: OS-3.3.1.410-P32

Patches Obsolete by Combination: None

Supports Revert: Yes

Notes: Description of the obsoleted patches:

Patch ID: P30

Synopsis: Improved error handling for certain drive models

Date: June 22, 2018, 09:47:04 PDT

Description: See the Release Notes for details about this patch

Affected Packages: tpd-kernelpatch, tpd-libcli, tpd-sysmgr, tpd-prerevert

Obsoletes: None

Requires: OS-3.3.1.410-MU2

Build Version: 3.3.1.434

Notes:

Patch ID: P38

Synopsis: Provides quality improvements for consistency checks and VV removal

Date: July 19, 2018, 16:01:10 PDT

Description: See the Release Notes for details about this patch

Affected Packages: tpd-kernelpatch, tpd-sysmgr, tpd-prerevert

Obsoletes: None

Requires: OS-3.3.1.410-MU2,OS-3.3.1.410-P30,OS-3.3.1.410-P32

Build Version: 3.3.1.454

Patches Included: None.

Patches Partially Superseded: OS-3.3.1.410-P30,OS-3.3.1.410-P32

Patches Obsolete by Combination: None.

Supports Revert: Yes

Notes:

NOTE:

Hewlett Packard Enterprise recommends installing patches in the same sequence as they are released, unless instructed otherwise.

Modifications

HPE 3PAR Patch 40 addresses the following issues:

Issue ID: 152317, 244062

Issue summary: A controller node may unexpectedly restart when an inter-node packet does not complete within the expected time period.

Platforms affected: All StoreServ

Affected software versions: 3.2.2, 3.3.1 GA - MU2

Issue description: If sending an inter-node packet takes longer than expected to complete, there is a possibility of a controller node unexpectedly restarting.

Symptoms: An unexpected controller node restart.

Conditions of occurrence: Heavy IO or Remote Copy workload resulting in long inter-node packet processing.

Impact: Low

Customer circumvention: None.

Customer recovery steps: None.

Issue ID: 199029, 208929, 244537, 244541

Issue summary: When a Remote Copy link is not available, Remote Copy (RC) replication continues to attempt to retransmit packets via the unavailable RC link.

Platforms affected: All StoreServ

Affected software versions: 3.2.2 GA - MU6, 3.3.1 GA - MU2

Issue description: If a Remote Copy link is not available, Remote Copy (RC) replication may continue to attempt to retransmit packets via the unavailable RC link. This consumes CPU cycles and can lead to reduced performance and may cause controller nodes to restart unexpectedly.

Symptoms: Controller node unexpectedly restarts.

Performance is reduced due to CPU resources being consumed.

Conditions of occurrence: Remote Copy link goes down.

Impact: Medium

Customer circumvention: None.

Customer recovery steps: None.

Issue ID: 239621, 244596

Issue summary: iSCSI target ports wrongly set a field which can lead to I/O stalls.

Platforms affected: All StoreServ

Affected software versions: 3.2.1, 3.2.2, 3.3.1 GA - MU2

Issue description: Under high CPU load, iSCSI target ports might wrongly set a field in the iSCSI protocol data unit (PDU) causing I/O stalls.

Symptoms: Host I/O stalls and/or LUN disconnects.

Conditions of occurrence: High controller node CPU utilization.

Impact: Medium

Customer circumvention: None.

Customer recovery steps: None.

Issue ID: 200337, 244954

Issue summary: Insufficient free space causes dedup conversion to not complete successfully.

Platforms affected: All StoreServ

Affected software versions: 3.3.1 GA - MU2

Issue description: Insufficient free space causes dedup conversion to not complete successfully.

Symptoms: `tunevv` conversion tasks do not complete successfully, and consume double the amount of space.

Conditions of occurrence: Running TDVV conversion with insufficient free space in the system.

Impact: High

Customer circumvention: Check required space before starting conversion.

Customer recovery steps: Roll back the `tunevv` conversion task that did not complete successfully.

Issue ID: 201880, 127415, 244701, 244707

Issue summary: In a Remote Copy asynchronous configuration, cache memory page (CMP) lock contention may result in a deadlock.

Platforms affected: All StoreServ

Affected software versions: 3.3.1 MU1 - MU2

Issue description: In a Remote Copy asynchronous configuration, cache memory page (CMP) lock contention can result in a deadlock which leads to controllers unexpectedly restarting.

Symptoms: Host I/O errors and controller node restarts.

Conditions of occurrence: Using a Remote Copy Asynchronous Streaming configuration.

Impact: High

Customer circumvention: None.

Customer recovery steps: None.

Issue ID: 205028, 244217

Issue summary: HPE support cannot automatically collect **InSplore** data following a System Manager restart.

Platforms affected: All StoreServ

Affected software versions: 3.3.1 GA - MU2

Issue description: If System Manager restarts during **controlinsplore** execution, a new **controlinsplore** cannot be started until the previous operation releases the **controlinsplore** lock. This may take up to ten minutes.

Symptoms: Collection of **InSplore** does not start when a previous instance of an **InSplore** has not completed successfully.

Task detailed status shows `A controlinsplore task is already running`.

Conditions of occurrence: An **InSplore** collection process does not complete successfully due to a System Manager restart, and another **InSplore** process is initiated.

Impact: Medium

Customer circumvention: Do not restart System Manager when **controlinsplore** execution is in progress.

Customer recovery steps: Wait for the previous **InSplore** operation to release the **controlinsplore** lock.

Issue ID: 205156, 243981

Issue summary: Unexpected array restart while a controller node is rejoining a cluster.

Platforms affected: All StoreServ

Affected software versions: 3.3.1 GA - MU2

Issue description: An unexpected array restart may occur while a controller node is rejoining the cluster for reasons other than a HPE 3PAR OS upgrade (for example, the controller node is rebooted for servicing).

Symptoms: When a rebooted controller node attempts to rejoin the cluster, the array unexpectedly restarts.

Conditions of occurrence: High load causing full queue when PILT (Pre-Integration Link Test) is performed while the controller node attempts to rejoin the cluster.

Impact: High

Customer circumvention: Reduce host I/O load prior to any planned controller node reboots.

Customer recovery steps: None.

Issue ID: 228811, 243914

Issue summary: An unexpected controller node restart occurs under specific workloads (combined with `updatevv` operations) in a thinly deduplicated virtual volume, when a cache page ends up being shared by both the base and snap vv, but the dedup is initiated for the snapshot.

Platforms affected: All StoreServ

Affected software versions: 3.3.1 GA - MU2

Issue description: When a previously written data pattern is written for the second time, the deduplication store (DDS) triggers a conversion request to the original data block to convert its exception entry from the deduplication client (DDC) to DDS. In specific workloads (combined with `updatevv` operations), the original DDC entry belongs to a snapshot but the cache page belonging to this DDC block is shared with the base vv. In this condition the dedupe handler wrongly processes the base vv and updates the base vv's counters causing the panic.

Symptoms: An unexpected controller node restart occurs while running dedup on snapshots.

Conditions of occurrence: VVs with dedup data where snapshots are present and `updatevv` operations happen. This happens in some very peculiar (and infrequent) I/O workloads.

Impact: High

Customer circumvention: Stop `updatevv` operations.

Customer recovery steps: None.

Issue ID: 232671, 244317

Issue summary: Running host I/O while a controller node is in the process of reintegrating into the cluster, an unexpected array restart may occur.

Platforms affected: All StoreServ

Affected software versions: 3.3.1 GA - MU2

Issue description: In Remote Copy configurations where a controller node is leaving or rejoining the cluster, the partner node may also unexpectedly restart which causes the entire array to restart.

Symptoms: Data is unavailable.

Conditions of occurrence: Online upgrade or similar operations where controller nodes are attempting to reintegrate and the system is using Remote Copy.

Impact: Medium

Customer circumvention: Reduce the number of VVs in the Remote Copy groups, and reduce the number of Remote Copy groups.

Customer recovery steps: None.

Issue ID: 232936, 238410, 244941, 244949

Issue summary: A shortage of XOR engine resources may cause an unexpected array restart.

Platforms affected: StoreServ 8000, StoreServ 9000, StoreServ 10000, StoreServ 20000, StoreServ 20000 R2

Affected software versions: 3.3.1 GA - MU2

Issue description: If XOR operations request more resources than are available to the hardware, a temporary memory page is allocated. Depending on the location of that memory page, it could lead to an unexpected array restart.

Symptoms: Host I/O operations stall, eventually causing timeouts.

Conditions of occurrence: Using compression and large set sizes in RAID sets.

Impact: High

Customer circumvention: Use set sizes less than 9 and/or disable compression.

Customer recovery steps: None.

Issue ID: 233906, 243541

Issue summary: Adds support for Container Database (CDB) internal log collection for the ARFX drive model family.

Platforms affected: All StoreServ

Affected software versions: All

Issue description: Adds the required support for internal log collection from the ARFX drive models. The following table shows the affected drives.

Drive	Catego ry	Capacity	Speed	StoreServ 10000	StoreServ 7000	StoreServ 20000	StoreServ 8000	FW
ARFX0920S5 xnNTRI	SSD	920GB	150K	No	Yes	Yes	Yes	3P00
ARFX1920S5 xnNTRI	SSD	1.92TB	100K	Yes	Yes	Yes	Yes	3P00
ARFX3840S5 xnNTRI	SSD	3.84TB	100K	No	Yes	Yes	Yes	3P00
ARFX7680S5 xnNTRI	SSD	7.68TB	100K	No	No	Yes	Yes	3P00
ARFX15T4S5 xnNTRI	SSD	15.3TB	100K	No	No	Yes	Yes	3P00

Symptoms: Internal log collection does not occur for ARFX drive models.

Conditions of occurrence: ARFX drive models are installed.

Impact: High

Customer circumvention: None.

Customer recovery steps: None.

Issue ID: 234631, 245130

Issue summary: Adds support of Automatic Drive Log Collection (ADLC) for the ARFX physical disk drive series.

Platforms affected: All StoreServ

Affected software versions: 3.2.2, 3.3.1 GA - MU2

Issue description: Adds support of Automatic Drive Log Collection (ADLC) for the ARFX physical disk drive series. The following drive table shows the affected drives.

Drive	Category	Capacity	Speed	StoreServ 10000	StoreServ 7000	StoreServ 20000	StoreServ 8000	FW
ARFX0920S5 xnNTRI	SSD	920GB	150K	No	Yes	Yes	Yes	3P00
ARFX1920S5 xnNTRI	SSD	1.92TB	100K	Yes	Yes	Yes	Yes	3P00
ARFX3840S5 xnNTRI	SSD	3.84TB	100K	No	Yes	Yes	Yes	3P00
ARFX7680S5 xnNTRI	SSD	7.68TB	100K	No	No	Yes	Yes	3P00
ARFX15T4S5 xnNTRI	SSD	15.3TB	100K	No	No	Yes	Yes	3P00

Symptoms: Drive log collection does not occur for ARFX drive models.

Conditions of occurrence: ARFX drive models are installed, but ADLC does not occur.

Impact: High

Customer circumvention: None.

Customer recovery steps: None.

Issue ID: 236682

Issue summary: `startcopygroup` issued from the pri-rev side of a Remote Copy group can take up to three minutes before it stops responding.

Platforms affected: All StoreServ

Affected software versions: 3.3.1GA - MU2

Issue description: After remote copy group failover, `startcopygroup` from pri-rev side can take up to three minutes and does not succeed.

Symptoms: `startcopygroup` does not complete successfully when attempted from the primary reverse role array.

Conditions of occurrence: The primary is running HPE 3PAR OS 3.2.2, and the secondary is running HPE 3PAR OS 3.3.1.

Impact: Medium

Customer circumvention: None.

Customer recovery steps: None.

Issue ID: 242378, 244543

Issue summary: Data Inconsistencies may be seen during volume migration of non-ALUA hosts if proper migration procedure is not followed.

Platforms affected: All StoreServ

Affected software versions: 3.3.1 MU1 - MU3

Issue description: When migrating volumes which are exported to non-ALUA hosts, if unzoning the source array as required by the proper migration procedure is not followed, then Data Inconsistencies may be seen on the volumes being migrated. Note that failure to perform the unzoning operation is not a supported procedure. The migration tools clearly prompt with the message to perform unzone operation, perform the same before proceeding with the subsequent migration steps.

Symptoms: The hosts or the applications at the hosts may not function as expected due to Data Inconsistency on the volumes.

Conditions of occurrence: Non-ALUA hosts are migrated and the proper procedure of unzone operation is not followed.

Impact: Medium

Customer circumvention: Follow the proper migration procedure by following the prompts from migration tools for the unzone operation when migrating non-ALUA hosts.

Customer recovery steps: None.

Affected components

Component	Version
CLI Server	3.3.1.467 (P40)
System Manager	3.3.1.467 (P40)
TPD Kernel Patch	3.3.1.467 (P40)
Software Updater	3.3.1.467 (P40)

NOTE: Applying an HPE 3PAR OS patch can cause a restart of the affected OS components. This restart is an expected behavior, which will generate events and alerts. The system continues to serve data, but existing CLI or SSMC sessions could be interrupted.

Verification

The installation of Patch 40 can be verified from an interactive CLI session. Issue the CLI command `showversion -a -b` to verify that Patch 40 is listed:

showversion -a -b

Release version 3.3.1.410 (MU2)

Patches: P32,P40

Component Name	Version
CLI Server	3.3.1.467 (P40)
CLI Client	3.3.1.467
System Manager	3.3.1.467 (P40)
Kernel	3.3.1.410 (MU2)
TPD Kernel Code	3.3.1.410 (MU2)
TPD Kernel Patch	3.3.1.467 (P40)
CIM Server	3.3.1.410 (MU2)
WSAPI Server	3.3.1.410 (MU2)
Console Menu	3.3.1.410 (MU2)
Event Manager	3.3.1.410 (MU2)
Internal Test Tools	3.3.1.410 (MU2)
LD Check Tools	3.3.1.410 (MU2)
Network Controller	3.3.1.410 (MU2)
Node Disk Scrubber	3.3.1.410 (MU2)
PD Scrubber	3.3.1.410 (MU2)
Per-Node Server	3.3.1.410 (MU2)
Persistent Repository	3.3.1.410 (MU2)
Powerfail Tools	3.3.1.410 (MU2)
Preserved Data Tools	3.3.1.410 (MU2)
Process Monitor	3.3.1.410 (MU2)
Software Updater	3.3.1.467 (P40)
TOC Server	3.3.1.410 (MU2)
VV Check Tools	3.3.1.410 (MU2)
Upgrade Check Scripts	180906.U641
File Persona	1.4.2.40-20171006 (MU2)
SNMP Agent	1.10.0
SSH	6.0p1-4+deb7u5
VASA Provider	3.0.17 (MU2)
Firmware Database	3.3.1.410 (MU2)
Drive Firmware	3.3.1.410 (MU2)
UEFI BIOS	05.02.54 (MU2)
MCU Firmware (OKI)	4.8.60 (MU2)
MCU Firmware (STM)	5.3.17 (MU2)
Cage Firmware (DC1)	4.44 (MU2)
Cage Firmware (DC2)	2.64 (MU2)
Cage Firmware (DC3)	08 (MU2)
Cage Firmware (DC4)	2.64 (MU2)
Cage Firmware (DCN1)	4082 (MU2)
Cage Firmware (DCN2)	4082 (MU2)
Cage Firmware (DCS1)	4082 (MU2)
Cage Firmware (DCS2)	4082 (MU2)
Cage Firmware (DCS5)	2.79 (MU2)
Cage Firmware (DCS6)	2.79 (MU2)
Cage Firmware (DCS7)	4082 (MU2)
Cage Firmware (DCS8)	4082 (MU2)
QLogic QLA4052C HBA Firmware	03.00.01.77 (MU2)
QLogic QLE8242 CNA Firmware	04.15.27
QLogic 260x HBA FC Firmware	174.03.70
QLogic 27xx/268x HBA FC Firmware	174.03.70

QLogic 83xx HBA FCoE Firmware	08.01.05
QLogic 8300 HBA iSCSI Firmware	05.07.35
Emulex LP11002 HBA Firmware	02.82.x10
Emulex LPel2002 HBA Firmware	02.10.x03
Emulex LPel2004 HBA Firmware	02.10.x03
Emulex LPel6002 HBA Firmware	11.1.220.10
Emulex LPel6004 HBA Firmware	11.1.220.10
3PAR FC044X HBA Firmware	200A8
LSI 9201-16e HBA Firmware	17.11.03
LSI 9205-8e HBA Firmware	17.11.03
LSI 9300-8e HBA Firmware	10.10.01

NOTE: When displaying the `showversion` command output from the SP, the CLI Client version is static in the SP code and may differ from the output from any other system.

Websites

General websites

Hewlett Packard Enterprise Information Library

www.hpe.com/info/EIL

Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix

www.hpe.com/storage/spock

Storage white papers and analyst reports

www.hpe.com/storage/whitepapers

For additional websites, see **[Support and other resources](#)**.

Support and other resources

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:
<http://www.hpe.com/assistance>
- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:
<http://www.hpe.com/support/hpesc>

Information to collect

- Technical support registration number (if applicable)
- Product name, model or version, and serial number
- Operating system name and version
- Firmware version
- Error messages
- Product-specific reports and logs
- Add-on products or components
- Third-party products or components

Accessing updates

- Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.

- To download product updates:

Hewlett Packard Enterprise Support Center

www.hpe.com/support/hpesc

Hewlett Packard Enterprise Support Center: Software downloads

www.hpe.com/support/downloads

Software Depot

www.hpe.com/support/softwaredepot

- To subscribe to eNewsletters and alerts:
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 Support Materials** page:
www.hpe.com/support/AccessToSupportMaterials

! **IMPORTANT:** Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HPE Passport set up with relevant entitlements.

Customer self repair

Hewlett Packard Enterprise customer self repair (CSR) programs allow you to repair your product. If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience. Some parts do not qualify for CSR. Your Hewlett Packard Enterprise authorized service provider will determine whether a repair can be accomplished by CSR.

For more information about CSR, contact your local service provider or go to the CSR website:

<http://www.hpe.com/support/selfrepair>

Remote support

Remote support is available with supported devices as part of your warranty or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which will initiate a fast and accurate resolution based on your product's service level. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

If your product includes additional remote support details, use search to locate that information.

Remote support and Proactive Care information

HPE Get Connected

www.hpe.com/services/getconnected

HPE Proactive Care services

www.hpe.com/services/proactivecare

HPE Proactive Care service: Supported products list

www.hpe.com/services/proactivecaresupportedproducts

HPE Proactive Care advanced service: Supported products list

www.hpe.com/services/proactivecareadvancedsupportedproducts

Proactive Care customer information

Proactive Care central

www.hpe.com/services/proactivecarecentral

Proactive Care service activation

www.hpe.com/services/proactivecarecentralgetstarted

Warranty information

To view the warranty information for your product, see the links provided below:

HPE ProLiant and IA-32 Servers and Options

www.hpe.com/support/ProLiantServers-Warranties

HPE Enterprise and Cloudline Servers

www.hpe.com/support/EnterpriseServers-Warranties

HPE Storage Products

www.hpe.com/support/Storage-Warranties

HPE Networking Products

www.hpe.com/support/Networking-Warranties

Regulatory information

To view the regulatory information for your product, view the *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products*, available at the Hewlett Packard Enterprise Support Center:

www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional regulatory information

Hewlett Packard Enterprise is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at:

www.hpe.com/info/reach

For Hewlett Packard Enterprise product environmental and safety information and compliance data, including RoHS and REACH, see:

www.hpe.com/info/ecodata

For Hewlett Packard Enterprise environmental information, including company programs, product recycling, and energy efficiency, see:

www.hpe.com/info/environment

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