

# Customer Upgrade Procedure

## EMC Unity™ Family

## EMC Unity™ All Flash and EMC Unity™ Hybrid

### Configuring converged network adapter ports

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Follow this procedure to insert connectors into the CNA (converged network adapter) ports in your system. After inserting supported connectors, use Unisphere™ to configure the networking protocol on the CNA ports.

You must configure all CNA ports on the system with the same hardware and networking protocol.

#### **NOTICE**

This procedure involves storage processor (SP) reboots coordinated to ensure that at least one SP is running at all times. During an SP reboot, data will be unavailable to front- or back-end connections that are not duplicated on the peer SP.

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## Before you start

Before you begin this procedure, ensure that you have received the new part and have correctly identified its intended location in the system. Refer to your Unisphere **Service** section for instruction on how to identify failures, order new parts and handle hardware components.

### NOTICE

This procedure involves storage processor (SP) reboots coordinated to ensure that at least one SP is running at all times. During an SP reboot, data will be unavailable to front- or back-end connections that are not duplicated on the peer SP.

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## Additional resources

As part of an effort to improve its product lines, EMC periodically releases revisions of its software and hardware. Therefore, some functions described in this document might not be supported by all versions of the software or hardware currently in use. The product release notes provide the most up-to-date information on product features. Contact your EMC technical support professional if a product does not function properly or does not function as described in this document.

### Where to get help

Support, product, and licensing information can be obtained as follows:

#### Product information

For product and feature documentation or release notes, go to Unity Technical Documentation at: [www.emc.com/en-us/documentation/unity-family.htm](http://www.emc.com/en-us/documentation/unity-family.htm). You can also access this page from the Unity product family page at: [www.emc.com/en-us/storage/unity.htm](http://www.emc.com/en-us/storage/unity.htm). In the **Why EMC Unity Storage** section, click **Unity Product Resources > Technical Documentation**.

#### Troubleshooting

For information about EMC products, software updates, licensing, and service, go to EMC Online Support (registration required) at: <https://Support.EMC.com>. After logging in, locate the appropriate **Support by Product** page.

#### Technical support

For technical support and service requests, go to EMC Online Support at: <https://Support.EMC.com>. After logging in, locate **Create a service request**. To open a service request, you must have a valid support agreement. Contact your EMC Sales Representative for details about obtaining a valid support agreement or to answer any questions about your account.

### Special notice conventions used in this document

EMC uses the following conventions for special notices:

#### DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

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#### WARNING

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

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**⚠ CAUTION**

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

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**NOTICE**

Addresses practices not related to personal injury.

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**Note**

Presents information that is important, but not hazard-related.

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## Handling replaceable units

This section describes the precautions that you must take and the general procedures that you must follow when removing, installing, and storing any replaceable unit.

### Avoiding electrostatic discharge (ESD) damage

When replacing or installing hardware units, you can inadvertently damage the sensitive electronic circuits in the equipment by simply touching them. Electrostatic charge that has accumulated on your body discharges through the circuits. If the air in the work area is very dry, running a humidifier in the work area will help decrease the risk of ESD damage. Follow the procedures below to prevent damage to the equipment.

Be aware of the following requirements:

- Provide enough room to work on the equipment.
- Clear the work site of any unnecessary materials or materials that naturally build up electrostatic charge, such as foam packaging, foam cups, cellophane wrappers, and similar items.
- Do not remove replacement or upgrade units from their antistatic packaging until you are ready to install them.
- Before you begin service, gather together the ESD kit and all other materials you will need.
- Once servicing begins, avoid moving away from the work site; otherwise, you may build up an electrostatic charge.
- Use ESD anti-static gloves or an ESD wristband (with strap).
  - If using an ESD wristband with a strap:
    - Attach the clip of the ESD wristband to the ESD bracket or bare metal on a cabinet/rack or enclosure.
    - Wrap the ESD wristband around your wrist with the metal button against your skin.
    - If a tester is available, test the wristband.
- If an emergency arises and the ESD kit is not available, follow the procedures in Emergency Procedures (without an ESD kit).

### Emergency procedures (without an ESD kit)

In an emergency when an ESD kit is not available, use the following precautions to reduce the possibility of an electrostatic discharge by ensuring that your body and the subassembly are at the same electrostatic potential.

**NOTICE**

These precautions are not a substitute for the use of an ESD kit. Follow them only in the event of an emergency.

- Before touching any unit, touch a bare (unpainted) metal surface of the cabinet/rack or enclosure.
- Before removing any unit from its antistatic bag, place one hand firmly on a bare metal surface of the cabinet/rack or enclosure, and at the same time, pick up the unit while it is still sealed in the antistatic bag. Once you have done this, do not move around the room or touch other furnishings, personnel, or surfaces until you have installed the unit.
- When you remove a unit from the antistatic bag, avoid touching any electronic components and circuits on it.
- If you must move around the room or touch other surfaces before installing a unit, first place the unit back in the antistatic bag. When you are ready again to install the unit, repeat these procedures.

## Hardware acclimation times

Systems and components must acclimate to the operating environment before applying power. This requires the unpackaged system or component to reside in the operating environment for up to 16 hours in order to thermally stabilize and prevent condensation.

Refer to the table, [Table 1](#) on page 4, to determine the precise amount of stabilization time required.

**Table 1** Hardware acclimation times (systems and components)

If the last 24 hours of the TRANSIT/STORAGE environment was this:		...and the OPERATING environment is this:	... then let the system or component acclimate in the new environment this many hours:
Temperature	Humidity		
Nominal 68-72°F (20-22°C)	Nominal 40-55% RH	Nominal 68-72°F (20-22°C) 40-55% RH	0-1 hour
Cold <68°F (20°C)	Dry <30% RH	<86°F (30°C)	4 hours
Cold <68°F (20°C)	Damp ≥30% RH	<86°F (30°C)	4 hours
Hot >72°F (22°C)	Dry <30% RH	<86°F (30°C)	4 hours
Hot >72°F (22°C)	Humid 30-45% RH	<86°F (30°C)	4 hours
	Humid 45-60% RH	<86°F (30°C)	8 hours

**Table 1** Hardware acclimation times (systems and components) (continued)

If the last 24 hours of the TRANSIT/STORAGE environment was this:		...and the OPERATING environment is this:	...then let the system or component acclimate in the new environment this many hours:
	Humid ≥60% RH	<86°F (30°C)	16 hours
Unknown		<86°F (30°C)	16 hours

**NOTICE**

- If there are signs of condensation after the recommended acclimation time has passed, allow an additional eight (8) hours to stabilize.
- Systems and components must not experience changes in temperature and humidity that are likely to cause condensation to form on or in that system or component. Do not exceed the shipping and storage temperature gradient of 45°F/hr (25°C/hr).
- Do NOT apply power to the system for at least the number of hours specified in the table, [Table 1](#) on page 4. If the last 24 hours of the transit/storage environment is unknown, then you must allow the system or component 16 hours to stabilize in the new environment.

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## Removing, installing, or storing replaceable units

Use the following precautions when removing, handling, or storing replaceable units:

**CAUTION**

**Some replaceable units have the majority of their weight in the rear of the component. Ensure that the back end of the replaceable unit is supported while installing or removing it. Dropping a replaceable unit could result in personal injury or damage to the equipment.**

**NOTICE**

- For a module that must be installed into a slot in an enclosure, examine the rear connectors on the module for any damage before attempting its installation.
  - A sudden jar, drop, or even a moderate vibration can permanently damage some sensitive replaceable units.
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- Do not remove a faulted replaceable unit until you have the replacement available.
  - When handling replaceable units, avoid electrostatic discharge (ESD) by wearing ESD anti-static gloves or an ESD wristband with a strap. For additional information, refer to [Avoiding electrostatic discharge \(ESD\) damage](#) on page 3.
  - Avoid touching any exposed electronic components and circuits on the replaceable unit.

- Never use excessive force to remove or install a replaceable unit. Take time to read the instructions carefully.
- Store a replaceable unit in the antistatic bag and the specially designed shipping container in which you received it. Use the antistatic bag and special shipping container when you need to return the replaceable unit.
- Replaceable units must acclimate to the operating environment before applying power. This requires the unpackaged component to reside in the operating environment for up to 16 hours in order to thermally stabilize and prevent condensation. Refer to [Hardware acclimation times](#) on page 4 to ensure the replaceable unit has thermally stabilized to the operating environment.

**NOTICE**

Your storage system is designed to be powered on continuously. Most components are hot swappable; that is, you can replace or install these components while the storage system is running. However, the system requires that:

- Front bezels should always be attached to ensure EMI compliance. Make sure you reattach the bezel after replacing a component.
- Each slot should contain a component or filler panel to ensure proper air flow throughout the system.

## Unpacking a part

### Procedure

1. Wear ESD gloves or attach an ESD wristband to your wrist and the enclosure in which you are installing the part.
2. Unpack the part and place it on a static-free surface.
3. If the part is a replacement for a faulted part, save the packing material to return the faulted part.

## Standard touch point colors

Touch points are component locations where you can:

- Grip the hardware to remove or install a component.
- Open or close a latch.
- Turn a knob to open, close, or adjust a component.

Standard touch point colors are terra-cotta (orange) or blue.

### Note

Within this documentation, the color orange is used instead of terra-cotta for simplicity.

**Table 2** Standard touch point colors

Touch point color	Description
Terra-cotta (orange)	This color indicates that you can perform the task, such as remove a component with a terra-cotta (orange) lever, while the system remains powered (up/on).

**Table 2** Standard touch point colors (continued)

Touch point color	Description
	<hr/> <p><b>Note</b></p> <p>Some tasks may require additional steps.</p> <hr/>
<p>Blue</p> 	<p>This color indicates that a shutdown of the system or component is required before you can perform the task, such as removing a component with a blue lever.</p>

## About converged network adapter (CNA) ports

Each SP contains two integrated CNA ports (labeled 4 and 5). These ports are PCI Express 3.0 x4 adapters that provide interfaces that can be configured as Ethernet, or Fibre Channel, but once set to a protocol, cannot be changed. If CNA ports are set to Ethernet, then you can use either 1Gb/s, 10Gb/s SFPs or Twin-AX for File (IP) or iSCSI Block access. If the ports are set to Fibre Channel, then you can use SFPs supporting 4, 8, 16 Gb/s FC multi-mode, or single-mode SFPs supporting 16Gb/s only.

### NOTICE

Once you set the network protocol on the CNA ports you cannot switch to a different network protocol. Additionally, the four CNA ports cannot be configured independently; they must all be configured with the same network protocol. For example, if you configure the CNA ports for 10Gb/s Ethernet you cannot then later switch these ports to Fibre Channel.

**Table 3** CNA configurations

Speed	Protocol	Connection
1 Gb/s	iSCSI and IP/file	BASE-T RJ45 Ethernet
10 Gb/s	iSCSI and IP/file	SFP+ or Active/Passive TwinAx
4/8/16 Gb/s	Fibre Channel	SFP+ or OM2/OM3
4/8 Gb/s	Fibre Channel	SFP+ or OM2/OM3
16 Gb/s	Fibre Channel (Single Mode <sup>1</sup> )	SFP+ or OS1/OS2
<sup>1</sup> - If there is a synchronous replication port, it can be configured as single mode and the remaining ports can be configured as multi mode.		

**Figure 1** CNA port locations



**CNA port activity LED**

The CNA activity port LED — a bi-color blue/green LED between the two CNA ports each connector — indicates the link/activity of the port. The port activity LED color depends on the protocol configured on the CNA.

- Fibre Channel CNA ports use a blue LED
- Ethernet CNA ports use a green LED

The following table describes the link/activity and connection speed associated with the CNA port LEDs.

**Table 4** CNA port LEDs

LED	Color	State	Description
Link/Activity	Green	On	Ethernet link active
		Blinking (1 Hz)	Ethernet port fault
	Blue	On	Fibre Channel link active
		Blinking (1 Hz)	Fibre Channel port fault
	—	Off	Link inactive (Ethernet or FC)

## Install the CNA connectors

**Before you begin**

You must have specific connectors to configure the network protocol on the CNA ports. Locate these required hardware components before you begin this process.

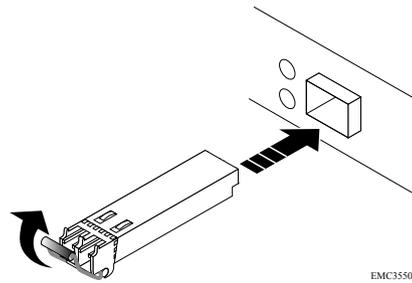
You must insert the same CNA connector type into all CNA ports embedded on the mezzanine of the storage processor.

When you commit the CNA ports in Unisphere, the CNA port will be configured based on the hardware inserted into the CNA ports.

Install the CNA connectors into each empty CNA port on both storage processors using either of these methods.

**Procedure**

- Push the spring release latch up and slide the new LC-type SFP+ module into the CNA port until it is securely connected.

**Figure 2** Install SFP module

Or

- Insert the 10G Active/Passive Twinaxial cable to the CNA port.

#### After you finish

Ensure that all connectors have been fully inserted into each of the CNA ports before you proceed to Unisphere to commit these ports.

## Committing the new I/O ports

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

#### Procedure

1. In Unisphere, select **System View**.
2. Select the DPE and select **Commit IO Ports**.

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#### Note

Committing I/O ports requires multiple reboots of the SPs and may take up to an hour to complete. You can find I/O ports commit and SP reboot status details on **Service > Logs**. During these reboots you will temporarily lose Unisphere connectivity.

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After this process completes, the new I/O ports have been successfully committed into the system.

If the commit of the new I/O ports fails, please wait 15 minutes for the system to fully boot and then re-attempt the commit process.

## Verifying the new CNA

Verify that the new CNA is recognized by your system, and operating correctly using the procedure that follows.

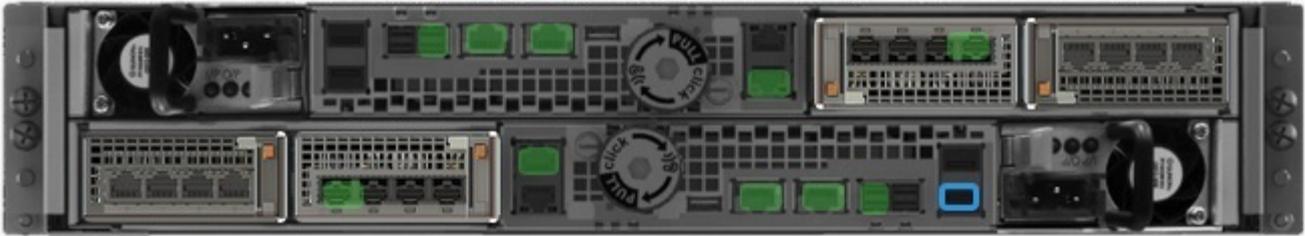
#### Procedure

1. In Unisphere, select **System View**.
2. On the Summary page, confirm that the system status is OK.
3. Select the **Enclosures** page.
4. Verify that the CNA appears with OK status in the enclosure view.

You may need to refresh Unisphere by clicking on the refresh icon next to the **Enclosures** view.

Select the DPE in the **Enclosure** dropdown menu and then select the **Rear** view of the DPE. Select the newly configured CNA ports shown in this enclosure view.

**Figure 3** Healthy converged network adapter location - example



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

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