



# **Canisters**

## **E-Series Systems**

NetApp  
May 24, 2022

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# Canisters

## Requirements for E5700 canister replacement

Before you replace an E5700 canister, review the requirements and considerations.

Canisters consist of three different types: power-fan canisters (power supplies) that supply a redundant power source and adequate cooling in a 12-drive or 24-drive controller shelf or drive shelf; power canisters that are used for power redundancy in a 60-drive controller shelf or drive shelf; and fan canisters that are used for cooling the 60-drive controller shelf or drive shelf.

### Power supply



The power supply replacement procedure is applicable for IOM replacements. To replace your IOM perform the power supply replacement procedure.

Each 24-drive controller shelf or drive shelf includes two power supplies with integrated fans. These are referred to as *power-fan canisters* in SANtricity System Manager. If a power-fan canister fails, you must replace it as soon as possible to ensure that the shelf has a redundant power source and adequate cooling.

### Shelf types for a power supply

You can replace a power supply in the following shelves:

- E5724 controller shelf
- DE224C drive shelf

The following figure shows an example E5724 controller shelf with two power supplies (power-fan canisters). The DE224C drive shelves are identical, but they include I/O modules (IOMs) instead of controller canisters.



**(1)** Controller shelf with two power supplies (power-fan canisters) below the controller canisters.

The *Replace power supply* topics do not describe how to replace a failed power-fan canister in a DE1600 or DE5600 drive tray, which might be connected to the E5700 or E2800 controller shelves. For instructions for those drive tray models, refer to [Replacing a Power-Fan Canister in the DE1600 Drive Tray or the DE5600 Drive Tray](#).

## Requirements for replacing a power supply

If you plan to replace a power supply, keep the following requirements in mind.

- You must have a replacement power supply (power-fan canister) that is supported for your controller shelf or drive shelf model.
- You must have an ESD wristband, or you have taken other antistatic precautions.
- You can replace a power supply (power-fan canister) while your storage array is powered on and performing host I/O operations, as long as the following conditions are true:
  - The second power supply (power-fan canister) in the 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.



If the second power supply (power-fan canister) in the shelf does not have Optimal status or if the Recovery Guru indicates that it is not OK to remove the power-fan canister, contact technical support.

## Power canister

Each 60-drive controller shelf or drive shelf includes two power canisters for power redundancy.

### Shelf types for a power canister

You can replace a power canister in the following shelves:

- E5760 controller shelves
- DE460C drive shelf

The *Replace power canister* topics do not describe how to replace a failed power canister in a DE6600 drive tray, which might be connected to the controller shelf.

The following figure shows the back of a DE460C drive shelf with the two power canisters:



The following figure shows a power canister:



## Requirements for replacing a power canister

If you plan to replace a power canister, keep the following requirements in mind.

- You have a replacement power canister that is supported for your controller shelf or drive shelf model.
- You have one power canister that is installed and running.
- You have an ESD wristband, or you have taken other antistatic precautions.
- You can replace a power canister while your storage array is powered on and performing host I/O operations, as long as the following conditions are true:
- The other power canister in the shelf has Optimal status.



While you perform the procedure, the other power canister supplies power to both fans to ensure that the equipment does not overheat.

- 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.



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

## Fan canister

Each 60-drive controller shelf or drive shelf includes two fan canisters.

### Shelf types for a fan canister

You can replace a fan canister in the following shelves:

- E5760 controller shelves
- DE460C drive shelf

The *Replace fan canister* topics do not describe how to replace a failed fan canister in a DE6600 drive tray, which might be connected to the controller shelf.

The following figure shows a fan canister:



The following figure shows the back of a DE460C shelf with two fan canisters:



**Possible equipment damage** — If you replace a fan canister with the power turned on, you must complete the replacement procedure within 30 minutes to prevent the possibility of overheating the equipment.

### Requirements for replacing a fan canister

If you plan to replace a fan canister, keep the following requirements in mind.

- You have a replacement fan canister (fan) that is supported for your controller shelf or drive shelf model.
- You have one fan canister that is installed and running.
- You have an ESD wristband, or you have taken other antistatic precautions.
- If you perform this procedure with the power turned on, you must complete it within 30 minutes to prevent the possibility of overheating the equipment.
- You can replace a fan canister while your storage array is powered on and performing host I/O operations,

as long as the following conditions are true:

- The second fan canister in the 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.



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

## Replace E5700 power supply (24-drive)

You can replace a power supply in an E5700 array with a 24-drive shelf, which include the following shelf types:

- E5724 controller shelf
- DE224C drive shelf

### About this task

Each 24-drive controller shelf or drive shelf includes two power supplies with integrated fans. These are referred to as *power-fan canisters* in SANtricity System Manager. If a power-fan canister fails, you must replace it as soon as possible to ensure that the shelf has a redundant power source and adequate cooling.

You can replace a power supply while your storage array is powered on and performing host I/O operations, as long as the second power supply in the shelf has an Optimal status and the **OK to remove** field in the Details area of the Recovery Guru in SANtricity System Manager displays **Yes**.

### Before you begin

- Review [Requirements for E5700 canister replacement](#).
- Review the details in the Recovery Guru to confirm that there is an issue with the power supply. Select **Recheck** from the Recovery Guru to ensure no other items must be addressed first.
- Check that the amber Attention LED on the power supply is on, indicating that the power supply or its integrated fan has a fault. Contact technical support for assistance if both power supplies in the shelf have their amber Attention LEDs on.

### What you'll need

- A replacement power supply that is supported for your controller shelf or drive shelf model.
- An ESD wristband, or you have taken other antistatic precautions.
- A management station with a browser that can access SANtricity System Manager for the controller. (To open the System Manager interface, point the browser to the controller's domain name or IP address.)

## Step 1: Prepare to replace power supply

Prepare to replace a power supply in a 24-drive controller shelf or drive shelf.

### Steps

1. Collect support data for your storage array using SANtricity System Manager.

If a problem occurs during this procedure, you can use the saved file to troubleshoot the issue. The system will save inventory, status, and performance data about your storage array in a single file.

- 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**.

2. From SANtricity System Manager, determine which power supply has failed. You can find this information in the Details area of the Recovery Guru, or you can review the information displayed for the shelf.

- a. Select **Hardware**.
- b. Look at the power  and fan  icons to the right of the **Shelf** drop-down lists to determine which shelf has the failed power supply.

If a component has failed, either or both icons are red.

- c. When you find the shelf with a red icon, select **Show back of shelf**.
- d. Select either power supply.
- e. On the **Power Supplies** and **Fans** tabs, look at the statuses of the power-fan canisters, the power supplies, and the fans to determine which power supply must be replaced.

A component with a **Failed** status must be replaced.



If the second power supply canister in the shelf does not have **Optimal** status, do not attempt to hot-swap the failed power supply. Instead, contact technical support for assistance.

3. From the back of the storage array, look at the Attention LEDs to locate the power supply you need to remove.

You must replace the power supply that has its Attention LED on.



If the Power LED  is **solid green**, the power supply is functioning correctly. If it is **Off**, the power supply failed, the AC switch is turned off, the AC power cord is not properly installed, or the AC power cord input voltage is not within margin (there is a problem at the source end of the AC power cord).

If the Attention LED  is **solid amber**, the power supply or its integrated fan has a fault.

## Step 2: Remove failed power supply

Remove a failed power supply so you can replace it with a new one.

### Steps



1. Unpack the new power supply, and set it on a level surface near the drive shelf.

Save all packing materials for use when returning the failed power supply.

2. Turn off the power supply and disconnect the power cables:
  - a. Turn off the power switch on the power supply.
  - b. Open the power cord retainer, and then unplug the power cord from the power supply.
  - c. Unplug the power cord from the power source.
3. Squeeze the latch on the power supply cam handle, and then open the cam handle to fully release the power supply from the mid plane.



4. Use the cam handle to slide the power supply out of the system.



When removing a power supply, always use two hands to support its weight.

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

### Step 3: Install new power supply

Install a new power supply to replace the failed one.

#### Steps

1. Make sure that the on/off switch of the new power supply is in the **Off** position.
2. Using both hands, support and align the edges of the power supply with the opening in the system chassis, and then gently push the power supply into the chassis using the cam handle.

The power supplies are keyed and can only be installed one way.



Do not use excessive force when sliding the power supply into the system; you can damage the connector.

3. Close the cam handle so that the latch clicks into the locked position and the power supply is fully seated.
4. Reconnect the power supply cabling:
  - a. Reconnect the power cord to the power supply and the power source.
  - b. Secure the power cord to the power supply using the power cord retainer.
5. Turn on the power to the new power-fan canister.

## Step 4: Complete power supply replacement

Confirm that the new power supply is working correctly, gather support data, and resume normal operations.

### Steps

1. On the new power supply, check that the green Power LED is on and the amber Attention LED is OFF.
2. From the Recovery Guru in SANtricity System Manager, select **Recheck** to ensure the problem has been resolved.
3. If a failed power supply is still being reported, repeat the steps in [Step 2: Remove failed power supply](#) and in [Step 3: Install new power supply](#). If the problem persists, contact technical support.
4. Remove the antistatic protection.
5. Collect support data for your storage array using 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**.

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

### What's next?

Your power supply replacement is complete. You can resume normal operations.

## Replace E5700 power canister (60-drive)

You can replace a power supply in an E5700 array with a 60-drive shelf, which include the following shelf types:

- E5760 controller shelf
- DE460C drive shelf

### About this task

Each 60-drive controller shelf or drive shelf includes two power canisters for power redundancy. If a power canister fails, you must replace it as soon as possible to ensure that the shelf has a redundant power source.

You can replace a power canister while your storage array is powered on and performing host I/O operations, as long as the second power canister in the shelf has an Optimal status and the **OK to remove** field in the

Details area of the Recovery Guru in SANtricity System Manager displays **Yes**.

While you perform this task, the other power canister supplies power to both fans to ensure that the equipment does not overheat.

### Before you begin

- Review [Requirements for E5700 canister replacement](#).
- Review the details in the Recovery Guru to confirm that there is an issue with a battery and to ensure no other items must be addressed first.
- Check that the amber Attention LED on the power canister is on, indicating that the canister has a fault. Contact technical support for assistance if both power canisters in the shelf have their amber Attention LEDs on.

### What you'll need

- One power canister that is installed and running.
- A replacement power canister that is supported for your controller shelf or drive shelf model.
- An ESD wristband, or you have taken other antistatic precautions.
- A management station with a browser that can access SANtricity System Manager for the controller. (To open the System Manager interface, point the browser to the controller's domain name or IP address.)

## Step 1: Prepare to replace power canister

Prepare to replace a power canister in a 60-drive controller shelf or drive shelf.

### Steps

1. Collect support data for your storage array using SANtricity System Manager.

If a problem occurs during this procedure, you can use the saved file to troubleshoot the issue. The system will save inventory, status, and performance data about your storage array in a single file.

- 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**.

2. From SANtricity System Manager, determine which power canister has failed.

- a. Select **Hardware**.
- b. Look at the power  icon to the right of the **Shelf** drop-down lists to determine which shelf has the failed power canister.

If a component has failed, this icon is red.

- c. When you find the shelf with a red icon, select **Show back of shelf**.
- d. Select either power canister or the red power icon.
- e. On the **Power Supplies** tab, look at the statuses of the power canisters to determine which power canister must be replaced.

A component with a **Failed** status must be replaced.



If the second power canister in the shelf does not have **Optimal** status, do not attempt to hot-swap the failed power canister. Instead, contact technical support for assistance.



You can also find information about the failed power canister in the Details area of the Recovery Guru, or you can review the information displayed for the shelf, or you can review the Event Log under Support and filter by Component Type.

3. From the back of the storage array, look at the Attention LEDs to locate the power canister you need to remove.

You must replace the power canister that has its Attention LED on.



**(1) Power LED.** If it is **Solid green**, the power canister is functioning correctly. If it is **Off**, the power canister failed, the AC switch is turned off, the AC power cord is not properly installed, or the AC power cord input voltage is not within margin (there is a problem at the source end of the AC power cord).

**(2) Attention LED.** If it is **Solid amber**, the power canister has a fault, or there is no input power to this power canister, but the other power canister is operating.

## Step 2: Remove failed power canister

Remove a failed power canister so you can replace it with a new one.

### Steps

1. Put on antistatic protection.
2. Unpack the new power canister, and set it on a level surface near the shelf.  
  
Save all packing materials for use when returning the failed power canister.
3. Turn off the power switch on the power canister that you need to remove.
4. Open the power cord retainer of the power canister that you need to remove, and then unplug the power cord from the power canister.
5. Press the orange latch on the power canister cam handle, and then open the cam handle to fully release the power canister from the mid plane.
6. Use the cam handle to slide the power canister out of the shelf.



When removing a power canister, always use two hands to support its weight.

### Step 3: Install new power canister

Install a new power canister to replace the failed one.

#### Steps

1. Make sure the on/off switch of the new power canister is in the Off position.
2. Using both hands, support and align the edges of the power canister with the opening in the system chassis, and then gently push the power canister into the chassis using the cam handle until it locks into place.



Do not use excessive force when sliding the power canister into the system; you can damage the connector.

3. Close the cam handle so that the latch clicks into the locked position and the power canister is fully seated.
4. Reconnect the power cord to the power canister, and secure the power cord to the power canister using the power cord retainer.
5. Turn on the power to the new power canister.

### Step 4: Complete power canister replacement

Confirm that the new power canister is working correctly, gather support data, and resume normal operations.

#### Steps

1. On the new power canister, check that the green Power LED is on and the amber Attention LED is OFF.
2. From the Recovery Guru in SANtricity System Manager, select **Recheck** to ensure the problem has been resolved.
3. If a failed power canister is still being reported, repeat the steps in [Step 2: Remove failed power canister](#) and in [Step 3: Install new power canister](#). If the problem persists, contact technical support.
4. Remove the antistatic protection.
5. Collect support data for your storage array using SANtricity System Manager.

If a problem occurs during this procedure, you can use the saved file to troubleshoot the issue. The system will save inventory, status, and performance data about your storage array in a single file.

- 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**.

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

#### What's next?

Your power canister replacement is complete. You can resume normal operations.

## Replace E5700 fan canister (60-drive)

You can replace a fan canister in an E5700 array with a 60-drive shelf, which include the

following shelf types:

- E5760 controller shelf
- DE460C drive shelf

### About this task

Each 60-drive controller shelf or drive shelf includes two fan canisters. If a fan canister fails, you must replace it as soon as possible to ensure that the shelf has adequate cooling.



**Possible equipment damage** — If you perform this procedure with the power turned on, you must complete it within 30 minutes to prevent the possibility of overheating the equipment.

### Before you begin

- Review [Requirements for E5700 canister replacement](#).
- Review the details in the Recovery Guru to confirm that there is an issue with a battery and to ensure no other items must be addressed first.
- Check that the amber Attention LED on the fan canister is on, indicating that the fan has a fault. Contact technical support for assistance if both fan canisters in the shelf have their amber Attention LEDs on.

### What you'll need

- A replacement fan canister (fan) that is supported for your controller shelf or drive shelf model.
- An ESD wristband, or you have taken other antistatic precautions.
- A management station with a browser that can access SANtricity System Manager for the controller. (To open the System Manager interface, point the browser to the controller's domain name or IP address.)

## Step 1: Prepare to replace fan canister

Prepare to replace a fan canister in a 60-drive controller shelf or drive shelf.

### Steps

1. Collect support data for your storage array using SANtricity System Manager.

If a problem occurs during this procedure, you can use the saved file to troubleshoot the issue. The system will save inventory, status, and performance data about your storage array in a single file.

- 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**.

2. From SANtricity System Manager, determine which fan canister has failed.
  - a. Select **Hardware**.
  - b. Look at the fan  icon to the right of the **Shelf** drop-down lists to determine which shelf has the failed fan canister.

If a component has failed, this icon is red.

- c. When you find the shelf with a red icon, select **Show back of shelf**.
- d. Select either fan canister or the red fan icon.
- e. On the **Fans** tab, look at the statuses of the fan canisters to determine which fan canister must be replaced.

A component with a **Failed** status must be replaced.



If the second fan canister in the shelf does not have **Optimal** status, do not attempt to hot-swap the failed fan canister. Instead, contact technical support for assistance.

You can also find information about the failed fan canister in the Details area of the Recovery Guru, or you can review the Event Log under Support and filter by Component Type.

3. From the back of the storage array, look at the Attention LEDs to locate the fan canister you need to remove.

You must replace the fan canister that has its Attention LED on.



(1) *Attention LED*. If this LED displays as **Solid amber**, then the fan has a fault.

## Step 2: Remove failed fan canister and install new one

Remove a failed fan canister so you can replace it with a new one.



If you do not turn off the power to your storage array, ensure that you remove and replace the fan canister within 30 minutes to prevent the system from overheating.

### Steps

1. Unpack the new fan canister, and place it on a level surface near the shelf.

Save all packing material for use when returning the failed fan.

2. Press the orange tab to release the fan canister handle.



(1) *Tab that you press to release the fan canister handle.*



3. Use the fan canister handle to pull the fan canister out of the shelf.



(1) Handle to pull the fan canister out.

4. Slide the replacement fan canister all the way into the shelf, and then move the fan canister handle until it latches with the orange tab.

### Step 3: Complete fan canister replacement

Confirm that the new fan canister is working correctly, gather support data, and resume normal operations.

#### Steps

1. Check the amber Attention LED on the new fan canister.



After you replace the fan canister, the Attention LED stays on (solid amber) while the firmware checks that the fan canister was installed correctly. The LED goes off after this process is complete.

2. From the Recovery Guru in SANtricity System Manager, select **Recheck** to ensure the problem has been resolved.
3. If a failed fan canister is still being reported, repeat the steps in [Step 2: Remove failed fan canister and install new one](#). If the problem persists, contact technical support.
4. Remove the antistatic protection.
5. Collect support data for your storage array using SANtricity System Manager.

If a problem occurs during this procedure, you can use the saved file to troubleshoot the issue. The system will save inventory, status, and performance data about your storage array in a single file.

- 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**.

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

### **What's next?**

Your fan canister replacement is complete. You can resume normal operations.

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