

Veritas Appliance

Hardware Service Procedure

SAS data cable replacement: NetBackup 5330 storage shelves

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Purpose

This document describes how to remove and replace damaged or faulty NetBackup 5330 storage shelf SAS data cables while the appliance is operating.

Affected Models

NetBackup 5330 Appliance

The NetBackup 5330 Appliance is a hardware and software storage system that scales to a total of 456TB of usable backup capacity. It consists of a 2U NetBackup 5330 Appliance compute node and one attached 4U NetBackup Primary Storage Shelf. You can add up to two optional 4U Expansion Storage Shelves if you require additional storage.

The NetBackup 5330 Appliance compute node contains eight 3TB SAS disks, which can be accessed from the front panel. An embedded RAID controller on the compute node's mainboard is used to configure six of the eight disks into two RAID1 mirrored volumes, plus two hot-spare disks. These volumes are labeled Volume 0 and Volume 1. If a disk in either RAID volume experiences a hardware error, the appliance automatically initiates a RAID rebuild operation. During the rebuild operation, the appliance randomly selects a hot-spare disk, and then rebuilds the RAID volume.

The disks in slot 6 and slot 7 are reserved for future use, while the slots 8 through 11 are empty.

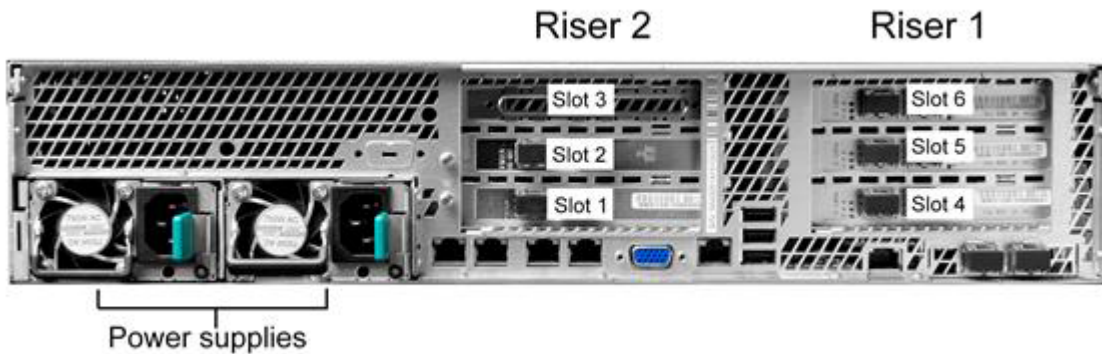
A small control panel is on the right side of the front panel. It contains system LEDs and operations buttons, including the power button.

Figure 1 Front view of the NetBackup 5330 Appliance compute node



The rear panel contains six PCIe slots. The slots may hold 10 Gb Ethernet NICs or 8 Gb Fibre Channel HBAs. Power sockets are on the left side of the rear panel.

Figure 2 Rear view of the NetBackup 5330 Appliance compute node

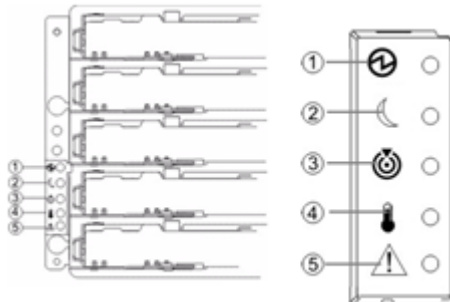


Veritas NetBackup 5330 Appliance Storage Shelf

The NetBackup 5330 Appliance Primary Storage Shelf and Expansion Storage Shelf each contain 60 SAS hard disk drives. The front panel of the Primary Storage Shelf and Expansion Storage Shelf contain five drawers, which are numbered 1-5, starting with the top drawer. Each drawer contains 12 disk drives, numbered 1 -12, starting at the front left corner. The front panels of both systems are physically and functionally the same, as seen in the following diagram.



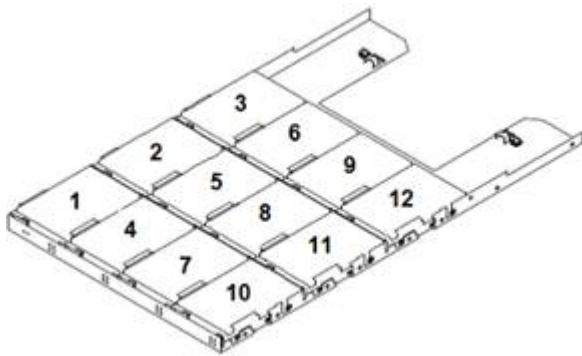
The following diagram shows the front panel LEDs. The table identifies the components.



The following table describes the LED status definitions.

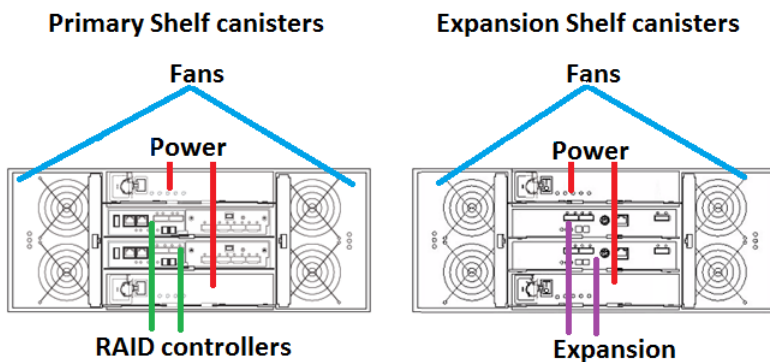
Number	Definition	Color
1	Power LED	Green
2	Standby LED	Green
3	Locate LED	White
4	Over-temperature LED	Amber
5	Service Action Required LED	Amber

Each drawer in a storage shelf contains slots for 12 disks. The disks are numbered as shown in the following diagram.



The rear panel of both disk systems contains three types of canisters:

- RAID or Expansion canisters
- AC power canisters (220VAC)
- Fan canisters



Each storage system contains two fan canisters on the left and right sides of the rear panel.

Fibre channel (FC) cables connect the Primary Shelf to the appliance.

Four SAS cables connect the Expansion Shelf to the Primary Shelf. The Expansion Shelf is not directly connected to the appliance.

Onsite Policies and Procedures

Electrical safety

The static discharged by human bodies can damage static-sensitive components on the boards. When installing and maintaining the equipment, observe appropriate electrostatic safety precautions to prevent personnel injuries or device damage.

When operating a device in an electrostatic sensitive area, you must take electrostatic-discharge (ESD)-preventive measures. These include wearing ESD-preventive gloves, an ESD-preventive wrist strap, and ESD-preventive clothes to avoid personnel injury or device damage.

To prevent damage to the device, pay attention to the following during operations:

- Do not touch devices with bare hands because ESD from the human body may damage the electrostatically sensitive elements on a board.
- When dealing with the server or any of the internal components, wear an ESD-preventive wrist strap, ESD-preventive gloves, and ESD-preventive suit.

Hardware replacement procedure

This document describes how to remove and replace damaged or faulty NetBackup 5330 storage shelf SAS data cables while the appliance is operating. Because of SAS cabling redundancy, you can replace the damaged or faulty SAS data cables without shutting down the entire NetBackup 5330 Appliance system.

Removing and replacing NetBackup 5330 storage shelf SAS data cables

Review the following:

- This procedure pertains to NetBackup 5330 Appliance installations that use multiple Expansion Storage Shelves.

Note: This procedure does not apply to NetBackup 5330 Appliance systems that do not use any Expansion Storage Shelves.

- Remove only one SAS cable at a time.
SAS cable redundancy is designed into the NetBackup 5330 Appliance system. As a result, you can remove and replace one SAS cable at a time without turning off the system.
- Standard 1 meter SAS data cables are provided with the Primary Storage Shelf and the Expansion Storage Shelf. However, optional 2 meter SAS data cables are also available for use with the

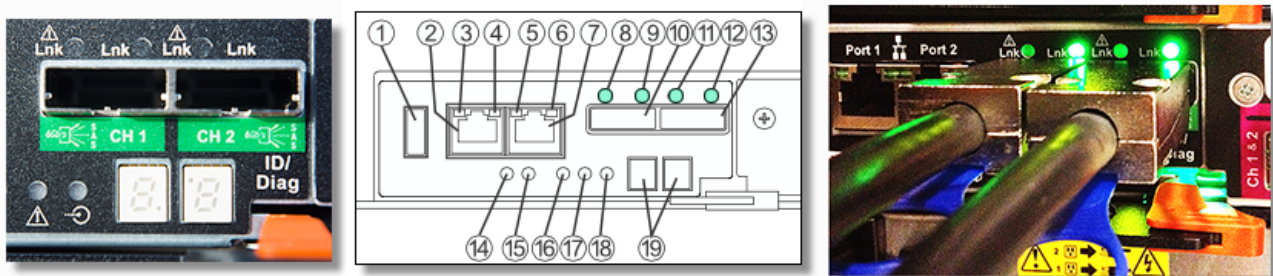
storage shelves. The procedures specified in this document can be used with both SAS cable lengths.

- You can remove and replace SAS data cables with the storage shelves installed in the rack.
- SAS data cable port **LNK UP** LEDs and **LNK FAULT** LEDs indicate the status of a SAS data cable connection.

If either the LNK UP LED is **OFF**, or the LNK FAULT LED is **ON**, you should replace the SAS data cable.

See [Figure 3 SAS port LNK indicator LED locations and descriptions](#).

Figure 3 SAS port LNK indicator LED locations and descriptions



1. USB Connector	11. SAS Expansion Link 2 Fault LED ●
2. 1GbE Management Connector 1	12. SAS Expansion Link 2 Up LED ●
3. 1GbE Link 1 Fault LED	13. SFF-8088 SAS Connector 2 (Expansion)
4. 1GbE Link 1 Up LED	14. Standby Power LED
5. 1GbE Link 2 Fault LED	15. Power-Fan DC Power LED
6. 1GbE Link 2 Up LED	16. Power-Fan Service Action Allowed LED
7. 1GbE Management Connector 2	17. Power-Fan Service Action Required LED
8. SAS Expansion Link 1 Fault LED ●	18. Power-Fan AC Power LED
9. SAS Expansion Link 1 Up LED ●	19. Seven-Segment Display
10. SFF-8088 SAS Connector 1 (Expansion)	

Requirements

- One or more replacement storage shelf SAS data cables



Removing and replacing NetBackup 5330 storage shelf SAS data cables

Warning: Remove only one SAS data cable at a time.

To remove and replace a NetBackup 5330 storage shelf SAS data cable

- Do one of the following:
 - To replace a SAS data cable between the Primary Storage Shelf and an Expansion Storage Shelf, see [Replacing a SAS data cable between the Primary Storage Shelf and an Expansion Storage Shelf](#).
 - To replace a SAS data cable between the Expansion Storage Shelves, see [Replacing a SAS data cable between the Expansion Storage Shelves](#).

Replacing a SAS data cable between the Primary Storage Shelf and an Expansion Storage Shelf

To replace a SAS data cable between the Primary Storage Shelf and an Expansion Storage Shelf

- 1 At the rear of the Primary Storage Shelf, determine the SAS data cable that you want to replace. Note the SAS port of the cable you want to replace.
- 2 Gently pull the SAS data cable connector from the SAS port on the Primary Storage Shelf.
- 3 At the rear of the Expansion Storage Shelf, note the SAS port of the cable you want to replace.
- 4 Gently pull the SAS data cable connector from the SAS port on the second Expansion Storage Shelf.
- 5 Obtain the replacement SAS data cable.
- 6 Gently plug one end of the SAS data cable into the SAS port on the Primary Storage Shelf where you removed the previous cable.
- 7 Gently plug the other end of the SAS data cable into the SAS port on the Expansion Storage Shelf where you removed the previous cable.

End of procedure

Replacing a SAS data cable between the Expansion Storage Shelves

To replace a SAS data cable between the Expansion Storage Shelves

- 1 At the rear of the first Expansion Storage Shelf, determine the SAS data cable that you want to replace. Note the SAS port of the cable you want to replace.
- 2 Gently pull the SAS data cable connector from the SAS port on the first Expansion Storage Shelf.
- 3 On the rear of the second Expansion Storage Shelf, note the SAS port of the cable you want to replace.
- 4 Gently pull the SAS data cable connector from the SAS port on the second Expansion Storage Shelf.

- 5** Obtain the replacement SAS data cable.
- 6** Gently plug one end of the SAS data cable into the SAS port on the first Expansion Storage Shelf where you removed the previous cable.
- 7** Gently plug the other end of the SAS data cable into the SAS port on the second Expansion Storage Shelf where you removed the previous cable.

End of procedure