Hewlett Packard Enterprise

HPE 3PAR Service Processor Software 4.3 and 4.4 to 5.0.1 Upgrade Instructions

Abstract

These instructions explain how to upgrade the HPE 3PAR Service Processor software from version SP 4.3 or SP 4.4 to version SP 5.0.1.

Contents

Introduction to the Service Processor

Each HPE 3PAR StoreServ Storage system requires a Service Processor (SP). The SP can be either physical or virtual. The SP is designed to provide remote monitoring, error detection and reporting, and supports diagnostic and maintenance activities involving the storage system. The SP only sends support data to HPE 3PAR Remote Support. The virtual SP is deployed as a virtual machine (VM). The virtual SP software is provided in an Open Virtual Format (OVF) for VMware vSphere hypervisor and self-extractable virtual hard disk (VHD) package for Hyper-V. The virtual SP runs on a customer-owned and customer-provided server, and communicates with the storage system over its Ethernet connection.

Update Requirements

Supported platforms for SP 5.0.1

> ⚠️ **WARNING:**
>
> The domain for HPE connectivity will change when updating to SP 5.0.1, unless the SP has been previously patched to switch the domain to hpe.com. If the customer has firewall rules that do not allow connectivity to hpe.com, updating to SP 5.0.1 will cause the SP to become unreachable for remote operations, and it will prevent the SP from transferring files to HPE.

> **NOTE:**
>
> SP 4.x does not support ESX 6.5, Hyper-V 2016. An upgrade from SP 4.x to SP 5.0.1 is not supported on ESX 6.5, Hyper-V 2016.

Physical SPs

Supported SP models: HPE ProLiant DL120, DL320e, and DL360e

Supported storage systems: HPE 3PAR StoreServ 7000, 8000, 9000, 10000, 20000 series

Virtual SPs

Supported hypervisors: ESXi 5.5/6.0/6.5 and Hyper-V hosted on Windows Server 2012, Windows Server 2012 R2, Windows Server 2016

Supported storage systems: HPE 3PAR StoreServ 7000, 8000, and 9000 series

Service Processor version 4.5.0 MU1 update requirements

- The SP must have file transfer enabled using Secure Network Mode unless configured as a Secure Site.

> △ **CAUTION:**
>
> cpmaint does not allow you to convert from Secure Site to Secure Network Mode. For the workaround, see the troubleshooting section in the *HPE 3PAR Service Processor Software 4.x Service Guide*.

- Service Processor software must be at least SP version 4.3.
- If an HPE StoreServ Storage system is attached, it must be running at least HPE 3PAR OS 3.2.1 GA (when updating from SP 4.3) or OS 3.2.2 EGA (when updating from SP 4.4).
- Hyper-V based VSPs must be hosted by either Windows Server 2012 or 2012 R2.

> ⚠️ **WARNING:**
>
> Update checks cannot determine the Windows Server version for Hyper-V VSPs. Do not continue update on Windows Server 2008 R2. SP 4.5 is supported only on Windows Server 2012 and Windows Server 2012 R2.

- VMware based VSPs must be using ESXi 5.5 or 6.0.
- For ESXi, VSPs must be configured with at least 4 GB of memory and at least 4 virtual CPU cores.
- Partners can contact HPE Support for the update.

Service Processor version 5.0.1 update requirements

- The SP must have file transfer enabled using Secure Network Mode unless configured as a Secure Site.
- Service Processor must be running SP 4.5.0 MU1.
- If an HPE StoreServ Storage system is attached, it must be running at least HPE 3PAR OS 3.3.1.GA.
- Physical SPs must be running on ProLiant Servers (DL120, DL320e, DL360e).
- VMware based VSPs must be using ESXi 5.5 or 6.0.
- Windows Server 2012 or Windows Server 2012 R2 must host Hyper-V based VSPs.

⚠ **WARNING:**

Update checks cannot determine the Windows Server version for Hyper-V VSPs. Do not continue update on Windows Server 2008 R2. SP 4.5 is supported only on Windows Server 2012 and Windows Server 2012 R2.

- All VSPs (ESXi and Hyper-V) must be configured with at least 4 GB of memory and at least four virtual CPU cores.
- Updating from SP 4.5 to 5.0.1 is supported through SPMAINT only, and HPE service personnel must perform the update.
- Contact HPE Support for the update.

Service Processor update overview

Service Processor software can be updated at a customer site using physical media (DVD) through SPMAINT. The Service Processor can also be updated through Service Processor Online Customer Care (SPOCC), HPE 3PAR Secure Service Architecture, or STaTS.

The SP 4.3/SP 4.4 to SP 5.0.1 update process involves changing the underlying SP operating system and updating the SP software. The SP is first updated to version 4.5, an intermediate version that functions as a bridge for updating to SP 5.0.1.

Process overview

1. **Perform Service Processor 4.5.0 MU1 update prerequisite tasks** on page 9.
2. **Updating the SP software to SP 4.5.0 MU1 using SPOCC** on page 17.
3. **Reconfigure Hyper-V virtual memory and CPU cores** on page 21.

> **NOTE:**
>
> Virtual memory and CPU cores for EXSi were reconfigured as a prerequisite task in Step 1. For Hyper-V, virtual memory and CPU cores should not be configured until after the update to SP 4.5.

4. **Update the HPE 3PAR OS to 3.3.1 MU1** on page 23.
5. **Update the SP software to 5.0.1 using SPMAINT** on page 25.

> ⚠ **WARNING:**
>
> The SP must be updated to SP 5.0.1 directly following the successful completion of the HPE 3PAR OS 3.3.1 update. Failure to complete the update to SP 5.0.1 once the HPE 3PAR StoreServ Storage system is updated to 3.3.1 leaves the system in a unsupported configuration in which remote support is impaired.

Perform Service Processor 4.5.0 MU1 update prerequisite tasks

NOTE:

Before you update the SP, refer to the *HPE 3PAR Service Processor 4.5 Release Notes* and *HPE 3PAR Service Processor 5.x Release Notes*.

Process overview

Create a snapshot of the VSP

If, before or during an HPE 3PAR OS update to HPE 3PAR OS 3.3.1, you want to return the SP to its original SP 4.3 or SP 4.4 version, you can use this snapshot to return the SP to the previous version. If you are unable to take a snapshot, then you must rebuild/rescue the SP to version 4.3 or 4.4 before attempting the update to version 4.5.

ESXi

In vSphere, right-click on the virtual machine name, select **Snapshot**, and then select **Take Snapshot**.

Hyper-V

In the Hyper-V Manager, right-click on the virtual machine name and select **Checkpoint**.

Create a Service Processor rescue file

⚠ **CAUTION:**

Before you begin the update process, you must create and save a rescue file on your local system in case the SP needs to be restored to its original configuration. This is especially important for physical SPs, as there is no snapshot/checkpoint functionality available if a restoration is needed.

Procedure

1. Use a serial or SSH connection to establish a connection to the SP.
2. From the SPMAINT main menu, type `1` for **SP Control/Status**, and then press **ENTER**.
3. Type `17` for **SP File maintenance**, and then press **ENTER**.
4. Type `4` for **Backup SP rescue data**, and then press **ENTER** to back up the data to a file on the SP.
5. Type `y`, and then press **ENTER** to begin the Service Processor backup.

To save a copy of the file in a different location:

1. Log in to SPOCC.
2. In SPOCC, click the **Files** tab.
3. Click the icon for the **files** directory.
4. Click the icon for the **rescue** directory.
5. Click **Download** next to the file that you want to download. Hewlett Packard Enterprise recommends that you download the most recent file, because in the event of an update failure, all the files stored on the SP will not be available.
6. Verify the file information, and then click **Download File**.

NOTE:

Hewlett Packard Enterprise recommends saving a local copy of the `spconfig` output in the event a full re-initialization is required. Refer to **Download the spconfig file** on page 12 for instructions.

Verify the Service Processor software version and processes

Procedure

1. Use a serial or SSH connection to establish a connection to the SP.
2. From the SPMAINT main menu, type **1** for **SP Control/Status**, and then press **ENTER**.
3. Type **1** for **Display SP Version**, and then press **ENTER**. Verify that the SP version in the output meets the update requirements.
4. Press **ENTER** to return to the **SP Control** menu.
5. Type **13** for **Display SP status** to check the processes that are running. Save the SP status output to compare with the post-update output by logging the session to your service device such as a laptop.
6. Press **Enter** to return to the **SP Control** menu.
7. Type **x**, and then press **ENTER** to return to the SPMAINT main menu.

Verify hypervisor requirements

Verify that ESXi is version 5.5 or 6.0.

Verify that Hyper-V is hosted on either Windows Server 2012 or Windows Server 2012 R2.

⚠ **WARNING:**

Update checks cannot determine the Windows Server version for Hyper-V VSPs. Do not continue update on Windows Server 2008 R2. SP 5.0.1 is supported only on Windows Server 2012 and Windows Server 2012 R2.

Reconfigure ESXi 5.5/6.0 virtual memory and CPU cores

ⓘ **IMPORTANT:**

Do not reconfigure Hyper-V virtual memory until AFTER you have updated to SP version 4.5.

NOTE:

Hewlett Packard Enterprise recommends that you also update the virtual hardware to VM version vmx-10. For instructions, see **Updating virtual hardware in ESXi** on page 11.

Prerequisites

You will need access to the ESXi host to perform this task.

Procedure

1. Log in to the ESXi host.
2. Click **Edit Settings**, and then select the **Hardware** tab.
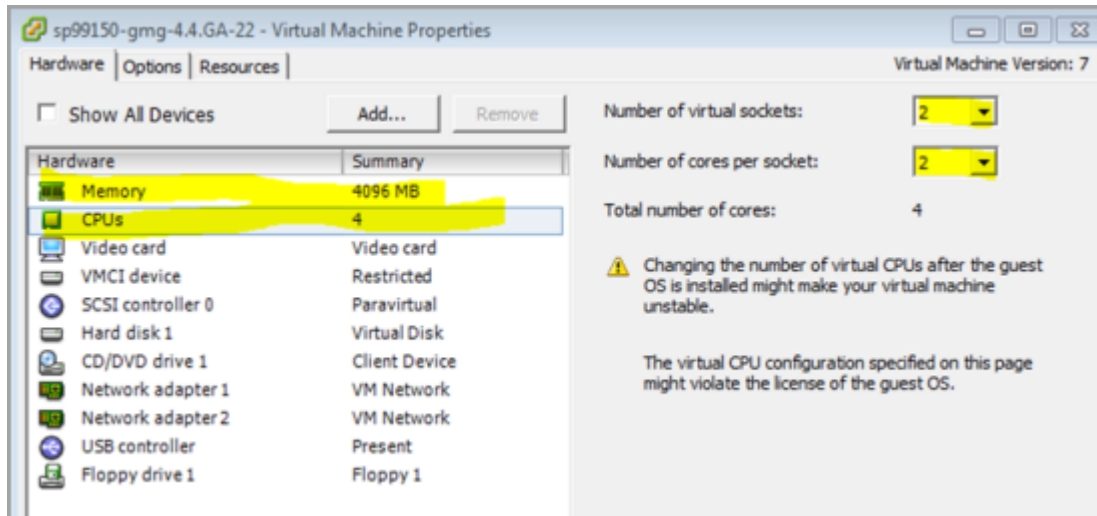
3. Select **Memory** and increase to **4096 MB**.
4. Select **CPUs** and enter **2** for the number of virtual sockets and **2** for the number of cores per socket.
5. Power on the VM.

Updating virtual hardware in ESXi

Consult the ESXi documentation to perform the update of the virtual HW.

> **NOTE:**
>
> The option to update virtual hardware appears only if the virtual hardware on the VM is not the latest supported version.

Procedure

1. Shut down the VM.
2. Right-click the VM name and select **Upgrade Virtual Hardware**.

> **NOTE:**
>
> In a vSphere 5.5 environment, you cannot use vSphere Client to update the virtual hardware to version 10. You must use vSphere Web Client, where you will right-click the VM name, select **Compatibility** > **Upgrade VM Compatibility**.

3. Click **Yes** to continue.
4. After the update is complete, power on the VM.

Verify communication between the SP and the storage system

To establish communication between the SP and the storage system, use the SPMAINT Interactive CLI for entering CLI commands on the system.

Procedure

1. Use a serial or SSH connection to establish a connection to the SP.
2. To launch the Interactive CLI, from the SPMAINT main menu, type **7** for **Interactive CLI for a StoreServ**.
3. Select the desired storage system, and then press **ENTER** to begin an interactive CLI session.
4. To exit the Interactive CLI, type **exit**, and then press **ENTER** to return to SPMAINT main menu.

Verify the HPE 3PAR OS software version

Procedure

1. Start a CLI session from the SPMAINT main menu.
2. Enter **=7**, and then press **Enter**.
3. Select the desired storage system (StoreServ).
4. To display the HPE 3PAR OS version, patch information, and the version numbers of other system components, enter **showversion -a -b**. Verify that the OS version in the output meets the update requirements (HPE 3PAR OS 3.2.1 GA (when upgrading from SP 4.3) or HPE 3PAR OS 3.2.2 EGA (when updating from SP 4.4).
5. Enter **exit**, and then press **Enter** to return to the SPMAINT main menu.

Download the spconfig file

> **NOTE:**
>
> Hewlett Packard Enterprise recommends saving a local copy of the `spconfig` output in the event a full re-initialization is required.

Procedure

1. Log in to SPOCC.
2. In SPOCC, click the **Files** tab.
3. Click the icon for the **Files** directory.
4. Click the icon for the **spconfig** directory.
5. Click **Download** next to the file that you want to download. Hewlett Packard Enterprise recommends that you download the most recent file, because in the event of an update failure, all the files stored on the SP will not be available.
6. Verify the file information, and then click **Download File**.
7. Save a local copy of the spconfig output so that you can manually configure local notification settings after the update to SP 5.0.1. You will need to enter this information manually later.

> ⓘ **IMPORTANT:**
>
> Local notification settings are not ported to SP 5.0.1. This must be configured after the SP 4.5 to SP 5.0.1 update has completed. The local notification settings can be found in either a 4.5 spconfig file or in a 4.4 spconfig file generated on your system before the 4.5 update. After a successful upgrade to 5.0.1, a copy of the most recent 4.5 spconfig file will be saved in the /var/opt/hpe/ssmc/data/logs/5p0Upgrade/ directory.

Modify firewall restrictions

For a list of HP and HPE server host names and IP addresses, refer to **Firewall and proxy server configuration** on page 13.

Prerequisites

Before performing the update to the Service Processor, ensure that there are no customer firewall restrictions to the existing HP servers and new HPE servers on port 443. Firewall and proxy server configuration must be updated to allow outbound connections from the Service Processor to the existing HP servers and new HPE servers.

Firewall and proxy server configuration

Firewall and proxy server configuration must be updated on the customer network to allow outbound connections from the Service Processor to the existing HP servers and new HPE servers.

HP and HPE server host names and IP addresses:

- HPE Remote Support Connectivity Collector Servers:

    ◦ **https://storage-support.glb.itcs.hpe.com** (16.248.72.63)
    ◦ **https://storage-support2.itcs.hpe.com** (16.250.72.82)

- HPE Remote Support Connectivity Global Access Servers:

    ◦ **https://c4t18808.itcs.hpe.com** (16.249.3.18)
    ◦ **https://c4t18809.itcs.hpe.com** (16.249.3.14)
    ◦ **https://c9t18806.itcs.hpe.com** (16.251.3.82)
    ◦ **https://c9t18807.itcs.hpe.com** (16.251.4.224)

- HP Remote Support Connectivity Global Access Servers:

    ◦ **https://g4t2481g.houston.hp.com** (15.201.200.205)
    ◦ **https://g4t2482g.houston.hp.com** (15.201.200.206)
    ◦ **https://g9t1615g.houston.hp.com** (15.240.0.73)
    ◦ **https://g9t1616g.houston.hp.com** (15.240.0.74)

- HPE RDA Midway Servers:

    ◦ **https://midway5v6.houston.hpe.com** (2620:0:a13:100::105)
    ◦ **https://midway6v6.houston.hpe.com** (2620:0:a12:100::106)
    ◦ **https://s54t0109g.sdc.ext.hpe.com** (15.203.174.94)
    ◦ **https://s54t0108g.sdc.ext.hpe.com** (15.203.174.95)
    ◦ **https://s54t0107g.sdc.ext.hpe.com** (15.203.174.96)
    ◦ **https://g4t8660g.houston.hpe.com** (15.241.136.80)
    ◦ **https://s79t0166g.sgp.ext.hpe.com** (15.211.158.65)
    ◦ **https://s79t0165g.sgp.ext.hpe.com** (15.211.158.66)
    ◦ **https://g9t6659g.houston.hpe.com** (15.241.48.100)

- HPE StoreFront Remote Servers:

    ◦ **https://sfrm-production-llb-austin1.itcs.hpe.com** (16.252.64.51)
    ◦ **https://sfrm-production-llb-houston9.itcs.hpe.com** (16.250.64.99)

- For communication between the Service Processor and the HPE 3PAR StoreServ Storage system, the customer network must allow access to the following ports on the storage system.

    ◦ Port 22 (SSH)
    ◦ Port 5781 (Event Monitor)
    ◦ Port 5783 (CLI)

- For communication between the browser and the Service Processor, the customer network must allow access to port 8443 on the SP.

Service Processor connectivity

To verify that the SP can connect to the new HPE servers:

Prerequisites

Before proceeding with the connectivity test for SP, ensure that you have the following details:

- Proxy name if the Service Processor is configured with proxy.
- Proxy authentication details if the Service processor is configured with proxy with authentication. Obtain the password from the customer.

Procedure

1. Log in to the SP with the cpmaint user credentials.
2. Depending on the SP configuration, execute the `curl` command with appropriate option parameters.

   - SP configured in Secure Network mode without any proxy (enter the following on a single line):

   ```
   curl -k --connect-timeout 15 --max-time 15
   --silent --show-error --useragent 'Mozilla/5.0'
   --url https://storage-support.glb.itcs.hpe.com
   ```

   - SP configured with http proxy without authentication (enter the following on a single line):

   ```
   curl –k --connect-timeout 15 –-max-time 15
   --silent --show-error --user-agent 'Mozilla/5.0'
   --url https://storage-support.glb.itcs.hpe.com
   --proxy <Proxy IP>:<Proxy Port>
   ```

   - SP configured with http proxy with authentication (enter the following on a single line):

   ```
   curl -k --connect-timeout 15 --max-time 15
   --silent --show-error --useragent 'Mozilla/5.0'
   --url https://storage-support.glb.itcs.hpe.com
   --proxy <Proxy IP>:<Proxy Port>
   --proxy-user <Proxy Username>:<Proxy Password>
   ```

   - SP configured with socks proxy without authentication (enter the following on a single line):

   ```
   curl -k --connect-timeout 15 --max-time 15
   --silent --show-error --useragent 'Mozilla/5.0'
   --url https://storage-support.glb.itcs.hpe.com
   --socks4a <Proxy IP>:<Proxy Port>
   ```

   - SP configured with socks proxy with authentication (enter the following on a single line):

   ```
   curl –k --connect-timeout 15 –-max-time 15
   --silent --show-error --useragent 'Mozilla/5.0'
   --url https://storage-support.glb.itcs.hpe.com
   --socks5-hostname <Proxy IP>:<Proxy Port>
   -proxy-user <Proxy Username>:<Proxy Password>
   ```

When the command is executed successfully, it displays a curl code 200 or 302 in the <title> tag.

If the command fails, check the firewall settings and run the test again.

Staging the SP 4.5.0 MU1 software via the HPE 3PAR Secure Service Architecture

NOTE:

The following procedure is only for internal use and must be performed by an authorized administrator.

The SP-4.5.0 MU1 can be staged to the SP via the HPE 3PAR Secure Service Architecture database.

⚠ **CAUTION:**

- Do NOT use a collector server remote session to connect the SP to perform an update. The connection resets during the update and might result in failure. The SP might require a rebuild of the software when an update fails.
- Ensure that all SPMAINT sessions are terminated before deploying a package. Otherwise, the deployment will fail.

NOTE:

Close SPMAINT consoles before deploying Secure Service Collector packages.

Procedure

1. Connect to the Secure Service Collector and log on.
2. Locate and click the **CONTENT** tab.
3. Click **Deploy packages to assets over the internet**.
4. Select the **SP-4.5.0.GA-55.auto_deploy** package, and then click **Next**.
5. In the **Available Assets** table, search for the asset to which you wish to deploy the package, and then click to check.
6. Click **Add Checked**, and then click **Next**.
7. Select the **Schedule package for immediate deployment** option, and then click **Next**.
8. To receive alerts for events as the package deploys, select the appropriate notification options, enter your contact information, and then click **Next**.
9. Review the confirmation information. To stage the update on the SP, click **Deploy**.
10. To check the status of the deployment, use the **Package Deployment Manager**. To refresh the page, press **F5**.
11. After verifying that the deployment is complete, exit the session and log off the server. The `Auto_deploy` gets staged to the SP and will be available under pre-loaded packages.
12. Update the SP software to 4.5. (Refer **Updating the SP software to SP 4.5.0 MU1 using SPOCC** on page 17 to for instructions.)

Staging SP 4.5.0 MU1 through the 3PAR Service Tools and Technical Support (STaTS)

> ⓘ **IMPORTANT:**
>
> If SP is configured in Secure Site and if you want to send data to HPE post upgrade, see the *HPE 3PAR Service Processor Software 4.x Service Guide*.

Procedure

1. Connect to STaTS by providing the following address in the supported browser:

   https://stwebint.houston.hpecorp.net

   Log in with valid STaTS HPE credentials.
2. Locate and click the **SUPPORT** tab.
3. Click **Deployment Manager**.
4. Select **RDA** as **Deployment Channel** from the drop-down list.
5. Click **Start a New Deployment**.
6. On the **Deployment Manager — Launch a New Deployment** page, select **SP-4.5.0.GA-55.auto_deploy** from the **Package to Deploy** drop-down list.
7. Select **SP** from the **Deployment Target** drop-down list.
8. To display the list of all available assets, click **Search/Refresh**.
9. From the **Available Assets** table, select the asset to which you wish to deploy the package, and then click **Deploy**.
10. Review the confirmation information, and then click **OK** to install the update on the SP.
11. To check the status of the update deployment, use the **Deployment Manager — View Deployment History** page of the STaTS. To refresh the page, click **Filter/Refresh**.
12. (Optional) Click **RDA Deployment ID** to get more log information about the ongoing deployment.
13. (Optional) Click **Device ID** to get more details about the selected asset.
14. After you verify that the deployment is complete, exit the session and log off from STaTS. The `auto_deploy` package automatically stages itself to the SP, and will be available under pre-loaded packages.
15. Update the SP software to 4.5.0 MU1. See **Updating the SP software to SP 4.5.0 MU1 using SPOCC** on page 17.

Updating the SP software to SP 4.5.0 MU1 using SPOCC

⚠ **CAUTION:**

Do NOT use a collector server remote session to connect to the SP to perform an update. The connection resets during the update and might result in failure. The SP might require a rebuild of the software when an update fails.

ⓘ **IMPORTANT:**

After updating to SP 4.5.0 MU1, the SP must be either updated to 5.0.1 for OS 3.3.1 or rescued back to the original 4.3/4.4 system. SP version 4.5 is supported only as a migration path to SP version 5.0.1.

If Linux Integration Service (LIS) is disabled, the Windows Server version for Hyper-V VSPs cannot be verified during the update process. If you try to upgrade to version 4.5 from Windows Server 2008, the update will fail, and you will have to rescue the SP back to the original 4.3/4.4 version.

Post updating to SP 4.5, do not switch the transport agent from SSA to RDA.

Prerequisites

Before performing the update to the Service Processor, ensure that there are no customer firewall restrictions to the existing HP servers and new HPE servers on port 443. For a list of HP and HPE server host names and IP addresses, refer to **Firewall and proxy server configuration** on page 13.

Procedure

1. Log in to SPOCC, and then select the **Update** tab.
2. Select **Update Service Processor**.
3. Click **Next**.
4. Select one of the following:

    - To use a file already staged to the SP:

        a. Select **Pre-loaded**.
        b. Select the installation file from the list and click **Next**.

    - To use an ISO image saved on your local system:

        a. Select **ISO image**.
        b. Browse to the ISO file and click **Open**.
        c. When the file appears in the ISO image browse box, click **Next** to start staging the file.

        After the file has been staged, you will automatically be taken to the next step in the update process.

    - To use a DVD:

        a. Select **Service Processor DVD drive**, and then click **Next** to start staging.
        b. After the file has been staged, you will automatically be taken to the next step in the update process..

    - If upgrading remotely, select **Location Path**, and then enter the path to the directory containing the installation file.

5. (Optional) Click the link to view the release notes.
6. Click **Next**.
7. Click **Install**.

    On a successful update to SP 4.5, the following message appears:

```
The Service Processor will now restart to activate changes and you will be
disconnected.
Please log in again after 5 minutes.

IMPORTANT!

Upgrade this SP immediately to SP 5.0.1.0-23799 following
 StoreServ upgrade to HPE 3PAR OS 3.3.1 or above.

See 'Details' pane for additional logs.

THIS IS A MANDATORY STEP TO COMPLETE THE UPGRADE PROCESS.

Status: Update succeeded.
```

Once the update has completed, if using a Hyper-V VM, the next step is to reconfigure virtual CPU cores and memory to meet the minimum requirements for installing SP 5.0.1. For instructions, see **Reconfigure Hyper-V virtual memory and CPU cores** on page 21.

NOTE:

If the update does not complete, information about the reason will be displayed in the **Details** pane on the update page in SPOCC.

More information

Modify firewall restrictions on page 12

Updating the SP software to SP 4.5.0 MU1 via SPMAINT using physical media

Prerequisites

- Before performing the update to the Service Processor, ensure that there are no customer firewall restrictions to the existing HP servers and new HPE servers on port 443. For a list of HP and HPE server host names and IP addresses, refer to **Firewall and proxy server configuration** on page 13.
- Before updating to SP-4.5.0.GA-55, the SP must be at a minimum level of SP-4.3.0.GA-17.

Procedure

1. Insert the HPE 3PAR Service Processor Software SP-4.5.0.GA-55 media into the SP physical media drive.
2. From the SPMAINT main menu type `=1.16.1`, and then press **Enter**.

   During this process, the SP validates the contents of the media. If the checks pass, a prompt to update from the media displays.
3. Type the number corresponding to the media drive option, and then press **Enter**.
4. Type `y`, and then press **Enter** to update the SP from the media.

   > **NOTE:**
   >
   > The SP restarts at the end of this update and you will be disconnected from SPMAINT. After the restart, you must reconnect to the SP and then start SPMAINT. In addition, ensure that the Maintenance Mode is OFF.

5. From the SPMAINT main menu, type `1` for **SP Control/Status**, and then press **Enter**.
6. Type `1` for **Display SP Version**, and then press **Enter** to verify that the SP package is completely updated.

   ```
   1.1     Display SP Version

              SP Software Version

   SP-4.5.0.GA-55

   SP Base Image Version:         Red Hat Enterprise Linux Server release 6.1 (Santiago)
   SP Version:                    4.5.0.GA-55
   SP Patches:
   HP 3PAR OS release (3.2.2):    3.2.2.xxx
   HP 3PAR OS patches (3.2.2):
   More detail is available in the latest SPLOR or spconfig data.

   Press <enter/return> to continue
   ```
7. To return to the SP Control menu, press **Enter**.
8. After verifying the SP version, type `13` for **Display SP Status**, and then press **Enter** to view active SP processes.
9. Compare the SP status output with the previously saved status output as described in **Verify the Service Processor software version and processes** on page 10, and verify that the same processes are running. See the *HPE 3PAR Service Processor Service Guide* for information about running processes.
10. To return to the SP Control menu, press **Enter**.
11. To return to the SPMAINT main menu, type `x`, and then press **Enter**.
12. Verify communication between the SP and the storage system as described in **Verify communication between the SP and the storage system** on page 11.
13. Remove the media from the media drive, and store it in the storage system cabinet.
14. Verify the health of the system as described in **Running a Health Check from SPMAINT** on page 20.

Running a Health Check from SPMAINT

Procedure

1. From the SPMAINT main menu, type **=4.4**, and then press **Enter**.
2. Select the system to run the health check on, and then press **Enter**. The following prompt appears:

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

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

   NOTE:

   When running the Health Check, the screen might remain blank while information is gathered. This process could take a few minutes before displaying results. Wait for the process to complete and do not attempt to cancel or start over.

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

4. Type the number that corresponds to the summary data file that has the `.all` extension, and then press **Enter**.
5. Review the summary data file with `.all` extension.

   NOTE:

   - Press the spacebar to move to the next page.
   - Resolve issues, if any, before performing an HPE 3PAR OS update.

6. Press **Enter** to continue, and then type **0** for **Abort Operation** to exit the health check.

   NOTE:

   After you exit, the report is not available for viewing. To view the report, run the health check again.

7. From the SPMAINT main menu, type **=1.6**, and then press **Enter**. Verify that the file transfer time provided in the transfer status is close to the current system date and time.
8. To return to SPMAINT main menu, type **=q**, and then press **Enter**.
9. Log out of the SP.

Reconfigure Hyper-V virtual memory and CPU cores

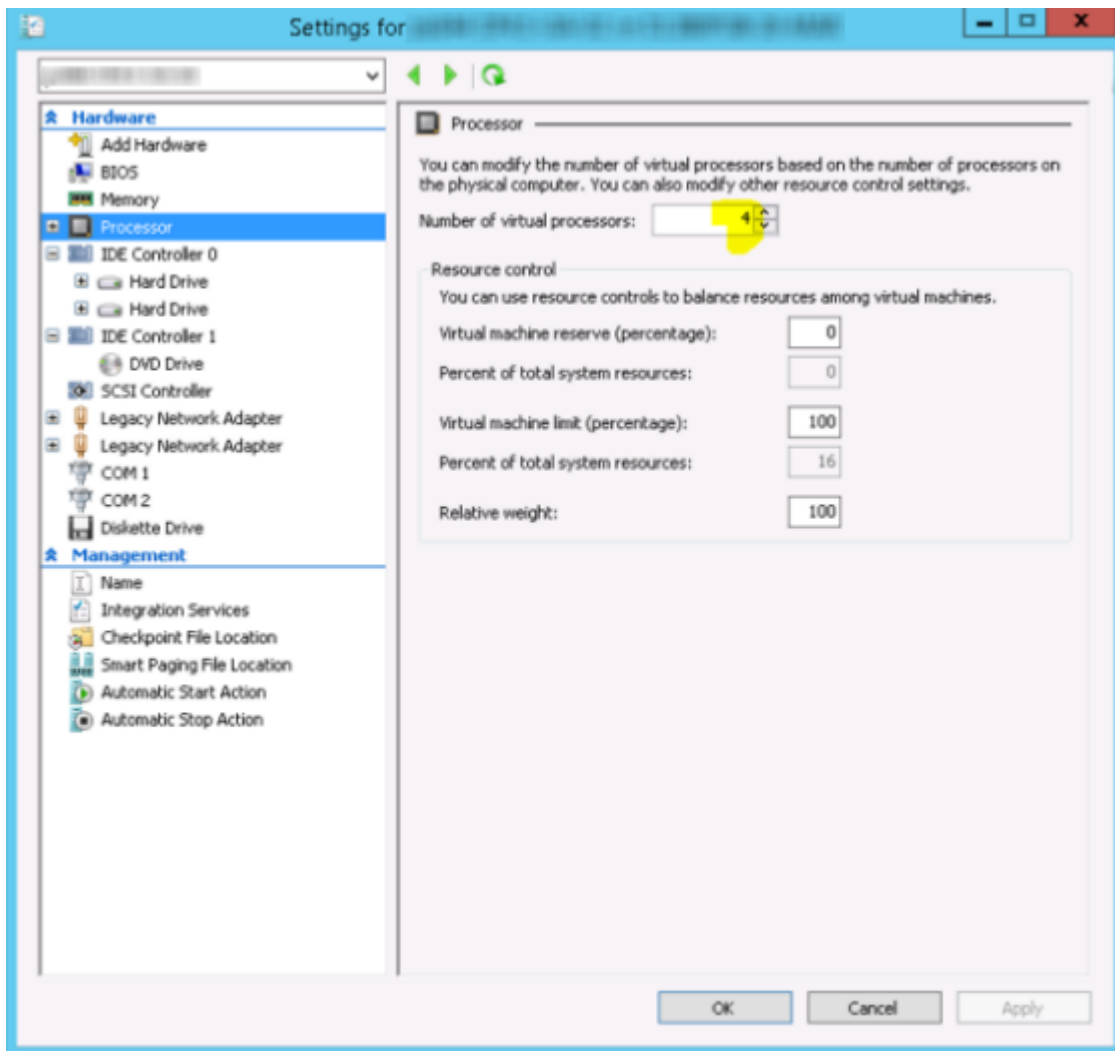⚠ **IMPORTANT:**

This task should only be performed AFTER the update to SP 4.5.

Procedure

1. Shut down the VM using the Hyper-V manager.
2. Under the VM name, select **Settings**.
3. In the Hardware panel, select **Memory**, and then enter **4096 MB** in the **Startup RAM** box.
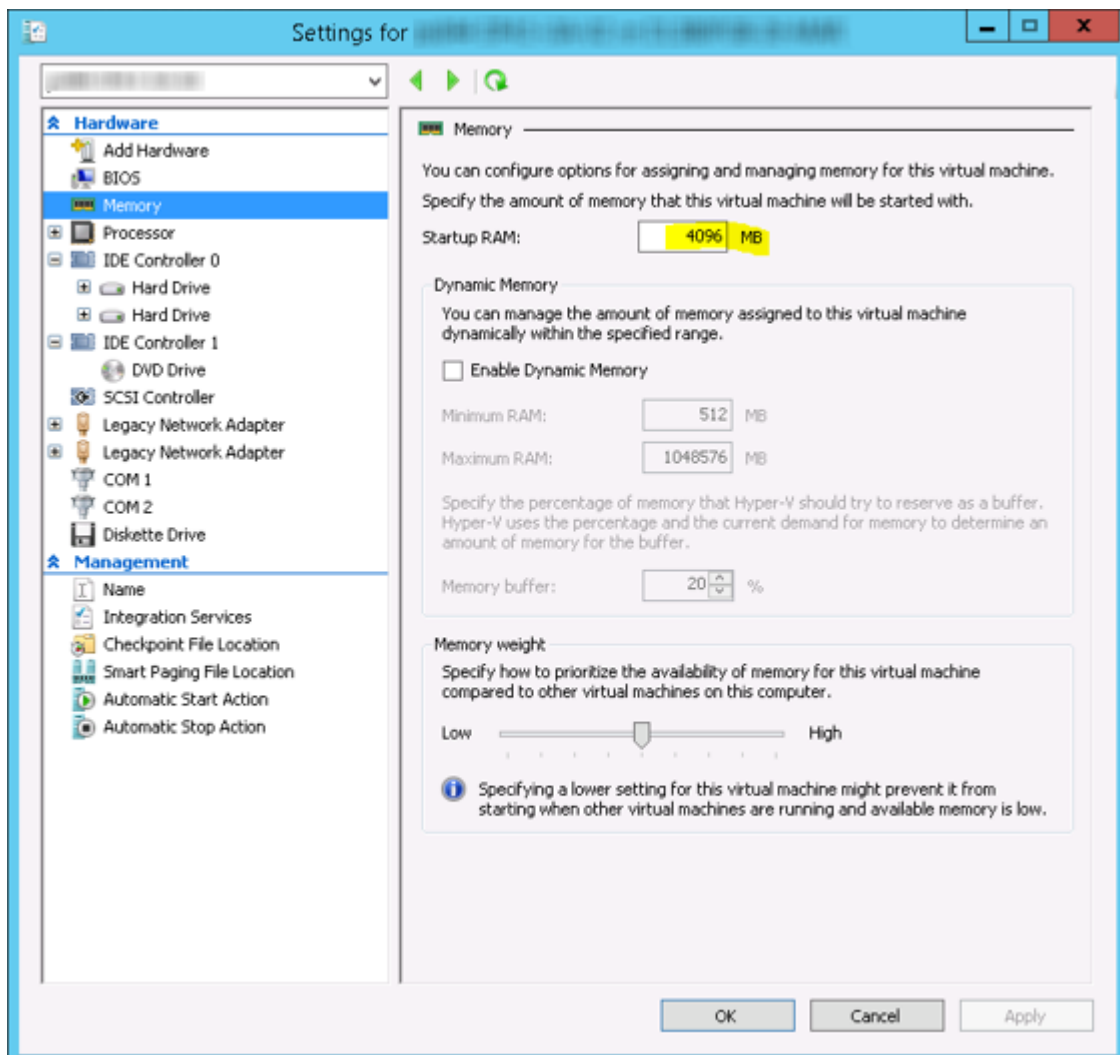
4. In the Hardware panel, select **Processor**, and then select **4** as the number of virtual processors.

Update the HPE 3PAR OS to 3.3.1 MU1

This topic provides guidelines for updating the HPE 3PAR OS 3.3.1. Refer to the HPE 3PAR OS to 3.3.1 MU1 update Instructions for more detailed information and prerequisites.

⚠ **WARNING:**

AFTER the OS is update to 3.3.1, SP 4.5 MUST be updated immediately to version 5.0.1 to prevent loss of any HPE 3PAR StoreServ Storage system files that are sent to Hewlett Packard Enterprise.

ⓘ **IMPORTANT:**

This task should only be performed AFTER the update to SP 4.5.

ⓘ **IMPORTANT:**

Admit Hardware cannot be run until after the OS is update to HPE 3PAR OS 3.3.1 and the SP has been updated to 5.0.1.

NOTE:

During the OS update, checks are performed after an operation (such as node-reboot) and will detect issues associated with the update. Closely examine all messages before continuing the update. Issues reported may need to be corrected before the update can continue.

NOTE:

While the HPE 3PAR OS is being updated, CLI commands and SSMC operations sent to the array may fail with transient errors such as "`Eagle IPC transport error: EA_PROCESS_DOWN -- Message canceled because of process down.`" This can happen when processes and controller nodes on the array get restarted as part of the update procedure. If that happens, retry the commands or operations after a short wait.

Use SPOCC to update the HPE 3PAR OS on the 3PAR StoreServ Storage system to at least 3.3.1 GA.

Procedure

1. Log in to SPOCC and click the **Update** tab.
2. Click **Update HP 3PAR OS**.
3. Click **Next**.
4. Select one of the following:
   - To use a file already staged to the SP:
      a. Select **Pre-loaded**.
      b. Select the installation file from the list and click **Next**.
   - To use an ISO image saved on your local system:
      a. Select **ISO image**.
      b. Browse to the ISO file and click **Open**.
      c. When the file appears in the ISO image browse box, click **Next** to start staging the file.

         After the file has been staged, you will automatically be taken to the next step in the update process.
   - To use a DVD:

a. Select **Service Processor DVD drive**, and then click **Next** to start staging.

b. After the file has been staged, you will automatically be taken to the next step in the update process..

- If updating remotely, select **Location Path**, and then enter the path to the directory containing the installation file.

5. To acknowledge the responsibilities for Customer Self Upgrades for 3PAR StoreServ 7000 and 8000 families, select the check box, and then click **Next**.

6. Select an Update Method:

- **Online**: (Recommended) Update is installed to all nodes one at a time. Nodes are rebooted one at a time automatically.
- **Offline**: All hosts connected to the storage system must be shut down before the update is installed.

△ **CAUTION:**

All I/O will be stopped for an offline update.

7. (Optional) Click **Export Host Data**, to export the host information, if any, collected by Host Explorer.

8. Click **Next**.

9. (Optional) To view details of the validation results, click the down arrow next to **Details**.

10. Once the 3PAR StoreServ Storage system validation checks have completed and no checks have failed, click **Next**.

NOTE:

If a validation check fails, information about the cause is displayed.

11. Click **Install**.

The progress and details of the update process are displayed on a new page.

When the SP is running SP 4.5 and the OS is successfully updated to 3.3.1, the following screen appears:

```
The Service Processor will now restart to activate changes
and you will be disconnected.
Please log in again after 5 minutes.

IMPORTANT!

Upgrade this SP immediately to SP-5.0.1.0-23799 following
 StoreServ upgrade to HPE 3PAR OS 3.3.1 or above.

See 'Details' pane for additional logs.

THIS IS A MANDATORY STEP TO COMPLETE THE UPGRADE PROCESS.
```

Update the SP software to 5.0.1 using SPMAINT

⚠ WARNING:

The update will completely wipe the system's disk drives. Make sure that you have access to a 4.3 or 4.4 rescue file and a copy of the spconfig output (see **Download the spconfig file** on page 12). If the update fails, your only option will be to rescue the 4.3 or 4.4 SP or perform a manual installation of the SP 5.0.1 release.

⚠ CAUTION:

Do NOT use a collector server remote session to connect the SP to perform an update. The connection resets during the update and might result in failure. The SP might require a rebuild of the software when an update fails.

ⓘ IMPORTANT:

If firewall permissive mode is disabled, HTTPS port 8443 will be blocked after the update to SP 5.0.1. If the SP 4.5 firewall allowed access to specific hosts, only those hosts will be allowed access after the update to 5.0.1. To enable firewall permissive mode after the update, log in to the console as admin. The password will be the same as your current `3parcust` password.

Prerequisites

- The SP must have file transfer enabled using Secure Network Mode unless configured as a Secure Site.
- If you are using a weekly scrubber, the scrubber must be disabled in SPOCC before doing the update.
- The SP must be running SP 4.5.
- The attached 3PAR StoreServ Storage system must be running 3PAR OS 3.3.1 GA or higher
- Hyper-V VSPs must be hosted by Windows Server 2012 Windows, Server 2012 R2, or Windows Server 2016.
- All VSPs (Hyper-V and ESXi) must be configured with at least 4 GB of memory and at least 4 Virtual CPU cores.
- Updating the SP from 4.5 to 5.0.1 is only supported from SPMAINT using options 1->16->6.
- If you are using a Virtual SP, take a snapshot (ESXi) or a checkpoint (Hyper-V) of the system before you start the update.
- Log in to the system console prior to starting the update so you can monitor the update process and view any error messages.

Procedure

1. Use a serial or SSH connection to establish a connection to the SP.
2. From the SPMAINT main menu, enter `1` for **SP Control/Status**, and then press **Enter**.
3. Enter `16` for **Maintain SP Software**, and then press **Enter**.
4. Enter `6`, and then press **ENTER** to start the update.
5. Enter `y` to begin the update process.
6. After the system passes all checks required for the SP 5.0.1 upgrade, you will be prompted to confirm or cancel the update. Enter `y` to update the Service Processor.

   Before any modifications are made to the 4.x system, the update process will collect final SPCONFIG and RESCUE files and, if remote support is enabled, attempt to upload the two files to HPE support.

   Several minutes will elapse and the SP will reboot itself three times.

NOTE:

If you have a CLI session running, the session will terminate when the last controller node reboots. Reconnect to the StoreServ to reestablish a CLI session.

7. To verify the upgrade was successful, follow the directions in **Using the HPE 3PAR Service Console** on page 27.
8. Run **Admit hardware**. For instructions see **Running admit hardware** on page 29.

Upon a successful upgrade to SP 5.0.1, you will be able to access the HPE 3PAR Service Console at `https://<sp_ip_address>:8443`.

ⓘ **IMPORTANT:**

If there is not an explicit firewall rule to allow access to port 8443, then permissive firewall mode must be enabled. After permissive firewall mode is enabled, you can add a firewall rule to allow access, and then disable permissive mode.

To enable permissive mode:

1. Log in to the console as `admin` to access the Text-based User Interface (TUI).
2. Press **6** for the option `6 == Enable firewall permissive mode`.
3. Press **Enter**.

NOTE:

If the HPE 3PAR StoreServ Storage system is using CA-signed certificates, the 5.0.1 update will report a non-fatal error similar to the following when it fails to reattach the storage system. The 5.0.1 update will complete after you manually reboot the system.

```
ATTENTION: The SP 5.0 upgrade completed with non-fatal errors.

Non-fatal errors were encountered during the porting of the SP 4.5 configuration settings:

ERROR: ConnectStoreServToSSMC failed to connect array(s} to SSMC.

RECOMMENDED ACTION: From the Service Console on https port 8443, detach and
                    re-attach the StoreServ.
```

```
To continue, login as the user "admin" on the system console,
using your previous "3parcust" credentials, and select option 3 to
reboot the SP. After the system has rebooted, reconnect to
https://<sp_ip_address>:8443.
```

After the SP reboots, remove and then add the storage system again. Refer to **Removing an HPE 3PAR StoreServ Storage system** on page 29 and **Adding an HPE 3PAR StoreServ Storage system** on page 27 for instructions.

NOTE:

If the StoreServ does not appear on the Systems page, you can remove it from the SP page. See **Removing an HPE 3PAR StoreServ Storage system** on page 29 for instructions.

Using the HPE 3PAR Service Console

After the SP OS update is complete, determine the current status, test connectivity, and verify the overall health of the system by using the HPE 3PAR Service Console (SC).

> **NOTE:**
>
> If the update to SP 5.0.1 failed, see **Irrecoverable error encountered during upgrade to SP 5.0.1** on page 30.
>
> If the update to SP 5.0.1 encountered non-fatal errors. see **Non-fatal error encountered in final phase of upgrade to SP 5.0.1** on page 31.

Procedure

1. Launch a web browser and connect to `https://<SP IP address>:8443.`

   You will be presented with the Service Console login screen.

   > ⓘ **IMPORTANT:**
   >
   > Permissive firewall mode must be enabled to access port 8443. To enable permissive mode:
   >
   > a. Log in to the console as `admin` to access the Text-based User Interface (TUI).
   > b. Enter **6** for the option number `6 == Enable firewall permissive mode.`
   > c. Press **Enter**.

2. Log in with the `admin` or `hpepartner` credentials.

   `admin` password – set to the value of the SP 4.5 `3parcust` account password

   `hpepartner` password – set to the value of the SP 4.5 `spvar` account password

   After logging in, the Service Processor screen is displayed. There you can view general and health information about the SP, any attached 3PAR StoreServ Storage systems, and support settings.

   For more information on using the Service Console and attaching a storage system, refer to *HPE 3PAR StoreServ Service Console User Guide*.

Testing SP Connectivity

Procedure

1. On the Service Console main menu, select **Service Processor**.
2. On the **Actions** menu, select **Test SP connectivity**.
3. (Optional) Switch to Activity view to monitor the task's progress.

Adding an HPE 3PAR StoreServ Storage system

Procedure

- **Adding uninitialized system**

  1. Select **Setup a new StoreServ**.
  2. Enter the 3PAR StoreServ Storage system's serial number.
  3. Click **Discover**.

If the serial number is valid, the StoreServ model OS version and the number of nodes in the array will be displayed.

The dialog will then automatically run a set of validation checks. Each test run and its status is displayed in the Setup Validation subsection. If any validation test results in a warning, you may still add the system to the Service Console. However, if a test fails, the reason for the failure is displayed, and you must correct the issue then rerun Setup Validation before you can add the system.

4. Once setup validation is complete, with no tests failing, configure the following settings:

   ◦ **System settings:**
     – Enter the StoreServ name and IP address.
     – Enable or disable DNS
     – Select one of the following for configuring date and time: **Use Service Processor settings**, **Set using NTP server**, **Set manually**, and then enter the required information.
     – Enter the `3paradm` user password. The password is limited to 31 alphanumeric characters plus the following characters: +, -, _, *, @

   ◦ **Installation Site:**
     – Enter the location information about the site where the SP is installed.
     – (Optional) Click Add to add a StoreFront Remote registration token for the HPE StoreServ Storage system. You can add up to 10 tokens, either by adding an existing token or creating a new token.

   ◦ **Support Contacts:** Add a support contact by clicking **Add Support Contact** in the Contacts subsection, and then follow the instructions on the dialog that opens. At least one support contact must be provided to support for each system.

5. Click **Add**.

• **Adding an initialized system**

   1. Select **Add an initialized StoreServ**.
   2. Enter the 3PAR StoreServ Storage system's name or IP address.
   3. Enter an authorized user name and password.
   4. Click **Connect**.
   5. Once setup validation is complete, with no tests failing, configure the following settings:

      ◦ **Security Certificate:**

        If the system has not been added to the Service Console before, you must choose to accept and cache the security certificate for the StoreServ you are adding to the Service Console.

        – (Optional) Click the ▶ icon to view certificate details.
        – If you receive the message "Missing CA root certificate," click **Import Certificate**, paste the certificate, in PEM format, of the Certificate Authority (CA) who issued the StoreServ's certificate in the textbox, and then click **Import**.

          > **NOTE:**
          >
          > Be sure to include the lines containing -----START CERTIFICATE----- and -----END CERTIFICATE----- when you copy the certificate text.

        – Select **Accept and cache security certificate for the connection to the StoreServ system**.

      ◦ **Installation Site:**

– Enter the location information about the site where the SP is installed.
– (Optional) Click Add to add a StoreFront Remote registration token for the HPE StoreServ Storage system. You can add up to 10 tokens, either by adding an existing token or creating a new token.
  ◦ **Support Contacts:** Add a support contact by clicking **Add Contact** in the Contacts subsection, and then follow the instructions on the dialog that opens. At least one support contact must be provided to Hewlett Packard Enterprise support for each system.

   6. Click **Add**.

You can view the setup progress on StoreServ Setup page.

The StoreServ will be automatically attached to the Service Processor, and the secure connection certificate for the StoreServ will automatically be accepted and cached.

Removing an HPE 3PAR StoreServ Storage system

Removing a storage system from the SP page

1. Hover over the name of the storage system and click the delete icon (X) when it appears.
2. When the confirmation dialog displays, click **Remove**.

Removing a storage system from the Systems page

1. **Remove system**.
2. When the confirmation dialog displays, click **Remove**.

More information

Refer to the *HPE 3PAR Service Processor Software 5.0.x User Guide* for detailed information related to screens and actions.

Running admit hardware

> ⚠ **CAUTION:**
>
> **Admit hardware** admits new hardware into the storage system and updates firmware on new and existing hardware. It should be run after software updates are complete.

Prerequisites

You must be logged in as `hpepartner` or `hpesupport` to run **Admit hardware**.

Procedure

1. On the main menu, select **Systems**.
2. On the **Actions** menu, select **Admit hardware**.
3. Follow the instructions on the dialog that opens.

Troubleshooting

Troubleshooting: Overview of steps

1. Identify the problem or problems.
2. Verify and assess the situation.
3. Determine the criticality of the problem. If more than one problem exists, determine which problem is the most significant in terms of impact to the customer.
4. Collect as much information as possible relevant to the problem.
5. Generate an action plan then execute it.
6. If the action does not resolve the problem, escalate.

Cannot see attached HPE 3PAR StoreServ Storage system

Symptom

After the upgrade to SP 5.0.1, the attached StoreServ is not displayed on the Systems page.

Action

- Log in as admin on the system console and select option **3** to reboot the SP. After the system has rebooted, reconnect to https://<sp_ip_address>:8443 and, from the StoreServ Service Console, manually attach the StoreServ.

  If the StoreServ could not be attached during the upgrade process, after the Service Processor reboots:

  1. Log in to the Service Console.
  2. From the **Systems** page, select **Remove system** from the **Actions** menu.
  3. After the system has been removed, add the system again. From the **Systems** page, and then select **Add an initialized StoreServ**.

Irrecoverable error encountered during upgrade to SP 5.0.1

Symptom

The SP 5.0.1 upgrade process detects a fatal error.

Solution 1

Cause

SP settings could not be migrated, but the upgrade process was able to install an uninitialized copy of the SP 5.0.1 software.

```
The SP 4.5 to 5.0 upgrade failed.

Unable to migrate the SP █████████ settings.

You must manually initialize SP 5.0 with your previous SP settings.
A spconfig output can be used for reference during the initialization.

A copy of the final SP 4.5 spconfig file is available here : SP config file

SP 5.0 has been installed, but the system is now in an uninitialized state.

To continue, login in as the user "admin" on the system console and
select option 3 to reboot the SP.  After the system has rebooted,
reconnect to https://███████████ to begin the SP 5.0
initialization.
```

Action

1. Download a copy of final SP 4.5 spconfig file for use as a reference during the 5.0.1 initialization. (See **Download the spconfig file**.)
2. Log in to the Service Console using the address: `https://<sp_ip_address>:8443`.
3. Follow the instructions to initialize the SP.

Solution 2

Cause

SP settings could not be migrated, and the upgrade process was not able to install an uninitialized copy of the SP 5.0.1 software.

```
The SP 4.5 to 5.0 upgrade failed.

Unable to migrate the SP ███████ settings.

You must install SP 5.0 from the SP 5.0 OVF
and manually initialize SP 5.0 with your previous SP settings.
A spconfig output can be used for reference during the initialization.

A copy of the final SP 4.5 spconfig file is available here : SP config file
```

Action

1. Download a copy of final SP 4.5 spconfig file for use as a reference during the 5.0.1 initialization. (See **Download the spconfig file**.)
2. Install the update manually.

   • For physical SPs, install the SP 5.0.1 update manually using the ISO file.
   • For VMWare ESXi based Virtual SPs, install the SP 5.0.1 update using the OVF file.
   • For Hyper-V based Virtual SPs, use the SP 5.0.1 Hyper-V executable file.

Non-fatal error encountered in final phase of upgrade to SP 5.0.1

Symptom

A non-fatal error is encountered during the final phase of the upgrade process.

ATTENTION: The SP 5.0 upgrade completed with non-fatal errors.

Non-fatal errors were encountered during the porting of the SP 4.5 configuration settings:

ERROR: ConnectStoreServToSSMC failed to connect array(s) to SSMC.

See the upgrade logs in /var/opt/hpe/ssmc/data/logs/5p0Upgrade/
for more information.

To continue, login in as the user "admin" on the system console,
using your previous "3parcust" credentials, and select option 3 to
reboot the SP. After the system has rebooted, reconnect to

Action

1. A web page will be displayed on port 8443 that describes the error condition was detected. Follow the instructions on the web page to reboot the Service Processor.
2. After the Service Console login screen appears, log in and address the issue that was reported.

   NOTE:

   Generally, non-fatal errors are related to the inability to attach the HPE 3PAR StoreServ Storage system to the SP during the upgrade process.

SP IP address is unresponsive in Service Console after upgrade to SP 5.0.1

Symptom

The URL for the SC at `https://<sp_ip_address>:8443` is unresponsive after the 5.0.1 upgrade.

Cause

If firewall permissive mode is disabled, HTTPS port 8443 will be blocked after the upgrade to SP 5.0.1. If the SP 4.5 firewall allowed access to specific hosts, only those hosts will be allowed access after the upgrade to 5.0.1. To enable firewall permissive mode after the upgrade, log in to the console as admin. The password will be the same as your current `3parcust` password.

Action

1. Log in as admin on the system console and select option **5** to enable firewall permissive mode. After the system has rebooted, reconnect to `https://<sp_ip_address>:8443` and, from the StoreServ Service Console, manually attach the StoreServ.
2. Select option **3** to reboot the SP.
3. Log in as admin on the system console again and select option **2** to start SP services.

   NOTE:

   If you perform a remote upgrade from 4.x to 5.0.1 and then revert the StoreServ OS version to 3.2.2 successfully, the next step is to rebuild the SP to version 4.4.

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 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

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

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**). 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.