

EMC® VNXe3100/VNXe3150

## Upgrading the Input/Output Modules

P/N 300-014-237  
REV 02

This document describes how to upgrade the input/output (I/O) modules in a VNXe3100 or VNXe3150 **dual-SP** disk processor enclosure (DPE) to a different type of module. Upgrading the I/O modules requires that both SPs have 8 GB of memory.

### IMPORTANT

Your VNXe system must be running VNXe Operating System Environment 2.3 or later for you to upgrade its I/O modules.

When you upgrade I/O modules, you must upgrade the I/O module in each SP.

## Before you start

Before you begin the procedure:

- ◆ Make sure you have the correct I/O modules for the upgrade. The *VNXe3100 Hardware Information Guide* and the *VNXe3150 Hardware Information Guide* on the VNXe Support site ([emc.com/vnxesupport](http://emc.com/vnxesupport)) contains a list of supported I/O modules.
- ◆ Refer to your EMC® VNXe™ online help (**Servicing your system > Adding or replacing faulted hardware components > Add a new hardware component**) for instructions on how to identify I/O modules and handle hardware components.

# Tasks to upgrade I/O modules

You upgrade one I/O module in one SP at a time.

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## Task 1: Remove network settings

If you are upgrading a 1 GbE (4-port) I/O module to a 10 GbE (2-port) I/O module, you must remove all network settings on eth12 and eth13 ports.

### Removing the network settings for a Shared Folder Server

1. Alert users to stop I/O activity and/or stop I/O activity on the interfaces.
2. Open Unisphere and select **Settings**, then **Shared Folder Server Settings**.
3. In the **Shared Folder Server Settings** dialog box, select the Shared Folder Server.
4. For **each** I/O module that you are upgrading, if any network interfaces are assigned to the ports for the I/O module that you are upgrading, do the following:
  - a. Record the network settings for the interface:
    - IP address
    - Subnet mask
    - Default gateway
    - Port number
  - b. Click **Details**, and select the network interface.
  - c. Either remove the interface or move the interfaces to a new port:

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**Note:** If only one interface is available, you cannot remove it. Instead, you must move the interface to a new port.

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To remove the interface:  
Click **Remove Interface**.

To move the interface to a new port:

- Click **Modify**.
- In the **Modify network interface** dialog box, click **Show advanced**.
- From the drop-down list, select a new Ethernet port other than eth12 or eth13 for the interface.
- Click **Update**.
- When the message `Network interface was modified successfully` appears, click **Close** to close the **Modify network interface dialog** box.

## Removing the network settings for an iSCSI Server

1. Alert users to stop I/O activity and/or stop I/O activity on the interfaces.
2. Open Unisphere and select **Settings**, then **iSCSI Server Settings**.
3. In the **iSCSI Server Settings** dialog box, select the iSCSI Server.
4. For **each** I/O module that you are upgrading, if any network interfaces are assigned to the ports for the I/O module that you are upgrading, do the following:
  - a. Record the network settings for the interface:
    - IP address
    - Subnet mask
    - Default gateway
    - Port number
  - b. Click **Details**, and select the network interface.
  - c. Either remove the interface or move the interfaces to a new port:

---

**Note:** If only one interface is available, you cannot remove it. Instead, you must move the interface to a new port.

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To remove the interface:

Click **Remove Interface**.

To move the interface to a new port:

- Click **Modify**.
- In the **Modify network interface** dialog box, click **Show advanced**.
- From the drop-down list, select a new Ethernet port other than eth12 or eth13 for the interface.
- Click **Update**.
- When the message `Network interface was modified successfully` appears, click **Close** to close the **Modify network interface dialog** box.

## Task 2: Preparing the storage processor (SP) for service

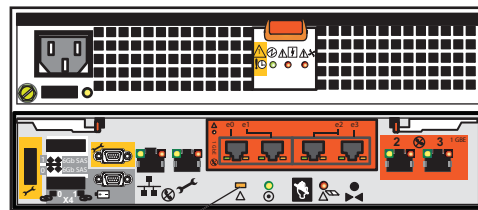
### **IMPORTANT**

To protect your VNXe system from accidental data loss while you upgrade an I/O module in an SP, you must prepare the SP for service before you upgrade any of its I/O modules. You prepare the SP for service by putting it in Service mode. Both SPs must **not** be in Service mode at the same time.

1. Open Unisphere™ and select **Settings**, then **Service System**.
2. Log in with your service password.
3. In the **System Components** column, select the storage processor (SP A or SP B).
4. Under **Service Actions**, select **Enter Service Mode**, then **Execute service action**.
5. In the **Service Confirmation** dialog box click **OK**.

Putting an SP into Service mode takes about 10 minutes. The storage processor fault LED will flash alternating amber and blue while the SP remains in Service mode and is receiving active power.

6. Wait until the SP fault LED is flashing alternating amber and blue before continuing to the next task.



SP fault

## Task 3: Remove the SP assembly

The I/O module resides on the SP printed circuit board (CPU board). To upgrade an I/O module, you must remove the SP assembly from the chassis, and then remove its cover to gain access to processor board components.

Follow these steps to remove the SP assembly:

### ⚠ CAUTION

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



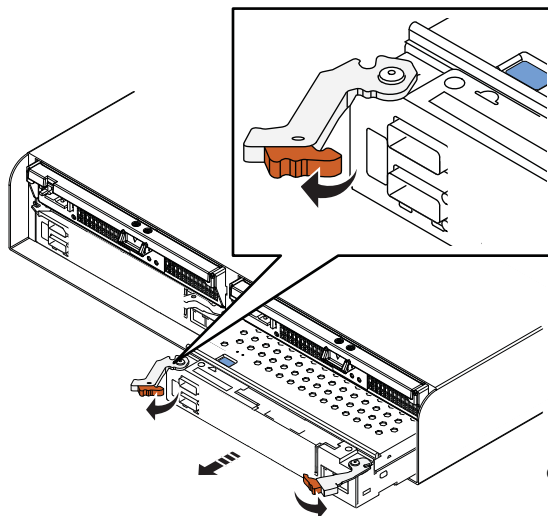
1. Disconnect the network and all other cables from the back of the assembly that will include the new I/O module. *Do not remove* any cables from the other SP assembly.

Mark the cables with the port numbers from which you removed them.

### ⚠ CAUTION

**The SP assembly comes completely out of the chassis. In addition to holding the latches, be prepared to support the SP assembly to avoid dropping it.**

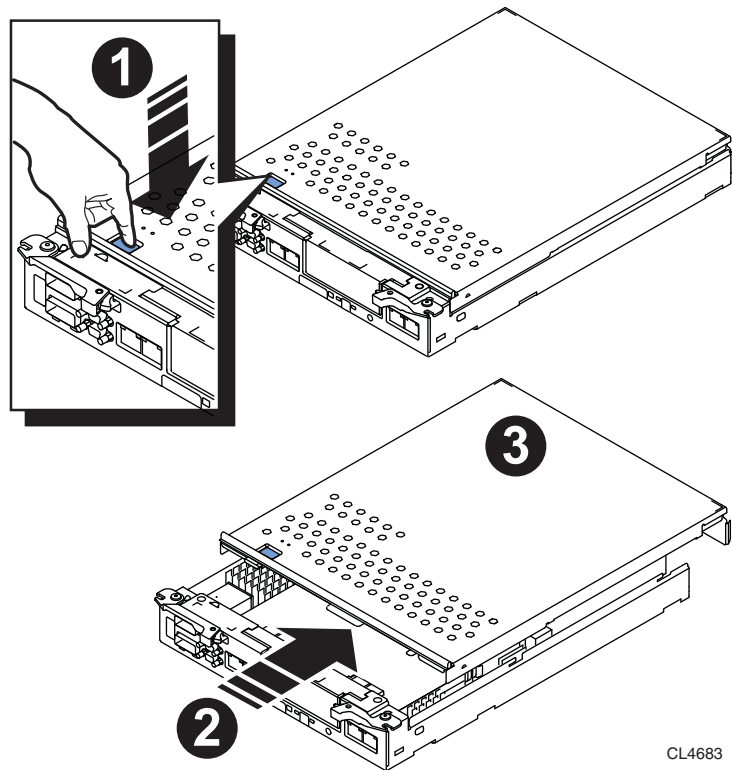
2. Locate the left and right latches.
3. Pinch the orange tabs and pull the latches to the sides to eject the SP assembly from the chassis.
4. Pull the SP assembly straight out of the chassis and place it on a static-free surface.



CL4682

## Task 4: Remove the SP top cover

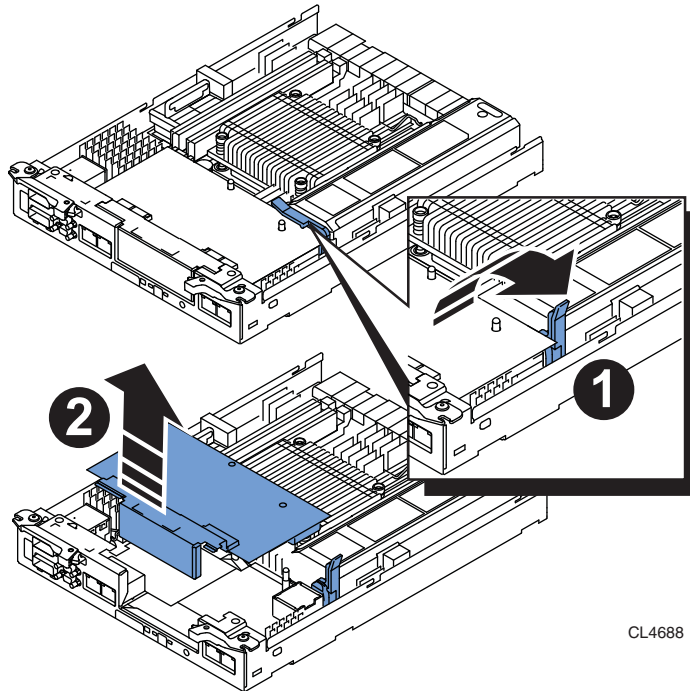
1. Press the blue button on the cover.
2. Push the cover straight back 1/4 inch.
3. Lift the cover up.



CL4683

## Task 5: Remove the I/O module

1. Lift the blue latch carefully until it ejects the I/O module from the connector.



2. Lift the module out and away from the canister and place it on a static free surface.

## Task 6: Install the new I/O module

1. Unpack one new I/O module.
2. Angle the I/O module slightly so it fits into the canister and align it with the blue alignment pins.

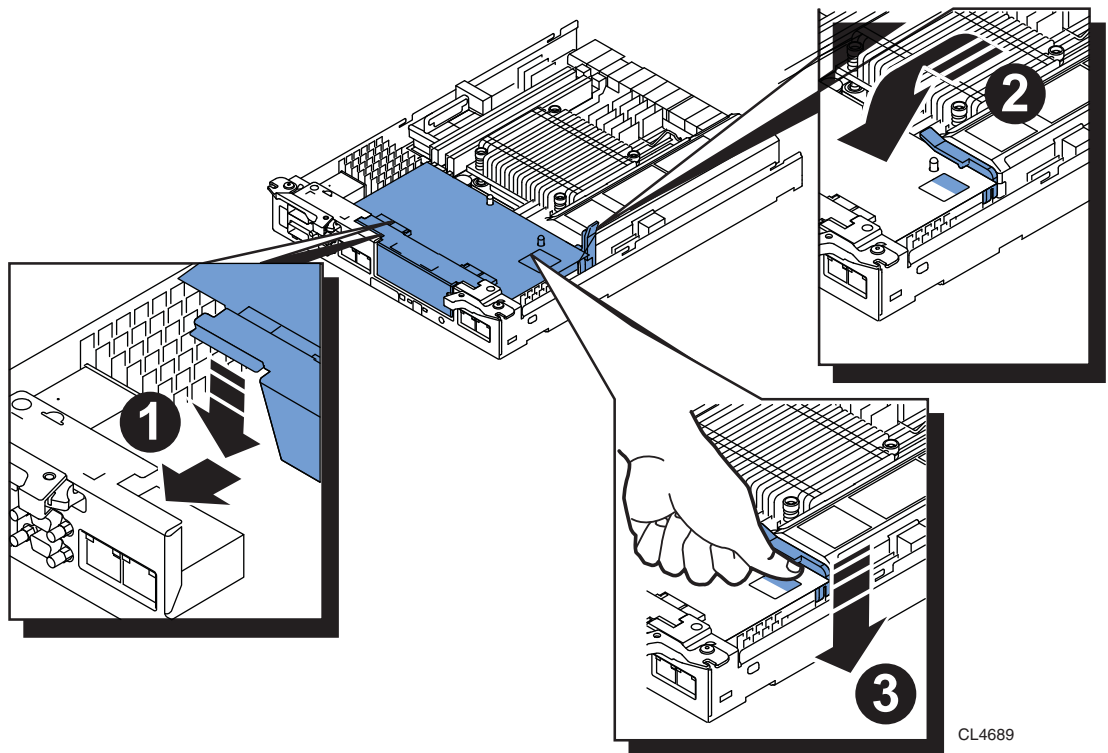
### **CAUTION**

Do not attempt to seat the I/O module into the CPU connector while you are holding the I/O module at an angle. Doing so will damage the connections. The I/O module should be flat before you attempt to seat the connector.

3. With the module aligned and parallel to the CPU board, press the latch down to fully seat the module in the connector.
4. Push down on the force point indicated on the I/O module to ensure that the module is completely seated on the processor board.

### **IMPORTANT**

The system may not recognize the new I/O module, and report it as “unsupported” or “unknown” until you manually reboot the storage processor. See [Task 9: Reboot the storage processor on page 10](#).

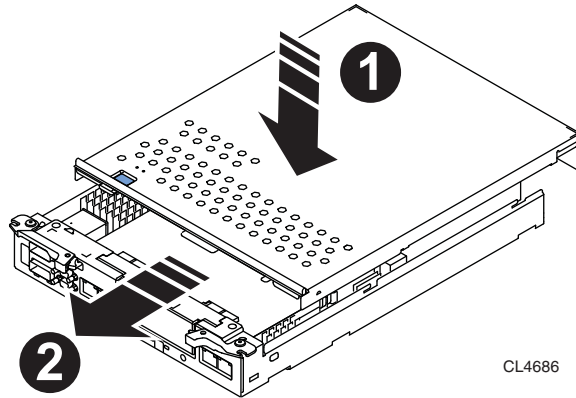


CL4689



## Task 7: Replace the SP top cover

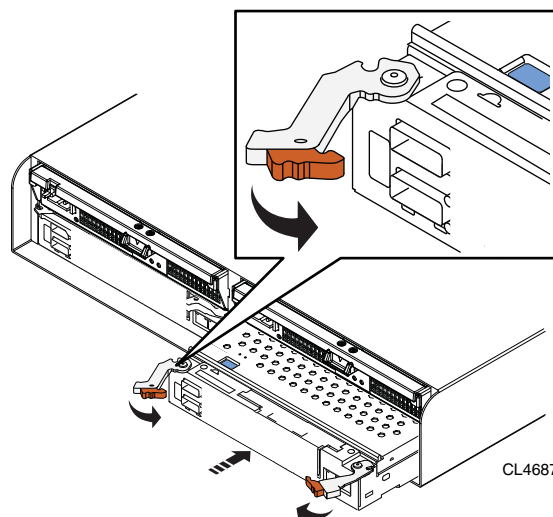
1. Align the cover tabs with the notches in the canister.
2. Slide it forward 1/4 inch until the tab secures the cover.



CL4686

## Task 8: Install the SP assembly

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.



CL4687

The SP begins powering up immediately after connection to an active AC power source.

### **IMPORTANT**

If you installed a 10 GbE (2-port) I/O module and the SP Fault light stays on solid amber and does not start flashing, do the following:

- a. Pinch the orange tabs and pull the latches to the sides to eject the SP assembly from the chassis.
- b. Pull the SP assembly two inches out of the chassis.
- c. Push the SP assembly back into the chassis.
- d. Close the right and left latches to fully seat the SP assembly in the chassis.

An audible click indicates that the latches are secure.

After a few seconds the SP Fault light should start flashing.

4. On the back of the SP assembly, connect cables to the new I/O module:
  - a. Connect a network cable to each port on the new I/O module that you want to use.
  - b. Reconnect any cables, other than the network cables connected to the old I/O module ports, that you removed from the storage processor, being sure to connect these cables to the same ports from which you removed them.

## **Task 9: Reboot the storage processor**

Once you have upgraded the I/O module and returned the SP assembly to the chassis, reboot the recently upgraded SP to ensure that it returns to normal mode:

1. From Unisphere, select **Settings**, then **Service System**.
2. Log in with your service password.
3. In the **System Components** column, select the serviced storage processor (SP A).
4. Under **Service Actions**, select **Reboot**, then **Execute service action**.
5. In the **Service Confirmation** dialog box, click **OK**.

It may take several minutes for the system to complete its reboot and return to normal mode.

6. Refresh your browser, or follow the on-screen instructions, to bring the software out of service mode and restore full-function Unisphere.

## Task 10: Verify that the the new I/O module is recognized

Verify that the new I/O module is recognized by your system, and not faulted:

1. Open Unisphere™ and select **System**, then **System Health**.
2. Select the SP in the System Components list or the graphical view:
  - In the System Components list, the new module should be marked with a yellow Warning status icon because it has not been committed yet.
  - In the graphical view, the module should be highlighted yellow.

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

## Task 11: Upgrade the I/O module to SP B

### IMPORTANT

You must *upgrade I/O modules in pairs*: SP B must match the configuration and content of SP A.

You have completed the upgrade of the I/O module in SP A. Now you are ready to upgrade the I/O module in SP B by repeating the following tasks that you just performed for SP A:

1. [Task 2: Preparing the storage processor \(SP\) for service on page 4](#)
2. [Task 3: Remove the SP assembly on page 5](#)
3. [Task 4: Remove the SP top cover on page 6](#)
4. [Task 5: Remove the I/O module on page 7](#)
5. [Task 6: Install the new I/O module on page 8](#)
6. [Task 7: Replace the SP top cover on page 9](#)
7. [Task 8: Install the SP assembly on page 9](#)
8. [Task 9: Reboot the storage processor on page 10](#)
9. [Task 10: Verify that the the new I/O module is recognized on page 11](#)

## Task 12: Commit the new I/O modules

You must commit the new I/O modules before they can be used.

1. In Unisphere, select **System**, then **System Health**.
2. Select the DPE in the System Components list.
3. In the **Component Description** window, click **Commit I/O Modules**.

## Task 13: Verify the network interface settings for the new I/O modules

If you had interfaces on eth12 and eth13 for the old I/O modules, use the procedures below to verify that the new I/O modules have the same settings that the old I/O modules had for eth12 and eth13.

---

**Note:** You should have recorded these settings in Task 1.

---

### Verifying network interface settings for a Shared Folder Server

1. In Unisphere and select **Settings**.
2. Select **Shared Folder Server Settings**.
3. In the **Shared Folder Server Settings** dialog box, verify the network settings for the ports on the new I/O modules.

These settings should agree with IP address, subnet mask, and default gateway information that you recorded in Task 1. If the IP address and the Port number are **Not** configured, go to the [Troubleshooting on page 13](#).


### Verifying network interface settings for an iSCSI Server

1. In Unisphere and select **Settings**.
2. Select **iSCSI Server Settings**.
3. In the **iSCSI Server Settings** dialog box, verify the network settings for the ports on the new I/O modules.

These settings should agree with IP address, subnet mask, and default gateway information that you recorded in Task 1. If the IP address and the Port number are **Not** configured, go to the [Troubleshooting on page 13](#).

## Task 14: Verify the operation of the new I/O modules

Verify that the new I/O module on each SP is recognized by your system, and operating correctly:

1. In Unisphere, select **System**, then **System Health**.
1. Select the SP in the System Components list or the graphical view:
  - In the System Components list, the new module should be marked with a status OK icon: 
  - In the graphical view, the module should be highlighted green.

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

# Troubleshooting

If any network settings on the third and fourth ports of the old I/O modules were not removed prior to the I/O module upgrade, these settings are visible in Unisphere. Also, in the **Shared Folder Server Settings** and/or **iSCSI Server Settings** dialog box, the IP address is Not configured for these ports. These network settings cannot be reused or removed after the upgrade. To fix this situation, follow this procedure:

1. Log into 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.

7. Launch the SSH client.
8. In the SSH client, use the management IP address to connect to the VNXe system.  
For example, in PuTTY, type the management IP for the destination.
9. Log in as the Service user, then type the password for the Service account to log in to the system.
10. Use the **svc\_change\_config** command with the **--cleanup\_network** option to remove the network settings on any non-existent ports.

For example:

```
service@vnxel26 spa:~> svc_change_config --cleanup_network
Found the following network interfaces on non-existent ports.

Found invalid entry: linux_dev=eth13 protocol=IP device=fsn13
local=10.6.6.6 netmask=255.255.255.0 broadcast=10.6.6.6 mtu=1500
vlan=0
Found invalid entry: linux_dev=eth12 protocol=IP device=fsn12
local=10.6.8.127 netmask=255.255.255.0 broadcast=10.6.6.6 mtu=1500
vlan=0

Removing these interfaces requires restarting the management
services on the SP.

Are you sure you want to proceed <y/N>: y
Removing network interfaces on non-existent ports.
Restarting management services.
Management services have been restarted. Please wait a few minutes
before opening a Unisphere session.
```

11. After a few minutes, open Unisphere again and recreate the interface(s) for **each** port for the new I/O modules:
  - a. Open Unisphere and select **Settings**.
  - b. Select either **Shared Folder Server Settings** or **iSCSI Server Settings**.
  - c. In the **Shared Folder Server Settings** or **iSCSI Server Settings** dialog box, click **Add Network Interface**.

- d. Enter the network settings that you recorded earlier for the interface:
    - IP address
    - Subnet mask
    - Default gateway
    - Port number
  - e. Click **Apply Changes**.
12. Continue the upgrade procedure starting with [Task 13: Verify the network interface settings for the new I/O modules](#) on page 12.

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