NetBackup™ Appliance Safety and Maintenance Guide

Release 3.0

VERITAS™

NetBackup™ Appliance Safety and Maintenance Guide

Release 3.0

Legal Notice

http://www.veritas.com

.

Technical Support

Technical Support maintains support centers globally. All support services will be delivered in accordance with your support agreement and the then-current enterprise technical support policies. For information about our support offerings and how to contact Technical Support, visit our website:

https://www.veritas.com/support

You can manage your Veritas account information at the following URL:

https://my.veritas.com

If you have questions regarding an existing support agreement, please email the support agreement administration team for your region as follows:

Worldwide (except Japan)	CustomerCare@veritas.com
Japan	CustomerCare_Japan@veritas.com

Documentation

The latest documentation is available on the Veritas website:

https://sort.veritas.com/documents

Documentation feedback

Your feedback is important to us. Suggest improvements or report errors or omissions to the documentation. Include the document title, document version, chapter title, and section title of the text on which you are reporting. Send feedback to:

APPL.docs@veritas.com

You can also see documentation information or ask a question on the Veritas community site:

http://www.veritas.com/community/

Veritas Services and Operations Readiness Tools (SORT)

Veritas Services and Operations Readiness Tools (SORT) is a website that provides information and tools to automate and simplify certain time-consuming administrative tasks. Depending on the product, SORT helps you prepare for installations and upgrades, identify risks in your datacenters, and improve operational efficiency. To see what services and tools SORT provides for your product, see the data sheet:

https://sort.veritas.com/data/support/SORT_Data_Sheet.pdf

Contents

General safety guidelines

This chapter includes the following topics:

- Overview
- Product safety information
- Symbol conventions
- High-voltage precautions
- ESD (Electrostatic Discharge)
- Combustible gas
- Batteries
- Lasers
- Optical fibers
- Product documentation

Overview

This document provides safety and maintenance information for the following hardware:

- NetBackup 5220/5230/5240 (52xx) Appliances
- Veritas 3U16 24TB/36TB Storage Shelf
- Veritas 2U12 49TB Storage Shelf
- NetBackup 5330 Appliance
- NetBackup 5330 Primary Storage Shelf/Expansion Storage Shelf

Information applies to all products except where it is specifically noted.

Product safety information

This document applies to boards, the chassis, and installed peripherals. To prevent bodily injury, electrical shock, fire, and equipment damage, read this document carefully. Observe all warnings and precautions before installing or maintaining the devices.

The device should be installed and serviced only by technically qualified persons.

Please adhere to the guidelines and the assembly instructions in this guide and the media server and storage subsystem manuals. The guidelines and instructions ensure and maintain compliance with existing product certifications and approvals. Use only the described, regulated components that are specified in this guide. Use of other products or components voids the UL Listing and other regulatory approvals of the product. It may also result in noncompliance with product regulations in the region(s) where the product is sold.

Use of other products or components:

■   Voids the UL Listing

■   Voids the regulatory approvals

■   May result in noncompliance with product regulations in the region(s) where the product is sold or used

■   May void the product warranty

Symbol conventions

Warning icons remind you of safety precautions to be followed during installation and maintenance operations.

Table 1-1   Warning icons

Icon	Description
⚠ **DANGER**	Indicates a hazard with a high level of risk that may result in death or serious injury.
⚠ **WARNING**	Indicates a hazard with a medium or a low level of risk, that can result in minor or moderate injury.

Table 1-1   Warning icons *(continued)*

Icon	Description
	Indicates a potentially hazardous situation, which if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
	Electrostatic discharge (ESD) prevention identifier. Wear ESD-preventive gloves or an ESD-preventive wrist strap to avoid electrostatic injuries or damage.
	Weight warning identifier. Be aware of the weight of a device before moving it.
	Warning identifier against inserting and removing system disks. Do not insert or remove system disks without following proper procedures. The Appliance operating system may be damaged and data may get lost due to the wrong operation .
	Power warning identifier. Shut off all power sources when turning off a device.
	Identifier for reading the manual. Read the manual before operating a device.
Example: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11	Drive identifier. Indicates the ID number of the slot where a disk drive resides.

High-voltage precautions

A high-voltage power supply provides power for the device. Direct or indirect contact (through damp objects) with a high-voltage power supply (including the main power in a building) can result in fatal danger.

- When installing the AC power supply, follow standard safety regulations. Personnel who install the AC power supply must be qualified to perform high voltage and AC operations.

- Do not wear conductive objects such as a watch, chain, bracelet, or ring during the operation.

- Switch off the power supply immediately if you find water in the cabinet or if the rack is damp.

- Make sure that the device is kept away from water when being operated in a damp environment.

Improper operation on a high-voltage power supply may result in fire and electric shock. To connect and route the AC cables through a certain area, you must follow standard rules and regulations. Personnel must have an up-to-date certificate for operating high voltage and AC power devices.

You must use insulated tools when operating on high voltage and AC power.

Do not install or remove a power cord or Power Distribution Unit (PDU) cord when the power is turned on. Minimal contact between the core of the cord and a conductor can generate an electric arc or spark, to cause a fire or injury.

■ Wrap bare wires of the power cable with insulated tape before connecting the cable to the power distribution cabinet.

■ Before installing or removing the power cord or PDU cord, turn off the power.

■ Before connecting the power cord or PDU cord, make sure that the cord and label conform to the requirements for the installation.

Do not perform operations on high voltage, power supplies, and connections, or other conductive materials during thunder storms.

Be sure that all devices are properly grounded to prevent damage or injury during storms.

See "ESD (Electrostatic Discharge)" on page 9.

ESD (Electrostatic Discharge)

The static discharged by human bodies can damage static-sensitive components on the boards.

When you install and maintain equipment, observe appropriate static safety precautions to prevent personnel injuries or device damage.

Wear ESD-preventive gloves, an ESD-preventive wrist strap, or ESD-preventive clothes to avoid personal injury or damage to a device. When a warning indicates an electrostatic sensitive area when operating a device, you must take ESD-preventive measures. To prevent the devices from damage, pay attention to the following during operations:

■ Do not touch devices with bare hands because the ESD from the human body may damage the electrostatically sensitive elements on a board.

■ Electronic circuits are prone to damage caused by ESD. When dealing with a disk, especially a raw disk, wear an ESD-preventive wrist strap, ESD-preventive gloves, and ESD-preventive suit. Touch only the edge of the disk.

■ Use appropriate ESD-preventive bags when picking up, putting down, and transporting equipment or parts.

To prevent short-circuits, do not leave or drop screws or other metallic parts in the chassis.

When you install or maintain a device, follow regulations about the use and placement of tools. You can avoid short-circuits of the devices that are caused by metallic tools.

See "Combustible gas" on page 10.

Combustible gas

Never place or operate a device in an environment with combustible or explosive gases, or smoke.

Operations to any electronic devices in the presence of combustible gases are extremely dangerous.

See "Batteries" on page 10.

Batteries

Follow the safety precautions for operating batteries against personal and device damage during installation and maintenance of Veritas products.

Be sure that you use correct replacement batteries. Otherwise, an explosion may occur.

- Only use batteries of the same or a similar model as recommended by Veritas.

- Dispose of used batteries according to standard instructions.

- Do not put a battery into a fire.

Contact Veritas Technical Support for assistance.

See "Lasers" on page 10.

Lasers

When you install and maintain equipment, observe standard laser safety precautions to prevent personal injury or device damage.

The laser that is emitted by the optical interface board is an invisible infrared ray. This laser can cause permanent damage to eyes.

During device maintenance, direct eye exposure to the laser light must be avoided.

To prevent device damage when you operate the device, take the following precautions:

- Cap any unused optical interfaces and the optical connectors of unused tail fibers.

- Use caps when you remove the optical tail fiber that connects to an optical port that is in use. Cover the optical port on the device and the optical connector of the tail fiber with dust-proof caps.

- Use an attenuator when you perform a hardware loopback test on the optical connector with the tail optical fiber. The attenuator protects the optical transceiver from the received optical power.

- Disconnect the optical tail fiber between the peer device and the local device when you use the Optical Time Domain Effect Reflectometer (OTDR). Disconnecting the fiber protects the optical transceiver from the optical power source.

- Do not remove or insert the optical transceiver that connects to the optical fiber without proper safety procedures.

Optical fibers

The laser beams of the optical interface board or inside the optical fiber may cause damage to the eyes. Do not expose your eyes to the laser beams.

The safe use of optical fibers ensures proper running of the device and prevents personal injuries and device damage.

The fibre connectors and optical fibre interfaces of a laser must be cleaned with the special tools and the materials that are listed:

- The special cleaning solvent, isoamylol, is preferred. Propyl alcohol is the next best solvent. Other alcohols and formalin are forbidden.

- Non-woven lens tissue

- Special compressed gas

- Cotton stick (medical cotton or long fibre cotton)

- Special magnifier for optical connectors

When replacing a fibre, cap the connector of a fibre that is not used. Avoid bending or wrapping fibers around narrow or sharp objects.

Product documentation

Additional information is available in the following NetBackup appliance and storage shelf hardware-related documents.

You can access these documents, NetBackup appliance software documents, and NetBackup software documents at the following site.

NetBackup Appliance documentation

Detailed safety guidelines

This chapter includes the following topics:

- Installing hardware into a rack
- Troubleshooting with the power turned on
- Lifting heavy objects

Installing hardware into a rack

These guidelines provide information for installing hardware into an equipment rack.

The following devices are EIA-310 compliant.

- NetBackup 5230 Appliance
- NetBackup 5240 Appliance
- NetBackup 5330 Appliance
- Veritas 3U16 24TB Storage Shelf
- Veritas 3U16 36TB Storage Shelf
- Veritas 2U12 49TB Storage Shelf
- NetBackup 5330 Primary Storage Shelf
- NetBackup 5330 Expansion Storage Shelf

Rack guidelines

Ensure that you comply with the following rack installation guidelines:

- Anchor the equipment rack
  The equipment rack must be anchored to an unmovable support to prevent it
  from falling over. The rack can fall when one or more units are extended in front
  of the rack on the slides. You must also consider the weight of any other device

that is installed in the rack. A crush hazard exists and can cause serious injury should the rack tilt forward.

- Check temperature
  When the devices are installed in an equipment rack, the temperature must be in the range of 5C (41F) to 40C (104F). Extreme fluctuations in temperature can cause a variety of problems for the appliance.

- Check ventilation
  The equipment rack must provide sufficient airflow to the front of the devices to maintain proper cooling. The rack must also include ventilation sufficient to exhaust a maximum of 2550 BTUs (British Thermal Units) per hour for the appliance. The rack that is selected and the ventilation that is provided must be suitable to the environment in which the equipment is used.

- Main AC power must be accessible
  The AC power cord(s) is considered the main disconnect for the device and must be readily accessible when installed. If the individual power cord(s) are not readily accessible for disconnection, you must install an AC power disconnect for the entire rack unit. This main disconnect must be readily accessible, and it must be labeled as controlling power to the entire rack unit.

- Grounding the rack installation
  To avoid the potential for an electrical shock hazard, you must include a third wire safety ground conductor with the rack installation. The rack itself must have a proper grounding when device power cords are plugged into the AC outlet of the rack. The devices must be plugged into a properly grounded AC outlet.

- Overcurrent protection
  The power supplies contain internal overcurrent protection. If power draw increases, the power supplies shutdown. Hardware monitoring utilities such as the NetBackup Appliance Web Console show alerts that indicate problems in the power supply.
  The following values are based on power supply ratings of the various devices.

  NetBackup 5220/5230/5330 appliances (depending on power source input current):

  - 100VAC to 127VAC @ 9.2A

  - 200VAC to 240VAC @ 4.4

  NetBackup 5240 appliance (depending on power source input current):

  - 110VAC @ 5.05A

  - 220VAC @ 2.53A

  Veritas 3U16 24TB Storage Shelf/Veritas 3U16 36TB Storage Shelf

- 100VAC to 127VAC

- 200VAC to 240VAC

Veritas 2U12 49TB Storage Shelf:

- 110VAC @ 5.86 A

- 220VAC @ 2.93 A

NetBackup 5330 Primary Storage Shelf/Expansion Storage Shelf:

- 200VAC @7.56A to 240VAC @6.3A

Binding signal cables

Signal cables must be separately bundled from the strong-current cables and high-voltage cables at a spacing of at least 30 mm.

Troubleshooting with the power turned on

This section describes the safety precautions you need to follow in case you need to troubleshoot the device when the power is on. Follow these safety precautions to avoid personal injury and device damage.

Precautions when troubleshooting with the power turned on:

- Do not touch the connectors of power cords, PDU cords, or communication cables. Otherwise, you might receive an electrical shock.

- Do not touch the device with bare hands in an electrostatic sensitive area. To avoid personal injuries or damage to the devices, take ESD-preventive measures. See "ESD (Electrostatic Discharge)" on page 9.

Warning: Remove the ESD-preventive wrist strap to prevent electrocution when the power is on and you are working with power or PDU cords.

To avoid data loss when the power is on:

- Do not unplug cords.

- Turn off all the disk drive activity before turning off the power to the device.

- Wait for a minute before reconnecting the power supply.

During troubleshooting, confirm that:

- The troubleshooting area is clean and dry.

- The cords are intact and effective grounding measures are taken.
  Never carry out troubleshooting in stormy weather when lightening is a possibility.

Lifting heavy objects

Only trained and qualified personnel are allowed to lift heavy objects. The following precautions must be taken when you lift heavy objects:

- Do not stand or walk under the heavy objects when they are lifted.

- Check whether the required tools are complete and intact.

- Ensure that the lifting tools are firmly fixed on a wall or have enough load-bearing capacity.

- If a rope is used, ensure that the angle between two sides of the rope is no larger than 90°.

- Use simple and clear commands while speaking to personnel. Avoid any confusion that can cause accidents and damage to personnel or materials.

Maintenance guidelines

This chapter includes the following topics:

Basic maintenance

The following sections provide information about the general maintenance of the Veritas appliance hardware.

Reasons for maintaining the Veritas hardware include the following:

- Awareness of general equipment status and current network activity.

- Increased technical expertise with equipment and software to better address the issues that may arise or prevent possible issues.

- Quick and accurate identification of alarms and problems.

See

Maintenance requirements and time frames

The following table describes requirements and time frames for hardware and software components.

Table 3-1   Routine requirements and time frames

Owner	Site	Required actions	Recommended timeframe
Maintenance engineers	Device site	Check equipment room and device surroundings	Daily
		Check rack cabinet	Monthly
		Check all indicator LEDs on the front panel of the device	Daily for the first week of operation Weekly after the first week
		Check all indicator LEDs on the rear panel of the device	Daily for the first week of operation Weekly after the first week
Network engineers	Management software site	Check the CPU status	Daily for the first week of operation Weekly after the first week
		Check the disk status	Daily for the first week of operation Weekly after the first week
		Check the RAID status	Daily for the first week of operation Weekly after the first week
		Check the fan status	Daily for the first week of operation Weekly after the first week
		Check the power supply status	Daily for the first week of operation Weekly after the first week
		Check the FC HBA status	Daily for the first week of operation Weekly after the first week
		Check the 10GE NIC status	Daily for the first week of operation Weekly after the first week
		Check the RAID card status	Daily for the first week of operation Weekly after the first week

Maintenance tools

You need mechanical tools to work with the hardware and diagnostic tools to assess system functionality as shown in the following table.

Table 3-2   Maintenance diagnostic tools

Tool	Function
NetBackup Appliance Web Console	Shows the real-time operation of systems and components.
NetBackup Appliance Shell Menu	Checks the running status of the device.
Thermometer	Measures the temperature of the equipment room.
Hygrometer	Measures the humidity of the equipment room.

The following list describes the physical tools that are required for work with the hardware.

- Phillips (cross head) screwdrivers (#1 bit and #2 bit)
- Needle nosed pliers
- Anti-static wrist strap, gloves, and conductive foam pad (recommended)
- Cable ties

See "Basic maintenance" on page 16.

Maintenance log

Make copies of this table to keep a log of maintenance activities. Keep a consistent log to help you identify trends or patterns. Electronic copies are recommended. You can create a spreadsheet to track issues.

See "Maintenance requirements and time frames" on page 16.

Table 3-3   Maintenance log

Requirement/parameter		Status	Comments	Maintenance Owner
Check the equipment running in the environment	Operating temperature	□Normal □Abnormal		
	Operating humidity	□Normal □Abnormal		
	Fire safety	□Normal □Abnormal		
	Dust	□Normal □Abnormal		
	Enclosure power supply	□Normal □Abnormal		
Check the system inside the cabinet	Power system	□Normal □Abnormal		
	Cable system	□Normal □Abnormal		
	Grounding system	□Normal □Abnormal		
	Protective system	□Normal □Abnormal		
	Dust-proof system	□Normal □Abnormal		
	Cable labeling	□Normal □Abnormal		

Table 3-3   Maintenance log *(continued)*

Requirement/parameter		Status	Comments	Maintenance Owner
Check the status	System power indicator	□Normal □Abnormal		
	System alarm indicator	□Normal □Abnormal		
	Disk online indicator	□Normal □Abnormal		
	Disk read and write indicator	□Normal □Abnormal		
	Power running and alarm indicator	□Normal □Abnormal		
	Fan running and alarm indicator	□Normal □Abnormal		
	Appliance status	□Normal □Abnormal		
	Link indicator of the management network port	□Normal □Abnormal		
	Active indicator of the management network port	□Normal □Abnormal		
	ACT/LNK indicator of the 10GE NIC port	□Normal □Abnormal		
	GRN=10GE indicator of the 10GE NIC port	□Normal □Abnormal		
	The 2/Amber indicator of the Tape out card (Fiber Channel) port	□Normal □Abnormal		
	The 4/Green indicator of the Tape out card (Fiber Channel) port	□Normal □Abnormal		
	The 8/Yellow indicator of the Tape out card (Fiber Channel) port	□Normal □Abnormal		

Table 3-3   Maintenance log *(continued)*

Requirement/parameter		Status	Comments	Maintenance Owner
Check the NetBackup Appliance Shell Menu	CPU status	□Normal □Abnormal		
	Disk status	□Normal □Abnormal		
	RAID status	□Normal □Abnormal		
	Fan status	□Normal □Abnormal		
	Power Supply status	□Normal □Abnormal		
	Temperature status	□Normal □Abnormal		
	FC HBA status	□Normal □Abnormal		
Problems and troubleshooting				
Remaining problems				
Verification				
Date				

Troubleshooting

This chapter includes the following topics:

- Appliance-induced shut down

- Temperature issues

- Chassis issues

- Power supply module issues

Appliance-induced shut down

The terms "protection" or "protected" refer to a power supply that has shut down or locked up. The appliance may turn off to protect itself and other components that are connected to the appliance. A short-circuit, voltage overload, or power surge can cause self-protection.

If both power supplies are faulty, do not attempt to turn on the appliance. If the power supplies stop working, the fans in the power supplies do not operate to cool the appliance. Physical damage to the appliance and a potential loss of data can occur due to increased temperatures.

Refer to the *NetBackup 52xx and 5330 Appliance Troubleshooting Guide* for more information, at the following site.

NetBackup Appliance documentation

Temperature issues

Several problems may affect the devices if ambient temperature is higher than 35C (95F). Refer to the product description document of your particular appliance model for details regarding acceptable temperature ranges.

Thoroughly check all aspects of the rack environment, ensuring that:

- Nearby equipment is not overly warm.

- Room temperature is within specifications.

- Adequate AC power is supplied to the devices.

- The front and back of the NetBackup Appliance are clear of any obstructions. Air must flow easily and continually from the front of the appliance to the back of the appliance.

When the system alarm and location indicator on the appliance control panel is red, the alarm information is displayed in the Appliance Web Console. The following types of information are shown.

Table 4-1   Temperature alarm information

Alarm indication	Issue	Affected component	Description
Overtemperature of the CPU core	Temperature	CPU	Temperature is not critical yet, but approaches the upper limit of the range.
Overtemperature of the chassis air intake	Temperature	Chassis interior	Temperature is not critical yet, but approaches the upper limit of the range.
Fan module absence	Cooling device	Fan	Device is absent.

See "Chassis issues" on page 23.

Chassis issues

Problems may occur because the chassis cover is damaged or improperly installed. Intake and output vents in the front and rear of the chassis may be blocked or damaged. A visual inspection of all external parts of the chassis is required.

If the chassis is damaged, contact Veritas Technical Support for assistance. Photograph the damage for the support engineer.

If there is significant damage that cannot be repaired, it may be necessary to turn off the appliance. Shut down all programs and jobs that are running. Press the power button on the front of the appliance to turn it off. Unplug the AC power cords from the main AC power sources. Shut down and disconnect any peripherals such as laptops, storage devices, or other servers.

See "Temperature issues" on page 22.

Power supply module issues

The two power supply modules are hot-swappable. However, there must be one functioning power supply in the media server at all times. If a power supply is faulty, order a new power supply as soon as possible. If there is only one functioning power supply, the media server is at risk if that power supply also fails. If there are no functioning power supplies in the media server, internal temperature may increase and damage the components inside the chassis.

The fans in the power supply module are not removable. They remain inside the module as a complete unit. If there are problems with the fans, the entire power supply module must be removed and replaced.

See "Chassis issues" on page 23.

Index