

# Replacing a Drive in E2600, E2700, E5400, E5500, E5600, or 12-Drive or 24-Drive Trays

The Recovery Guru in SANtricity Storage Manager monitors the drives in the storage array and can notify you of an impending drive failure or an actual drive failure. When a drive has failed, its amber Attention LED is on. You can hot-swap a failed drive while the storage array is receiving I/O operations.

## About this task

This document describes how to replace a failed drive in the following controller-drive trays or drive trays.

Model	Support 12 drives	Support 24 drives
Controller-drive trays	E2612, E2712, E5412, E5512, E5612	E2624, E2724, E5424, E5524, E5624
Drive trays	DE1600	DE5600
Flash arrays		EF540, EF550, EF560

## Steps

1. Determine whether you have a failed drive.

You know you have a failed drive if either is true:

- The Recovery Guru has directed you to replace a failed drive.
- You have located the failed drive by checking the two amber Service Action Required LEDs in two locations: the drive tray and the drive itself.

2. Obtain the replacement drive.

Install only drives that are specifically designed for your controller-drive tray and that have been specifically tested, formatted, and qualified in the factory as replacement drives for your controller-drive tray.

**Attention: Possible equipment damage** – You must replace the drive within three minutes after removal to prevent the possibility of overheating the equipment.

**Attention: Possible loss of data access** – Magnetic fields can destroy all data on the drive and cause irreparable damage to the drive circuitry. To avoid the loss of data access and damage to the drives, always keep drives away from magnetic devices.

**Attention: Possible hardware damage** – To prevent electrostatic discharge damage to the tray, use proper antistatic protection when handling tray components.

## Steps

1. [Removing a drive](#) on page 2
2. [Installing a drive](#) on page 3

# Removing a drive

You must gather support data and confirm which drive has failed before removing the drive.

## Before you begin

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

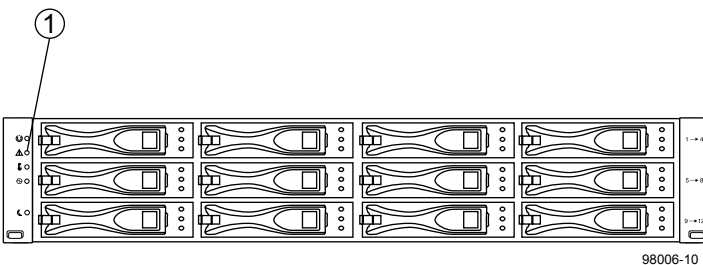
## Steps

1. Gather support data about your storage array.

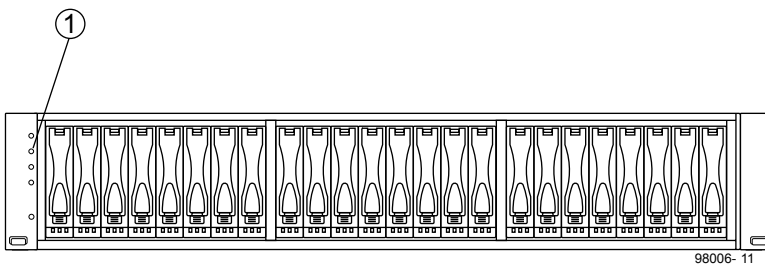
Option	Description
Storage management software	Collect and save a support bundle of your storage array. From the Array Management Window toolbar, select <b>Monitor &gt; Health &gt; Collect Support Data Manually</b> . Then name and specify a location on your system where you want to store the support bundle.
Command line interface	Run the <code>save storageArray supportData</code> command to gather comprehensive support data about the storage array. For more information about this command, refer to the <i>Command Line Interface and Script Commands Programming Guide</i> .

**Note:** Gathering support data can temporarily impact performance on your storage array.

2. If the Recovery Guru in SANtricity Storage Manager has notified you of an *impending drive failure*, but the drive has not yet failed, follow the instructions in the Recovery Guru to fail the drive.
3. Put on antistatic protection.
4. Unpack the drive.
  - a. Set the new drive on a flat, static-free surface near the controller-drive tray.
  - b. Save all packing materials in case you need to return the drive.
5. Check the Controller-Drive Tray Service Action Required LED on the right front end cap of the controller-drive tray to locate the failed drive.



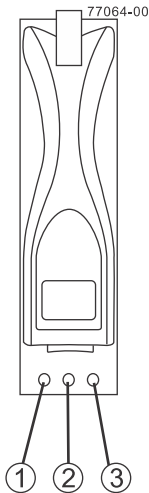
1	Service Action Required LED (amber) for a 12-drive tray
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1	Service Action Required LED (amber) for a 24-drive tray
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6. Confirm that the drive is ready to be removed.

If a fault is detected, the amber Drive Service Action Required LED is on. Before you can safely remove the drive, the blue Drive Service Action Allowed LED must be on.



1	Drive Service Action Allowed LED (blue)
2	Drive Service Action Required LED (amber)
3	Drive Power LED (green)

7. Remove the failed drive from the controller-drive tray:

- a. Use the drive handle to pull the drive out about an inch, and allow the drive to spin down.
- b. Using both hands, remove the drive from the shelf.
- c. Put the drive on an antistatic, cushioned surface away from magnetic fields.

**Note:** If you accidentally remove an active drive, wait at least 30 seconds, and then reinstall it. For the recovery procedure, refer to the storage management software.

**Related information**

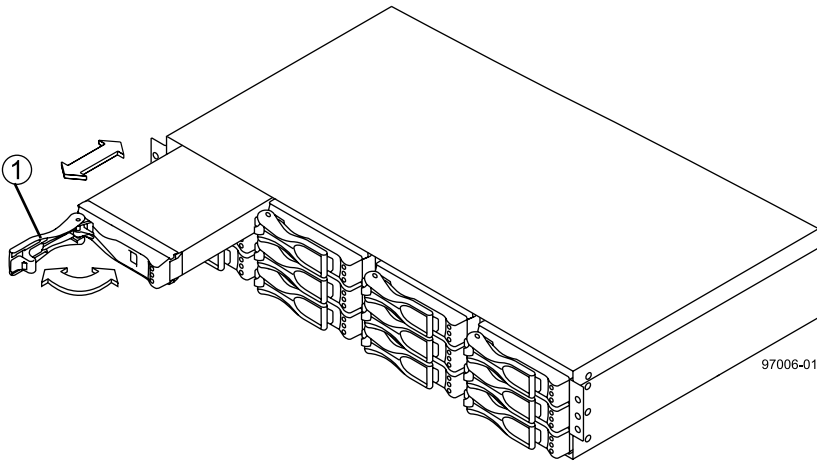
[SANtricity 11.30 Command Line Interface and Script Commands Programming Guide](#)

## Installing a drive

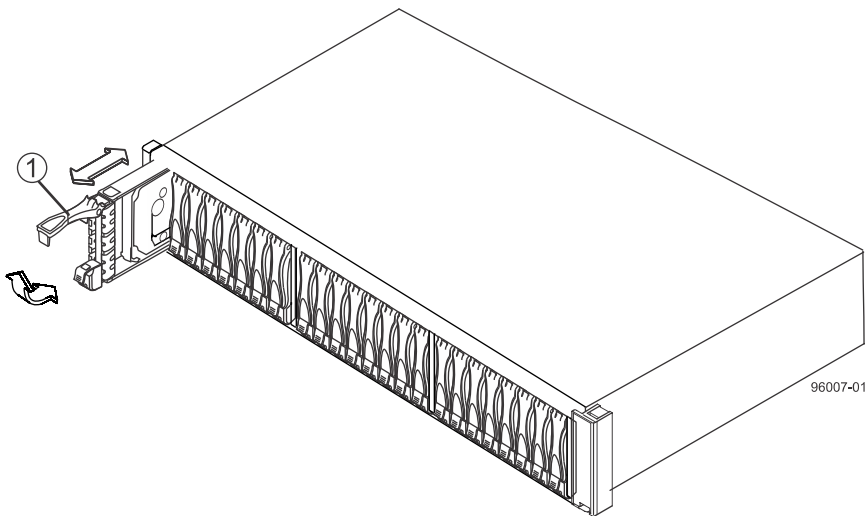
You can install a drive and then bring the new drive back online by using the storage management software.

**Steps**

1. Wait 30 seconds for the storage management software to recognize that the drive has been removed.
2. Place the replacement drive on the slot guides and slide the drive all the way into the slot.
3. Push the drive handle to the right (in a 12-drive tray) or down (in a 24-drive tray) to lock the drive securely in place.



1	Drive handle in a 12-drive tray
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1	Drive handle in a 24-drive tray
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**Note:** Depending on your configuration, the controller might automatically reconstruct data to the new drive. If the controller-drive tray uses hot spares, the controller might need to perform a complete reconstruction on the hot spare before the controller copies the data to the replaced drive. This reconstruction process increases the time that is required to complete this procedure.

4. Check the Drive Power LED and the Drive Service Action Required LED. Based on the LED status, perform one of these actions:

Status	Solution
Drive Power LED is off	The drive might not be installed correctly. Remove the drive, wait 30 seconds, and then reinstall it.  <b>Note:</b> If the problem has not been resolved, contact technical support.
Drive Power LED is on	Go to step 5 on page 5.

Status	Solution
Drive Service Action Required LED is on	The new drive might be defective. Replace it with another new drive. <b>Note:</b> If the problem has not been resolved, contact technical support.
Drive Service Action Required LED is off	Go to step 5 on page 5.

5. Bring the new drive back online by using the storage management software:
  - a. In the Array Management Window, highlight the affected volume group and then select the menu option **Replace Drives**.
  - b. Select the replaced drive that corresponds to the slot location or select an appropriate replacement drive.
  - c. Click the **Replace Drive** button. When the drive reconstruction completes, the volume group is in an Optimal state.  
**Note:** In cases where the drive is bypassed, reconstruction will not occur automatically. The drive will, however, blink as the system recognizes the drive and the DACstore is read.
6. Using the LEDs and the storage management software, check the status of all of the trays in the storage array, and confirm the drive replacement.
7. Click the **Recovery Guru** toolbar button in the Array Management Window, and complete the recovery procedure if any component has a Needs Attention status. If the problem has not been resolved, contact technical support.
8. Remove the antistatic protection.
9. Gather support data about your updated storage array by using one of these methods:

Option	Description
Storage management software	Collect and save a support bundle of your storage array. From the Array Management Window toolbar, select <b>Monitor &gt; Health &gt; Collect Support Data Manually</b> . Then name and specify a location on your system where you want to store the support bundle.
Command line interface	Run the <code>save storageArray supportData</code> command to gather comprehensive support data about the storage array. For more information about this command, refer to the <i>Command Line Interface and Script Commands Programming Guide</i>

**Note:** Gathering support data can temporarily impact performance on your storage array.

#### Related information

[SANtricity 11.30 Command Line Interface and Script Commands Programming Guide](#)

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