Replacing an IOM

I/O modules (IOMs) provide the intelligence for drive shelf I/O operations. The DE212C and DE224C drive shelves can have one or two IOMs depending on the type of configuration (simplex or duplex). The DE460C drive shelf can be configured only as duplex, and includes two IOMs. If an IOM fails, you must replace it as soon as possible.

Before you begin

- You have a replacement IOM that is supported for your drive shelf model.

- You have an ESD wristband, or you have taken other antistatic precautions.

- You have labels to identify each cable that is connected to the IOM.

About this procedure

Use this procedure to replace an IOM in the following shelves:

- DE212C drive shelf, which contains 12 drives

- DE224C drive shelf, which contains 24 drives

- DE460C drive shelf, which contains 60 drives

The following figure shows the back of a DE212C or DE224C drive shelf with two IOMs:

Item	Description
❶	Drive shelf with two IOMs above the power-fan canisters

The following figure shows the back of a DE460C drive shelf with two IOMs:
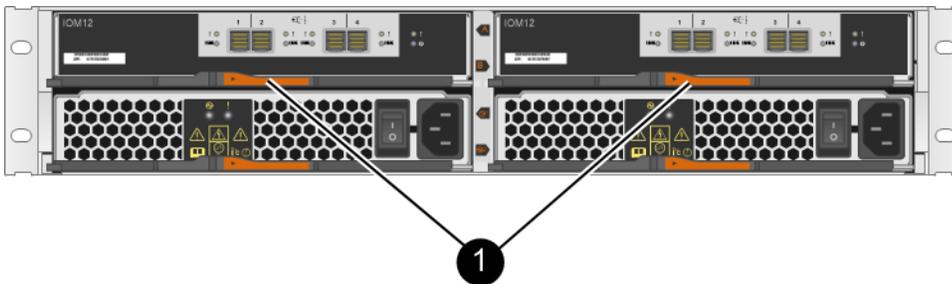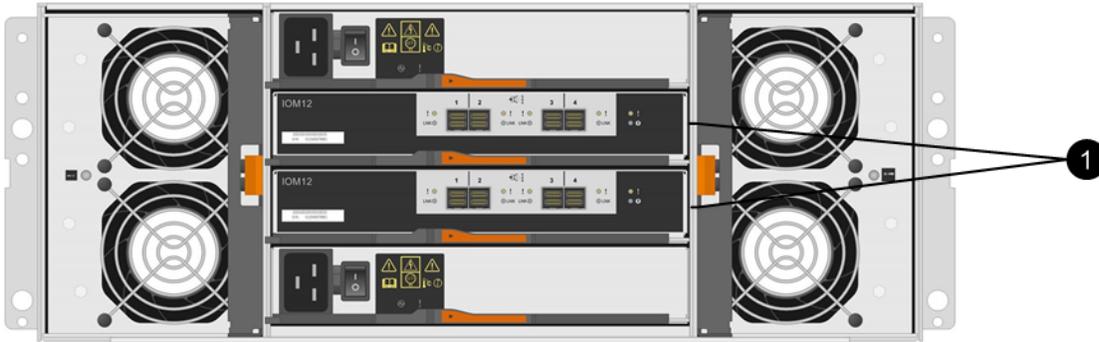
Item	Description
1	Drive shelf with two IOMs between the two power canisters

You can replace an IOM while your storage array is powered on and performing host I/O operations, as long as the following conditions are true:

- The second IOM in the drive shelf has an Optimal status.

- The **OK to remove** field in the Details area of the Recovery Guru in SANtricity System Manager displays **Yes**, indicating that it is safe to remove this component.

Attention: If the second IOM in the drive shelf does not have Optimal status or if the Recovery Guru indicates that it is not OK to remove the IOM, contact technical support.

Note: These instructions assume that your drive shelf is connected to an E-Series controller that supports the SANtricity System Manager web interface. If your drive shelf is connected to an E-Series controller that uses the Array Management Window in SANtricity Storage Manager, you can still use these instructions. However, be aware that the steps that describe how to use the user interface might not apply. As needed, refer to the online help or to the Recovery Guru for these instructions.

Steps

1. Preparing to remove an IOM on page 2
2. Removing an IOM on page 5
3. Installing an IOM on page 6
4. After replacing an IOM on page 6

Related information

NetApp Hardware Universe
NetApp E-Series and EF-Series Systems Documentation Center
NetApp Support

Preparing to remove an IOM

Before removing a I/O module (IOM), collect support data about your storage system and locate the failed component.

About this task

You can determine if you have a failed IOM in these ways:

- The Recovery Guru in SANtricity software directs you to replace a failed IOM.

  Note: Before replacing an IOM, select **Recheck** from the Recovery Guru to ensure no other items must be addressed first.

- The amber Attention LED on the IOM is on, indicating that the component has a fault.

  Attention: If both IOMs in the shelf have their Attention LEDs on, contact technical support for assistance.

Steps

1. Collect support data for your storage array.

   Collecting support data before and after replacing a component ensures you can send a full set of logs to technical support in case the replacement does not resolve the problem.

| Option	Description
SANtricity System Manager	**a.** Select **Support > Support Center > Diagnostics**. **b.** Select **Collect Support Data**. **c.** Click **Collect**. The file is saved in the Downloads folder for your browser with the name *support-data.7z.*

Script editor in the EMW	**a.** Open the Enterprise Management Window (EMW) in SANtricity Storage Manager on your local host.
	
	b. Select the storage array.
	
	c. Select **Tools > Execute Script**.
	
	d. Type the following command in the text box.
	
	`save storageArray supportData file="`*filename*`";`
	
	In this command, *filename* is the file path and the file name to which you want to save the support data. Enclose the file path and the file name in double quotation marks (" "). For example:
	
	`file="C:\Program Files\CLI\logs\support-data.7z"`
	
	e. Select **Tools > Verify and Execute**.

2. From SANtricity System Manager, determine which IOM has failed.

   a. Select **Hardware**.

   b. Look at the IOM icons to the right of the **Shelf** drop-down lists to determine which shelf has the failed IOM.

      If an IOM has failed, the icon will be red.

   c. When you find the shelf with the red IOM icon, select **Show back of shelf**.

   d. On the **IOMs (ESMs)** tab, look at the status of the two IOMs to determine which IOM must be replaced.

      An IOM with a **Failed** status must be replaced.

      Attention: If the second IOM in the drive shelf does not have **Optimal** status, do not attempt to hot-swap the IOM. Instead, contact technical support for assistance.

Note: You can also find the information about the failed IOM in the Details area of the Recovery Guru, or you can review the information displayed for the drive shelf.

3. If you need help physically finding this IOM in your storage array, turn on the locate LEDs for the shelf and the IOMs.

   a. Select **Hardware**.

   b. Select **Shelf > Turn on locator light.**
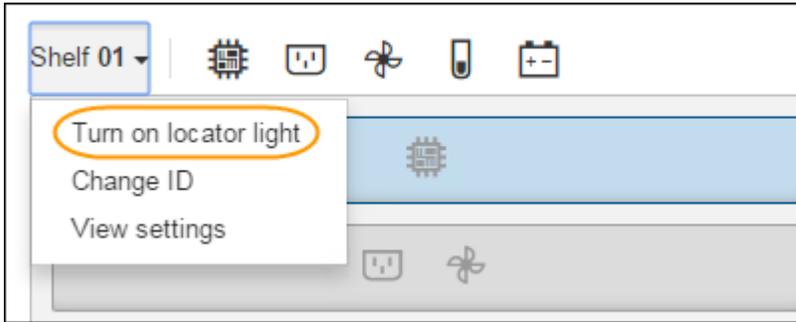
   The following LEDs turn on:

   • The blue Locate LED on the shelf's operator display panel (front view)

   • The blue Locate LEDs on both the failed IOM and the optimal IOM within that shelf (back view)

4. From the back of the storage array, look at the LEDs to determine which IOM to replace.
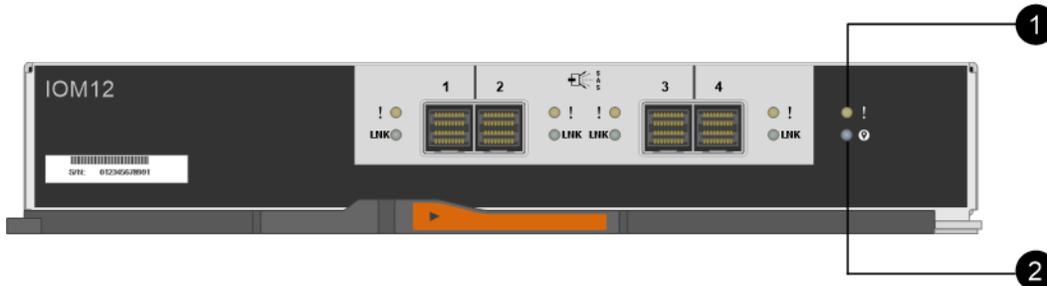
Item	LED name	State	Description
1	Attention	Solid amber	The IOM has an error.
2	Locate	Solid blue	You have issued a request to turn on the shelf's locator light. **Note:** Depending on what caused the IOM to fail, the locator LED on the failed IOM might not be lit.

You must replace the IOM that has its Attention LED on.

Related information

SANtricity 11.30 Command Line Interface and Script Commands Programming Guide
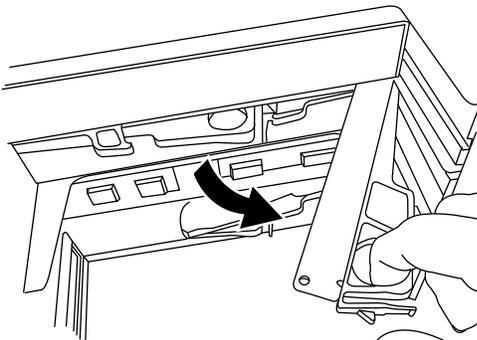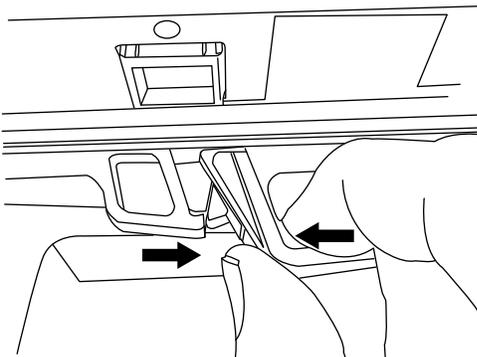
Removing an IOM

When you remove an I/O module (IOM), you disconnect the SAS cables, and slide the IOM out of the drive shelf.

Before you begin

- You have an ESD wristband, or you have taken other antistatic precautions.

- You have the replacement IOM.

Steps

1. Put on antistatic protection.

2. Unpack the new IOM, and set it on a level surface near the drive shelf.

   Save all packing materials for use when returning the failed IOM.

3. Label each cable that is attached to the IOM.

4. Disconnect all of the cables from the IOM.

5. Squeeze the latch on the cam handle until it releases, and then open the cam handle to the right to release the IOM from the midplane.

6. Using two hands, pull the IOM out of the disk shelf.

   When you remove the IOM, a flap swings into place to block the empty bay, helping to maintain air flow and cooling.

Installing an IOM

When you install an IOM, you slide the IOM into the shelf, close the cam handle to secure the IOM in place, and reconnect the SAS cables.

Before you begin

- You have an ESD wristband, or you have taken other antistatic precautions.

- You have the replacement IOM.

Steps

1. With the cam handle in the open position, insert the new IOM into the disk shelf, firmly pushing until the IOM meets the midplane.

   Attention: Do not use excessive force when sliding the IOM into the disk shelf; you might damage the connectors.

2. Close the cam handle so that the latch clicks into the locked position and the IOM is fully seated.

3. Reconnect the cables.

   SAS cable connectors are keyed. When inserting the connectors, confirm that the blue tabs face down, and make sure each connector clicks into place.

   Attention: Never force the connectors into the ports; you might damage the cables, the ports, or both.

After replacing an IOM

After installing a new IOM and reconnecting the SAS cables, you must confirm that the new IOM is working correctly. Then, you can gather support data and resume operations.

Steps

1. Check the Link LEDs on the IOM to verify that the IOM links have been established for all the ports that have a cable attached.
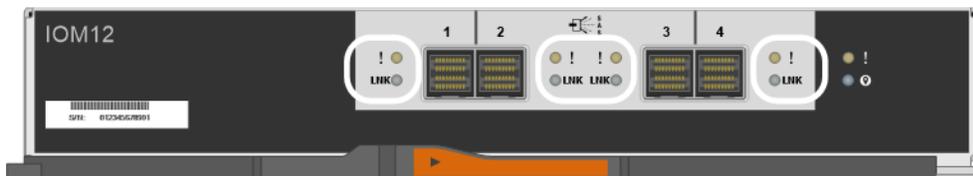
LED icon	LED name	State	Description
LNK	Link status	Green	A link has been established on the SAS port.
!	Attention	Solid amber	The IOM link has a fault.

When you first insert an IOM, the LNK LEDs for the SAS ports remain off. When the IOM is ready to start processing SAS traffic, the green LNK LEDs turn on for all ports that have SAS cables properly attached. The amber Attention LEDs for the four SAS connectors and for the IOM itself should remain off.

2. From the Recovery Guru in SANtricity System Manager, select **Recheck** to ensure the problem has been resolved.

3. If a failed IOM is still being reported, repeat the steps in *Removing an IOM* on page 5 and *Installing an IOM* on page 6. If the problem continues to persist, contact technical support.

4. Remove the antistatic protection.

5. Collect support data for your storage array.

   Collecting support data before and after replacing a component ensures you can send a full set of logs to technical support in case the replacement does not resolve the problem.

Option	Description
SANtricity System Manager	a. Select **Support > Support Center > Diagnostics**. b. Select **Collect Support Data**. c. Click **Collect**. The file is saved in the Downloads folder for your browser with the name `support-data.7z`.

Script editor in the EMW	a. Open the Enterprise Management Window (EMW) in SANtricity Storage Manager on your local host.
	
	b. Select the storage array.
	
	c. Select **Tools > Execute Script**.
	
	d. Type the following command in the text box.
	
	`save storageArray supportData file="filename";`
	
	In this command, `filename` is the file path and the file name to which you want to save the support data. Enclose the file path and the file name in double quotation marks (" "). For example:
	
	`file="C:\Program Files\CLI\logs\support-data.7z"`
	
	e. Select **Tools > Verify and Execute**.

6. Return the failed part to NetApp, as described in the RMA instructions shipped with the kit.

   Contact technical support at *NetApp Support*, 888-463-8277 (North America), 00-800-44-638277 (Europe), or +800-800-80-800 (Asia/Pacific) if you need the RMA number.

Related information

SANtricity 11.30 Command Line Interface and Script Commands Programming Guide

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