

# HP StorageWorks Fibre Channel disk drive replacement instructions

These instructions apply to the EVA3000/5000 and EVA4x00/6x00/8x00 products. The part may also be used in other HP products. See the documentation for your specific product for detailed replacement instructions.

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## About this document

This document describes the procedure for replacing the Fibre Channel disk drive used in the EVA products.

## Warranty information

If the product in which this part is being replaced is still under HP warranty, then the replacement part(s) referred to in these Replacement Instructions is provided under the terms and conditions of the Hewlett-Packard Company Limited Warranty for that product. A copy of this Limited Warranty may be viewed at: <http://h18006.www1.hp.com/products/storageworks/warranty.html>

If this is a trade sale part (product out of warranty), then the replacement part(s) referred to in these replacement instructions is provided under HP's express limited warranty statement, which may be viewed at: <http://www.hp.com/go/storagewarranty>

The replacement part takes on either the Limited Warranty Period of the part being replaced or a ninety-day period that begins upon installation of the replacement part, whichever is greater.

The only warranty for this replacement product is as noted above. Nothing in these replacement instructions should be construed as constituting an additional warranty. The information provided in these replacement instructions is provided "AS IS" and HP is not liable for technical or editorial errors or omissions contained herein.

## Before you begin

Observe the following precautions when replacing the disk:

- Ensure you have a replacement part available before removing the failed component. Removing a component impacts cooling within the enclosure.
- Do not remove more than one disk at a time from the enclosure. Doing so will impact cooling of the enclosure and may cause data loss.
- Parts can be damaged by electrostatic discharge. Use proper anti-static protection.
- Have a copy of the product user guide available for reference. You can download a copy of the user guide from the product support page on the HP website.

## Disk replacement video

To assist you in replacing the disk, a replacement video is available. You can view the video at the following website. The same procedure is used for EVA3000/5000 and EVA4x00/6x00/8x00 products.

<http://www.thesml.com/csr.htm?prodSeriesId=470490>

## Types of disk failures

There are two types of disk failures:

- **Hard failure:** The disk is no longer functioning properly and has been assigned a failed status. This type of failure is indicated by an operational state of  Failed in HP Command View EVA. The amber fault status indicator on the disk is typically on.
- **Impending failure:** Although the disk is still functioning, errors have been detected that indicate an impending failure. This type of failure is not accompanied by a failed status.

△ CAUTION:

A disk with an impending failure will appear to be operating normally in HP Command View EVA, and the fault light on the disk will not be on. Therefore, it is important that you positively identify the disk before performing the replacement. Work with the HP Solution Center to ensure you identify the correct disk for replacement.

## Checking system redundancy

Before replacing a disk, check the redundancy status of the entire storage system to ensure a disk can be removed without impacting data availability.

△ CAUTION:

Do not proceed with the disk replacement until you are certain the storage system is redundant.

1. Open HP Command View EVA and click the icon of the storage system you want to check (Figure 1).
2. On the Initialized Storage System Properties window, click **Check Redundancy** (Figure 2).
3. If the system is redundant, continue with [Verifying component failure](#).

If the system is not redundant, information is displayed indicating the cause of the lack of redundancy. See the HP Command View EVA online help to interpret the information that is displayed. In this situation, work with your HP call center agent to determine how to proceed.

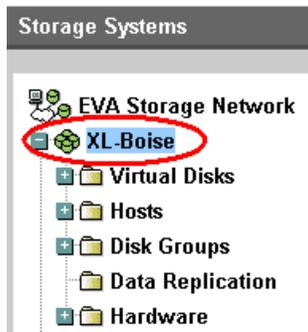


Figure 1 Selecting a storage system

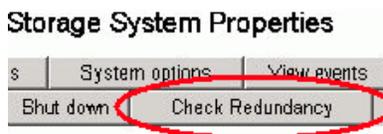


Figure 2 Checking redundancy

## Verifying component failure

Before replacing a disk, use the following methods to verify component failure:

△ CAUTION:

If HP Command View EVA does not present a status consistent with the disk status indicators, or if HP Command View EVA or your system monitoring tool indicates multiple hardware failures, contact HP support for assistance (<http://www.hp.com/support>).

- Analyze any failure messages received. Error messages identify each disk by its rack, enclosure, bay, and UUID (World Wide Name). Record this information to assist you in identifying the correct disk before replacing it.

The following is a sample of the disk identification information:

```
FRU List:
Storage System Name:   EVA_1
Storage System World Wide ID: 5000-1FE1-0015-42A0

Disk Drive UUID:    2000-0000-871D-FE60

Drive Location ---
Enclosure ID:      8
Bay ID:            1
Rack Number:      0
```

NOTE:

The Disk Drive UUID corresponds to the disk Node World Wide Name displayed in HP Command View EVA.

- Check the disk status indicators (Figure 3). If a hard failure has occurred, the fault indicator should be On.
- Check the disk status using HP Command View EVA:
  1. In the Navigation pane, select **Storage system > Hardware > Rack > Disk enclosure > Bay**. Use the information from the error message to guide you to the correct disk.
  2. In the Content pane, select the **Disk Drive** tab.
  3. Check the disk Node World Wide Name against the error message UUID information recorded earlier to ensure you have selected the correct disk (Figure 4).
  4. Check the disk operational state. If a hard failure has occurred, the operational state should be Failed. A disk with an impending failure indicates Good status until the condition of the disk degrades enough to become a hard failure.
  5. Verify that the **Requested usage** and **Actual usage** fields display Ungrouped (Figure 6).

△ CAUTION:

Both fields must display Ungrouped before you remove the disk.

If fields display Ungrouped, continue with Step 7. If you must ungroup the disk, continue with the following step.

NOTE:

If the fields do not display Ungrouped after you attempt to ungroup the disk, contact your HP-authorized service representative for assistance.

6. For an impending failure, you must ungroup the disk before you remove it:

**NOTE:**

You should only ungroup one disk at a time. Before you ungroup a disk, verify that leveling is not in progress and that sufficient free space is available. After you ungroup the disk, verify the status of the disk group before continuing. For more information about leveling and free space, see the *HP StorageWorks Enterprise Virtual Array best practices* document.

- a. Click **Ungroup**.
- b. Click **Ungroup in background**.

**CAUTION:**

When selecting **Ungroup in background**, a dialog box is displayed indicating the Operation succeeded. This indicates that the ungroup operation has been initiated. You can monitor the progress of the ungroup on the Disk Drive Properties window.

- c. Click the **Disk Drive** tab and monitor the ungroup progress. When the ungroup is complete, continue with the next step.
  - If you are running XCS 6.000 or later, monitor the **Migration progress** field (Figure 5).
  - If you are running an earlier version of XCS or any version of VCS, monitor the **Requested usage** field and the **Actual usage** field. Both fields will display Ungrouped when the process is complete.

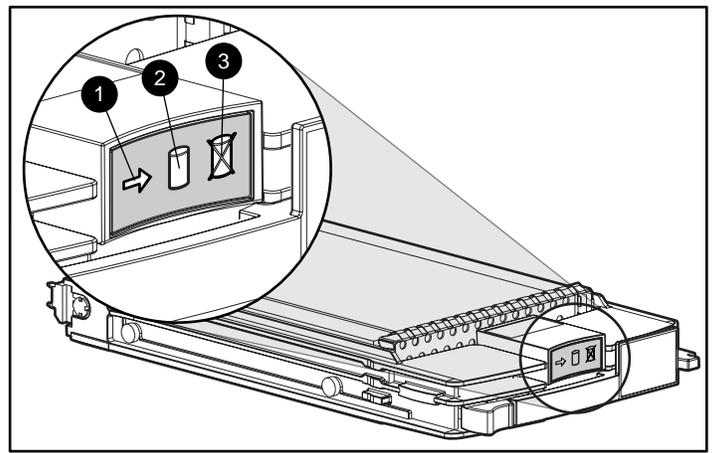
**NOTE:**

The ungrouping process may take up to several hours to complete. The time depends on the capacity of the disk and the level of storage system activity.

- 7. Click **Remove** to prepare the disk for removal. The status indicators on the disk will begin flashing to help you locate the disk. You can now remove the disk as described in [Removing a disk](#).

**NOTE:**

Certain hard disk failures result in a status of *Drive unmated*. If you are running XCS 5.xxx or earlier and HP Command View EVA 5.x or earlier, the *Drive unmated* status disables the **Remove** button. In this situation, you can remove the disk immediately from the enclosure. The fault indicator will be on to help locate the failed disk.



**Figure 3 Disk status indicators**

- 1. Activity
- 2. Online
- 3. Fault

Identification	
Name:	Disk 012
Loop Pair:	LoopPair1
Node World Wide Name:	2000-000C-5053-3F97
UID:	2000-000c-5053-3f97-0000-0000-0000-0000

**Figure 4 Checking Node World Wide Name**

Condition/State	
Operational state:	⚠ Operation in progress
Migration state:	⚠ Ungrouping
Migration progress:	0%  100% 67% progress 

**Figure 5 Monitoring ungroup progress**

System	
Requested usage:	Ungrouped
Actual usage:	Ungrouped
Disk group:	n/a
Occupancy:	0.00 GB
RSS ID:	n/a
RSS index:	n/a

Figure 6 Checking disk group status

## Removing a disk

### CAUTION:

Rotating media can make the disk difficult to handle. To avoid dropping and damaging the disk, wait approximately 30 seconds for the media to stop rotating before removing the disk from the enclosure.

1. Push in the wine-colored ejector button (1) and pull the release lever (2) down to the full open position.
2. Pull the disk part way out of the enclosure (3) and wait for the media to stop spinning.
3. When the media has stopped spinning, remove the disk from the enclosure.

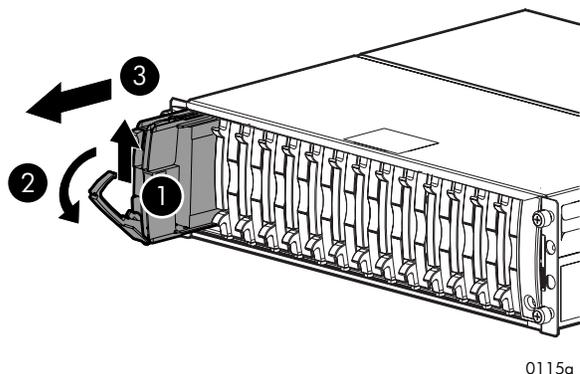


Figure 7 Removing a disk

## Changing the Device Addition Policy

To prevent the storage system from automatically grouping a new disk that may have the incorrect firmware on it, check the Device Addition Policy and set it to manual if necessary:

1. In the HP Command View EVA Navigation pane, select the storage system.  
The Initialized Storage System Properties window opens.
2. Click **System Options**.
3. Select **Set system operational policies**.
4. If the Device Addition Policy is set to **Automatic**, change it to **Manual**.
5. Click **Save changes**.

### NOTE:

To return the Device Addition Policy to automatic, repeat this procedure after you verify that the disk has the correct firmware version.

## Installing a disk

### CAUTION:

You should only replace one disk at a time. After installing the new disk, complete the remaining procedures in this document for this disk before you attempt to replace another disk.

1. Push in the ejector button on the disk and pull the release lever down to the full open position.
2. Insert the disk into the enclosure as far as it will go (1).
3. Close the release lever until it engages the ejector button, and the disk seats in the backplane (2).
4. Press in firmly on the disk to ensure it is seated properly.

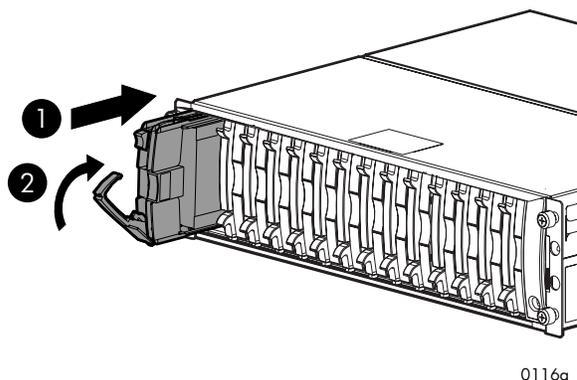


Figure 8 Installing a disk

## Verifying proper operation

After replacing the disk, check the following to verify that the disk is operating normally:

### NOTE:

It may take up to 10 minutes for the component to display good status.

- Check the disk status indicators (Figure 3).
  - Activity indicator (1) should be on or flashing
  - Online indicator (2) should be on or flashing
  - Fault indicator (3) should be off
- Check the following using HP Command View EVA:
  - Navigate back to the component and check the operational state. It should be .
  - Ensure the disk is running the correct firmware. Record the **Model number** and the **Firmware version** of the disk (Figure 9). Check the firmware version against the supported disk firmware in the *HP StorageWorks Enterprise Virtual Array release notes*. See the *HP StorageWorks Enterprise Virtual Array upgrading*

disk drive firmware read me first for installation instructions. You can download these documents from the following website:

<http://www.hp.com/support/manuals>

Click **Disk Storage Systems** under Storage, and then select the appropriate product under EVA Disk Arrays.

If the disk is running an unsupported version of firmware, download the correct firmware from the following website and install it using the instructions included with the firmware file. Do not add the disk to a disk group if it is running an unsupported firmware version.

<http://www.hp.com/support/evadiskfirmware>

 **NOTE:**

When downloading the firmware, use the disk model number to locate the correct firmware file. If you have difficulty locating the correct firmware, contact your HP-authorized service representative for assistance.

If you are running XCS 6.000, verify that leveling is not in progress before upgrading the disk drive firmware. In HP Command View EVA, go to the General tab of the Disk Group Properties window and verify that the Leveling field displays Inactive. If it displays Active, wait for leveling to complete before performing the upgrade. This does not apply if you are running XCS 6.100 or later.

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## Returning the failed component

Follow the return instructions provided with the new component.

Physical	
Type:	Fibre Channel Disk
Manufacturer:	HPO
Model number:	BF07255B2C
Firmware version:	HP05
Formatted capacity:	68.36 GB
Drive Type:	Online

**Figure 9 Checking model number and firmware version**

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## Adding the disk to a disk group

After replacing the disk, add it to a disk group. The disk is typically added back into its original disk group.

1. In the Navigation pane, select **Storage system > Hardware > Rack > Disk enclosure > Bay**.
2. In the Content pane, select the **Disk Drive** tab.
3. Click **Group** to initiate the process for adding the disk to a disk group.

Operation Successful is displayed indicating the disk is now grouped and leveling has been initiated. The storage system begins immediately using the disk.

 **NOTE:**

If the Device Addition Policy is set to automatic, the disk is automatically added to a disk group. In this case the **Group** option will not be available.