



**Hewlett Packard**  
Enterprise

# **HPE 3PAR OS 3.2.2 MU6 Patch 99**

## **Release Notes**

### **Abstract**

This release notes document is for Patch 99 and intended for HPE 3PAR Operating System Software 3.2.2.709 (MU6).

Part Number: QL226-99842  
Published: March 2018  
Edition: 1

## Notices

The information contained herein is subject to change without notice. The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

Confidential computer software. Valid license from Hewlett Packard Enterprise required for possession, use, or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Links to third-party websites take you outside the Hewlett Packard Enterprise website. Hewlett Packard Enterprise has no control over and is not responsible for information outside the Hewlett Packard Enterprise website.

## Acknowledgments

Intel<sup>®</sup>, Itanium<sup>®</sup>, Pentium<sup>®</sup>, Intel Inside<sup>®</sup>, and the Intel Inside logo are trademarks of Intel Corporation in the United States and other countries.

Microsoft<sup>®</sup> and Windows<sup>®</sup> are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Adobe<sup>®</sup> and Acrobat<sup>®</sup> are trademarks of Adobe Systems Incorporated.

Java<sup>®</sup> and Oracle<sup>®</sup> are registered trademarks of Oracle and/or its affiliates.

UNIX<sup>®</sup> is a registered trademark of The Open Group.

# Purpose

The HPE 3PAR OS 3.2.2 MU6 Patch 99 provides several critical quality improvements.

## Guidance

This is a critical patch for HPE 3PAR OS 3.2.2 MU6.

## Prerequisites

- Minimum SP version: SP-4.4.0.GA-58 + the latest SP patch.
- Base OS: OS-3.2.2.709-MU6. See the Requires field in the Patch details.

## Patch details

Patch ID: P99

Synopsis: Provides several critical quality improvements

Date: February 16, 2018, 18:53:26 PST

Affected Packages: tpd-admck, tpd-api, tpd-kernelpatch, tpd-netc, tpd-nodesvr, tpd-sysmgr, tpd-tocsvr, tpd-prerevert

Obsoletes: None

Requires: OS-3.2.2.709-MU6

Build Version: 3.2.2.725

Patches Partially Superseded: None

Patches Obsolete by Combination: None

Revert Supported: Yes

## NOTE:

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

# Modifications

Patch 99 provides:

Issue ID	Description
184033	A logical disk (LD) can now be removed even if the LD is in a preserved state provided the LD is empty (none of the LD's regions are mapped to a Virtual Volume).
197465	An unexpected controller node restarts during node down processing regardless of the situation that initially causes the array to restart.
211227	When performing a <code>setnet startaddr</code> followed by a network master change, the array will lose its management IP address, rendering the array unmanageable.

*Table Continued*

Issue ID	Description
211282	Conversion of a TPVV, without a snapshot CPG defined, to a fully provisioned VV leaves internal data structures in an inconsistent state which results in an unexpected array restart.
212190	When large inter-node I/O transfers are split into smaller I/Os, an error on any of the smaller I/O transfers will cause the entire I/O to stall.
215548	An unexpected controller node restart occurs when Remote Copy links go down.
218484 100946	An unexpected controller node restart occurs after making changes to Remote Copy FC (RCFC) ports due to fragmentation of transfers in-flight being removed when the RCFC port is changed.
220823	Prevents diagnostic logs from consuming large amounts of space on the controller node drives when <code>updatevv</code> or defragmentation is running on the array.
221218	In a Remote Copy or Peer Persistence configuration, a missing heartbeat can result in an unexpected controller node restart. This issue is resolved.
221491	Inter-node I/O transfers deplete and do not return CMP resources leading to host I/O stalls.
221881	Replacing an SSD drive causes an incorrect recalculation of the cache limit which can result in a progressive performance impact.
222014	Corrects an issue that incorrectly identifies a failing control cache DIMM on StoreServ 20000 systems.
222711	Prevents a potential deadlock situation during controller node integration.
223365	After properly shutting down the array, if a power regulator issue prevents a controller node from booting, the array will not boot because it is waiting for the missing controller node with the failed regulator to boot.
224354	Deletion of snapshots associated with a deduplicated volume can leave extraneous snapshot deletion entries which prevents subsequent deduplication garbage collection and can result in an unexpected controller node restart.
224575	Prevents an unexpected array restart due to a memory inconsistency when using a 16 Gb FC adapter.
224665 217322 202755	Prevents unexpected node restart when a defrag IO thread incorrectly processes the clean CMP page having dedup information set.
225198	An uninitialized variable used in processing QoS domain rules can lead to repeated restarts of the System Manager.

*Table Continued*

Issue ID	Description
226306	Prevents an unexpected controller node restart that can occur if the 16Gb FC driver attempts to send Generic Service commands while its local port is in the "offline" state.
226724	While tuning a TDVV the System Manager may restart if the source LD isn't in use by a VV.
227187	Prevents the situation where multiple failed https authentication challenges are not responded to by the client causing the controller node filesystem to become full.
228015 225657 220522	Addresses an issue on arrays that consume a large amount of space in fully provisioned volumes, leading to performance degradation which can eventually result in host I/O timeouts.
228027	Corrects an issue where the array startup configuration information cannot be read after the array has been shutdown.
230086 189152	When inconsistent array startup configuration information is encountered by the System Manager, the System Manager repeatedly restarts preventing the array from starting.

## Affected components

Component	Version
System Manager	3.2.2.725 (P99)
TPD Kernel Patch	3.2.2.725 (P99)
CIM Server	3.2.2.725 (P99)
Network Controller	3.2.2.725 (P99)
Per-Node Server	3.2.2.725 (P99)
TOC Server	3.2.2.725 (P99)
VV Check Tools	3.2.2.725 (P99)

### NOTE:

- Applying an HPE 3PAR OS patch can cause a restart of the affected OS components. When components are restarted, events and alerts are generated and this is an expected behavior. The system continues to serve data, but existing CLI or SSMC sessions could be interrupted.
- 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.

# Verification

The installation of P99 can be verified from an interactive CLI session. Issue the `showversion -a -b` CLI command to verify that P99 is listed:

Release version 3.2.2.709 (MU6)  
Patches: P96, **P99**

Component Name	Version
CLI Server	3.2.2.709 (MU6)
CLI Client	3.2.2.709
System Manager	<b>3.2.2.725 (P99)</b>
Kernel	3.2.2.709 (MU6)
TPD Kernel Code	3.2.2.709 (MU6)
TPD Kernel Patch	<b>3.2.2.725 (P99)</b>
CIM Server	<b>3.2.2.725 (P99)</b>
WSAPI Server	3.2.2.709 (MU6)
Console Menu	3.2.2.709 (MU6)
Event Manager	3.2.2.709 (MU6)
Internal Test Tools	3.2.2.709 (MU6)
LD Check Tools	3.2.2.709 (MU6)
Network Controller	<b>3.2.2.725 (P99)</b>
Node Disk Scrubber	3.2.2.709 (MU6)
PD Scrubber	3.2.2.709 (MU6)
Per-Node Server	<b>3.2.2.725 (P99)</b>
Persistent Repository	3.2.2.709 (MU6)
Powerfail Tools	3.2.2.709 (MU6)
Preserved Data Tools	3.2.2.709 (MU6)
Process Monitor	3.2.2.709 (MU6)
Rolling Upgrade Tools	3.2.2.709 (MU6)
Software Updater	3.2.2.709 (MU6)
TOC Server	<b>3.2.2.725 (P99)</b>
VV Check Tools	<b>3.2.2.725 (P99)</b>
File Persona	1.2.4.3-20170601
SNMP Agent	1.8.0
SSH	6.6p1-4~bpo70+1
VASA Provider	2.2.10
Firmware Database	3.2.2.711 (P96)
Drive Firmware	3.2.2.709 (MU6)
UEFI BIOS	04.08.39
MCU Firmware (OKI)	4.8.29
MCU Firmware (STM)	5.2.53
Cage Firmware (DC1)	4.44
Cage Firmware (DC2)	2.64
Cage Firmware (DC3)	08
Cage Firmware (DC4)	2.64
Cage Firmware (DCN1)	4078
Cage Firmware (DCN2)	4078
Cage Firmware (DCS1)	4078
Cage Firmware (DCS2)	4078
Cage Firmware (DCS5)	2.86
Cage Firmware (DCS6)	2.86
Cage Firmware (DCS7)	4078
Cage Firmware (DCS8)	4078
QLogic QLA4052C HBA Firmware	03.00.01.77
QLogic QLE8242 CNA Firmware	04.15.08

QLogic 8300 HBA FC Firmware	08.01.05
QLogic 8300 HBA FCoE Firmware	08.01.05
QLogic 8300 HBA iSCSI Firmware	05.07.07
Emulex LP11002 HBA Firmware	02.82.x10
Emulex LPe12002 HBA Firmware	02.10.x03
Emulex LPe12004 HBA Firmware	02.10.x03
Emulex LPe16002 HBA Firmware	10.6.248.8
Emulex LPe16004 HBA Firmware	10.6.248.8
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	07.10.01

# Websites

## **General websites**

**Hewlett Packard Enterprise Information Library**

**[www.hpe.com/info/EIL](http://www.hpe.com/info/EIL)**

**Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix**

**[www.hpe.com/storage/spock](http://www.hpe.com/storage/spock)**

**Storage white papers and analyst reports**

**[www.hpe.com/storage/whitepapers](http://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](http://www.hpe.com/support/hpesc)  
**Hewlett Packard Enterprise Support Center: Software downloads**  
[www.hpe.com/support/downloads](http://www.hpe.com/support/downloads)  
**Software Depot**  
[www.hpe.com/support/softwaredepot](http://www.hpe.com/support/softwaredepot)
- To subscribe to eNewsletters and alerts:  
[www.hpe.com/support/e-updates](http://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:

**! 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](http://www.hpe.com/services/getconnected)

#### HPE Proactive Care services

[www.hpe.com/services/proactivecare](http://www.hpe.com/services/proactivecare)

#### HPE Proactive Care service: Supported products list

[www.hpe.com/services/proactivecaresupportedproducts](http://www.hpe.com/services/proactivecaresupportedproducts)

#### HPE Proactive Care advanced service: Supported products list

[www.hpe.com/services/proactivecareadvancedsupportedproducts](http://www.hpe.com/services/proactivecareadvancedsupportedproducts)

### Proactive Care customer information

#### Proactive Care central

[www.hpe.com/services/proactivecarecentral](http://www.hpe.com/services/proactivecarecentral)

#### Proactive Care service activation

[www.hpe.com/services/proactivecarecentralgetstarted](http://www.hpe.com/services/proactivecarecentralgetstarted)

## Warranty information

To view the warranty for your product or to view the *Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products* reference document, go to the Enterprise Safety and Compliance website:

[www.hpe.com/support/Safety-Compliance-EnterpriseProducts](http://www.hpe.com/support/Safety-Compliance-EnterpriseProducts)

#### **Additional warranty information**

##### **HPE ProLiant and x86 Servers and Options**

[www.hpe.com/support/ProLiantServers-Warranties](http://www.hpe.com/support/ProLiantServers-Warranties)

##### **HPE Enterprise Servers**

[www.hpe.com/support/EnterpriseServers-Warranties](http://www.hpe.com/support/EnterpriseServers-Warranties)

##### **HPE Storage Products**

[www.hpe.com/support/Storage-Warranties](http://www.hpe.com/support/Storage-Warranties)

##### **HPE Networking Products**

[www.hpe.com/support/Networking-Warranties](http://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](http://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](http://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](http://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](http://www.hpe.com/info/environment)

## **Documentation feedback**

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, send any errors, suggestions, or comments to Documentation Feedback ([\*\*docsfeedback@hpe.com\*\*](mailto:docsfeedback@hpe.com)). When submitting your feedback, include the document title, part number, edition, and publication date located on the front cover of the document. For online help content, include the product name, product version, help edition, and publication date located on the legal notices page.