This document describes how to add an optional 3.5-inch disk drive in the Unity 300, Unity 400, Unity 500, Unity 600.

The disk slots are located behind the front bezel of the enclosure. These disk enclosures use 3.5-inch disks:

- 12-slot disk processor enclosure (DPE)
- 15-slot disk-array enclosure (DAE)

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**Note**
The disk carriers for the 3.5-inch disks in the 12-slot DPE cannot be transferred into the 15-slot DAE.

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**Note**
You do not have to power down any components to add a new disk drive.

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**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.

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- Before you start..........................................................2
- Summary of tasks for adding a disk..............................7
- Adding the new 3.5-inch disk drive...............................8
- Verifying the operation of the 3.5-inch disk drive..........11
- Returning a faulted part.............................................12
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 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

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.

⚠️ 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.
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 procedures to reduce the possibility of an electrostatic discharge by ensuring that your body and the subassembly are at the same electrostatic potential.

These procedures 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)

<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) 40-55% RH</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>Hot &gt;72°F (22°C)</td>
<td>Humid 45-60% RH</td>
<td>&lt;86°F (30°C)</td>
</tr>
<tr>
<td>Hot &gt;72°F (22°C)</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.
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.

<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>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>

**Note**

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

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

1. Open the console, if it covers the front of the enclosure to which you will add the disk.
2. Remove the front bezel from the enclosure.
3. Locate the slot for the new disk.
4. Remove the disk filler module from the slot for the new disk.
5. Unpack the new disk.
6. Install the new disk in the slot.
7. Reinstall the front bezel on the enclosure.
8. Close the console, if present.
9. Verify the operation of the new disk.
Adding the new 3.5-inch disk drive

Take the following actions to install the new 3.5-inch disk drive into the system.

Removing the front bezel

**NOTICE**

You must remove the disk enclosure’s front bezel to gain access to the disks. The bezel is required for EMI compliance when the enclosure is powered up. Remove it only to replace or add a disk.

**Procedure**

1. If the bezel has a lock, insert the key that shipped with your enclosure into the lock, and turn the key to unlock the bezel.
2. Press the two latch buttons on the bezel surface to release the bezel from the cabinet.
3. Pull the bezel off the cabinet and put it on a clean, static-free surface.

   **Figure 1** Removing the front bezel

Locating a slot for a new disk

Locate the slot with the disk filler module that you want to replace with the new disk.

**Note**

Unlike disks, disk filler modules do not have LEDs.

Removing the 3.5-inch disk filler module

**Procedure**

- For a 12-drive DPE:
a. Insert your thumb into the cutout on the right side of the disk filler module (2).
b. With your finger push in the latch on the left side of the disk filler module, and pull the module out of the slot.

**Figure 2** Removing a 12-drive DPE disk filler

![Diagram of disk filler removal](image)

- For a 15-drive DAE, grasp the disk filler with your 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.

**Figure 3** Removing a 15-drive DAE disk filler

![Diagram of disk filler removal](image)

### 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 the new 3.5-inch disk

This procedure describes how to install a disk drive in the supported

Note

If you are installing multiple disks to a powered up system, wait at least 10 seconds after inserting each disk before sliding the next disk into position.

Procedure

1. Align the disk with the guides in the slot.
2. Insert the disk into the enclosure:
   - For a 15-drive DAE: 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.  
     Figure 4  Installing a disk into 15-drive DAE

   - For a 12-drive DPE:
     a. Ensure the ejector handle is open at a 45 degree angle from the drive.
     b. Gently push the disk into the slot by pressing on the right-most thumb space (2).
c. Engage the ejector handle to fully seat the disk (3).

![Installing a disk into 12-drive DPE](image)

Installing the front bezel

**Procedure**

1. Align the bezel with the enclosure.
2. Gently push the bezel into place on the cabinet until it latches.
3. If the bezel has a lock, insert the key that shipped with your enclosure into the lock, and turn the key to lock the bezel.

![Installing the front bezel](image)

Verifying the operation of the 3.5-inch disk drive

Verify that the new 3.5-inch disk drive 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 3.5-inch disk drive appears with OK status in the enclosure view.
   Select the 12-drive DPE or 15-drive DAE in the Enclosure dropdown menu and select the Front view of the enclosure. Locate the new 3.5-inch drive(s) shown in this enclosure view.

   Figure 7  New 3.5 disk 5 in DPE- example location

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

Returning a faulted part

We appreciate the return of defective material within 5 business days (for US returns). For International customers, please return defective material within 5-10 business days. All instructions and material required to return your defective part were supplied with your good part shipment.

Procedure

1. Package the faulted part in the shipping box that contained the replacement part, and seal the box.
2. Ship the failed part to your service provider as described in the instructions that were included with the replacement part.
3. (Optional) For more information about returning customer-replaceable parts, from Unisphere, click Support > Replace Disk Drives, Power Supplies, and Other Parts > Return a Part to display the part return instructions.
   If your screen does not show the Return a Part option, contact your service provider for instructions on what to do next.
Adding an optional 3.5-inch disk drive