HPE 3PAR OS 3.2.2 MU3 Upgrade Instructions

Abstract

The instructions in this guide are for qualified technicians authorized by Hewlett Packard Enterprise to upgrade storage system software. Authorized technicians include Hewlett Packard Enterprise field engineers, partners and channel partners, certified self-maintaining customers, and authorized third-party field technicians. This document is for Hewlett Packard Enterprise internal and partner use only.

Acknowledgements

Intel, Itanium, Pentium, Intel Inside, and the Intel Inside logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Microsoft and Windows are U.S. registered trademarks of Microsoft Corporation.

Adobe® and Acrobat® are trademarks of Adobe Systems Incorporated.

Java and Oracle are registered trademarks of Oracle and/or its affiliates.

UNIX® is a registered trademark of The Open Group.

Intel®, Itanium®, Pentium®, Intel Inside®, and the Intel Inside logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

Documentation

For the latest version of this document, go to the Services Access Workbench at **http://sawpro.atlanta.hp.com/km/saw/search.do**.

Contents

1 Introduction

The purpose of this document is to provide instructions to complete a field upgrade to HPE 3PAR OS version 3.2.2.530 (MU3) with the *HPE 3PAR OS Release 3.2.2 MU3* media.

⚠ **WARNING!**   Performing an online update requires extensive planning. Review the latest version *HPE 3PAR Upgrade Pre-Planning Guide* before performing an online update.

NOTE: The InServ Storage Server is rebranded as the HPE 3PAR StoreServ Storage System. There are instances in this document where menu items and command output refer to the 3PAR Storage System as InServ or InServ Storage Server.

The 3PAR OS version running on a storage system can be upgraded onsite with a physical media by a service technician. The service technician can remotely access Axeda 6.8 to deploy a selfinstall package and upgrade a storage system software.

NOTE: All references to SPMAINT are using SSH or serial port connectivity. SPMAINT on the web [Service Processor Onsite Customer Care (SPOCC) interface] might have different menu options.

The service processor (SP) updating the 3PAR OS on the storage system must be running SP level 4.4.0 GA.

If the SP level is below 4.1.0, use the *HPE 3PAR Service Processor Software 2.5.x Upgrade Instructions* to upgrade to SP 4.1.0 (MU2) first, and then follow the *HPE 3PAR Service Processor Software 4.3.0 Upgrade Instructions* to update the SP software to SP level 4.3.0. Finally, follow the *HPE 3PAR Service Processor Software 4.4.0 Upgrade Instructions* to update the SP software to SP level 4.4.0.

NOTE: 3PAR Management Console must be at version 4.7.1. 3PAR StoreServ Managment Console 2.2 is supported.

NOTE: An SP enabled with Secure Network Mode can be updated onsite either by using a physical media or by a selfinstall package type available on Axeda 6.8.

The 3PAR OS 3.2.2.530 (MU3) release is for use on production systems.

3PAR OS update packages include updates for components including the OS, BIOS, cage firmware, and drive firmware. Individual component updates are applied if the current software and hardware configuration is operating below the version levels included in the update package.

This OS update package includes the following versions of the OS components and BIOS.

Table 1 Components and Versions

Component	Version
OS	3.2.2.530
UEFI BIOS	04.08.38
MCU Firmware (OKI)	4.8.28
MCU Firmware (STM)	5.2.52
DC1 Firmware	4.44
DC2 / DC4 Firmware	2.64
DC3	08

Table 1 Components and Versions *(continued)*

Component	Version
DCN1 / DCN2 / DCS1 / DCS2 /DCS7 / DCS8 Firmware	406a
DCS5 / DCS6 Firmware	1.93

NOTE: After completing the OS update, apply any relevant patches.

For an installation update checklist included in this document, see "3PAR OS Update Checklist" (page 26).

Any system using the CLI or SNMP clients must be upgraded to the new levels.

For information about using the SP and the SPMAINT utility, see the *HPE 3PAR Service Processor User Guide*.

2 Supported Update Types and Paths

3PAR OS updates can be performed either online or offline. Online updates allow the hosts connected to the system to continue I/O activity, but for offline updates host I/O activity must be stopped. The following types of updates are supported:

- *Simple Update* - used when the OS maintenance level changes. An update is applied to all the nodes and nodes reboot, one at a time, automatically.

- *Advanced Update* - used when the OS maintenance level changes. An update is applied to all the nodes and user needs to reboot the node, one at a time, manually. Advanced update is only used in cases where a customer chooses to validate their environment before rebooting the next node. The duration of the pause between node reboots must be limited to 30 minutes.

- *Offline Update* - used when the customer requests an offline update, or when the system is operating several levels below the update package version. An offline update requires that all hosts connected to the Storage Server be shut down before the OS update. All nodes are updated and then rebooted at the same time. The system is unavailable to the hosts during this operation.

The following table lists the supported 3PAR OS level update paths.

Table 2 Update Paths Supported

Update from Current OS Level	Update to New OS Level
3.1.3.230 (MU1)	3.2.2.530 (MU3)
3.1.3.230 (MU1) + Patches	3.2.2.530 (MU3)
3.1.3.262 (MU2)	3.2.2.530 (MU3)
3.1.3.262 (MU2) + Patches	3.2.2.530 (MU3)
3.1.3.334 (MU3)	3.2.2.530 (MU3)
3.2.1.46 (GA) + P01	3.2.2.530 (MU3)
3.2.1.46 (GA) + P01 + Patches	3.2.2.530 (MU3)
3.2.1.46 (EGA)	3.2.2.530 (MU3)
3.2.1.46 (EGA) + Patches	3.2.2.530 (MU3)
3.2.1.120 (MU1)	3.2.2.530 (MU3)
3.2.1.120 (MU1) + Patches	3.2.2.530 (MU3)
3.2.1.120 (EMU1)	3.2.2.530 (MU3)
3.2.1.120 (EMU1) + Patches	3.2.2.530 (MU3)
3.2.1.200 (MU2)	3.2.2.530 (MU3)
3.2.1.200 (MU2) + Patches	3.2.2.530 (MU3)
3.2.1.200 (EMU2)	3.2.2.530 (MU3)
3.2.1.200 (EMU2) + Patches	3.2.2.530 (MU3)
3.2.1.292 (MU3)	3.2.2.530 (MU3)
3.2.1.292 (MU3) + Patches	3.2.2.530 (MU3)
3.2.1.292 (EMU3)	3.2.2.530 (MU3)
3.2.1.292 (EMU3) + Patches	3.2.2.530 (MU3)
3.2.1.426 (MU5)	3.2.2.530 (MU3)

Table 2 Update Paths Supported *(continued)*

Update from Current OS Level	Update to New OS Level
3.2.1.426 (MU5) + Patches	3.2.2.530 (MU3)
3.2.1.356 (MU4)	3.2.2.530 (MU3)
3.2.2.290 (EGA)	3.2.2.530 (MU3)
3.2.2.290 (EGA) + Patches	3.2.2.530 (MU3)
3.2.2.326 (MU1) + P16	3.2.2.530 (MU3)
3.2.2.326 (MU1) + P16 + Patches	3.2.2.530 (MU3)
3.2.2.390 (MU2)	3.2.2.530 (MU3)
3.2.2.390 (MU2) + Patches	3.2.2.530 (MU3)
3.2.2.390 (EMU2)	3.2.2.530 (MU3)
3.2.2.390 (EMU2) + Patches	3.2.2.530 (MU3)

⚠ **WARNING!** Upgrade to 3PAR OS 3.2.2 MU3 is supported on 3PAR StoreServ 7000, 8000, 10000 and 20000 Storage systems only. 3PAR OS 3.2.2 is not supported on prior InServ systems.

NOTE: Direct upgrades from 3PAR OS earlier than 3PAR OS 3.1.3.230 (MU1) are not supported.

See the *HPE 3PAR Service Processor Support Matrix* available at Single Point of Connectivity Knowledge (SPOCK) website **www.hpe.com/storage/spock**. Select **3PAR** under the **Other Hardware** menu. Locate **Other HP 3PAR Support Matrices**. The *HPE 3PAR Service Processor Support Matrix* is located under this menu.

NOTE: Direct upgrade from 3PAR OS 3.2.1 (MU3) or later is supported on FS enabled systems.

To update a storage system using a console connection, proceed to .

To update a storage system using SPOCC, proceed to

3 Pre-installation Requirements

The following requirements must be satisfied before updating to 3PAR OS 3.2.2 MU3:

- Stop all system administration activities while performing an 3PAR OS online update. This includes any provisioning activity, physical or virtual copy activity, and snap removal and dynamic optimization, but excludes stopping Remote Copy or Remote Copy groups. All active tasks must complete or be stopped before proceeding.

△ **CAUTION:**

- 3PAR 3.2.2 EGA Patch 35 must be installed prior to upgrading from 3PAR 3.2.2 EGA to a later version.
- 3PAR 3.2.2 MU1 Patch 37 must be installed prior to upgrading from 3PAR 3.2.2 MU1 to a later version.

Verifying the SP Software Level

The SP must be updated to the required SP software. To verify the level of SP software running on the SP for the system you are updating, log on to the SPMAINT utility to display the SP level.

⚠ **WARNING!**   The SP level must be at SP 4.4.0.GA-53 or later to continue with this 3PAR OS update.

1. Connect to the SP.
2. From the SPMAINT main menu, enter: `=1.1` (`Display SP Version`).
3. Verify that the `SP version` entry displays **SP-4.4.0.GA-53** plus the latest patch (if applicable).

   Example output for SP software:

```
SP Software Version

SP-4.4.0.GA-53



SP Base Image Version:          Red Hat Enterprise Linux Server release 6.1
(Santiago)
SP Version:                     4.4.0.GA-53
SP Patches:
HP 3PAR OS release (3.2.2):     3.2.2.530-MU3
HP 3PAR OS patches (3.2.2):
More detail is available in the latest SPLOR or spconfig data.



Press <enter/return> to continue
```

   If the SP software level does not meet the requirements for this 3PAR OS update, you must update the SP software before continuing with the 3PAR OS update installation.

4. From the SPMAINT main menu, enter: **=1.13** (`Display SP Status`). Save the SP status output by logging the session. You will require this output to compare it with the post-upgrade SP status after you install the OS.
5. Confirm that the following basic processes are running.

   Table 3 Example of Basic SP Processes

```
The following global procedures are running:
        /sp/prod/code/csst/bin/spcollect
```

Table 3 Example of Basic SP Processes *(continued)*

```
        /sp/prod/code/csst/bin/SPcommctlr
        /sp/prod/code/csst/bin/spevent
        /sp/prod/code/csst/bin/SPnetmon
        /sp/prod/code/csst/bin/SPtransfer
        /sp/prod/code/csst/bin/stAnalyze
        /sp/prod/code/csst/bin/stBackDoor
        /sp/prod/code/csst/bin/stGrpNot
        /sp/prod/code/csst/bin/STlogger
        /sp/prod/code/csst/bin/stMonitor
        /sp/prod/code/csst/bin/stNotify



        There are 10 httpd server processes running

spevent is running for the following clusters:
        <StoreServ_serial_number> (<StoreServ_name>)

spcollect processes are running as follows:
        adlc    for <StoreServ_serial_number> (<StoreServ_name>)
        biosmsg for <StoreServ_serial_number> (<StoreServ_name>)
        config  for <StoreServ_serial_number> (<StoreServ_name>)
        eeprom  for <StoreServ_serial_number> (<StoreServ_name>)
        environ for <StoreServ_serial_number> (<StoreServ_name>)
        evtlog  for <StoreServ_serial_number> (<StoreServ_name>)
        memdata for <StoreServ_serial_number> (<StoreServ_name>)
        perfdb  for <StoreServ_serial_number> (<StoreServ_name>)
        perform for <StoreServ_serial_number> (<StoreServ_name>)
        status  for <StoreServ_serial_number> (<StoreServ_name>)

SSAgent run status -
        agent is running

Press <enter/return> to continue
```

6.   To return to the previous menu, press the **Enter** key.

Update the SP

If you need to update the SP software level before installing the maintenance update, download the upgrade from Axeda 6.8 or install it from a physical media.

4 Installing the 3PAR OS onto the SP via Physical Media

To install the 3PAR OS update from *HPE 3PAR OS Release 3.2.2 MU3* media onto the SP:

1. Insert the media into the SP media drive.
2. From the SPMAINT main menu, enter: **=1.16.2** (Update SP Software Revision).
3. Enter the number corresponding to the media drive and then enter: **y** at the prompt.
4. After the message Stage successfully completed is displayed, press **Enter** to return to the SPMAINT main menu.
5. Enter: **=1.1** (Display SP Version).
6. Verify that the HP 3PAR OS release (3.2.2) entry displays **3.2.2.530–MU3**.
7. Enter: **=1.13** (Display SP status)
8. Compare the postupgrade SP processes with the pre-upgrade SP processes listed before you applied the OS. For an example of the basic list, see the table Example of Basic SP Processes (page 8).

   If the basic SP processes are running, you can now install the OS on the storage system.

   If the basic SP processes differ after the installation, see the *HPE 3PAR Service Processor Software Troubleshooting Guide*.

9. Remove the media from the media drive and store it inside the cabinet.

   You can now update the 3PAR OS software running on the storage system. Proceed to "3PAR OS Update Task Overview" (page 12).

5 Deploying the 3PAR OS to the SP via Axeda 6.8

The self-install package automatically installs onto the SP after deployment. The following procedure must be performed by an authorized administrator:

△ **CAUTION:**

- The SP level must be at SP-4.3.0.GA-32 + the latest SP patch before uploading a package. Using an earlier SP version to upload a package might cause a failure and require a rebuild of the SP software.

- Do not use a collector server SSH remote session to connect to the SP to perform an update. The connection resets during the update and update fails. The SP might require a rebuild of the software when an update fails.

- All SPmaint sessions must be stopped before deploying the package.

1. Establish a connection and log on to Axeda 6.8.
2. Click the **Software** tab in the top right corner.
3. Click **Deploy packages to assets over the internet**.
4. Search and select the package for **HP 3PAR OS 3.2.2.530–MU3** and click **Next**.
5. In the **Select Assets** table, select the MP device to which you want to download the package, and then click **Add Checked**.
6. Click **Next**.
7. Select **Schedule package for immediate deployment** option, and then click **Next**.

   NOTE: Select **Schedule for later deployment** option only when specified by the customer. Ensure that a proper date and time values are specified.

8. To receive notifications as the package deploys, select the appropriate notification options, enter your contact information, and then click **Next**.
9. Review the confirmation information, and then click **Deploy**.
10. To check the status of the deployment, use the **Package Deployment Manager**. To refresh the page, press **F5**.

    NOTE: It can take several hours to deliver the package from Axeda 6.8 to the SP.

11. After the deployment is complete, exit the session and log off.
12. From the SPMAINT main menu, enter: =1.1 (`Display SP Version`).
13. Verify that the `HP 3PAR OS release (3.2.2)` entry displays **3.2.2.530–MU3**.
14. Enter: `=1.13`(`Display SP status`).
15. Compare the postupgrade SP processes with the preupgrade SP processes listed before you applied the 3PAR OS package. For an example of the basic list, see the table Example of Basic SP Processes (page 8)

    If the basic SP processes are running, you can install the OS on the storage system.

    If the basic SP processes differ after the 3PAR OS package installation, see the *HPE 3PAR Service Processor Software Troubleshooting Guide*.

16. To return to the previous menu, press **Enter**.
17. Continue to

6 3PAR OS Update Task Overview

The 3PAR OS update process includes the following phases:

Pre-update tasks:

-
-
-

Update tasks:

-
-

Post-update tasks:

-
-

A task checklist is available, see the .

NOTE: Connections between CLI clients and the system might terminate during the update process. To maintain a CLI connection with the system during the update process, you must start an interactive CLI session with the SPMAINT utility.

7 Pre-update Tasks

The following tasks must be performed before starting the 3PAR OS update process.

Verifying the 3PAR OS Software Level

The current 3PAR OS level must meet the supported update path requirements in Table 2 (page 6).

To verify the 3PAR OS level currently running on the storage system:

1. Start a CLI session from the SPMAINT main menu, enter: **=7** and then press **Enter**.
2. Select the desired storage system (StoreServ).
3. To display the 3PAR OS version, patch information, and the version numbers of other system components, enter: **showversion -a -b**. Verify that the 3PAR OS version in the output meets the supported update path requirements in Table 2 (page 6).
4. Enter: **exit** and then press **Enter** to return to the SPMAINT main menu.

Verifying the Health of the Storage System

Before starting the 3PAR OS update, determine the current status and verify the overall health of the system with the SPMAINT utility.

Running a Health Check From the SPMAINT Utility

1. To start a health check from the SPMAINT main menu, enter: **=4.4** and then press **Enter**.
2. Enter the number corresponding to the storage system (StoreServ) you want to run the Health Check on and press **Enter**.
3. Enter: **y** to retrieve and transfer the check health data and press **Enter**.

```
Are you sure you want to retrieve and transfer
        the check health data for StoreServ <StoreServ_Name>?
(y or n)
y
...

16:44.51 Checking health of alert
16:44.52 Checking health of cabling
16:44.52 Checking health of cage
16:44.53 Checking health of date
16:44.54 Checking health of file
16:44.55 Checking health of ld
16:44.56 Checking health of license
16:44.56 Checking health of network
16:44.57 Checking health of node
16:44.59 Checking health of pd
16:45.05 Checking health of pdch
16:45.06 Checking health of port
16:45.14 Checking health of rc
16:45.14 Checking health of snmp
16:45.15 Checking health of sp
16:45.15 Checking health of task
16:45.16 Checking health of vlun
16:45.16 Checking health of vv
```

4. After the health check completes gathering the data, the SP displays a list of files to view.

```
4.4.2   Show latest health check status from StoreServ
```

```
           Available files

     1       ==>      /sp/prod/data/files/1300338/status/110420.101029.all
     2       ==>      /sp/prod/data/files/1300338/status/110420.101029.det
     3       ==>      /sp/prod/data/files/1300338/status/110420.101029.err
     4       ==>      /sp/prod/data/files/1300338/status/110420.101029.sum

     0       ==>      Abort Operation

     Please select a file to display
```

To view the available files, type the corresponding number and then press **Enter** to continue.

Select the number corresponding to the data file with the `.all` extension and press **Enter**. After the file is reviewed, press **Enter** to continue, and then select option `0` to exit health check.

NOTE: The SPMAINT utility uses the `more` command to view files. Press the **spacebar** to move to the next page. After viewing the contents of the file, to exit press **Enter**. Then select `0 (Abort Operation)` to return to the previous menu. After you return to the previous menu, the report is discarded. To view the health status again, run the health check again.

5. Review and correct any exceptions before performing an 3PAR OS update.

Performing Validation Routines

⚠ **WARNING!**   In case of a failure of any test, it must be escalated to 3PAR Authorized Support Provider so that issues, if any, might be corrected before the 3PAR OS update. Failure to resolve an issue before the software update might cause unpredictable results.

To perform validation routines:

1. From the SPMAINT main menu, check the status of the system on which validation routines are to be performed. To check the status of the system, enter: **=4.7.1** on the SPMAINT main menu and press **Enter**.

```
4.7.1   StoreServ Upgrade Status
           Configured StoreServs
     1       ==>      <StoreServ_name> --> <StoreServ_serial_number>
     0       ==>      Abort Operation


     Please select a StoreServ to operate on
```

2. Select the system and press **Enter**.

```
4.7.1    StoreServ Upgrade Status

StoreServ: <StoreServ_name>
Current Version: 3.1.3.230

Upgrade Status:

System is not currently undergoing an online upgrade.
First node to be rebooted is node 3
Which will be followed by node 0
Which will be followed by node 2
```

```
Which will be followed by node 1


**MESSAGE: START State, No TPD upgrade in progress
**STATE:0
```

3. Press **Enter** to continue.
4. From the SPMAINT main menu, validate the system to ensure it is capable of performing an online update. To validate the system, enter: **=4.7.2** on the SPMAINT main menu and press **Enter**.

```
   4.7.2   Validate Upgrade Status

              Configured StoreServs

       1      ==>      <StoreServ_name> --> <StoreServ_serial_number>

       0      ==>      Abort Operation


       Please select a StoreServ to operate on
```

5. Select the system to perform the prevalidation scripts on, and then press **Enter**.

   Any problems discovered during the prevalidation checks must be resolved and then prevalidation checks must be repeated.

```
4.7.2   Validate Upgrade Status
The StoreServ will perform a series of checks to verify that it is ready to be
updated.
Please be patient, this process will take approximately 30 seconds to 20 minutes.

-- Test Name -------------------------------------------------------- [ RESULT ]
 -
Check Local                                                          [ PASSED ]
Check PD                                                             [ PASSED ]
Check Upgrade                                                        [ PASSED ]
Check VV                                                             [ PASSED ]
Check Cluster Name Exists                                            [ PASSED ]


<systen_name> is in an acceptable state to perform a software upgrade
total_scripts: 5  passed: 5  failed: 0


Press <enter/return> to continue
```

6. Press **Enter** to continue.

8 Updating the 3PAR OS Online

This procedure updates the 3PAR OS while the customer is actively using the storage system. A complete understanding of all the host connectivity is required and proper planning must be completed before performing an online update.

For planning assistance, review the *HPE 3PAR Operating System Upgrade Pre-Planning Guide*. To obtain a copy of this documentation, go to the Storage Information Library at **www.hpe.com/info/enterprise/docs**.

See Table 2 (page 6) for supported 3PAR OS level update types and paths.

⚠ **WARNING!** Performing an online update requires extensive planning. Review the *HPE 3PAR Upgrade Pre-Planning Guide* before performing an online update.

⚠ **WARNING!** All hosts must meet the online update requirements in the *HPE 3PAR OS Upgrade Pre-Planning Guide* for 3.2.2 version. Any hosts not meeting the requirements must be shut down or logically disconnected before attempting an online update.

⚠ **WARNING!** All hosts must be compatible to the current applicable *HPE 3PAR Host Implementation Guide* and *HPE 3PAR Configuration Matrix*.

⚠ **WARNING!** For hosts using Veritas VxVM as the multi-pathing solution, the Veritas link restore interval needs to be set before attempting an online update. For more information about this, see *HPE 3PAR Upgrade Pre-Planning Guide* .

△ **CAUTION:** Verify all Pre-update Tasks on "3PAR OS Update Task Overview" (page 12) are completed before proceeding with the online update.

The online update checks the 3PAR OS versions for update compatibility requirements and installs any required patches. The update script is interactive and requires user input before performing the update.

To update the 3PAR OS running on a storage system:

1. From the SPMAINT main menu, enter: `=4.7.3`, and select the storage system to be upgraded.
2. Select the appropriate option for `Simple Upgrade` or `Advanced Upgrade`, and then press **Enter**.

    Hewlett Packard Enterprise recommends that Advanced Upgrade be used only by qualified technicians authorized by Hewlett Packard Enterprise to upgrade storage system software.
3. Select the new 3PAR OS version to use to update the system, select menu option for `3.2.2.530-MU3` and press **Enter**. To proceed with the update, enter: `y` and enter the five digit number when prompted.

    △ **CAUTION:** After you answer `y` and enter the five-digit number, you can not stop the update process.

NOTE:

On FS enabled StoreServ, enter answer y, when prompted as follows:

The 3PAR File Persona is enabled on this system. Depending on the file protocols and features in use, proceeding with simple upgrade may result in the disconnection of client sessions.

Are you certain you wish to proceed?

(y or n)

4. The online update tests run and display the results.
5. If any tests fail, you must enter the displayed five digit number to confirm and continue.

   NOTE: Any test failure must be corrected before proceeding with the 3PAR OS upgrade. Bypassing any test error is not recommended, and may only be done if the test results, and any potential impact on the system upgrade and hosts is clearly understood and acknowledged.

6. Read all prompts. Answer `yes` at the final prompt to begin the update process.

   NOTE: CLI connections are terminated in either of the following scenario:

   - A controller node with the active Ethernet interface reboots and another controller node takes over the active Ethernet interface
   - Transition to a new workspace

   CLI connectivity is automatically reestablished by the Service Processor.

   NOTE: If onsite, monitor the controller node LED indicators for the cluster status.

7. After the update process is completed, press **Enter** to return to the SPmaint menu. Verify the health of the storage system. For more information, see "Verifying the Health of the Storage System" (page 13)
8. To start a CLI session from the SPMAINT main menu, enter: **7**, select the number associated with the StoreServ and press **Enter**.

   To set the maintenance mode, answer y or n at the following prompt:

   ```
   Do you wish to turn ON maintenance mode for StoreServ before
   performing any CLI operations?
   ```

   To verify that all nodes are in an `OK` state and `InCluster`, enter: `shownode`.

   ```
   cli% shownode

   Node --Name- -State- Master InCluster -Service_LED -LED- Control Mem(MB) Data
   Mem(MB) Cache Available(%)
   0 <StoreServ_serial_number>-0 OK   Yes   Yes    off    GreenBlnk   4096   12288
         100
   1 <StoreServ_serial_number>-1 OK   No    Yes    off    GreenBlnk   4096   12288
         100
   2 <StoreServ_serial_number>-2 OK   No    Yes    off    GreenBlnk   4096   12288
         100
   3 <StoreServ_serial_number>-3 OK   No    Yes    off    GreenBlnk   4096   12288
         100
   ```

9. Issue `showversion -a -b` command to verify the system is running 3PAR OS 3.2.2.530–MU3.

```
cli% showversion -a -b
Release version 3.2.2.530 (MU3)
Patches :

CLI Server                    3.2.2.530  (MU3)
CLI Client                    3.2.2.530
System Manager                3.2.2.530  (MU3)
Kernel                        3.2.2.530  (MU3)
TPD Kernel Code               3.2.2.530  (MU3)


...
```

NOTE: 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 on another system.

10. Enter: **exit**, and then press **Enter** to return to the SPMAINT main menu.

11. At this point, wait at least for five minutes before running the system health check process to ensure that the upgrade fully completes all associated tasks. For more information, "Verifying the Health of the Storage System" (page 13).

⚠ **WARNING!** For hosts using Veritas VxVM as the multi-pathing solution, the Veritas link restore interval can be set back to the original value. For more information about this, see *HPE 3PAR Upgrade Pre-Planning Guide* .

12. Post-update tasks are to be run manually. Check the status of post-update task details in the upgrade log. In case of any errors, correct them and proceed to "Post-update Tasks" (page 22).

9 Updating the 3PAR OS Offline

The offline update checks the 3PAR OS versions for update compatibility requirements and installs any required patches. The update script is interactive and requires user input before performing the update.

This is an offline update. All nodes are updated and then rebooted at the same time.

⚠ **WARNING!**   No host I/O activity is permitted during an offline update.

△ **CAUTION:**   See "Pre-update Tasks" (page 13) and verify all tasks are completed before proceeding with the offline update.

To update the 3PAR OS running on the storage system:

1. To start a CLI session from the SPMAINT main menu, enter: **7**, select the number associated with the StoreServ and press **Enter**.

    To set the maintenance mode, answer y or n at the following prompt:

    ```
    Do you wish to turn ON maintenance mode for StoreServ before
    performing any CLI operations?
    ```

2. To verify that the host is inactive, enter: **statport -host -ni**. There should not be any Host ports entry in the list.

    ```
    cli% statport -host -ni
    r/w   I/O per second      KBytes per sec    Svt ms    IOSz KB
    Port  D/C      Cur   Avg   Max   Cur   Avg   Max  Cur  Avg   Cur   Avg Qlen
    -------------------------------------------------------------------------
    total Data t    0     0           0     0         0.0  0.0   0.0   0.0   -
    Press the enter key to stop...
    ```

3. To verify that physical copies are not in progress, enter: **showtask -all**.

    ```
    cli% showtask -all
    ```

Id	Type	Name	Status	Phase	Step	StartTime------- ------	FinishTime------- -	Priority- - User--
2	system_task	remove_expired_vvs	done	---	---	2015-07-31 10:27:00 PDT	2015-07-31 10:27:00 PDT	n/a 3parsvc
3	system_task	check_slow_disk	done	---	---	2015-07-31 11:07:00 PDT	2015-07-31 12:03:01 PDT	n/a 3parsvc
4	system_task	checkiperfserver	done	---	---	2015-07-31 11:15:00 PDT	2015-07-31 11:15:00 PDT	n/a 3parsvc
5	system_task	remove_expired_vvs	done	---	---	2015-07-31 11:27:00 PDT	2015-07-31 11:27:01 PDT	n/a 3parsvc
6	system_task	check_slow_disk	done	---	---	2015-07-31 12:07:00 PDT	2015-07-31 13:03:01 PDT	n/a 3parsvc
7	system_task	checkiperfserver	done	---	---	2015-07-31 12:15:00 PDT	2015-07-31 12:15:00 PDT	n/a 3parsvc
8	system_task	remove_expired_vvs	done	---	---	2015-07-31 12:27:00 PDT	2015-07-31 12:27:01 PDT	n/a 3parsvc
9	system_task	check_slow_disk	done	---	---	2015-07-31 13:07:00 PDT	2015-07-31 14:03:01 PDT	n/a 3parsvc

4. To return to the SPMAINT main menu, enter: **exit**.

a. Type `=4.5` and select the storage system (StoreServ) to reboot.

b. Type `a` to reboot all controller nodes and press **Enter**.

c. Type `y` to confirm system reboot and press **Enter**.

d. Type `y` to stop all I/O and reboot the system and press **Enter**.

> **NOTE:** The CLI connection is terminated when the system reboots. Exit and restart the interactive CLI after the Storage Server reboots to establish a new session and then continue the process.

5. After the system successfully reboots, enter: `7` and press **Enter** to start a CLI session from the SPMAINT main menu.

6. Issue the `statport -host -ni` command to verify host is inactive. Host ports should not be listed.

```
cli% statport -host -ni

r/w   I/O per second        KBytes per sec    Svt ms     IOSz KB
Port  D/C       Cur   Avg   Max   Cur   Avg   Max  Cur  Avg   Cur   Avg Qlen
---------------------------------------------------------------------------

total Data t    0     0           0     0          0.0  0.0   0.0   0.0    -
Press the enter key to stop...
```

7. Type `exit` and press **Enter** to exit the interactive CLI and return to SPMAINT main menu to begin an 3PAR OS offline update.

8. From the SPMAINT main menu, type `=4.7.3`, select the upgrade type as offline, then select the menu number corresponding to the system to update and press **Enter**.

9. Choose the option **3** for offline upgrade type and press **Enter**.

10. Select the menu number corresponding to `3.2.2.530-MU3` and press **Enter**.

```
4.7     StoreServ Upgrade

            Available OS levels

        1       ==>     3.2.2.530-MU3
        2       ==>     3.2.2.390-MU2
        3       ==>     3.2.2.390-EMU2


        Select 0 to abort


        Please select an Software level to apply
```

11. The following confirmation message is displayed:

```
We are about to commence the offline upgrade on StoreServ <StoreServ_name> to
3.2.2.530-MU3
Offline updates require that all hosts connected to the StoreServ Storage Server
should be shutdown before the HP 3PAR OS update. Offline updates are achieved by
installing the new software on all the nodes in an alternate location designated
as the new software repository. During this process the StoreServ will NOT be
available.

Are you certain you wish to proceed?
```

```
(y or n)
y
```

Type **y** and then press **Enter**.

12. Type the five digit number that is displayed to confirm update and press **Enter**.

For example:

```
Please re-enter the following number - 35789 (x to quit) :35789
```

The duration of the update process varies depending on the system configuration.

13. When the update process is completed, press **Enter** to return to the SPMAINT main menu.

14. Verify the health of the storage system. For more information, see "Verifying the Health of the Storage System" (page 13).

15. From the SPMaint menu, enter: **=7** and then press **Enter** to start a CLI session from the SPMAINT main menu. Issue the `shownode` command to verify all controller nodes have rejoined the cluster.

16. Issue the `showversion -a -b` command to verify the system is running 3PAR OS 3.2.2.530 (MU3).

```
<StoreServ_Name> cli% showversion -a -b
Release version 3.2.2.530 (MU3)
Patches:
...
```

17. Type `exit` and press **Enter** to exit the CLI session and return to the SPMAINT main menu.

18. At this point, wait five minutes before running the system health check process to ensure the upgrade fully completes all associated tasks, see "Verifying the Health of the Storage System" (page 13).

Post-update tasks are to be run manually. Check the status of post-update task details in the upgrade log. In case of any errors, correct them and proceed to "Post-update Tasks" (page 22).

10 Post-update Tasks

The following tasks must be performed to complete the 3PAR OS update process.

Verifying the Storage System Configuration

⚠️ **WARNING!** Communication errors between the SP and the StoreServ could result in the cluster being partially added to the SP. It can also cause CLI access errors with the array from the SP. If this occurs, the cluster must be removed and added again for the SP to monitor and collect files from the system.

NOTE: This task is ONLY required if communication errors between the SP and the system are reported in the check health reports. A report is created at the end of the online or offline update tasks. This task will require the use of a storage system (StoreServ) Super user ID and password. Coordinate with the customer to obtain permission for usage of their login information.

At the end of the online or offline update tasks, if the check health or CLI access reports communication errors between the SP and the system, remove the added system from the SP cluster configuration and add it again.

1. From the SPMAINT main menu, type `=3.1`, and then press **Enter** to display cluster information.
2. Select the desired cluster and press **Enter**.

    Record this information for future reference. The IP address is needed to add the storage system (StoreServ) to the SP configuration.

3. Type `=3.4`, and then press **Enter** on the SPMAINT main menu to remove a system from the SP cluster configuration.
4. Select the appropriate system and press **Enter**.
5. Type `y` and press **Enter** for confirmation.
6. Type `=3.2` and press **Enter** on the SPMAINT main menu to add a system to the SP cluster configuration.
7. After providing user ID and password, when prompted for the system IP address, type the IP address for the system and press **Enter**.

```
...
Cluster <StoreServ_Name> running code level 3.2.2.530-MU3
Cluster add complete
```

Updating Back-end Components

Perform the back-end update tasks such as setting the sparing algorithm for the system or updating drive and cage firmware.

1. Start a CLI session from the SPMAINT main menu, type `=7`, select the storage system (StoreServ), and press **Enter**.
2. To view `SparingAlgorithm` settings of the storage system, enter: `showsys -param`.
3. If the `SparingAlgorithm` parameter of the `showsys` CLI command is set to `Unknown`, define the parameter the storage system will use for future hardware upgrades. To define the parameter, use the command `setsys SparingAlgorithm <value>` where `<value>` can be Default, Minimal, Maximal, or Custom. If the parameter is already defined, skip this step.
4. Issue the `starttask admithw -ni` CLI command to complete the back-end updates.

5. To monitor the progress and successful completion, issue the `showtask -d <task_ID>` command.
6. Run the check health process as described in "Verifying the Health of the Storage System" (page 13). Verify the system does not have any issues.

This concludes the 3PAR OS upgrade.

11 Updating the 3PAR OS using SPOCC

The 3PAR OS can be updated to version 3.2.2 MU3 by using SPOCC. For information about supported browsers for SP, see the SPOCK website: **www.hpe.com/storage/spock**.

1. Connect to SPOCC with the SP IP address. Enter the SP IP address into a supported browser and login with a valid username and password.

   - https://<SP_IP_address>

2. Click the **Support** tab and then click **Health Check**. A system health check is performed. View the report and resolve issues, if any.

3. To return to the SPOCC main page, click the **Home** tab.

4. Click the **Update** tab and then click **Update HP 3PAR OS**.

5. On the *Start* step click **Next**.

   NOTE: To exit the update interface at any time, click any of the tabs in the left navigation pane, or click Cancel to return to the SPOCC home page.

6. On the *Select OS version* step, select one of the following options, depending on the location of the OS version that you want to upgrade to:

   - **Pre-loaded**—By default, this option is selected and populated with the latest OS version that is available. The list includes all loaded updates and patches in addition to a Revert last patch option.

   - **ISO image**—This option enables you to browse to a local ISO image file.

   - **Service Processor DVD drive**—This option enables you to import the update from the SP's physical media drive.

   - **Location path**—(Hewlett Packard Enterprise authorized users only) This option enables Hewlett Packard Enterprise authorized users to specify the location path of a directory that contains the software RPMs.

   Click **Next**.

   NOTE: If you selected the ISO image, Service Processor DVD drive, or Location path option, the load operation occurs automatically, and the OS software version is displayed as the Pre-loaded default option.

7. The review documentation and responsibilities page appears with links to the current 3PAR OS release notes, and the Support Center. Review the recommended documentation and best practices information. After reviewing the information, click the acknowledgement check box and then click **Next**.

8. On the *Select update method* step, select either **Online** or **Offline**, and then click **Yes** when prompted as follows:

   Do you wish to continue with the upgrade?

   NOTE:

   - Hewlett Packard Enterprise recommends to use the online update method. The offline update method will cause service to be interrupted.

   - The Offline option is unavailable, when applying a patch to the OS or reverting a patch. The Online option is unavailable, when reverting to the prior OS version.

9. On the *Check hosts* step, review the persistent ports setting to verify that it is configured, and then click **Next**.

NOTE:

- The persistent ports feature helps to ensure that connectivity is not lost as nodes are rebooted during the online upgrade process. Hewlett Packard Enterprise recommends that this feature be configured.

- If the persistent ports feature is not configured correctly and you are performing an online update, you will need to compare your host configuration to the supported configurations that are listed on the SPOCK website:

  www.hpe.com/storage/spock

- To export host data information in a CSV format that can be loaded into a spreadsheet, click **Export Host Data**.

- For more information about your persistent ports configuration, click **More on Persistent Ports**.

10. On the *Validate StoreServ readiness* step, allow the checks to run, and review the results. You can view detailed results of the checks by clicking the **details** links. If issues are detected, you can resolve them and then click **Re-run Validation** to run the checks again without exiting this update interface.

    Click **Next**.

11. On the *Install update* step, review the update version and options you selected, and then click **Install**.

ⓘ **IMPORTANT:**   An update procedure cannot be canceled after it starts.

NOTE: If an update installation is currently in progress, you will receive the following message:

```
The update process cannot proceed because an update is already in
progress
```

In this case, click **OK** and you are redirected to the **Updating HP 3PAR OS** status page.

On the **Updating HP 3PAR OS** status page, you can monitor the status of the update: in progress, successful, or failed. If the update fails, contact Hewlett Packard Enterprise support.

12. To return to the SPOCC main page, click the **Home** tab.

13. Click the **SPmaint** tab, click **StoreServ Product Maintenance**, then click **Run admithw** to complete the backend process.

14. Run the check health process as described in "Verifying the Health of the Storage System" (page 13). Verify the system does not have any issues.

This concludes the 3PAR OS upgrade.

A 3PAR OS Update Checklist

This checklist is provided as an assurance tool for the service technician. This checklist does not include important information about the update process so do not attempt to update a storage system before reading the entire document.

Task	Description	Done
Update the SP		
1	"Installing the 3PAR OS onto the SP via Physical Media" (page 10)	
Pre-update tasks		
2	"Verifying the 3PAR OS Software Level" (page 13)	
3	"Verifying the Health of the Storage System" (page 13)	
Update tasks		
4	"Updating the 3PAR OS Online" (page 16)	
	"Updating the 3PAR OS Offline" (page 19)	
Post-update tasks		
5	"Verifying the Storage System Configuration" (page 22)	
6	"Updating Back-end Components" (page 22)	
Update tasks		
7	"Updating the 3PAR OS using SPOCC" (page 24)	