



**Hewlett Packard
Enterprise**

HPE 3PAR OS 3.2.2 MU2 Patch 46 Release Notes

Abstract

This release notes document is for Patch 46 and intended for HPE 3PAR Operating System Software 3.2.2.390 (MU2) + P14 + P19 + P20 + P27 + P38.

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Purpose

HPE 3PAR OS 3.2.2 MU2 P46 improves node down processing for upgrades and controller node restarts. In addition to installing this patch prior to upgrades away from 3PAR OS 3.2.2 MU2, it should also be installed to prevent issues during controller node restarts.

Guidance

- This patch is intended for 3PAR OS 3.2.2 MU2.
- This is a recommended patch.
- All supported hardware platforms are susceptible to the issues corrected in this patch.

Prerequisites

- SP prerequisite: SP-4.4.0.GA-30 plus the latest SP patch (if any)
- OS prerequisite: OS-3.2.2.390-MU2 + P14 + P19 + P20 + P27 + P38

Patch details

Patch ID: P46

Synopsis: Improves node down processing for upgrades and node restarts

Date: December 06, 2016, 15:36:38 PST

Description: See the Release Notes for details about this patch

Affected Packages: tpd-admck, tpd-cli, tpd-darsvr, tpd-kernelpatch, tpd-libsed, tpd-netc, tpd-pinld, tpd-sysmgr, tpd-utils, tpd-prerevert

Obsoletes: OS-3.2.2.390-P27, OS-3.2.2.390-P29, OS-3.2.2.390-P36, OS-3.2.2.390-P44

Requires: OS-3.2.2.390-MU2 + P14 + P19 + P20 + P27 + P38

Build Version: 3.2.2.616

Supports Revert: Yes

Notes: Description of the incorporated patches:

Patch ID: P27

Synopsis: Quality improvements for NTP and caching limit calculation

Date: May 20, 2016, 14:27:39 PDT

Description: See the Release Notes for details about this patch

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

Obsoletes: OS-3.2.2.390-P26

Requires: OS-3.2.2.390-MU2 + P14 + P19

Build Version: 3.2.2.454

Notes: Description of the incorporated patches:

Patch ID: P26

Synopsis: Improvements for SAS to prevent unexpected array restarts.

Date: May 03, 2016, 14:46:36 PDT

Description: See the Release Notes for details about this patch

Affected Packages: tpd-kernelpatch, tpd-prerevert

Obsoletes: OS-3.2.2.390-P24

Requires: OS-3.2.2.390-MU2 + P14 + P19

Build Version: 3.2.2.436

Notes: Description of the incorporated patches:

Patch ID: P24

Synopsis: Corrects behavior for unsupported SCSI commands on PE LUNs

Date: April 26, 2016, 14:27:14 PDT

Description: See the Release Notes for details about this patch

Affected Packages: tpd-kernelpatch, tpd-prerevert

Obsoletes: OS-3.2.2.390-P23

Requires: OS-3.2.2.390-MU2 + P19

Build Version: 3.2.2.432

Notes: Description of the incorporated patch:

Patch ID: P23

Synopsis: Ability to modify byte/sector in SCSI mode page 0x3

Date: April 20, 2016, 19:32:15 PDT

Description: See the Release Notes for details about this patch

Affected Packages: tpd-kernelpatch, tpd-prerevert

Obsoletes: None

Requires: OS-3.2.2.390-MU2 + P19

Build Version: 3.2.2.424

Patch ID: P29

Synopsis: Quality improvements to the slow disk checker for SSDs

Date: May 25, 2016, 18:41:54 PDT

Description: See the Release Notes for details about this patch

Affected Packages: tpd-cli, tpd-prerevert

Obsoletes: None

Requires: OS-3.2.2.390-MU2

Build Version: 3.2.2.464

Patch ID: P36

Synopsis: Enhance checkvv on TDVV to prevent repeated unexpected node restarts

Date: July 21, 2016, 18:55:38 PDT

Description: See the Release Notes for details about this patch

Affected Packages: tpd-admck, tpd-prerevert

Obsoletes: OS-3.2.2.390-P34

Requires: OS-3.2.2.390-MU2

Build Version: 3.2.2.522

Notes: Description of the incorporated patches:

Patch ID: P34

Synopsis: Enhance checkvv on TDVV to prevent repeated unexpected node restarts

Date: July 02, 2016, 01:10:39 PDT

Description: See the Release Notes for details about this patch

Affected Packages: tpd-admck, tpd-prerevert

Obsoletes: None

Requires: OS-3.2.2.390-MU2

Build Version: 3.2.2.504

Patch ID: P44

Synopsis: Provides several quality improvements

Date: October 17, 2016, 11:08:41 PDT

Description: See the Release Notes for details about this patch

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

Obsoletes: OS-3.2.2.390-P40

Requires: OS-3.2.2.390-MU2 + P14 + P19 + P20 + P27 + P38

Build Version: 3.2.2.585

Notes: Description of the incorporated patches:

Patch ID: P40

Synopsis: Address VV growth issues plus high host service times if using TDVVs

Date: August 25, 2016, 12:24:01 PDT

Description: See the Release Notes for details about this patch

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

Obsoletes: None

Requires: OS-3.2.2.390-MU2 + P14 + P19 + P20 + P27 + P38

Build Version: 3.2.2.542

NOTE:

- Applying this patch to the 3PAR OS might restart the affected OS components. With these restarts, events and alerts might be generated and this is an expected behavior. The system continues to serve data, but existing CLI or SSMC sessions might be interrupted.
 - Hewlett Packard Enterprise recommends installing patches in the same sequence as they are released, unless instructed otherwise.
 - When displaying the `showversion` command output from the SP, the CLI Client version is fixed in the SP code and might differ from the output displayed from any other system.
-

Affected components

Component	Version
CLI Server	3.2.2.616 (P46)
CLI Client	3.2.2.616
System Manager	3.2.2.616 (P46)
TPD Kernel Patch	3.2.2.616 (P46)
Network Controller	3.2.2.616 (P46)
Preserved Data Tools	3.2.2.616 (P46)
VV Check Tools	3.2.2.616 (P46)

Modifications

3PAR OS 3.2.2 MU2 P46 includes the following modifications:

Issue ID	Description
117865	Addresses a concurrency issue between virtual volume (VV) unmap request and VV operations like VV close, VV delete, etc.
137184	Addresses a memory allocation issue that causes an unexpected controller node restart by reducing the memory allocation size.
138981	Addresses an issue in which constrained memory resources in 128-byte structure results in controller node restart.
145970	Corrects an issue in which the resync snapshot specified in the <code>startcopy group</code> command is removed while the snapshot is still synchronizing.
147723	Resolves an unexpected controller node restart that can occur when large snapshots are removed from thin provisioned virtual volumes (TPVVs) or thin duplicated virtual volumes (TDVVs).

Table Continued

Issue ID	Description
149655	Resolves an issue in which, when the same initiator logs in again with a different device ID, two entries for the same initiator are created in 8 GB Fibre Channel (FC) drivers.
150821	Unsuccessful attempts to read network routes no longer result in an unexpected restart of the netc process.
152636	Improves the algorithm for preserved volume data and adds sufficient checking to ensure that all data to be saved is valid and saved.
158669	Corrects an issue in which an unexpected flag indicating that virtual logical unit number (VLUN) templates should not be translated into any new active VLUNs could be re-enabled if it is set on a controller node at the time the controller node is restarted and that controller node becomes the new master node.
160209	Corrects an issue that resulted in I/O stalls on AIX hosts connected to 16 GB FC ports after a controller node restart.
160438, 166342	Prevents unexpected array restarts due to a held deduplication client (DDC) lock.
161581	Addresses controller node restart when a region move on the currently active logical disk (LD) can split the remote write into two writes spanning two LDs both owned by same controller node.
161979	Improvements to ensure consistency in log page processing during fast commits used during node down recovery.
162902, 144796	Corrects a memory handling issue that causes the <code>auth_helper</code> to end abnormally.
170364	Provides enhancements to save debug information when certain issues with LD ownership are encountered during controller node down recovery.
170858	Addresses a timing issue during a controller node down or OS upgrade scenario when the required metadata is not yet available.
178185, 156962	Addresses an issue in which memory resources are constrained when cage small form-factor pluggable (SFP) information is read.
180807	Corrects an accounting issue that prevents the system from recovering all VVs after an unexpected restart.
182164	Corrects the behavior of raw space alerts to be consistent between 3PAR OS versions. The raw space alert is now generated as expected based on the system parameter settings.
186754	Addresses an issue that occurs when attaining the status of the controller node drives, causing the integration process to stall.
187088	Improves log page list generation to maintain consistency. Also improves log page entry processing during node down recovery which is used during controller node restarts.

Verification

The installation of P46 can be verified from an interactive CLI session. Issue the CLI command `showversion -a -b` to verify that P46 is listed:

```
cli% showversion -a -b
Release version 3.2.2.390 (MU2)
Patches: P11,P14,P15,P18,P19,P20,P22,P27,P29,P38,P44,P46
```

CLI Server	3.2.2.616 (P46)
CLI Client	3.2.2.616
System Manager	3.2.2.616 (P46)
Kernel	3.2.2.390 (MU2)
TPD Kernel Code	3.2.2.412 (P19)
TPD Kernel Patch	3.2.2.616 (P46)
CIM Server	3.2.2.404 (P14)
WSAPI Server	3.2.2.390 (MU2)
Console Menu	3.2.2.390 (MU2)
Event Manager	3.2.2.390 (MU2)
Internal Test Tools	3.2.2.390 (MU2)
LD Check Tools	3.2.2.390 (MU2)
Network Controller	3.2.2.616 (P46)
Node Disk Scrubber	3.2.2.390 (MU2)
PD Scrubber	3.2.2.390 (MU2)
Per-Node Server	3.2.2.390 (MU2)
Persistent Repository	3.2.2.390 (MU2)
Powerfail Tools	3.2.2.390 (MU2)
Preserved Data Tools	3.2.2.616 (P46)
Process Monitor	3.2.2.390 (MU2)
Rolling Upgrade Tools	3.2.2.390 (MU2)
Software Updater	3.2.2.390 (MU2)
TOC Server	3.2.2.390 (MU2)
VV Check Tools	3.2.2.616 (P46)
File Persona	1.2.1.3-20160211 (P15)
SNMP Agent	1.8.0
SSH	6.6p1-4~bpo70+1
VASA Provider	2.2.9
Firmware Database	3.2.2.392 (P11)
Drive Firmware	3.2.2.392 (P11)
UEFI BIOS	04.08.38
MCU Firmware (OKI)	4.8.28
MCU Firmware (STM)	5.2.52
Cage Firmware (DC1)	4.44
Cage Firmware (DC2)	2.64
Cage Firmware (DC3)	08
Cage Firmware (DC4)	2.64
Cage Firmware (DCN1)	4044
Cage Firmware (DCN2)	4044
Cage Firmware (DCS1)	4044
Cage Firmware (DCS2)	4044
Cage Firmware (DCS5)	1.90
Cage Firmware (DCS6)	1.90
Cage Firmware (DCS7)	4044
Cage Firmware (DCS8)	4044
QLogic QLA4052C HBA Firmware	03.00.01.77
QLogic QLE8242 CNA Firmware	04.15.06
QLogic 8300 HBA FC Firmware	08.01.05
QLogic 8300 HBA FCoE Firmware	08.01.05

QLogic 8300 HBA iSCSI Firmware	05.07.06
Emulex LP11002 HBA Firmware	02.82.x10
Emulex LPe12002 HBA Firmware	02.03.x02
Emulex LPe12004 HBA Firmware	02.03.x02
Emulex LPe16002 HBA Firmware	10.6.248.3
3PAR FC044X HBA Firmware	200A8
LSI 9201-16e HBA Firmware	17.11.00
LSI 9205-8e HBA Firmware	17.11.00
LSI 9300-8e HBA Firmware	07.00.00

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 HP 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 for your product, see the *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products* document, available at the Hewlett Packard Enterprise Support Center:

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

Additional warranty information

HPE ProLiant and x86 Servers and Options	www.hpe.com/support/ProLiantServers-Warranties
HPE Enterprise 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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