EMC® VNXe3100/VNXe3150

Upgrading Memory

This document describes how to upgrade memory in a VNXe3100 or VNXe3150 disk processor enclosure (DPE).

Before you start

Before you begin the upgrade procedure:

◆ Make sure you have a current backup of your system data before you begin this (or any other) upgrade procedure.

◆ Make sure your VNXe system is running Maintenance Release 1 Service Pack 1(version 2.1.1) or greater. See the Unisphere Online Help for information about updating your system software.

◆ Make sure you have new dual inline memory modules (DIMMs) available to replace the existing modules. Refer to your VNXe online help (**Servicing your system › Adding or replacing faulted hardware components › Add a hardware component)** for instructions on how to order new parts and handle hardware components.

Since the procedure to upgrade memory involves reboots and the temporary quiescence of the storage processors, your system will not process or make available any data until the procedure is finished. Plan your upgrade accordingly.

Tasks to replace a memory module

EMC²

Task 1: Preparing the DPE for service

To prepare your VNXe system for this procedure:

1. login to EMC® Unisphere™ and select **Settings**, then **Service System**.

2. Log in with your service password.

3. In the **System Components** column, select **Storage System**.

4. Under **Service Actions**, select **Enable SSH**, then **Execute service action**.

5. In the confirmation dialog box, click **OK** to enable SSH.

6. Download an SSH client, such as PuTTY, to a computer that has network access to the system.

   You may need to install the SSH client before you can launch it.

Run the Service Script

1. Launch the SSH client.

2. In the SSH client, use the management IP address to connect to the VNXe system.

   For example, in PuTTY, enter the management IP for the destination.

3. Login as the Service user, then enter the password for the Service account to log in to the system.

4. Type the name of the upgrade script: **svc_change_config**.

5. Choose the upgrade (memory) that you want.

6. Type **continue** to confirm that you wish to proceed with the upgrade.

   If your system passes the ensuing health check the storage processors will boot to Service mode.

   Each storage processor fault LED will flash alternating amber and blue while the SP remains in Service mode and is receiving active power.
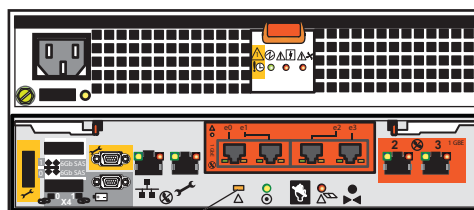
SP fault

Task 2: Remove the storage processor (SP) assemblies

To replace memory modules with new memory modules, you must completely power down your entire system, including any attached disk array enclosures (DAEs).

> ⚠️ **CAUTION**
>
> **DO NOT REMOVE an SP while the "Unsafe to remove SP" LED is on. The light indicates that you may interrupt a vital system or data-caching process.**

Wait until both "Unsafe to Remove" LEDs are off and the SP status/fault LEDs flash alternating amber and blue, then perform the following:

1. On the DPE and *each* DAE attached to the VNXe3100 or VNXe3150 system:

   a. Release the cable retention bail and unplug the power cord from each power supply.

   b. Mark the cords "A" or "B" for the power/cooling modules from which you removed them.

2. On *each* SP assembly, A and B:

   a. Mark all SAS and LAN cables so you can return them to their original connectors after the upgrade, then remove them from the SP assemblies.

   b. Identify each SP assembly (A or B) with tape or some other means to ensure that you return it to its original slot.

   c. Locate the two orange release levers on the SP assembly latches.

   d. Squeeze the levers to release the latches and then pull the latches outward.

   e. Pull out the latches until they are fully extended and the SP assembly is released from its enclosure.

   f. Use the latches to partially slide the assembly from its enclosure.

   g. When the assembly is about half-way out of its enclosure, use both hands to support the assembly and draw it fully out of the enclosure.

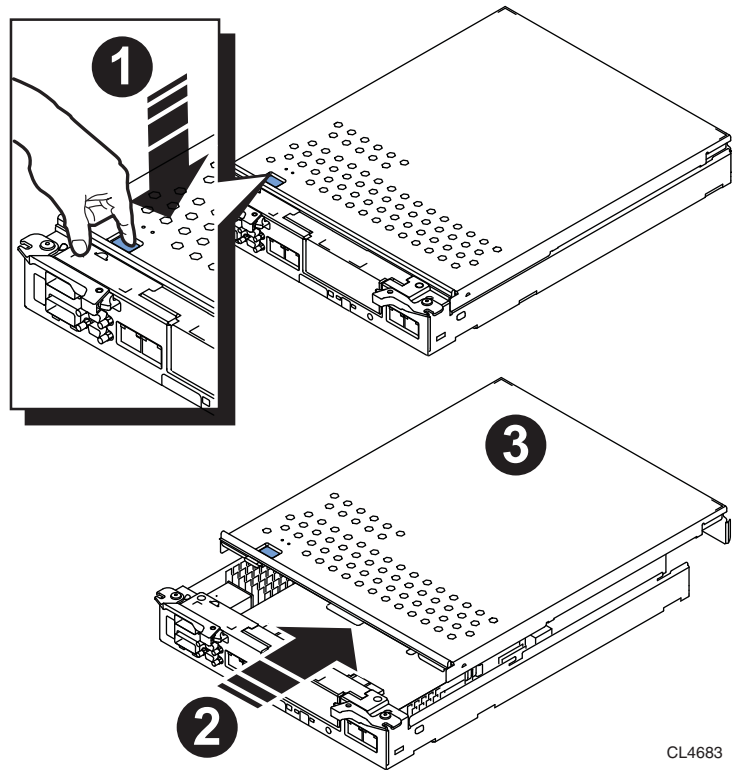   h. Place the assembly on a clean, flat static-free work surface.
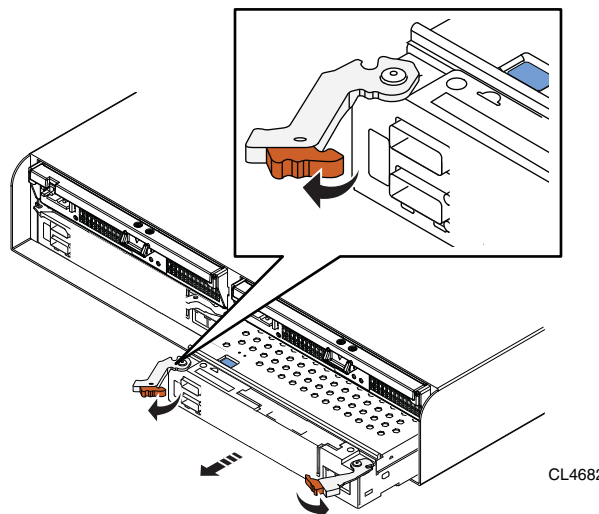
CL4682

Task 3: Remove the SP top covers

Remove the cover from *each* SP assembly to gain access to the memory modules:

1. Press the blue button on the cover.

2. Push the cover straight back 1/4 inch.

3. Lift the cover up.

CL4683

Task 4: Exchange the memory modules

Before you begin

Unpack the replacement memory module and place it in its anti-static bag on the same clean, flat static free work surface as the SP assembly. Save the packaging material to return the replaced memory module.

Procedure

On *each* SP remove the 2 GB memory modules and install the 4 GB replacement modules:

1. Rotate the memory module latches outward to release the module from the socket.

2. Touching only the outside edges, pull the module directly out of the socket, and place it on an antistatic surface.

3. Remove the replacement memory module from its antistatic bag, and handling only the outside edges of the module, align the module with the socket on the SP.

   The socket and module are keyed to prevent incorrect alignment.

4. Firmly push the module directly into the socket.

   The latches snap to the closed position when the module is fully inserted in its socket.
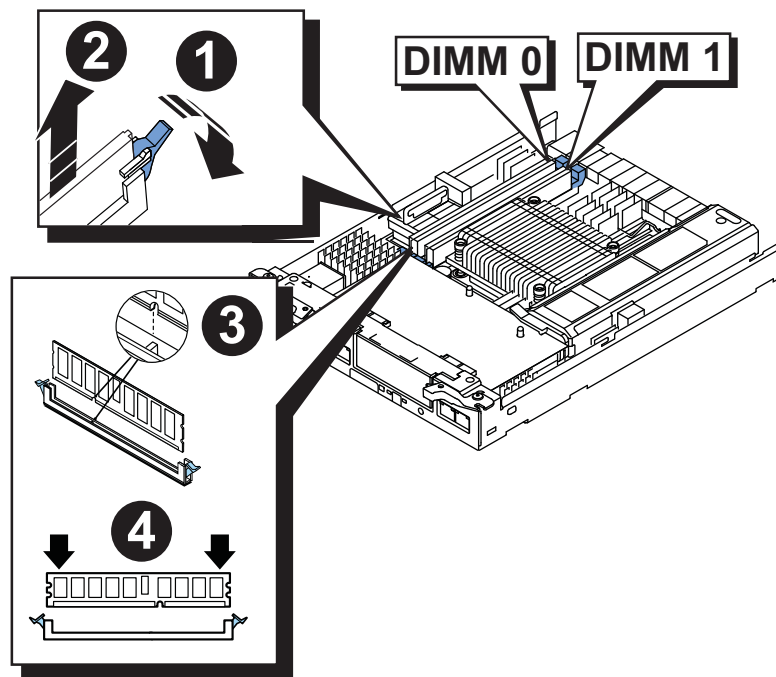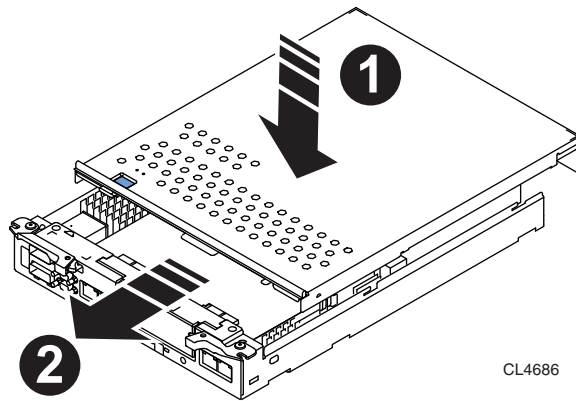
Task 5: Replace the SP top covers

Replace the covers on *both* SP assemblies:

1. Align the cover tabs with the notches in the canister.

   Place the cover flat on the canister, approximately 1/4 inch behind the canister front, to line up the notches and tabs.

2. Slide it forward 1/4 inch until the tab secures the cover.

CL4686

Task 6: Replace the SP assemblies

Install SP B assembly in the left side of the enclosure (viewed from the enclosure rear), and install SP A assembly in the right side:

1. Pull out the latches on each side of the SP assembly and make sure they stay in the open position.

2. Align the SP assembly with the chassis opening and push it straight into the chassis.

   The latches begin to close when they contact the chassis edges.

3. Close the right and left latches to fully seat the SP assembly in the chassis.

   An audible click indicates that the latches are secure.

4. Replace all SAS and LAN cables that you previously removed from the SP assemblies.
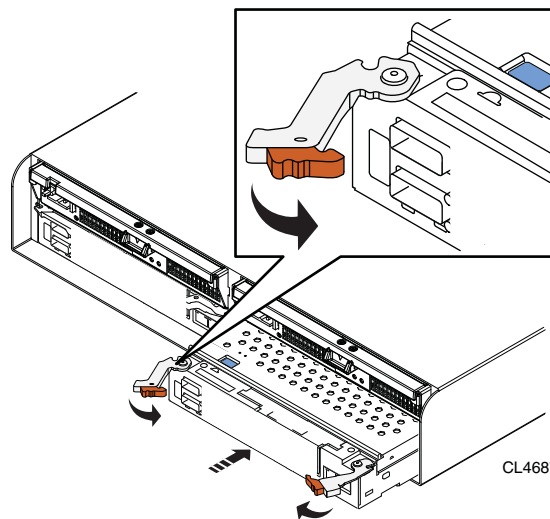
CL4687

Task 7: Power up the system

Power up the DPE and any connected DAEs in your system:

1. Plug each power cord in your system into its power/cooling module, and attach the retention bails.

2. Make sure you secure the power cords with the retention bails at each connector.

   The bails prevent the power cords from pulling out of the connections.

   Each enclosure in your system will power up immediately upon connection to an active AC power source. The system will boot into Service mode. The storage processor status/fault LED will flash alternating amber and blue while the SP remains in Service mode and is receiving active power.

   If the fault LED remains solid amber on either of the SPs, refer to "Troubleshooting Notes" on page 8.

Task 8: Validate the upgrade and reboot the system

Run the service shell script to validate the upgrade and boot the system into Normal mode:

1. Launch the SSH client.

2. In the SSH client, use the management IP address to connect to the VNXe system.

   For example, in PuTTY, enter the management IP for the destination.

3. Enter the password for the Service account to log in to the system.

4. Type the name of the upgrade script: **svc_change_config --commit**.

   It may take fifteen to twenty minutes for the system to complete its reboot and return to Normal mode.

Task 9: Verify the operation of the new memory

Verify that the new memory modules (DIMMs) are recognized by your system, and operating correctly:

1. Login to Unisphere, then select **System**, then **System Health**.

2. Select the storage processor in the Component list or the graphical view:

   a. In the **Component** list, the memory should be marked with a status **OK** icon:

   b. In the graphical view, the SP is highlighted green.

   If the system health monitor shows the new memory as faulted, contact your service provider.

Task 10: Disable SSH

Return your system to normal operating and security mode by disabling SSH:

1. Open Unisphere and select **Settings,** then **Service System**.

2. Log in with your service password.

3. In the **System Components** column, select **Storage System**.

4. Under **Service Actions,** select **Disable SSH,** then **Execute service action**.

5. In the confirmation dialog box, click **OK** to disable SSH.

Troubleshooting Notes

This section describes troubleshooting steps to follow in the event that you are having problems. Note that these troubleshooting steps apply *before* you validate the upgrade and reboot the system to normal mode with the service script **svc_change_config --commit** (see Task 8 "Validate the upgrade and reboot the system" on page 7); after that time, please contact your service provider directly for assistance with your dual storage processor system.

Problem: Running **svc_change_config** in normal mode, the following message is displayed:

```
The upgrade cannot proceed. Please run the system health check
from the management application to determine the problem.
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Solution: The service script detected a problem that prevents the upgrade. Running the system health check from the management application is the best approach to diagnose the problem.

Problem: After inserting an SP and restoring power, the SP does not reach service mode (indicated by the fault LED alternating blue and amber); the fault LED remains solid amber.

Solution: The SP must be inserted firmly so that it will seat properly. Using the orange release levers on the faulted SP, reseat the SP by sliding the SP out of the enclosure a few inches and pushing it back in, being certain that the latches are fully closed to properly seat the SP. Refer to "Task 6: Replace the SP assemblies" on page 6.

Problem: You believe that you have a hardware problem, and want to abort the upgrade in progress.

Solution: In the unlikely event that bad/damaged upgrade components were received and your attempt to validate the upgrade failed, the upgrade may be aborted. You will need to remove the parts that were added earlier in this procedure.

Note: Review your decision to abort the upgrade procedure with your service provider.

1. From the service console in service mode, run command **svc_change_config --abort**.

   It will display a message to restore the hardware to the previous configuration.

2. Wait for the prompt to return to the console window, which indicates that the service script completed.

3. Release the cable retention bail and unplug the power cord from each power supply (both SP assemblies and any attached DAEs); and, label and remove all cables from both SPs.

4. Locate the two orange release levers on the SP B assembly latches.

5. Squeeze the levers to release the latches and then pull the latches outward.

6. Pull out the latches until they are fully extended and the SP B assembly is released from its enclosure.

7. Use the latches to partially slide the assembly from its enclosure.

8. When the assembly is about halfway out of its enclosure, use both hands to support the assembly and draw it fully out of the enclosure.

9. Place the SP B assembly on a clean, flat, static-free work surface.

10. Remove the new memory DIMMs placed in the DIMM slots on the SP B assembly and insert the original memory DIMMs. Refer to "Task 4: Exchange the memory modules" on page 5.

11. Repeat steps 4-10 for the SP A assembly:

    a. Locate the two orange release levers on the SP A assembly latches.

    b. Squeeze the levers to release the latches and then pull the latches outward.

    c. Pull out the latches until they are fully extended and the SP A assembly is released from its enclosure:

    d. Use the latches to partially slide the assembly from its enclosure.

    e. When the assembly is about halfway out of its enclosure, use both hands to support the assembly and draw it fully out of the enclosure.

    f. Place the SP A assembly on a clean, flat, static-free work surface.

    g. Remove the new memory DIMMs placed in the DIMM slots on the SP A assembly and insert the original memory DIMMs. Refer to "Task 4: Exchange the memory modules" on page 5.

       You must have the same amount of memory (4 GB total) installed as before this procedure was started.

12. Reinstall both SP assemblies. Refer to "Task 6: Replace the SP assemblies" on page 6.

13. Restore all cables to both SP assemblies, including the power cables.

    Both SPs should boot to Normal mode.

14. Disable SSH as described in "Task 10: Disable SSH" on page 8.