This document describes how to add an optional 15-drive DAE in Unity Hybrid systems. You will install the 15-drive DAE from the front of the rack, after installing the snap-in rails into the selected space in the rack.

⚠️ CAUTION ⚠️

The enclosure is heavy and should be installed into or removed from a rack by two people. To avoid personal injury and/or damage to the equipment, do not attempt to lift and install the enclosure into a rack without a mechanical lift and/or help from another person.

Note

You do not have to power down any components to add a new 15-drive DAE.

⚠️ NOTICE ⚠️

When Data at Rest Encryption is enabled, only drives that meet at least one of these requirements can be used: factory new drives, securely erased/sanitized drives, or previously encrypted drives.

- Before you start .................................................................................................................... 2
- Summary of tasks for installing a DAE .................................................................................... 7
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- Adding the new 15-drive DAE ............................................................................................... 10
- Verifying the new 15-drive DAE .......................................................................................... 25
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 instructions on how to identify failures, order new parts, and handle hardware components.

Additional resources

As part of an improvement effort, revisions of the software and hardware are periodically released. 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 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.

Troubleshooting
For information about products, software updates, licensing, and service, go to 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 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 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

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

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

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

NOTICE
Addresses practices not related to personal injury.
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.

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.

Table 1 on page 4 helps you determine the precise amount of stabilization time required.

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

<table>
<thead>
<tr>
<th>If the last 24 hours of the TRANSIT/STORAGE environment was this:</th>
<th>...and the OPERATING environment is this:</th>
<th>...then let the system or component acclimate in the new environment this many hours:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>Humidity</td>
<td></td>
</tr>
<tr>
<td>Nominal 68-72°F (20-22°C)</td>
<td>Nominal 40-55% RH</td>
<td>Nominal 68-72°F (20-22°C)</td>
</tr>
<tr>
<td>Cold &lt;68°F (20°C)</td>
<td>Dry &lt;30% RH</td>
<td>&lt;86°F (30°C)</td>
</tr>
<tr>
<td>Cold &lt;68°F (20°C)</td>
<td>Damp ≥30% RH</td>
<td>&lt;86°F (30°C)</td>
</tr>
<tr>
<td>Hot &gt;72°F (22°C)</td>
<td>Dry &lt;30% RH</td>
<td>&lt;86°F (30°C)</td>
</tr>
<tr>
<td>Hot &gt;72°F (22°C)</td>
<td>Humid 30-45% RH</td>
<td>&lt;86°F (30°C)</td>
</tr>
<tr>
<td></td>
<td>Humid 45-60% RH</td>
<td>&lt;86°F (30°C)</td>
</tr>
<tr>
<td></td>
<td>Humid ≥60% RH</td>
<td>&lt;86°F (30°C)</td>
</tr>
<tr>
<td>Unknown</td>
<td>&lt;86°F (30°C)</td>
<td>16 hours</td>
</tr>
</tbody>
</table>
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.
- 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

<table>
<thead>
<tr>
<th>Touch point color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Terra-cotta (orange)</td>
<td>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).</td>
</tr>
<tr>
<td></td>
<td>Note</td>
</tr>
<tr>
<td></td>
<td>Some tasks may require additional steps.</td>
</tr>
<tr>
<td>Blue</td>
<td>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.</td>
</tr>
</tbody>
</table>
Handling disks

Disks are extremely sensitive electronic components. Always handle a disk gently, and observe the following guidelines:

- Follow the instructions described in Removing, installing, or storing replaceable units on page 5.
- Do not stack disks upon one another, or place them on hard surfaces.
- Make sure that the replacement disk has the same part number or the part number of an approved replacement for the faulted disk. The part number (PN005xxxxxx) appears on the disk. A replacement disk should be the same type (example: SAS, FLASH) and have the same capacity (size and speed) as the disk it is replacing.
- When removing a spinning disk, pull the disk partially out of the slot, then wait 30 seconds for the drive to spin down before removing it.
- When installing multiple disks in a powered up system, wait at least 10 seconds before sliding the next disk into position.
- Place disks on a soft, antistatic surface, such as an industry-standard antistatic foam pad or the container used to ship the disk.

Summary of tasks for installing a DAE

To add install a DAE you must complete the tasks below in the order in which they appear. This document provides instructions for completing each task.

1. Verify the contents of the shipping package.
2. Choose the space in the cabinet for the new DAE.
3. Open the console, if it covers the cabinet space where you want to install the new enclosure.
4. Remove the filler panels that cover the cabinet space for the new enclosure.
5. Install the rails for the new enclosure in the cabinet.
6. Install the enclosure on the rails.
7. If the new enclosure shipped without its disks installed, install the disks in the enclosure.
8. Install the front bezel on the new enclosure.
9. Close the console, if present.
10. Attach the expansion (back-end) cables to the new enclosure.
11. Attach the power cords to the new enclosure.
12. Verify the operation of the new enclosure.

Verifying shipping package contents

Confirm that you received all necessary equipment needed to install the new 15-drive DAE.

Verify that you received the following:

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disk-array enclosure (DAE)</td>
<td>1</td>
</tr>
<tr>
<td>Snap in rail kit</td>
<td>1 (includes 2 rails and 6 screws)</td>
</tr>
<tr>
<td>Power cords (AC or DC)</td>
<td>2</td>
</tr>
</tbody>
</table>

Component images include:
- Front view of the Disk-array enclosure (DAE)
- Rear view of the Disk-array enclosure (DAE)
- Snap in rail kit
- AC power cords
- DC power cords
### Choosing where to install the DAE

Before installing the new DAE, you should determine the placement of the new enclosure within the rack.

**Procedure**

1. We recommend that you install the DAE in the next available 2U space directly above the DPE or the last DAE in the system.

   Most cabinets mark 1U increments with horizontal lines or small holes in the channels.

2. Considering these recommendations, choose a 2U space in the cabinet for the DAE.

#### Component Table

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bezel for disk-array enclosure (with key)</td>
<td>1</td>
</tr>
<tr>
<td>SAS cables (either 1 meter or 2 meter copper) that connect disk-array enclosures to each other (1 meter cables) or to DPE (2 meter cables)</td>
<td>2</td>
</tr>
</tbody>
</table>
Adding the new 15-drive DAE

Take the following actions to install the new 15-drive DAE into the system.

Removing a filler panel

In most cases, the front space into which you will install the enclosure is covered by a filler panel, which is attached to latch brackets. If one or more filler panels cover the space where you want to install the enclosure, remove each panel using the procedure that follows.

Procedure

1. Remove the filler panel.
2. Use a flatblade screwdriver or similar tool to pry off the latch brackets (Figure 1 on page 10).

![Figure 1 Prying off a latch bracket](image)

Installing snap-in rails in the cabinet

Note

The snap-in rails are dedicated left and right, and cannot be interchanged. The front edge of each rail is stamped L or R for left or right side when the rail faces the cabinet front.

The snap-in rails have two key tabs at the top and bottom edge on the rear of each rail. The key tabs ensure that the rails are installed in the appropriate 2U space.

Procedure

1. From the rear of the cabinet, insert the two key tabs into the holes of the 2U-space on the rear cabinet channel.
Figure 2 Key tabs at rear rail top and bottom edge

**Note**

As the key tabs and adaptors are pushed into the rear mounting holes, the spring clips will ride over the cabinet channel and snap into place.

2. Holding the rail extended, push the key tabs and the adaptors into the rear mounting holes until the spring clips snap into place on the outside of the rear cabinet channel.

Figure 3 Aligning the rear adaptors (left rear of cabinet shown)

3. At the front of the cabinet, making sure the rail is level, pull it forward and align the rail adaptor with the mounting hole in the channel. Push in on the spring clip while pulling forward on the rail. When the spring clip is forward of the front cabinet channel, and the adaptor is in the mounting holes, release the spring clip so it holds the rail in place.

**CAUTION**

Ensure the spring clip is securely attached to the channel. It may be necessary to push in on the clip to assist in snapping it into place.
4. From the rear of the cabinet, secure the rail in place using one M5 screw on each rail.

**Figure 5 Installing the M5 Screw**

---

**Installing the DAE on the rails**

**WARNING**

The enclosure is heavy and should be installed into or removed from a rack by two people. To avoid personal injury and/or damage to the equipment, do not attempt to lift and install the enclosure into a rack without a mechanical lift and/or help from another person.

**Procedure**

1. With help from another person, lift the enclosure and, from the front of the cabinet/rack, slide the enclosure onto the rails.
2. Once the enclosure is completely seated into the rear tabs, secure the front of the enclosure to the front vertical channels with four screws (two per side), but do not tighten the screws until they are all in place.

**Figure 7** Securing the front of the enclosure
Installing the new disks

If the disks shipped separately from the enclosure, install them in the enclosure now. If the disks are already installed in the enclosure, you are ready to install the enclosure's bezel.

Handling disks

Disks are extremely sensitive electronic components. Always handle a disk gently, and observe the following guidelines:

- Follow the instructions described in Removing, installing, or storing replaceable units on page 5.
- Do not stack disks upon one another, or place them on hard surfaces.
- Make sure that the replacement disk has the same part number or the part number of an approved replacement for the faulted disk. The part number (PN005xxxxxx) appears on the disk. A replacement disk should be the same type (example: SAS, FLASH) and have the same capacity (size and speed) as the disk it is replacing.
- When removing a spinning disk, pull the disk partially out of the slot, then wait 30 seconds for the drive to spin down before removing it.
- When installing multiple disks in a powered up system, wait at least 10 seconds before sliding the next disk into position.
- Place disks on a soft, antistatic surface, such as an industry-standard antistatic foam pad or the container used to ship the disk.

Removing a disk filler module

Refer to Figure 8 on page 15 while performing the procedure that follows.

Procedure

1. Locate the slot where you want to install the disk.
2. Grasp the disk filler with you thumb in the cutout on the front of the filler and your finger on the top of the filler and pull the module from the slot.
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.

Installing a disk drive

This procedure describes how to install a disk drive in the DAE. Refer to while performing the procedure that follows.

**NOTICE**

If you are installing multiple disks in a storage system that is powered up, wait at least 10 seconds before sliding the next disk module into position.

Procedure

1. Attach an ESD wristband to your wrist and the enclosure with the disks you are installing.
2. Align the disk with the guides in the slot.
3. With the disk latch fully open, gently push the disk into the slot. The disk latch begins to rotate downward when its tabs meet the enclosure.
4. After the latch is engaged, push firmly on the bottom of the disk to verify that the disk is properly seated.
The disk's active light flashes to reflect the disk’s spin-up sequence.

Installing and locking the front bezel

**CAUTION**

Remove the protective plastic strip before you install the bezel. Failure to remove this strip will cause the system to overheat.

Procedure

1. If present, remove the protective plastic strip from the front of the bezel.
2. Align the bezel with the enclosure.
3. Gently push the bezel into place until it latches.
4. Secure the bezel by turning the key in the lock.
Connect cables to installed DAE

Continue the installation of the optional DAE by connecting the back-end SAS cables, and then connecting the DAE to rack power.

Use the next tasks to correctly locate, label, and connect the SAS cables to the new DAE and the storage processors or other DAEs, and to connect the DAE to rack power supplies.

Cable label wraps

Each system comes with a cable label wrap guide or set of cable label wraps to affix to the cables. These labels should be affixed to the appropriate cables as you connect the cables.

Note

If your system was assembled at the factory, all the cable labels have been affixed to the cables except for any DAEs you have ordered. Additionally, if your system was not assembled at the factory, the cable kit supplied with your product will have all the required cables already labeled except for the DAEs.

Attaching the expansion (back-end) cables

You connect a DAE to a back-end bus using mini-SAS HD expansion cables.

Before you begin

To prepare for this cabling task:

- Locate the mini-SAS HD cables to be used to connect to the newly installed expansion DAE. Typically these cables are 2-meters long. You use longer cables, typically 5-meters or 8-meters, to connect enclosures located in different racks. Cables are shipped without labels attached. The cables and ports are not colored.
- Locate the sheet of cable labels provided.

Orient the cable connectors as described in the procedure that follows, making sure that you do NOT connect:

- A DAE expansion port 0 to another expansion port 0.
- Any A-side ports to B-side ports.

The drives in the DPE are internally connected to the first back-end bus, so connect new DAEs for the following situations to create or expand the back-end buses:

Note

When cabling the 15-drive DAE LCC SAS ports, ensure that the cables do not overlap behind the DAE. The illustration shown demonstrates the proper method for cabling to the DAE LCC SAS ports.

Procedure

- Connect the first optional expansion DAE to port 1 of the DPE to create back-end bus 1 (BE1) and designate this DAE as enclosure 0 of this bus. We refer to the address of this enclosure as BE1 EA0 (1_0):
<table>
<thead>
<tr>
<th>Expansion port cable labeling details</th>
<th>Primary port cable labeling details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Label part number</td>
<td>Label</td>
</tr>
<tr>
<td>046-001-562</td>
<td>SP A SAS 1</td>
</tr>
<tr>
<td>046-003-750</td>
<td>SP B SAS 1</td>
</tr>
</tbody>
</table>

b. Connect port 1 on SP A in the bottom slot in the DPE to port A on the link control card A (LCC A) at the bottom of the DAE. [1]

c. Connect port 1 on SP B in the top slot in the DPE to port A on the link control card (LCC B) at the top of the DAE. [2]

- Connect the second optional expansion DAE to the DPE expansion port 0 to extend back-end bus 0 (BE0). For Unity 480/F, 680/F and 880/F models, this DAE is enclosure 0 of the bus, and its enclosure address is BE0 EA0 (0_0). For all other Unity models, this DAE is enclosure 1 of the bus, and its enclosure address is BE0 EA1 (0_1).
### Expansion port cable labeling details

<table>
<thead>
<tr>
<th>Label part number</th>
<th>Label</th>
<th>Port</th>
<th>Label part number</th>
<th>Label</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>046-001-561</td>
<td></td>
<td>SP A SAS 0</td>
<td>046-021-010</td>
<td></td>
<td>LCC A Port A</td>
</tr>
<tr>
<td></td>
<td>SP A SAS 0</td>
<td></td>
<td></td>
<td>LCC A PORT A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SP A SAS 0</td>
<td></td>
<td></td>
<td>LCC A PORT A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SP A SAS 0</td>
<td></td>
<td></td>
<td>LCC A PORT A</td>
<td></td>
</tr>
<tr>
<td>046-003-489</td>
<td></td>
<td>SP B SAS 0</td>
<td>046-021-011</td>
<td></td>
<td>LCC B Port A</td>
</tr>
<tr>
<td></td>
<td>SP B SAS 0</td>
<td></td>
<td></td>
<td>LCC B PORT A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SP B SAS 0</td>
<td></td>
<td></td>
<td>LCC B PORT A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SP B SAS 0</td>
<td></td>
<td></td>
<td>LCC B PORT A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SP B SAS 0</td>
<td></td>
<td></td>
<td>LCC B PORT A</td>
<td></td>
</tr>
</tbody>
</table>

### Primary port cable labeling details

<table>
<thead>
<tr>
<th>Label part number</th>
<th>Label</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>046-001-561</td>
<td></td>
<td>LCC A PORT A</td>
</tr>
<tr>
<td>046-021-010</td>
<td></td>
<td>LCC A PORT A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LCC A PORT A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LCC A PORT A</td>
</tr>
<tr>
<td>046-003-489</td>
<td></td>
<td>LCC B PORT A</td>
</tr>
<tr>
<td>046-021-011</td>
<td></td>
<td>LCC B PORT A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LCC B PORT A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LCC B PORT A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LCC B PORT A</td>
</tr>
</tbody>
</table>

---

a. Label a pair of mini-SAS HD cables using the orange labels shown here.

b. Connect port 0 on SP A in the bottom slot in the DPE to port A on the link control card A (LCC A) at the bottom of the DAE. [1]

c. Connect port 0 on SP B in the top slot in the DPE to port A on the link control card (LCC B) at the top of the DAE. [2]

- To connect first DAE to any of the remaining SAS ports on the SP SAS modules, cable the DAE to the 12-Gb/s SAS modules in the DPE 0, port 0 through port 3, to create back-end bus 2 through 5, BE2-BE5:
Note
The optional back-end 12-Gb/s SAS module is not supported on all Unity storage systems.

Expansion port cable labeling details

<table>
<thead>
<tr>
<th>Label part number</th>
<th>Label</th>
<th>Port</th>
<th>Primary port cable labeling details</th>
</tr>
</thead>
<tbody>
<tr>
<td>046-005-679</td>
<td>046-005-679_xx</td>
<td>SP A A0 PORT 0</td>
<td>046-005-718</td>
</tr>
<tr>
<td></td>
<td>SP A A0 PORT 0</td>
<td></td>
<td>046-021-16</td>
</tr>
<tr>
<td></td>
<td>SP A A0 PORT 0</td>
<td></td>
<td>LCC A Port A</td>
</tr>
<tr>
<td></td>
<td>SP A A0 PORT 0</td>
<td></td>
<td>LCC A Port A</td>
</tr>
<tr>
<td></td>
<td>SP A A0 PORT 0</td>
<td></td>
<td>LCC A Port A</td>
</tr>
<tr>
<td></td>
<td>046-005-679_xx</td>
<td>SP A A0 PORT 1</td>
<td>046-005-718</td>
</tr>
<tr>
<td></td>
<td>046-021-016</td>
<td></td>
<td>046-021-017</td>
</tr>
<tr>
<td></td>
<td>LCC A Port A</td>
<td></td>
<td>LCC B Port A</td>
</tr>
<tr>
<td></td>
<td>LCC A Port A</td>
<td></td>
<td>LCC B Port A</td>
</tr>
<tr>
<td></td>
<td>LCC A Port A</td>
<td></td>
<td>LCC B Port A</td>
</tr>
<tr>
<td></td>
<td>LCC A Port A</td>
<td></td>
<td>LCC B Port A</td>
</tr>
<tr>
<td></td>
<td>LCC A Port A</td>
<td></td>
<td>LCC B Port A</td>
</tr>
<tr>
<td></td>
<td>LCC A Port A</td>
<td></td>
<td>LCC B Port A</td>
</tr>
</tbody>
</table>

a. Label a pair of mini-SAS HD cables using the appropriate labels (black, green, brown, or blue) shown here.
<table>
<thead>
<tr>
<th>Label part number</th>
<th>Label</th>
<th>Port</th>
<th>Label part number</th>
<th>Label</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>046-005-711</td>
<td>046-005-719</td>
<td>SP A A0 PORT 1</td>
<td>046-005-719</td>
<td>SP B B0 PORT 1</td>
<td>LCC A Port A</td>
</tr>
<tr>
<td>046-005-935</td>
<td>046-005-937</td>
<td>SP A A0 PORT 2</td>
<td>046-005-937</td>
<td>SP B B0 PORT 2</td>
<td>LCC B Port A</td>
</tr>
<tr>
<td>046-005-936</td>
<td>046-005-938</td>
<td>SP A A0 PORT 3</td>
<td>046-005-938</td>
<td>SP B B0 PORT 3</td>
<td>LCC B Port A</td>
</tr>
</tbody>
</table>

b. For SP A, connect the lowest available port in the SAS module in the bottom slot of the DPE to port A on the link control card A (LCC A) at the bottom of the DAE.

c. For SP B, connect the lowest available port in the SAS module in the top slot of the DPE to port A on the link control card B (LCC B) at the top of the DAE.

- To connect an optional expansion DAE to the last installed DAE in the back-end bus to extend to the new DAE:

Connect cables to installed DAE
For example, to add Enclosure 2 to back-end 0:

a. Label a pair of mini-SAS HD cables using the appropriate labels (orange, blue, lack, green, brown, or cyan) shown here.

### Expansion port cable labeling details

<table>
<thead>
<tr>
<th>Label part number</th>
<th>Label</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>046-004-455</td>
<td>046-004-455_xx</td>
<td>LCC A Port B</td>
</tr>
<tr>
<td>046-004-463</td>
<td>046-004-463_xx</td>
<td>LCC B Port B</td>
</tr>
<tr>
<td>046-004-456</td>
<td>046-004-456_xx</td>
<td>LCC A Port B</td>
</tr>
</tbody>
</table>

### Primary port cable labeling details

<table>
<thead>
<tr>
<th>Label part number</th>
<th>Label</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>046-004-455</td>
<td>A BE0</td>
<td>LCC A Port A</td>
</tr>
<tr>
<td>046-004-463</td>
<td>B BE0</td>
<td>LCC B Port A</td>
</tr>
<tr>
<td>046-004-456</td>
<td>A BE1</td>
<td>LCC A Port A</td>
</tr>
<tr>
<td>Label part number</td>
<td>Label</td>
<td>Port</td>
</tr>
<tr>
<td>------------------</td>
<td>-------</td>
<td>----------</td>
</tr>
<tr>
<td>046-004-464</td>
<td>046-004-464_xx</td>
<td>B BE1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LCC B Port B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LCC A Port B</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LCC B Port B</td>
</tr>
<tr>
<td>046-004-458</td>
<td>046-004-458_xx</td>
<td>A BE3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LCC A Port B</td>
</tr>
<tr>
<td>046-004-466</td>
<td>046-004-466_xx</td>
<td>B BE3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LCC B Port B</td>
</tr>
<tr>
<td>046-004-459</td>
<td>046-004-459_xx</td>
<td>A BE4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LCC A Port B</td>
</tr>
<tr>
<td>046-004-467</td>
<td>046-004-467_xx</td>
<td>B BE4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LCC B Port B</td>
</tr>
</tbody>
</table>

Adding an optional 15-drive DAE

Connect cables to installed DAE
### Expansion port cable labeling details

<table>
<thead>
<tr>
<th>Label part number</th>
<th>Label part number</th>
<th>Port</th>
<th>Label</th>
<th>Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>046-004-460</td>
<td>046-004-460</td>
<td>LCC A Port B</td>
<td>A BE5</td>
<td>LCC A Port A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A BE5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A BE5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>A BE5</td>
<td></td>
</tr>
<tr>
<td>046-004-468</td>
<td>046-004-468</td>
<td>LCC B Port B</td>
<td>B BE5</td>
<td>LCC B Port A</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B BE5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B BE5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>B BE5</td>
<td></td>
</tr>
</tbody>
</table>

b. Connect port B on the link control card A (LCC A) of the lower-numbered DAE to port A on the link control card A (LCC A) of the higher-numbered DAE. [1] LCC A is located on the lower portion of the DAE.

c. Connect port B on the link control card B (LCC B) of the lower-numbered DAE to port A on the link control card B (LCC B) of the higher-numbered DAE. [2] LCC B is located on the upper portion of the DAE.

### Connecting the power cords

**Note**

As soon as the enclosure is connected to a live power source, it powers up and its light begin blinking.

**Procedure**

1. For an AC power cooling module:
   a. Plug the power cord into the power cooling module.
   b. Secure the power cord with the retention bail at the connector. The bail prevents the power cord from pulling out of the connector.
Figure 11 Connecting and securing AC power cord

2. For a DC power cooling module, push the power cord plug into the connector until it snaps in place. The clips on the plug prevent the power cord from pulling out of the connector.

Verifying DAE status

Procedure

1. Verify that the DAE power LED is lit and that the power fault and blower fault LEDs are not lit.

Figure 12 Power cooling module status LEDs

2. Verify that the DAE fault LED is not lit.

Figure 13 DAE status LED

Verifying the new 15-drive DAE

Verify that the new 15-drive DAE 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 15-drive DAE 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 DAE with the **Enclosure** dropdown menu and then select the **Front** view of the new 15-drive DAE.

**Figure 14** New DAE location - example

If the system health monitor shows the part as faulted, contact your service provider.
Adding an optional 15-drive DAE

Verifying the new 15-drive DAE