Symantec NetBackup™ Appliance Hardware Installation and Initial Configuration Guide

NetBackup 52xx

Release 2.6.0.3

21334205

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Chapter 1

NetBackup 5230 installation

This chapter includes the following topics:

- Product documentation
- Product overview
- About hardware installation
- Installing the hardware
- About the cables
- Hardware verification and turning on the NetBackup 5230 appliance and storage shelf

Product documentation

This document is available to customers and end users.

Table 1-1 and Table 1-2 list documents for the NetBackup 5230 Appliance and the Symantec Storage Shelf.

Table 1-1 NetBackup Appliance and Symantec Storage Shelf hardware-related documentation

Document	Description
Symantec NetBackup 5230 Appliance and Symantec Storage Shelf Product Description	Describes all aspects of the appliance and the attached storage shelf. Provides general safety, compliance, and environmental information.

Table 1-1 NetBackup Appliance and Symantec Storage Shelf hardware-related documentation *(continued)*

Document	Description
NetBackup 5230 Appliance and Symantec Storage Shelf Safety and Maintenance Guide	Provides detailed safety information. Provides the guidelines for routine monitoring and physical maintenance of the appliance.

Table 1-2 NetBackup Appliance and Symantec Storage Shelf software-related documentation

Document	Description
Symantec NetBackup Appliance Administrator's Guide	Describes the aspects of the NetBackup appliance software, and how to implement a storage pool across your company's network.
Symantec NetBackup Appliance Release Notes	Lists the important information for a specific software release.
Symantec NetBackup Appliance Command Reference Guide	Contains the detailed information about the NetBackup appliance shell commands.

Refer to http://www.symantec.com/docs/DOC2792 to obtain NetBackup Appliance documentation.

See "Product overview" on page 11.

Product overview

Two disk drives in a RAID 1 configuration provide the operating system for the appliance. These disk drives are located in slots 0 and 1 in the appliance front panel.

The appliance also provides eight data and parity disk drives that vary in storage capacity. These disk drives are located in slots 4 through 11 in the appliance front panel. Refer to the *Symantec NetBackup 5230 Appliance and Symantec Storage Shelf Product Description* for descriptions of the storage capacities that are available.

An option to use eight 3-TB storage disks in the appliance provides 14-TB of storage without a storage shelf.

Up to four storage shelves can be added to increase the storage capacity to 158-TB including the appliance.

Configurations that include at least one Storage Shelf require a SAS RAID controller card that is installed in a PCIe add-in slot in the appliance. The appliance also has the Fibre Channel port cards that are installed in the PCIe slots for all configurations.

See “Dimensions” on page 12.

Dimensions

The heaviest devices in any equipment rack should be installed in the bottom of the rack. If heavy devices are installed at the top of the rack, the rack may tip over. Injury to personnel and damage to equipment is very possible. The Symantec Storage Shelf is heavier than the appliance. Therefore, you must install the storage shelf in the bottom of the rack. Install the appliance above the storage shelves.

The appliance weight and dimensions are listed below

- 52 lbs (23.58 kg)
- 27.39" (69.59 cm) deep
- 17.24" (43.8 cm) wide
- 3.45" (8.76 cm) high

The rack rails that are provided for the appliance are extensible to 31.5” (800mm). The part number of these rails is AXXPRAIL. This distance is the maximum depth that is allowed between rack posts. If the distance between rack posts is longer than 31.5” (800mm) the rails and the appliance cannot be properly installed. Other rails may have different lengths. The appliance fits into a standard 19” (482.6mm) wide rack.

The storage shelf weight and dimensions are listed below.

- 71 lbs (32.2 kg)
- 22.1" (56.1 cm) deep
- 17.6" (44.7 cm) wide
- 5.25" (13.33 cm) high

The rack rails that are provided for the Symantec Storage Shelf are extensible to 36” (914mm). This distance is the maximum depth that is allowed between rack posts. If the distance between rack posts is longer than 36” (914mm) the rails and the appliance cannot be properly installed. The storage shelf fits into a standard 19” (482.6mm) wide rack.

See “Appliance front panel” on page 13.

Appliance front panel

The front panel of the appliance contains 12 hard disk drive slots and an LED panel.

Every NetBackup 5230 appliance contains 12 disk slots. They are numbered from 0 to 11, starting at the lower left-hand corner. The appliance has two SAS disks that are installed in slots 0 and 1, which are used for the operating system and mirrored RAID1 support. These two active system disks allow one of the disks to be swapped out while the appliance is running.

Eight storage disks are installed in slots four through 11. The hot spare is in slot 11, in the top right-hand corner of the appliance.

The system disk drives are circled in red. The storage disk drives are circled in yellow.

The NetBackup 5230 may not require a Symantec Storage Shelf to provide storage. The standard appliance contains 1-TB storage disks which provide 4-TB of formatted storage capacity. It is also possible to purchase 3-TB storage disks which provide 14-TB of available storage capacity. If additional storage is needed Symantec Storage Shelves can be added.

Up to four storage shelves can be used with one NetBackup 5230 Appliance.

A small panel is attached to the right side of the appliance. The panel contains system LEDs and operations buttons. The LEDs provide information about the functionality of the appliance. The details are provided in Table 1-3.

Table 1-3 NetBackup Appliance front panel controls and features

Number	Description
1	AC power button with integrated LED (executes a shutdown before turning off power)
2	Hard drive activity LED
3	System ID button with integrated LED
4	System cold reset button (turns off power instantly)
5	NIC4/eth3 activity LED (on when linked; flashes when in use at the rate of speed)
6	NIC3/eth2 activity LED (on when linked; flashes when in use at the rate of speed)
7	NMI button (This button triggers a nonmaskable interrupt. All server data is lost.)
8	NIC1/eth0 activity LED (on when linked; flashes when in use at the rate of speed)
9	NIC2/eth1 activity LED (on when linked; flashes when in use at the rate of speed)
10	System status LED (green when status is good; amber when faults have occurred)

Each hard disk drive has two LEDs which give the drive status, as shown in the following diagram.

The following table describes the LEDs in the disk drives.

Table 1-4 Disk drive module LEDs

Number	Description	Color	Indication
1	Status LED	Not lit Solid amber Blinking amber	No faults Disk fault RAID rebuild is in progress.

Table 1-4 Disk drive module LEDs *(continued)*

Number	Description	Color	Indication
2	Activity LED	Not lit Solid green Blinking green Blinking green occasionally	The disk has spun down. No disk activity. The disk spins up. Commands are processed.

On the left side of the front panel, a black tag can be pulled out to display the serial number of the appliance.

See "Appliance rear panel" on page 15.

Appliance rear panel

The NetBackup Appliance rear panel provides access to the communication ports, PCIe add-in cards, and the hot-swappable power supplies. The add-in cards are installed at the factory before the appliance ships.

Table 1-5 NetBackup Appliance rear panel

Number	Function
1, 2	Power Supply Modules #1, #2
3	Starting with NetBackup Appliance release 2.6.0.2, the eth0/NIC1 port can be configured and used in your network for backup jobs. If you decide to use this port for backups, you must configure the remote management (IPMI) port to access the appliance.
4, 5, 6	NIC2/eth1, NIC3/eth2, and NIC4/eth3 are used for public networks. All three ports are 1Gb connectors.
7	DB-15 VGA connector
8	RJ45 Serial-A port (reserved)
9	USB connectors
10	Remote management (IPMI) port
11	NIC5/eth4 and NIC6/eth5, left to right: 10Gb network connectors for public networks
12	PCIe add-in adapter slots (for SAS RAID Controller, Fibre Channel, and 10Gb Ethernet cards)
13	Serial-B port (reserved)

See "Storage shelf front panel" on page 17.

PCIe riser assemblies and slot numbers

Each appliance contains two PCIe riser assemblies. Each riser assembly can hold three PCIe add-in cards. The riser numbers and slot numbers determine which slot a card can occupy. The following diagram shows the PCIe risers as R2 and R1. In the R2 riser the PCIe slots are numbered from 1 to 3, from the bottom to the top of the riser. In the R1 riser the PCIe slots are numbered from 4 to 6, from the bottom to the top of the riser.

Figure 1-1 Appliance PCIe risers and slot numbers

See "Storage shelf front panel" on page 17.

About the FC HBA ports

The NetBackup 5230 appliance add-in cards are available in five configurations. Several configurations include one FC HBA card for VMware, Optimized Deduplication over FC, or tape library connectivity.

Configurations D and E support FTMS. In these configurations Port 1 on each FC HBA card (1) in slots 5 and 6 are configured in Target mode. Port 2 in slots 5 and 6 and all of the other FC ports are configured in Initiator mode.

Figure 1-2 FC HBA card target and initiator ports

Storage shelf front panel

The Symantec Storage Shelf front panel contains 16 disk drives that are configured in a RAID 6 array.

Each of the 16 drives slot contains a drive bay, a drive release button, and two LEDs. The bay houses the disk drive module which includes the disk drive and a carrier. The release button lets you remove the drive from the storage shelf. The LEDs provide status and activity information about each drive.

The storage shelf front panel includes two sets of three LEDs embedded in the handle on the right side of the shelf. These LEDs provide information about the overall storage system and about the system components.

Table 1-6 Symantec Storage Shelf disk drive LED status indicators (1)

LED name	State	Description
Disk status	Green	Normal operation
	Amber	Abnormal or no operation
Power/activity	Green	Normal operation
	Amber	Abnormal or no operation

Table 1-7 Symantec Storage Shelf system LED status indicators (2)

LED name	State	Description
Power	Not lit	Off
	Solid green	On
Global enclosure status	Not lit	Off
	Solid green	On
	Amber	One power supply offline
	Red	Both power supplies offline
Reserved	N/A	N/A
I/O Module 1 activity	Not lit	No activity
	Flashes green	Activity
I/O Module 2 activity	Not lit	No activity
	Flashes green	Activity
Heartbeat	Not lit	System off
	Flashes green	Normal operation

The 16 disk drives in the storage shelf are labeled as shown. The drive in slot 16 is the hot spare.

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

See "Storage shelf rear panel" on page 19.

Storage shelf rear panel

The rear panel of the Symantec Storage Shelf contains two I/O modules and two power supplies. The I/O modules make the storage capacity in the storage shelf available to the RAID controller in the NetBackup Appliance. This section provides information about the rear panel of the storage shelf.

Table 1-8 Storage Shelf rear panel

Number	Element	Details
1	SAS_IN port LED	Not lit - no link available Solid green - link available Flashes green - activity Red - power supply failure
2	SAS_IN port	Connected to the NetBackup Appliance
3	SAS_OUT port	Connected to a second storage shelf, if used

Table 1-8 Storage Shelf rear panel *(continued)*

Number	Element	Details
4	SAS_OUT port LED	Not lit - no link available Solid green - link available Flashes green - activity Red - power supply failure
5	I/O module LED	Not lit - off Solid green - ready Flashes green - N/A Red - starting up
6	Power supply LED	Not lit - power is not detected Solid green - power is ok Flashes green - power supply is not turned on Red - power cannot be turned on

Note: When the Symantec Storage Shelf starts, the primary I/O module (on the left side of the rear panel) starts first. Its LED turns green a few seconds after the start. The LED of the secondary I/O module (on the right of the rear panel) starts after the primary module is operational.

About hardware installation

Warning: NetBackup equipment and containers can weigh in excess of 70 lbs (31.75 kg). Improper handling can result in injury or equipment damage. Use appropriate techniques, tools, and materials when handling NetBackup equipment.

The hardware installation flow is as follows:

- Understand the NetBackup Appliance and the Symantec Storage Shelf.
- Check safety precautions.
- Check installation requirements.
  The rack rails that are provided for the appliance are extensible to 31.5” (800mm). The part number of these rails is AXXPRAIL. This distance is the maximum depth that is allowed between rack posts. If the distance between rack posts is

longer than 31.5” (800mm) the rails and the appliance cannot be properly installed. Other rails may have different lengths. The width of the appliance is 19” (482.6mm).

The rack rails that are provided for the Symantec Storage Shelf are extensible to 36” (914mm). This distance is the maximum depth that is allowed between rack posts. If the distance between rack posts is longer than 36” (914mm) the rails and the appliance cannot be properly installed. The width of the storage shelf is 19” (482.6mm).

- Unpack the devices.
- Install rack rails in the equipment racks for the NetBackup Appliance and Symantec Storage Shelf. The storage shelf is heavier than the appliance. All storage shelves should be installed at the bottom of the rack, below the appliance.
- Install the NetBackup Appliance and Symantec Storage Shelf into the rack rails. The appliance height is 2U and the storage shelf height is 3U. Guide pins on the devices are used to position the devices correctly on the rail. It sits completely inside the rack.
- Screws are provided with the hardware as needed. Insert the screws into the rack. Use the screws in back and in front to secure the devices to the rack.
- If your appliance rails have built-in pins instead of screws, secure the pins in the rack holes. The blue pin indicates the bottom of the rail.
- Connect the two SAS cables between the appliance and the Symantec Storage Shelf that is closest to the appliance.
- Plug the two power cables which are provided for each device into appropriate AC power supplies.
- Turn on the storage shelf first, and let it initialize. If you have two storage shelves, turn on the storage shelf that is not connected to the appliance. When that storage shelf has initialized turn on the other storage shelf and let it initialize.
- Turn on the appliance.
- Ensure that the devices operate properly and begin the configuration for the device.

Tools

The following tools and supplies are required for hardware installation.

- Phillips screwdrivers M3-M6
- Knife (for opening cartons)

- ESD preventive wrist strap or gloves
- Cable labels
- Pen or pencil with which to write on labels
- Cable ties and diagonal cutting pliers (optional)
- Multimeter (optional)

Checking the shipping packages

Before unpacking devices, check that the packages are intact and undamaged.

The appliance package should include the following items:

- The NetBackup Appliance
- Mounting rails for the appliance
- Snap-in screw locks for attaching the appliance to the rack
- Two AC-power cords for the appliance
- A portfolio containing license information, documentation, and a USB stick.

If one or more storage shelves are included with the appliance, each storage shelf package should contain the following:

- The Symantec Storage Shelf
- Mounting rails for each shelf
- Screws to attach the rails to the rack
- Snap-in screw locks to secure the screws that attach the rails to the rack
- Two AC-power cords for each shelf
- Two SAS cords for each shelf

Before you unpack the devices, perform the following checks.

To check devices before unpacking

1. Verify that the quantity of the packages which were received matches the shipping documentation quantity.
2. Check that the packages are intact. If the packages are severely damaged or are wet, perform Step 4.
3. If the packages are intact, unpack the devices.
4. If the packages are not intact, stop unpacking and identify any problems. Report the situation to the local engineering manager.

Caution: Store any unpacked systems indoors to protect them from the weather. If products are damaged, take photographs of the damaged goods and archive them in a safe place along with any shipping records and invoices.

See "ESD-preventive measures" on page 23.

ESD-preventive measures

ESD-preventive clothes, wrist straps, and gloves prevent static electricity from damaging the devices. ESD-preventive clothes provide the best protection, followed by a protective grounded wrist strap, and lastly by protective gloves.

Symantec recommends that you wear ESD-preventive clothes if they are available. If they are not available, wear a protective grounded wrist strap, or if a wrist strap is unavailable, protective gloves.

If you wear ESD-preventive clothes, be sure to fasten the buttons.

Wearing an ESD-preventative wrist strap or band

1. Stretch your hand through the ESD-preventive wrist strap or band.
2. Fasten the ESD-preventive wrist device to fully touch your skin.
3. An ESD-preventive wrist strap has a plug or metal clip. Perform one of the following steps depending on your environment.
   - Insert the plug into the ESD jack on a workbench.
   - Attach the metal clip to an unpainted metal surface on the appliance, rack cabinet, or the specific component you are working on.

You can verify that you are ESD-free with an appropriate meter. Use the instructions that apply to your meter.

See "Environmental specifications" on page 23.

Environmental specifications

Table 1-9 lists the requirements for the NetBackup appliance and storage devices.

Table 1-9 Environmental requirements

Component	Requirement
Storage shelf nominal voltage	120VAC (U.S.)
Operating temperature	10°C to 35°C (50°F to 95°F)
Storage temperature	-10°C to 50°C (14°F to 122°F)

Table 1-9 Environmental requirements *(continued)*

Component	Requirement
Transportation temperature	-40°C to 60°C (-40°F to 140°F)
Relative humidity operating range	10% to 80%
Relative humidity storage range	10% to 90%
Relative humidity transportation range	5% to 90%
Relative humidity operating gradient	10°C (50°F) per hour maximum
Relative humidity storage gradient	15°C (59°F) per hour maximum
Operating altitude	-30 meters to 3,000 meters (-98.4 ft to 9842.5 ft) In altitudes from -60 meters to +1,800 meters, the ambient temperature ranges from 5°C to 35°C. When the altitude ranges from 1,800 meters to 3,000 meters, the environment temperature decreases by 0.6°C if the altitude increases by 100 meters.
Storage altitude	-30 meters to 3,000 meters
Noise	< 72 dB(A) This value reflects the maximum noise of the NetBackup appliance when the ambient temperature is 25°C (77°F).

See "Checking the shipping packages" on page 22.

Heat dissipation

This section describes heat dissipation requirements of the appliance and the storage shelf. Before installing the devices, check whether the heat dissipation on site satisfies the conditions for proper running of the device. For optimal maintenance, ventilation, and heat dissipation, pay attention to the following when installing the appliance and the storage shelf into the rack cabinet.

- For proper ventilation, the rack cabinet should be at least 100 cm (4') away from surrounding walls and at least 120 cm (4') away from any other cabinet(s).
- To keep a convective air flow between the cabinet and the equipment room, ensure there are no obstructions on all sides of the cabinet.

- It is recommended to leave 1U (1U=44.45mm) space above and below each appliance.

The applince takes in air from the front panel and circulates the air through the system. Fans discharge air from the rear of the appliance. Air flows from front to rear. The optional bezel can be installed on the front panel without any reduction in air movement.

Ensuring rack readiness

The rack should be checked as follows:

- Ensure that the rack is properly installed and grounded.
- The rack rails that are provided for the appliance are extensible to 31.5” (800mm). The part number of these rails is AXXPRAIL. This distance is the maximum depth that is allowed between rack posts. If the distance between rack posts is longer than 31.5” (800mm) the rails and the appliance cannot be properly installed. Other rails may have different lengths. The width of the appliance is 19” (482.6mm).
- The rack rails that are provided for the Symantec Storage Shelf are extensible to 36” (914mm). This distance is the maximum depth that is allowed between rack posts. If the distance between rack posts is longer than 36” (914mm) the rails and the appliance cannot be properly installed. The width of the storage shelf is 19” (482.6mm).
- Ensure that the rack is at least 100 cm (approximately 3 feet) away from the walls.
- Ensure that the clearance between any racks is at least 120 cm (approximately 4 feet) for maintenance, adequate ventilation, and effective heat dissipation.
- Ensure that other equipment does not prevent air transfer between the cabinet and the room. Adequate distance is necessary for cooling of the devices.

Installing the hardware

This section describes the steps that are required to install guide rails into the rack for the appliance and for the storage shelf. When the guide rails are secured you can install the hardware. Be sure to install the storage shelf under the appliance in the rack. The storage shelf is heavier than the appliance and should be located as low as possible in the rack. If you have more than one storage shelf, install all shelves under the appliance. Alternatively, you can install shelves in an adjacent rack. Be sure that cables are long enough to accommodate the greater distance.

See “Removing the protective film from the storage shelf” on page 26.

Removing the protective film from the storage shelf

The Symantec Storage Shelf ships with a clear, protective film on the top, bottom, and sides of the chassis. You need to remove the film before you install the storage shelf into the rack. The storage shelf does not install properly if the film is not removed.

The front panel and the rear panel do not include any film.

To remove the protective film

Warning: Make sure that another person is available to help lift the storage shelf.

---

1. Peel the protective film from the top of the storage shelf.
2. Lift up one end of the storage shelf and peel the film from the bottom of the chassis.
3. When approximately half of the film is removed, lift the other end of the storage shelf and remove the remaining film.
4. Peel the film from the sides of the storage shelf.
5. Discard all of the film.

See "Installing the Symantec Storage Shelf guide rails" on page 26.

Installing the Symantec Storage Shelf guide rails

The Symantec Storage Shelf is shipped with left and right mounting rails. These rails install in a standard 19-inch rack. The front plates of the rails are marked left and right. Two-inch lips on the bottoms of the rails provide a shelf on which the storage system sits. Extenders that are built into the rails let you adjust the rails for the depth of the rack.

Caution: Due to the weight of the units, Symantec recommends that storage shelves be installed at or near the bottom of the rack.

Requirements

- 19-inch equipment rack
- Available 3U slot
- Six M5 screws (provided)
- Six cage nuts (provided)
- Number 2 Phillips screwdriver

- Flashlight

To install the Symantec Storage Shelf guide rails

1 Determine the installation positions of the guide rails in the rack.

This list describes the components in the diagram.

Number	Description
1	Location of a screw on the rear of the storage shelf handle. Insert the screw here to connect the bottom of the rail to the rack. The shelf sits on the ledge of the rail.
2	Location of a second screw to hold the storage shelf to the rack.

2 Locate the left mounting rail in the box in which the Symantec Storage Shelf is shipped. The mounting plate at the front end of the rail is marked Front Left.

3 Install snap-in cage nuts in the rack as follows:

- Locate the M5 snap-in cage nuts in the package in which the storage shelf was sent.
- Identify the bottom third of the 3U section in the front and back of the rack where you want to install the storage shelf.

Note: The mounting rails are 1U high. The holes that are used to secure the rail in the rack are in the middle of that height.

- From the inside of the rack, insert snap-in cage nuts in cutouts in the front and back where you want to install the mounting rail. Make sure that the nuts are installed at the same level.

4 Orient the left mounting rail so that the lip is at the bottom and on the inside of the rack. You can adjust the length of the rail to fit the depth of the rack.

Note: The lip on the rail that supports the storage shelf must be on the inside of the rack and at the bottom of the rail.

5 Align the screw holes in the rail with the snap-in cage nut that you installed in the rack.

6 Insert M5 screws and tighten. Screws are shipped with the unit.

7 Repeat Steps 1 through 6 for the right mounting rail. Be sure that rails are installed at the same height.

Installing the Symantec Storage Shelf into a rack

Caution: Due to the weight of the units, Symantec recommends that storage shelves be installed at or near the bottom of the rack.

Warning: A Symantec Storage Shelf weighs about 71.7 lbs (32.5 kg). Use appropriate practices, techniques, and tools when handling these components.

To install the Symantec Storage Shelf into a rack

1 Verify that the guide rails are properly installed and securely fastened in the rack.

2 Insert snap-in cage nuts in cutouts on both sides of the front of the rack to secure the storage shelf. The snap-in cage nuts must align with the through-holes in top third of each ear on the storage shelf when the storage shelf is installed in the rack.

3 Slide the storage shelf along the mounting rails into the rack cabinet.

4 Insert M5 screws in the through-holes in the ears of the front panel and tighten. The through-holes must align with the snap-in cage nuts installed earlier.

See “Installing the NetBackup appliance guide rails” on page 29.

Installing the NetBackup appliance guide rails

Before you install the devices in a rack:

- Determine the installation positions of the guide rails in the rack.

This list describes the components of the drawing.

Number	Description
1	Captive screw that connects the appliance to the rack.
2	Blue peg that connects the rail bottom to the rack.
3	Empty (no screws or pegs).
4	Silver peg that connects the rail top to the rack.

The silver peg is on the top of each rail. The blue peg is on the bottom of each rail. The blue peg and the square silver peg snap into the rack without screws or cage nuts.

To install the rack rails

1 Identify the one U on each side of the rack where you decided to install the rails.

2 Verify that there is one complete U available under the U used for rail installation.

3 Locate the left rail, with the **L** at the front end. The **L** faces the left side wall of the rack, not the inside of the rack.

4 Guide the rail into the two holes in the one U that you selected.

5 Hook the silver peg on the front of the rail into the top hole in the U.

6 Snap the blue peg on the front of the rail into the bottom hole in the U.

7 Repeat steps 3 to 6 for the rail on the right side of the rack.

8 Verify that both rails are parallel and fastened securely.

See "Installing the NetBackup appliance into a rack" on page 31.

Installing the NetBackup appliance into a rack

The appliance should be installed above any storage shelves. This configuration allows proper weighting of the rack.

To install the NetBackup appliance into a rack

1 Verify that the guide rails are properly installed and securely fastened.

2 Insert two snap-in screw locks into the rack immediately underneath the guide rails.

These locks secure the appliance when it is fully installed into the rack.

3 Pull out both the rail extenders as far as they can easily and safely extend. The release button should click when the rails have been fully extended.

Warning: The appliance weighs at least 52 lbs (23.58 kg). Use at least two people to lift or move the appliance.

---

4 Lift the appliance with the rear panel facing towards the rear of the rack.

5 Tilt the device down towards the back of the rack.

6 Insert the two rear "standoff" pegs extending from the side of the device into the rail slots at the back of the rail extenders.

7 Slowly drop the front of the device into the rail slots at the front of the rail extenders. A peg in the middle and a peg at the front of the device fit into the rail slots.

8 Lift up on the guide rail release buttons and push the device into the rack.

9 Fasten the appliance to the rack with the two screws that are attached to the device. Screw them into the snap-in cage nuts previously attached to the rack in the correct position.

See "About the cables" on page 32.

About the cables

The NetBackup appliances and storage devices use the following types of cables.

Cables shipped with the product:

- AC power cables for connecting the devices to main AC power source
  The NetBackup appliance and storage shelves currently ship with two AC power cords. To improve the power distribution within a rack environment, Symantec will ship two of the Power Distribution Unit (PDU) compatible cords (C13-C14) instead of the AC power cords. The transition to the new cords will be gradual.
- SAS cables to connect the appliance to a storage device and to connect storage devices to each other.

Cables which the customer must provide:

- 1 Gb/s network cables
- 10 Gb/s network cables
- Fibre Channel cables for client and device connections
- PS/2 to USB adapter cable
- KVM cable

Connecting the VGA cable

When the appliance is initialized, a monitor can be connected to the Video Graphics Array (VGA), and a keyboard can be attached to the USB port. Alternatively, you can connect the VGA to a Keyboard Video Mouse (KVM) adapter or switch.

To connect the VGA Cable

1 Insert the connector of a VGA (DB15) cable into the video port on the rear panel of the NetBackup appliance.

  See "Appliance rear panel" on page 15.

2 Connect the other end of the cable directly to a monitor, or to a KVM adapter, or KVM switch.

Connecting the small form-factor pluggable (SFP+) transceivers

The NetBackup appliance requires an SFP Fibre Channel adapter to be plugged into the Fibre Channel ports if the appliance uses a Fibre Channel plug-in. The adapter allows usage of both optical and copper Fibre Channel cables.

The NetBackup appliance supports Fibre Channel (FC) tape out PCIe add-in cards and a 10 Gb Ethernet NIC with two ports. The cards connect to other devices through fiber optic cables. Using the tape out card (Fibre Channel) as an example, this section describes how to connect a fiber optic cable. The procedure to connect fiber optic cables is the same for both cards.

The fiber optic cables require Small Form-factor Pluggable (SFP+) transceivers, which are provided with each Fibre Channel add-in card. The diagram shows the SFP (**1**) and the fiber optic cable which is attached to it (**2**).

Supported SFPs are listed as follows:

- Finisar
- JDSU

Warning: The laser beams of an optical interface board or inside an optical fibre can cause eye damage. Do not look directly into the transceiver or point the transceiver at another person's eyes.

When connecting optical fibers, note the following:

- An optical transceiver is electrostatic sensitive and it should be placed in an ESD-preventive and dust-proof environment for transportation, storage, and use.
- Optical fibers and optical transceivers not in use must be protected with dust caps seated properly on the connectors. If the optical transceiver is contaminated, carefully clean the optical interface.
- Keep the surface of all optical connectors clean and free from scratches.
- Do not squeeze, distort, fold, or repair an optical fiber.

- Do not bend the optical fiber into a circle with a radius less than 5 cm. Otherwise, the optical fiber may be damaged, which reduces the system performance or causes data loss.

To connect optical fibers

1. Put on proper ESD-preventive gloves or wrist straps.
2. Take the cap of the optical transceiver out of the interface of the tape out card (two-port 8 Gb FC HBA).
3. Remove an optical fiber from its packaging.
4. Remove the caps of the optical connectors.
5. Plug an optical connector into the interface of the card.
6. Ensure that the optical connector is securely inserted into the optical transceiver.
7. Connect the other optical connector of the optical fiber to a Fibre Channel switch.

See "About the cables" on page 32.

Connecting the network cables

The networking ports are accessed on the rear panel of the device. The remote management port is for use by Symantec Technical Support staff or by approved field service technicians. The following picture shows the layout of the network ports. It includes the four 1 Gb Ethernet ports on the left and the two 10 Gb Ethernet ports on the right. The remote management (IPMI) port is located to the left of the 10 Gb Ethernet ports.

Ethernet ports NIC2/eth1, NIC3/eth2, NIC4/eth3, NIC5/eth4, and NIC6/eth5 can be connected to public networks.

See "Connecting the small form-factor pluggable (SFP+) transceivers" on page 33.

Connecting the appliance to one or more storage shelves

The SAS RAID controller PCIe card is inserted in Slot 1 of PCIe Riser Assembly 2. This card is installed at the factory. An authorized field technician can replace an existing card or add a card if the card was not ordered originally. Customers are not permitted to perform these operations.

Serial Attached SCSI (SAS) cables must be used to connect the appliance with one or more storage shelves.

The following diagram shows a NetBackup 5230 appliance that is attached to the maximum amount of four storage shelves.

Table 1-10 Appliance and storage shelf components

Numbers	Feature
1	SAS RAID PCIe card

Table 1-10 Appliance and storage shelf components *(continued)*

Numbers	Feature
2	1 Gb Ethernet ports
3	Serial port
4	Remote management (IPMI) port
5	10 Gb Ethernet ports
6	Storage shelves

To connect the SAS cables

1. Connect a SAS cable to each of the two ports marked "SAS_IN" on the storage shelf.
2. Connect the other end of each SAS cable to a SAS port on the PCIe RAID card in the appliance.
3. When more than one storage shelf is used, connect the SAS_OUT ports in the first shelf to the SAS_IN ports in the second storage shelf.
4. Connect the SAS_OUT ports on the second storage shelf to the SAS_IN ports on the next storage shelf.
5. Connect the SAS_OUT ports of each storage shelf to the SAS_IN ports on the next storage shelf.
6. Do not connect the SAS_OUT ports of the last storage shelf to any device.

See “Connecting the power cables” on page 36.

Connecting the power cables

Caution: The equipment should be completely installed and all network cables should be connected before any devices are connected to power sources.

The NetBackup appliance has two power modules that are accessible on the rear panel of the device. Each module requires a separate AC power cable or PDU cord. Connect one end of the cable or cord to a power module, and then plug the other end into a 120-VAC socket.

The storage shelf also has two power modules that are accessible on the rear panel of the device. Each module requires a separate AC power cable or PDU cord. Connect each module to a 120-VAC socket.

Hardware verification and turning on the NetBackup 5230 appliance and storage shelf

Check the information in Table 1-11 after the hardware installation and cable connections are complete, but before the devices are turned on.

Note: Do not attach external devices, such as tape drives or SAN clients, to the appliance until this process has been completed.

Warning: Confirm that all power to the devices is turned off to prevent personnel injuries and to prevent damage to the devices.

Verify that the devices and cables are installed correctly. The following table provides instructions for checking the device installation.

Table 1-11 Installation confirmation

Component	Correct installation	Incorrect installation
Symantec Storage Shelf	The storage shelf is placed securely in the lowest portion of the rack cabinet.	The storage shelf is insecurely mounted or mounted too high within the rack cabinet.
NetBackup appliance	The appliance is placed securely in the lower portion of rack cabinet, above the storage shelf or shelves.	The appliance is insecurely mounted or mounted too high within the rack cabinet.
AC power cables	The AC power cables of the appliance and all storage shelves are connected to the power modules and the AC power supply.	Only one power cable is connected to the device.
SAS drive cables	The SAS cables connect the two RAID ports in the appliance to the two SAS_IN ports in the storage shelf.	One or both SAS cables fail to connect the two RAID ports in the appliance to the two SAS_IN ports in the storage shelf.

Table 1-11 Installation confirmation *(continued)*

Component	Correct installation	Incorrect installation
SAS drive cables for more than one storage shelf, if used	SAS cables connect the two SAS_IN ports in the second shelf to the two SAS_OUT ports in the first shelf. Subsequent shelves are connected in the same manner.	One or both SAS drive cables fail to connect the second storage shelf to the first storage shelf.

Turning on the storage shelves

These steps should be followed in the given order when turning on the devices for the first time.

Caution: You must turn on each storage shelf **before** you turn on the NetBackup appliance. When the storage shelves have initialized, proceed to turn on the appliance.

To turn on the storage shelves

1. Connect both AC power connectors of each storage shelf to two main AC power supply outlets or PDU connections.
2. Identify the storage shelf that is farthest from the appliance.
3. Turn on both power switches.
4. Wait until the storage shelf system power LED and the global enclosure status LED on the front panel are green. Make sure that the disk status and activity LEDs on each disk drive are green. If they are not green, contact Symantec Technical Support.

   See "Storage shelf front panel" on page 17.
5. Repeat this procedure for all storage shelves.

   See "Turning on the appliance " on page 38.

Turning on the appliance

All devices must be correctly installed and all cables must be connected properly.

When turning on the NetBackup hardware, do not remove or handle any disks, optical fibers, or network cables. Otherwise, data may be lost and equipment may be damaged.

To turn on the NetBackup appliance

1. Connect both AC power connectors on the rear panel of the appliance to two main AC power supply outlets.
2. Attach a monitor to the VGA plug, and a keyboard to one of the USB ports. If a KVM switch is available, attach both the monitor and keyboard to the switch, and plug the switch into the VGA.
3. Verify that each storage shelf has been turned on and is running properly.
4. Turn on the appliance, using the power button which is located on the right side of the front panel.

5. Determine if the NetBackup appliance is running properly.
   - Check the Status LED (1), and Activity (2) LED on the installed disk drives on the front panel.

The Status LED (1) should not be lit. The following indications are possible:

- A solid, amber, LED indicates a disk fault.
- A blinking, amber, LED indicates that a RAID rebuild is in progress.

The Activity LED (2) indicates the following:

- The LED is not lit when the disk has spun down, although power is on.
- The LED is solid green when there is no disk activity, although power is on.
- The LED blinks green when the disk spins up.
- The LED blinks green occasionally when commands are processed.

- Review all LEDs on the front control panel.

Number	Description	Number	Description
1	System ID button	6	System status LED
2	NMI button (do not use)	7	Power button and LED
3	eth0 NIC1 activity LED	8	Hard drive activity LED
4	eth2 NIC3 activity LED	9	eth3 NIC4 activity LED
5	System cold reset button	10	eth1 NIC2 activity LED

- Check the power supply module LEDs on the rear panel. Each module has one LED.

See "Hardware verification and turning on the NetBackup 5230 appliance and storage shelf" on page 37.

Chapter 2

Initial configuration

This chapter includes the following topics:

- About appliance configuration guidelines
- About the initial configuration pages in the NetBackup Appliance Web Console
- Performing the initial configuration on a NetBackup 52xx appliance from the NetBackup Appliance Web Console
- Performing the initial configuration on a 52xx master server appliance from the NetBackup Appliance Shell Menu
- Configuring a master server to communicate with an appliance media server
- Performing the initial configuration on a 52xx media server appliance from the NetBackup Appliance Shell Menu
- About NIC1 (eth0) port usage on NetBackup 52xx appliances
- About configuring the maximum transmission unit size
- Downloading NetBackup client packages to a client from a NetBackup appliance
- Downloading the NetBackup Administration Console to a Windows computer from a NetBackup appliance
- Installing NetBackup client software on clients through CIFS and NFS shares

About appliance configuration guidelines

Use the following configuration guidelines when you deploy new appliances:

Table 2-1 Appliance configuration guidelines

Parameter	Description
Connectivity during initial configuration	When you perform the appliance initial configuration, Symantec recommends that you take precautions to avoid loss of connectivity. Any loss of connectivity during initial configuration results in failure. The computer that you use to configure the appliance should be set up to avoid the following events: ■ Conditions that cause the computer to go to sleep ■ Conditions that cause the computer to shut down or to lose power ■ Conditions that cause the computer to lose its network connection
Required names and addresses	Before the configuration, gather the following information: ■ Network IP addresses, netmask, and gateway IP addresses for the appliance ■ Network names for all appliances ■ DNS or host information If DNS is used, make sure that the network names of all appliances and the master server are DNS resolvable (FQHN and short name). **Note:** If DNS is not used, make sure that you enter the proper host entries for the appliance during the initial configuration. ■ Password for appliance access The default password for appliance access is **P@ssw0rd**. ■ Names for NetBackup storage units The **Storage Name** fields appear when you configure the appliance role. You can change the default names or leave them. The default values that appear in the **NetBackup Administration Console** for the storage units and disk pools are as follows: ■ For the AdvancedDisk: Default storage unit name: **stu_adv_<hostname>** Default disk pool name: **dp_adv_<hostname>** ■ For the NetBackup Deduplication: Default storage unit name: **stu_disk_<hostname>** Default disk pool name: **dp_disk_<hostname>**

Table 2-1 Appliance configuration guidelines *(continued)*

Parameter	Description
Firewall port usage	Make sure that the following ports are open on any firewall that exists between a master server and a media server: ■ 13724 (`vnetd`) ■ 13720 (`bprd`) ■ 1556 (`PBX`) ■ 7578 (specific for the 5220 appliance when the TCP protocol is used) For more information about firewall ports for NetBackup and the NetBackup appliance, see the following tech note on the Symantec Support website: http://www.symantec.com/docs/TECH178855
Media server role	Before you configure a NetBackup appliance as a media server, the master server that you plan to use with it must be updated with the new appliance media server name. Whether the master server is a NetBackup appliance or a traditional NetBackup master server, the name of the new appliance media server must be added to the **Additional Servers** list on the master server. Adding the new appliance media server name to the master server before the new appliance is configured provides the following benefits when performing the initial configuration on the new appliance: ■ Provides the appropriate network communication that allows the media server to become part of the NetBackup domain. ■ Allows the media server to create the storage server and the disk pool entries. See "Configuring a master server to communicate with an appliance media server" on page 81.
Disk storage option licenses	The appliance comes with a not for resale (NFR) license key that expires after a specific period of time. The appliance does not provide a warning message that this license key is about to expire. Thus, Symantec recommends that you change this key to a permanent key after you install and configure the appliance. See the *Symantec NetBackup Appliance Administrator's Guide* for information and instructions on how to view and change a license key. Replace the NFR keys with permanent keys before they expire.

Table 2-1 Appliance configuration guidelines *(continued)*

Parameter	Description
NetBackup version compatibility	NetBackup appliance Release 2.6.0.3 includes NetBackup version 7.6.0.3. If you plan to configure this appliance as a media server, use the following guidelines for the associated master server: ■ Appliance master server The appliance master server that you plan to use with this appliance media server must use appliance software version 2.6.0.3 or later. If the appliance master server currently uses appliance software version 2.6.0.2 or earlier, it must be upgraded to version 2.6.0.3 before you configure this appliance. ■ Traditional NetBackup master server To use an appliance media server with a traditional NetBackup master server, the master server must use NetBackup version 7.6.0.3 or later. If the NetBackup master server currently uses NetBackup version 7.6.0.2 or earlier, it must first be upgraded to version 7.6.0.3 before you configure this appliance.

See "About appliance system configuration sequence" on page 44.

About appliance system configuration sequence

If your system includes more than one appliance or a storage expansion unit, configuration must be done in a specific order.

The following describes the proper sequence for appliance configuration, based on the system components.

Table 2-2 Appliance configuration order

System	Configuration order
Single appliance system (standalone)	Configure the appliance as a master server.
Multiple appliance system (master server and media servers)	■ Configure the first appliance as a master server. ■ Configure the remaining appliances as media servers for use with an appliance master server.
Systems that include a storage expansion unit	After all appliances have been configured, add the storage expansion unit to the server on which it is physically connected.

See "About appliance configuration guidelines" on page 41.

About NetBackup 52xx appliance roles

When you configure an appliance for the first time, you must select a role for it. The role refers to the server type as follows:

Table 2-3 Appliance role and mode descriptions

Role	Description
Master	Select this role to configure the appliance as a master server.
Media	Select this role to configure the appliance as a media server. You must also identify the master server that you plan to use with this appliance. The master server can be either a traditional NetBackup master server or a NetBackup appliance master server. When you select the media server role, you must also define the storage names for the following disk volumes: ■ **Deduplication volume** ■ **AdvancedDisk volume**

See "About the initial configuration pages in the NetBackup Appliance Web Console" on page 47.

See "About the Symantec NetBackup 52xx Appliance initial configuration checklist" on page 57.

About IPv4-IPv6-based network support

NetBackup appliances are supported on a dual stack IPv4-IPv6 network and can communicate with IPv6 clients for backups and restores. You can assign an IPv6 address to an appliance, configure DNS, and configure routing to include IPv6 based systems.

Either the NetBackup Appliance Web Console or the NetBackup Appliance Shell Menu can be used to enter the IPv4 and IPv6 address information.

Review the following considerations for IPv6 addresses:

- NetBackup appliances do not support a pure IPv6 network. An IPv4 address must be configured for the appliance, otherwise the initial configuration (which requires the command `hostname set`) is not successful. For this command to work, at least one IPv4 address is required.
  For example, suppose that you want to set the `hostname` of a specific host to v46. To do that, first make sure that the specific host has at least one IPv4 address and then run the following command:

```
Main_Menu > Network > Hostname set v46
```

- Only global addresses can be used, not addresses with link-local or node-local scope. Global-scope and unique-local addresses are both treated as global addresses by SUSE.

  Global-scope IP addresses refer to the addresses that are globally routable. Unique-local addresses are treated as global on SUSE.

- You cannot use both an IPv4 and an IPv6 address in the same command. For example, you cannot use `Configure 9ffe::9 255.255.255.0 1.1.1.1`. You should use `Configure 9ffe::46 64 9ffe::49 eth1`.

- Embedding the IPv4 address within an IPv6 address is not supported. For example, you cannot use an address like 9ffe::10.23.1.5.

- You can add an appliance media server to the master server if the IPv6 address and the host name of the appliance media server are available.

  For example, to add an appliance media server to the master server, enter the IPv6 address of the appliance media server as follows:

  Example:

  ```
  Main > Network > Hosts add 9ffe::45 v45 v45
  Main > Appliance > Add v45 <password>
  ```

  You do not need to provide the IPv4 address of the appliance media server.

- A pure IPv6 client is supported in the same way as in NetBackup.

- You can enter only one IPv4 address for a network interface card (NIC) or bond. However, you can enter multiple IPv6 addresses for a NIC or bond.

- Network File System (NFS) or Common Internet File System (CIFS) protocols are supported over an IPv4 network on appliance. NFS or CIFS are not supported on IPv6 networks.

- The NetBackup client can now communicate with the media server appliance over IPv6.

- The `Main_Menu > Network > Hosts` command supports multiple IPv6 addresses to be assigned to the same host name having one network interface card (NIC). However, only one IPv4 address can be assigned to a specific host name having one NIC using this command.

- You can add an IPv6 address of a network interface without specifying a gateway address.

  For more details, see the *NetBackup Appliance Command Reference Guide*.

About the initial configuration pages in the NetBackup Appliance Web Console

NetBackup appliances let you perform the initial configuration from the NetBackup Appliance Web Console with a series of pages where you enter the appropriate information.

Welcome to Appliance Setup page

Figure 2-1 shows the page that first appears when you log in to an unconfigured appliance. This page provides a summary of the initial configuration tasks.

Figure 2-1 Welcome page

Note: Symantec recommends that you click on the **download a checklist** link and use it to record all of the necessary information before you begin the configuration.

Network Configuration page

Figure 2-2 shows the page that is used to enter your corporate network information.

Figure 2-2 Network configuration page

Host Configuration page

Figure 2-3 shows the page that is used to enter the host identification for this appliance server.

Figure 2-3 Host configuration page

Password change page

Figure 2-4 shows the page that is used to change the password for this appliance server.

Figure 2-4 Password change page

Date & Time page

Figure 2-5 shows the page that is used to set the date, the time, and the time zone for this appliance server.

Figure 2-5 Date & Time page

Alerting and Call Home page

Figure 2-6 shows the page that is used to configure system alerts and the Call Home feature.

Figure 2-6 Alerting and Call Home page

Registration page

Figure 2-7 shows the page that is used to identify the physical location for this appliance server.

Figure 2-7 Registration page

Appliance Role Configuration page (Master)

Figure 2-8 shows the page that is used to select the **Master** role for this appliance server.

Figure 2-8 Appliance Role Configuration page for Master

Appliance Role Configuration page (Media)

Figure 2-9 shows the page that is used to select the **Media** role for this appliance server.

Figure 2-9 Appliance Role Configuration page for Media

Storage Configuration page (AdvancedDisk)

Figure 2-10 shows the page that is used to allocate storage space for the AdvancedDisk partition and to name the storage unit and the disk pool.

Figure 2-10 Storage configuration page for AdvancedDisk

Storage Configuration page (Deduplication Disk/MSDP)

Figure 2-11 shows the page that is used to allocate storage space for the MSDP (Media Server Deduplication Pool) partition and to name the storage unit and the disk pool.

Figure 2-11 Storage configuration page for Deduplication Disk/MSDP

See "About the Symantec NetBackup 52xx Appliance initial configuration checklist" on page 57.

See "Performing the initial configuration on a NetBackup 52xx appliance from the NetBackup Appliance Web Console " on page 59.

See "Performing the initial configuration on a 52xx master server appliance from the NetBackup Appliance Shell Menu" on page 74.

See "Performing the initial configuration on a 52xx media server appliance from the NetBackup Appliance Shell Menu" on page 83.

About the Symantec NetBackup 52xx Appliance initial configuration checklist

Use the initial configuration checklist to help plan for the initial configuration and for any future appliance reconfiguration.

The checklist consists of a series of tables that describe the data entry fields for each initial configuration page that appears in the NetBackup Appliance Web Console.

For a new appliance, use the checklist to record the initial configuration settings before you configure the appliance. If the appliance is ever factory reset or reimaged, the appliance must be configured again. The recorded settings in the checklist can save time and help get the appliance back on line quickly.

The checklist can be found in the following locations:

- *Symantec NetBackup 52xx Appliance Hardware Installation and Initial Configuration Guide*
  This document is included with every new 52xx appliance. See *Appendix A* for the checklist.
- NetBackup Appliance Web Console
  When you log in to the appliance for the first time through the NetBackup Appliance Web Console, a **download checklist** link appears on the **Welcome** page. Click on the link to open the checklist file. You can also access the checklist by clicking the online Help (?) icon from any page and searching for **checklist**.
- Symantec NetBackup online documentation
  You can obtain a PDF version of the checklist to download and save to a location of your choice. The PDF file also lets you enter the settings so that you can either save or print the completed checklist.
  To access the latest version of this checklist, see the following link:
  www.symantec.com/docs/DOC6675

See "About the initial configuration pages in the NetBackup Appliance Web Console" on page 47.

See "Performing the initial configuration on a NetBackup 52xx appliance from the NetBackup Appliance Web Console " on page 59.

See "Performing the initial configuration on a 52xx master server appliance from the NetBackup Appliance Shell Menu" on page 74.

See "Performing the initial configuration on a 52xx media server appliance from the NetBackup Appliance Shell Menu" on page 83.

Performing the initial configuration on a NetBackup 52xx appliance from the NetBackup Appliance Web Console

After you have installed, connected, and turned on all appliance system components, you are ready to configure the server.

If you plan to configure this appliance as a media server, complete the following tasks on the master server before you start the initial configuration. The following link provides specific instructions about how to accomplish the necessary tasks:

See "Configuring a master server to communicate with an appliance media server" on page 81.

- Make sure that the master server and this media server have compatible software versions.
- Add the name of this media server to the master server that you plan to use with it.
- If a firewall exists between the master server and this media server, open the appropriate ports as described in the link above.
- Make sure that the date and time of this media server matches the date and time on the master server.

The following procedure describes how to configure a new or a reimaged appliance from the NetBackup Appliance Web Console.

Caution: Before or immediately after initial configuration, change the default maintenance password (`P@ssw0rd`) for the appliance. This password must be provided to Symantec Technical Support in case you need future troubleshooting assistance. Change the maintenance password through the NetBackup Appliance Shell Menu with one of the following commands: `Main > Settings > Password maintenance` or `Main > Support > Maintenance > passwd`. For complete information, see the *Symantec NetBackup Appliance Command Reference Guide*.

To perform the initial configuration on a NetBackup 52xx appliance from the NetBackup Appliance Web Console

1. On the laptop that is connected to the **NIC1** appliance port, navigate to the **Local Area Connection Properties** dialog box.

   On the **General** tab, select **Internet Protocol (TCP/IP)** so that it is highlighted, then click **Properties**.

On the **Alternate Configuration** tab, perform the following tasks:

- Click **User Configured**.

- For the **IP address**, enter `192.168.229.nnn`, where `nnn` is any number from 2 through 254 except for 233.
- For the **Subnet mask**, enter **255.255.255.0**.
- Click **OK**.

2 On the laptop that is connected to the appliance, open a web browser to the following URL:

http://192.168.229.233

Make sure to confirm the security exception to proceed.

3 Log on to the appliance as follows:

- For **User Name**, enter **admin**.
- For **Password**, enter **P@ssw0rd**.

4 On the **Welcome to Appliance Setup** page, review the summary of information that you need to perform the initial configuration.

- **Download Configuration Checklist**
  To help with the initial configuration, click this link to open a file where you can record all of the configuration settings. Symantec recommends that you print this file and fill it out for use as you perform the configuration. Then store it in a secure location for future reference.
- **Setup Appliance**
  After you have filled out the configuration checklist, click this item to start the configuration.

5 On the **Appliance Hardware Inventory** page, verify that the appliance has detected the correct number of connected hardware devices.

If any connected devices are not displayed, click **Rescan**.

When all connected devices have been detected and are displayed, click **Next** to start the initial configuration.

If any connected devices are still not displayed, check the following items:

- Verify that all cables are connected and secured.
- Verify that all units are turned on and have booted up completely.
- Verify that you have checked all of the items on the hardware check list.
- After you have verified the previous items, click **Rescan**.
  When all connected devices are displayed, click **Next** to start the initial configuration.

Note: If you cannot get all devices to display after verifying all of the previous items and rescanning, contact Symantec Technical Support.

6 The **Network Configuration** page contains the following taskbars to complete specific tasks with their necessary data entry fields to configure network connectivity. Expand taskbar to enter the relevant network configuration information:

- **Create Bond** - Use to create a bond between two or more network interfaces.
- **Tag VLAN** - Starting with NetBackup Appliances version 2.6.0.3, you can configure VLANs in your existing network environments using this taskbar.
- **Add Static Route** - Use to add a route configuration for your network.

Note: These functions are independent of the other and do not require configuration in the order in which they appear.

Enter the appropriate **Create Bond** information as follows:

Create Bond data entry fields

- **Network Interface**
  Click on the drop-down box and select the interface or the device name between which you want to create the bond.
- **Bond Mode**
  Click on the drop-down box and select the bond mode to use for the NIC ports that you want to bond.
  Bonding lets you combine (aggregate) multiple network interfaces into a single logical "bonded" interface. The behavior of the bonded interfaces depends upon the mode. The default bond mode is **balance-alb**.

  The available bonding modes from the drop-down list are as follows:
  - **balance-rr**
  - **active-backup**
  - **balance-xor**
  - **broadcast**
  - **802.3ad**
  - **balance-tlb**
  - **balance-alb**

  Some bond modes require additional configuration on the switch or the router. You should take additional care when you select a bond mode.
  For more information about bond modes, see the following documentation:
  http://www.kernel.org/doc/Documentation/networking/bonding.txt
  After you have entered the appropriate data into all fields, you must click **+** to add and immediately plumb the selected network interface. To configure bonding, you must select multiple interfaces from the **Bond Mode** drop-down box. For IPv6 addresses, enter 64 as the **Subnet Mask**.
- **IP Address [IPv4 or IPv6]**
  Enter the IPv4 or the IPv6 address to be used for this appliance. Only global-scope and unique-local IPv6 addresses are allowed.
- **Subnet Mask**
  Enter the network address that identifies the IP address for this appliance server.
- After you have entered the appropriate data into all fields, click **+** to save and add the network configuration settings.

Enter the appropriate **Tag VLAN** information as follows:

Tag VLAN data entry fields

- **Select Interface**
  Select the network interface or the device name to which you want to tag the VLAN.
- **Description**
  Enter a description for the VLAN. For example, Finance or Human Resource.
- **VLAN Id**
  Enter a numeric identifier for the VLAN. VLAN IDs can range between 1- 4094. For example, 1 or 10.
- **IP Address [IPv4 or IPv6]**
  Enter the IPv4 or the IPv6 address to be used for this appliance.
- **Subnet Mask**
  Enter the subnet mask value that corresponds to the IP address.
- Click **Add** to add the configuration information for tagging VLAN into to your existing network environment.
  To enter information for tagging additional VLANs, click the **+** sign to add a row. To remove any of the rows, click the **-** sign that is adjacent to the **Subnet Mask** field.

Enter the appropriate **Add Static Route** information as follows:

Add Static Route data entry fields

- **Destination IP**
  Enter the network IP address of a destination network. The address can be either IPv4 or IPv6. Only global-scope and unique-local IPv6 addresses are allowed.
  See "About IPv4-IPv6-based network support" on page 45.
- **Destination Subnet Mask**
  Enter the subnet value that corresponds to the **Destination IP** address.
  For the initial configuration, this field contains a default value that cannot be changed. When you configure another route, you must enter the appropriate value.
- **Gateway**
  Enter the address of the network point that acts as an entrance to another network. The address can be either IPv4 or IPv6. Only global-scope and unique-local IPv6 addresses are allowed.
  See "About IPv4-IPv6-based network support" on page 45.
- **Network Interface**
  Click on the drop-down box and select the ethernet NIC port to use for a network connection.
- After you have entered the appropriate data into all fields, click **+** to save and add the routing configuration settings.

7 On the **Host Configuration** page, enter the appliance host name and the related host resolution information as follows:

Host Name Enter the fully qualified domain name (FQDN) of this appliance.

For DNS systems: Enter the following **Domain Name System** information:

- **Domain Name Suffix**
  Enter the suffix name of the DNS server.
- **DNS IP Address(es)**
  Enter the IP address of a DNS server, then click the **+** icon to add the address. Repeat as necessary for the number of addresses that you want to add.
  The address can be either IPv4 or IPv6. For IPv6 addresses, only global-scope or unique-local addresses are allowed.
  See "About IPv4-IPv6-based network support" on page 45.
  To remove an address, select it from the list that appears below the data entry field and click the **x** icon.
- **Search Domain(s)**
  Enter a search domain name, then click the **+** icon to add the name. Repeat as necessary for the number of search domains that you want to add.
  To remove a search domain, select it from the list that appears below the data entry field and click the **x** icon.

After you have entered all of the necessary information, click **Next**.

For the systems that do not use DNS:

Enter the following **Host name resolution** information:

- **To edit the hosts file manually, click here**

  If you prefer, you can add the IP address, the fully qualified host name, and the short host name directly into the `/etc/hosts` file. Click **here** to open and edit the `/etc/hosts file` file.

  To enter two or more short host names, add a comma with no space between each name.

  Otherwise, enter this information in the data entry fields as follows:

  - **IP**

    Enter the IP address of the appliance.

    The address can be either IPv4 or IPv6. For IPv6 addresses, only global-scope or unique-local addresses are allowed.

    See "About IPv4-IPv6-based network support" on page 45.
  - **Fully qualified host name**

    Enter the fully qualified host name (FQHN) of the appliance.
  - **Short host name**

    Enter the short name of the appliance.

    To enter two or more names, add a comma with no space between each name.

  After you have populated all fields, click the **+** icon. The added entries now appear below the fields.

After you have entered all of the necessary information, click **Next**.

8 On the **Password change** page, enter a new password to replace the default password as follows:

Note: To continue with the initial configuration of the appliance, you are not required to change the default password. However, to increase the security of your environment Symantec recommends that you change the administrator password periodically. Make sure to keep a record of the current password in a secure location.

Old admin password Enter the factory default password (**`P@ssw0rd`**)

New admin password	Enter the new password. Passwords must contain at least seven characters. Passwords with only seven characters must include all of the following requirements while longer passwords must include at least three: ■ One upper case letter ■ One lower case letter ■ One number (0 - 9) ■ One special character (!@#$%^&*()[]{}) Passwords may begin with an uppercase letter or they may end with a number. However, when these characters appear in those positions, the password is not considered to meet the minimum requirements.
Confirm new password	Re-enter the new password for confirmation.

After you have entered all of the necessary information, click **Next**.

9 On the **Date & Time** page, enter the appropriate date and time for this appliance.

You can enter the information manually or use a Network Time Protocol (NTP) server to synchronize the appliance date and time over the network.

Time zone

Specify date & time	To enter the date and the time manually, select this option and enter the following information: ■ In the first field, enter the date by using the `mm/dd/yyyy` format. Or, click on the calendar icon and select the appropriate month, day, and year. ■ In the second field, enter the time by using the `hh:mm:ss` format. Entries must be in the 24 hour format (`00:00:00 - 23:59:59`).
NTP	To synchronize the appliance with a Network Time Protocol (NTP) server, select this option and enter the NTP **Server IP** address.

After you have entered all of the necessary information, click **Next**.

10 On the **Alerting and Call Home** page, enter the information for the appliance to send alerts or to upload status reports by email to a Symantec Call Home server.

For alerts, enter the appropriate **Alerting Configuration** information as follows:

Alerting Configuration data entry fields

To configure the appliance to upload alerts, enter the following information:

- **Notification interval (in minutes)**
  Enter the interval for the appliance to upload alerts to the Symantec Call Home server. Entries must be in increments of 15 minutes.
- **Enable SNMP Alert**
  Click this check box and enter the following SNMP information:
  - **SNMP server**
    Enter either the SNMP server host name or its IP address to define this computer.
    The IP address can be either IPv4 or IPv6. For IPv6, only global-scope and unique-local addresses are allowed.
  - **SNMP port**
    Enter the port number of the SNMP server to allow communication with this appliance.
  - **SNMP community**
    Enter the community name where the alerts or traps are sent.
    For example, you can enter the same information that you used for the **SNMP server**. You can also enter a company name or another name like, admin_group, public, or private. If you do not enter anything, the default value is **Public**.
  - **View SNMP MIB file**
    To set up the appliance SNMP Manager to receive hardware monitoring related traps, click this link to view the content of the MIB file. Then, copy the file to another location and use the content to update the SNMP Manager.
    The appliance can only accept traps in the SNMPv2c format.
- **SMTP server**
  Enter either the SMTP server host name or its IP address to define this computer.
- **Software administrator email address**
  Enter the email address of your software administrator so that they can receive and notifications.
- **Hardware administrator email address**
  Enter the email address of your hardware administrator so that they can receive and notifications.
- **Sender email address**
  Enter the email address of the appliance so that recipients can identify the source of the report.
- **SMTP account**
  Enter an account name for the SMTP server.
- **Password**
  To increase security, enter a password for the SMTP server.

You can configure this server to send email reports to a proxy server or to the Symantec Call Home server.

The following describes the supported proxy servers:

- Squid
- Apache
- TMG

Note: NTLM authentication in the proxy configuration is also supported.

For Call Home, enter the appropriate **Call Home Configuration** information as follows:

Call Home Configuration data entry fields

To configure the appliance to send email reports to a proxy server or to the Symantec Call Home server, enter the following information:

- **Enable Call Home**
  Click this check box to enable the appliance to send email reports to the Symantec Call Home server.
- **Enable proxy server**
  Click this check box to use a proxy server for email notification and provide the proxy information that follows.
- **Enable proxy Tunneling**
  To enable proxy tunneling, click this check box and provide the following proxy information:
  - **Proxy server**
    Enter the IP address of the server.
    The IP address can be either IPv4 or IPv6. For IPv6, only global-scope and unique-local addresses are allowed.
  - **Proxy port**
    Enter the port number of the proxy server to allow communication with this appliance.
  - **Proxy username**
    Enter the user name for the proxy server.
  - **Proxy password**
    Enter the password of the proxy server.
  - **Test Call Home**
    After you have entered all of the necessary information, Symantec recommends that you click **Test Call Home** to verify communication with the Symantec server.
    If the test fails, check that you have entered all names, IP addresses, and port numbers correctly. If the test fails again, contact Symantec Technical Support.

After you have entered all of the necessary information, click **Next**.

11 On the **Registration** page, enter the following information to register this appliance with Symantec over the Internet:

Note: Registration of your NetBackup appliance helps to make sure that you are alerted to product updates and other important information about your appliance.

Appliance name	Enter the network name of the server.
Company Name	Enter your company name.
Street	Enter the street name (physical location) where this server resides.
City	Enter the city where this server resides.
State/Province	Enter the state or the province where this server resides.
Zip or Postal Code	Enter the ZIP or the Postal Code where this server resides.
Country	Enter the country where this server resides.
Contact Name	Enter the name of the primary contact, such as a network or a backup administrator for your backup environment.
Contact Number	Enter the primary phone number for the contact name. This number should be the one that is most likely to reach the contact person.
Contact Email	Enter the business email address for the **Contact Name** that you identified earlier.

After you have entered all of the necessary information, click **Next**.

12 Configure the role for this appliance server as follows:

Option or data entry field	Description

Appliance Role	■ **Master**
	When you select this role, no further action is required. Click **Next** to continue.
	■ **Media**
	If you select this role, do not continue configuration until you have performed or verified the following configuration on the master server that you want to use with this media server. The following link provides specific instructions about how to accomplish the necessary tasks:
	See "Configuring a master server to communicate with an appliance media server" on page 81.
	■ Make sure that the master server and this media server have compatible software versions.
	■ Add the name of this media server to the master server that you plan to use with it.
	■ Open the following ports on the master server to allow communication to this media server:
	`vnetd: 13724`
	`bprd: 13720`
	`PBX: 1556`
	■ Open the following ports if the master server is an appliance master server and TCP is used: 80, 5900, and 7578.
	Make sure that the date and time of this media server matches with that of the master server.

Master server name	If you selected the **Media Server** role, identify the name of the master server that must communicate with this media server as follows: ■ For master servers with only one name and IP address: Enter the host name or the IP address of the master server and click **Add**. ■ For clustered master servers or master servers with multiple names and IP addresses: Enter each host name or IP address in the field (one at a time) and click **Add**. **Note:** If the master server is clustered, the first entry must be the virtual host name of the cluster.

13 On the **Storage Configuration** page, create names for the storage units and the disk pools that you plan to use, and configure the size of the disk partitions.

You can configure storage partitions for AdvancedDisk, for Deduplication (MSDP), or for both.

This tab lets you set the size of the NetBackup catalog partition on the master server. This tab appears only for the appliances that are configured as a master server.

To change the size of the partition, enter a precise number in the **Size** field, or click and drag the box on the gray slide bar to the desired size. The size can be set in GB or TB units, depending on the maximum available space.

AdvancedDisk

Enter the following information:

- **Storage Unit Name**
  Enter the name that you want to use to identify this storage unit. The name can contain any letters, numbers, or special characters. The name can include up to 256 characters.

  Note: The name should not start with the minus (-) character and spaces should not be used anywhere in the name.

- **Disk Pool Name**
  Enter the name that you want to use to identify this disk pool. The name can contain any letters, numbers, or special characters. The name can include up to 256 characters.

  Note: The name should not start with the minus (-) character and spaces should not be used anywhere in the name.

- **Size**
  Set the size for this partition by entering a precise number in the **Size** field, or click and drag the box on the gray slide bar to the desired size. The size can be set in GB or TB units, depending on the maximum available space.

Deduplication Disk (MSDP) Enter the following information:

- **Storage Unit Name**
  Enter the name that you want to use to identify this storage unit. The name can contain any letters, numbers, or special characters. The name can include up to 256 characters.

  Note: The name should not start with the minus (-) character and spaces should not be used anywhere in the name.
- **Disk Pool Name**
  Enter the name that you want to use to identify this disk pool. The name can contain any letters, numbers, or special characters. The name can include up to 256 characters.

  Note: The name should not start with the minus (-) character and spaces should not be used anywhere in the name.
- **Size**
  Set the size for this partition by entering a precise number in the **Size** field, or click and drag the box on the gray slide bar to the desired size
  The size can be set in GB or TB units, depending on the maximum available space.

After you have entered all of the necessary information, click **Next**.

14 On the **Configuration Progress** page, you can monitor the progress of the appliance as it applies all of the data input from the configuration pages.

The amount of time for the configuration to complete varies and depends on the complexity of your environment.

15 On the **Summary of Configuration** page, review the results of the configuration. Examine the results to make sure that the configuration completed successfully.

This page also identifies any errors that may have occurred. You may need to perform the initial configuration again if errors appear in the results.

16 After the configuration has completed successfully, wait about 10 minutes for the NetBackup services to start. You must then use the fully qualified host name to reconnect and log into the appliance.

17 Disconnect the laptop from the **NIC1** appliance port.

Note: If your network uses the 192.168.x.x IP address range, refer to the following topic for important information:

See "About NIC1 (eth0) port usage on NetBackup 52xx appliances" on page 93.

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18 After all appliances are configured and operational, you are ready to install client software on the computers that you want to back up.

See "Downloading NetBackup client packages to a client from a NetBackup appliance" on page 94.

See "Installing NetBackup client software on clients through CIFS and NFS shares" on page 97.

Performing the initial configuration on a 52xx master server appliance from the NetBackup Appliance Shell Menu

After you have installed, connected, and turned on all appliance system components, you are ready to configure the server.

The following procedure describes how to configure a new 52xx master server appliance from the NetBackup Appliance Shell Menu.

Warning: NetBackup appliances do not support configuring two IP addresses that belong to the same subnet. The appliance runs on the Linux operating system and this type of networking is a current limitation. Each bond that you create must use an IP address that belongs to a different subnet.

Note: You cannot remove an IP address if the appliance host name resolves to that IP address.

Caution: Before or immediately after initial configuration, you must change the default maintenance password (`P@ssw0rd`) for your appliance. This password must be provided to technical support in case you need future troubleshooting assistance. You must change the maintenance password through the NetBackup Appliance Shell Menu with one of the following commands: `Main > Settings > Password maintenance` or `Main > Support > Maintenance > passwd`. For complete information, see the *Symantec NetBackup Appliance Command Reference Guide*.

To perform the initial configuration on a 52xx master server appliance from the NetBackup Appliance Shell Menu

1 On the laptop that is connected to the **NIC1** appliance port, navigate to the **Local Area Connection Properties** dialog box.

On the **General** tab, select **Internet Protocol (TCP/IP)** so that it is highlighted, then click **Properties**.

On the **Alternate Configuration** tab, perform the following tasks:

- Click **User Configured**.
- For the **IP address**, enter `192.168.229.nnn`, where `nnn` is any number from 2 through 254 except for 233.
- For the **Subnet mask**, enter **255.255.255.0**.
- Click **OK**.

2 On the laptop that is connected to the appliance, open an SSH session to 192.168.229.233 and log on to your appliance.

The logon is `admin` and the default password is `P@ssw0rd`.

After you log on, the welcome message appears in the shell menu and the prompt is at the **Main_Menu** view.

3 From the **Main_Menu** > **Network** view, enter the following command to configure the IP address of a single network that you want your appliance to connect to.

`Configure IPAddress Netmask GatewayIPAddress [InterfaceNames]`

Where *IPAddress* is the new IP address, *Netmask* is the netmask, and *GatewayIPAddress* is the default gateway for the interface. The `[InterfaceNames]` option is optional.

The *IP Address* or the *Gateway IP Address* can be an IPv4 or IPv6 address. Only global-scope and unique-local IPv6 addresses are allowed.

Remember that you should not use both IPv4 and IPv6 address in the same command. For example, you cannot use `Configure 9ffe::9 255.255.255.0 1.1.1.1.`. You should use `Configure 9ffe::46 64 9ffe::49 eth1`

See "About IPv4-IPv6-based network support" on page 45.

If you want to configure multiple networks you must first configure the IP address of each network that you want to add. Then you configure the Gateway address for each network you added. You must make sure that you add the default Gateway address first. Use the following two commands:

Configure the IP address of each network	Use either of the following commands depending on whether you want to configure an IPv4 or an IPv6 address for the network interface: To configure the IPv4 address of a network interface: `IPv4 IPAddress Netmask [InterfaceName]` Where *IPAddress* is the new IP address, *Netmask* is the netmask, and `[InterfaceName]` is optional. Repeat this command for each IP address that you want to add. To configure the IPv6 address of a network interface: IPv6 <*IP Address*> <Prefix> [InterfaceNames] Where *IPAddress* is the IPv6 address, *Prefix* is the prefix length, and `[InterfaceName]` is optional.

Configure the gateway address for each network that you added	`Gateway Add GatewayIPAddress [TargetNetworkIPAddress] [Netmask] [InterfaceName]` Where *GatewayIPAddress* is the gateway for the interface and *TargetNetworkIPAddress*, *Netmask*, and `InterfaceName` are optional. Repeat this command to add the gateway to all of the destination networks. The *Gateway IP Address* or the *TargetNetworkIPAddress* can be an IPv4 or an IPv6 address. Remember that you should not use both IPv4 and IPv6 address in the same command. For example, you cannot use `Gateway Add 9ffe::3 255.255.255.0 eth1`. You should use `Gateway Add 9ffe::3 6ffe:: 64 eth1`.

4 From the **Main_Menu** > **Network** view, use the following command to set the appliance DNS domain name.

Note: If you do not use DNS, then you can proceed to Step 7.

```
DNS Domain Name
```

Where *Name* is the new domain name for the appliance.

5 From the **Main_Menu** > **Network** view, use the following command to add the DNS name server to your appliance configuration.

```
DNS Add NameServer IPAddress
```

Where *IPAddress* is the IP address of the DNS server.

The address can be either IPv4 or IPv6. Only global-scope and unique-local IPv6 addresses are allowed.

See "About IPv4-IPv6-based network support" on page 45.

To add multiple IP addresses, use a comma to separate each address and no space.

6 From the **Main_Menu** > **Network** view, use the following command to add a DNS search domain to your appliance configuration so the appliance can resolve the host names that are in different domains:

```
DNS Add SearchDomain SearchDomain
```

Where *SearchDomain* is the target domain to add for searching.

7 This step is optional. It lets you add the IP addresses of other hosts in the appliance hosts file.

From the **Main_Menu** > **Network** view, use the following command to add host entries to the hosts file on your appliance.

```
Hosts Add IPAddress FQHN ShortName
```

Where *IPAddress* is the IPv4 or IPv6 address, *FQHN* is the fully qualified host name, and *ShortName* is the short host name.

See "About IPv4-IPv6-based network support" on page 45.

8 From the **Main_Menu** > **Network** view, use the following command to set the host name for your appliance.

```
Hostname Set Name
```

Where *Name* is the fully qualified host name.

With this step, NetBackup is re-configured to operate with the new host name. This process may take a while to complete.

For the command `Hostname set` to work, at least one IPv4 address is required. For example, you may want to set the host name of a specific host to v46. To do that, first ensure that the specific host has at least an IPv4 address and then run the following command.

```
Main_Menu > Network > Hostname set v46
```

9 In addition to the above network configuration settings, you may also use the **Main_Menu** > **Network** view to create a bond and to tag a VLAN during the initial configuration of your appliance network.

- Use the `Network > LinkAggregation Create` command to create a bond between two or more network interfaces.
- Use the `Network > VLAN Tag` command to tag a VLAN to a physical interface or bond interface.

For detailed information about the `LinkAggregation` and the `VLAN` command options, refer to the *NetBackup Appliance Command Reference Guide*.

10 From the **Main_Menu > Settings > Alerts > Email** view, use the following commands to enter the SMTP server name and the email addresses for appliance failure alerts.

Enter the SMTP server name	`Email SMTP Add Server [Account] [Password]` The *Server* variable is the host name of the target SMTP server that is used to send emails. The [Account] option identifies the name of the account that was used or the authentication to the SMTP server. The [Password] option is the password for authentication to the SMTP server.
Enter email addresses	`Email Software Add Addresses` Where Addresses is the user's email address. To define multiple emails, separate them with a semi-colon.

11 Set the role for the appliance to a master server.

From the **Main_Menu** > **Appliance** view, run the following command:

```
Master
```

12 To configure storage partitions, you must do the following:

- Enter a size for the NetBackup Catalog on the master server.
  To skip the configuration for the NetBackup Catalog partition, enter **0** when prompted for its size. To keep the partition at its current size, press **Enter**.
- Enter a storage pool size in GB or TB.
  To skip the storage pool size configuration for any partition, enter **0** when prompted for its size. To keep the storage pool at its current size, press **Enter**.
- Enter a disk pool name.
- Enter a storage pool name.

The storage prompts appear in the following order:

```
NetBackup Catalog volume size in GB [default size]:
AdvancedDisk storage pool size in GB/TB [default size]:
AdvancedDisk diskpool name:
AdvancedDisk storage unit name:
MSDP storage pool size in GB/TB [default size]:
MSDP diskpool name:
MSDP storage unit name:
```

After you configure the storage partitions, a summary of the storage configuration appears with the following prompt:

```
Do you want to edit the storage configuration? [yes, no]
```

Type **yes** to make any changes, or type **no** to keep the current configuration.

13 Disconnect the laptop from the **NIC1** appliance port.

Note: If your network uses the 192.168.x.x IP address range, refer to the following topic for important information:

See "About NIC1 (eth0) port usage on NetBackup 52xx appliances" on page 93.

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14 After all appliances are configured and operational, you are ready to install client software on the computers that you want to back up.

See "Downloading NetBackup client packages to a client from a NetBackup appliance" on page 94.

See "Installing NetBackup client software on clients through CIFS and NFS shares" on page 97.

Configuring a master server to communicate with an appliance media server

Before you configure a new appliance for the **Media** server role, you must first update the configuration on the master server that you plan to use with it. The changes allow for appropriate communication between the master server and the new media server.

The following procedure describes how to configure a master server to communicate with a new appliance media server.

To configure a master server to communicate with a new media server

1 Before the appliance is configured for the media server role, verify that the software version is compatible with the master server as follows:

- If the master server is a NetBackup appliance:
  The appliance master server must use appliance software version 2.6.0.3 or later.
- If the master server is a traditional (non-appliance) NetBackup master server:

The master server must use NetBackup version 7.6.0.3 or later and the new media server must use appliance software version 2.6.0.3 or later.

2 Log in to the master server as the administrator and add the name of the media server to the master server as follows:

For an appliance master server:	From the NetBackup Appliance Web Console: ■ Click **Manage > Additional Servers > Add**. ■ In the **Appliance Hostname** field, enter the fully qualified host name (FQHN) of the appliance media server that you want to add. ■ Click **Add**. If the appliance has more than one host name, you must add all of the names. From the NetBackup Appliance Shell Menu: ■ From the **Main_Menu** > **Settings** view, run the following command: `Settings > NetBackup AdditionalServers Add media-server` Where *media-server* is the fully qualified host name (FQHN) of the appliance media server that is not yet configured. If the appliance has more than one host name, you must add all of the names.
For a traditional NetBackup master server:	■ Log on to the NetBackup Administration Console as the administrator. ■ On the main console window, in the left pane, click **NetBackup Management > Host Properties > Master Servers**. ■ In the right pane, click on the master server host name. ■ On the **Host Properties** window, in the left pane, click **Servers**. ■ In the right pane, in the **Additional Servers** section, click **Add** and enter your appliance host name. The appliance host name should appear in the top **Additional Servers** section. If the appliance has more than one host name, you must add all of the names. ■ Click **OK** and close the **Master Server Properties** window.

3 If a firewall exists between the master server and the media server, open the following ports on the master server to allow communication with the media server:

Note: You must be logged in as the administrator to change port settings.

- `vnetd: 13724`
- `bprd: 13720`
- `PBX: 1556`
- If the master server is a NetBackup appliance that uses TCP, open the following ports:
  80, 5900, and 7578.

4 Make sure that the date and time of the media server matches the date and time on the master server. You can use an NTP server or set the time manually.

See "Performing the initial configuration on a NetBackup 52xx appliance from the NetBackup Appliance Web Console " on page 59.

See "Performing the initial configuration on a 52xx media server appliance from the NetBackup Appliance Shell Menu" on page 83.

Performing the initial configuration on a 52xx media server appliance from the NetBackup Appliance Shell Menu

After you have installed, connected, and turned on all appliance system components, you are ready to configure the server.

If you plan to configure this appliance as a media server, you must complete the following tasks on the master server before you start the initial configuration. The following link provides specific instructions about how to accomplish the necessary tasks:

See "Configuring a master server to communicate with an appliance media server" on page 81.

- Make sure that the master server and this media server have compatible software versions.
- Add the name of this media server to the master server that you plan to use with it.

- If a firewall exists between the master server and this media server, open the appropriate ports as described in the link above.
- Make sure that the date and time of this media server matches the date and time on the master server.

The following procedure describes how to configure a new 52xx media server appliance from theNetBackup Appliance Shell Menu.

Warning: NetBackup appliances do not support configuring two IP addresses that belong to the same subnet. The appliance runs on the Linux operating system and this type of networking is a current limitation. Each bond that you create must use an IP address that belongs to a different subnet.

Note: You cannot remove an IP address if the appliance host name resolves to that IP address.

Caution: Before or immediately after initial configuration, you must change the default maintenance password (`P@ssw0rd`) for your appliance. This password must be provided to technical support in case you need future troubleshooting assistance. You must change the maintenance password through the NetBackup Appliance Shell Menu with one of the following commands: `Main > Settings > Password maintenance` or `Main > Support > Maintenance > passwd`. For complete information, see the *Symantec NetBackup Appliance Command Reference Guide*.

To perform the initial configuration on a 52xx media server appliance from the NetBackup Appliance Shell Menu

1. On the laptop that is connected to the **NIC1** appliance port, navigate to the **Local Area Connection Properties** dialog box.

   On the **General** tab, select **Internet Protocol (TCP/IP)** so that it is highlighted, then click **Properties**.

On the **Alternate Configuration** tab, perform the following tasks:

- Click **User Configured**.

- For the **IP address**, enter `192.168.229.nnn`, where `nnn` is any number from 2 through 254 except for 233.
- For the **Subnet mask**, enter **255.255.255.0**.
- Click **OK**.

2 On the laptop that is connected to the appliance, open an SSH session to 192.168.229.233 and log on to your appliance.

The logon is `admin` and the default password is `P@ssw0rd`.

After you log on, the welcome message appears in the shell menu and the prompt is at the **Main_Menu** view.

3 From the **Main_Menu** > **Network** view, enter the following command to configure the IP address of a single network that you want your appliance to connect to.

`Configure IPAddress Netmask GatewayIPAddress [InterfaceNames]`

Where *IPAddress* is the new IP address, *Netmask* is the netmask, and *GatewayIPAddress* is the default gateway for the interface. The `[InterfaceNames]` option is optional.

The *IP Address* or the *Gateway IP Address* can be an IPv4 or IPv6 address. Only global-scope and unique-local IPv6 addresses are allowed.

Remember that you should not use both IPv4 and IPv6 address in the same command. For example, you cannot use `Configure 9ffe::9 255.255.255.0 1.1.1.1.`. You should use `Configure 9ffe::46 64 9ffe::49 eth1`

See "About IPv4-IPv6-based network support" on page 45.

If you want to configure multiple networks you must first configure the IP address of each network that you want to add. Then you configure the Gateway address for each network you added. You must make sure that you add the default Gateway address first. Use the following two commands:

Configure the IP address of each network	Use either of the following commands depending on whether you want to configure an IPv4 or an IPv6 address for the network interface: To configure the IPv4 address of a network interface: `IPv4 IPAddress Netmask [InterfaceName]` Where *IPAddress* is the new IP address, *Netmask* is the netmask, and `[InterfaceName]` is optional. Repeat this command for each IP address that you want to add. To configure the IPv6 address of a network interface: IPv6 <*IP Address*> <Prefix> [InterfaceNames] Where *IPAddress* is the IPv6 address, *Prefix* is the prefix length, and `[InterfaceName]` is optional.

Configure the gateway address for each network that you added	`Gateway Add GatewayIPAddress [TargetNetworkIPAddress] [Netmask] [InterfaceName]` Where *GatewayIPAddress* is the gateway for the interface and *TargetNetworkIPAddress*, *Netmask*, and `InterfaceName` are optional. Repeat this command to add the gateway to all of the destination networks. The *Gateway IP Address* or the *TargetNetworkIPAddress* can be an IPv4 or an IPv6 address. Remember that you should not use both IPv4 and IPv6 address in the same command. For example, you cannot use `Gateway Add 9ffe::3 255.255.255.0 eth1`. You should use `Gateway Add 9ffe::3 6ffe:: 64 eth1`.

4 From the **Main_Menu** > **Network** view, use the following command to set the appliance DNS domain name.

Note: If you do not use DNS, then you can proceed to Step 7.

```
DNS Domain Name
```

Where *Name* is the new domain name for the appliance.

5 From the **Main_Menu** > **Network** view, use the following command to add the DNS name server to your appliance configuration.

```
DNS Add NameServer IPAddress
```

Where *IPAddress* is the IP address of the DNS server.

The address can be either IPv4 or IPv6. Only global-scope and unique-local IPv6 addresses are allowed.

See "About IPv4-IPv6-based network support" on page 45.

To add multiple IP addresses, use a comma to separate each address and no space.

6 From the **Main_Menu** > **Network** view, use the following command to add a DNS search domain to your appliance configuration so the appliance can resolve the host names that are in different domains:

```
DNS Add SearchDomain SearchDomain
```

Where *SearchDomain* is the target domain to add for searching.

7 This step is optional. It lets you add the IP addresses of other hosts in the appliance hosts file.

From the **Main_Menu** > **Network** view, use the following command to add host entries to the hosts file on your appliance.

```
Hosts Add IPAddress FQHN ShortName
```

Where *IPAddress* is the IPv4 or IPv6 address, *FQHN* is the fully qualified host name, and *ShortName* is the short host name.

See "About IPv4-IPv6-based network support" on page 45.

8 From the **Main_Menu** > **Network** view, use the following command to set the host name for your appliance.

```
Hostname Set Name
```

Where *Name* is the fully qualified host name.

With this step, NetBackup is re-configured to operate with the new host name. This process may take a while to complete.

For the command `Hostname set` to work, at least one IPv4 address is required. For example, you may want to set the host name of a specific host to v46. To do that, first ensure that the specific host has at least an IPv4 address and then run the following command.

```
Main_Menu > Network > Hostname set v46
```

9 In addition to the above network configuration settings, you may also use the **Main_Menu** > **Network** view to create a bond and to tag a VLAN during the initial configuration of your appliance.

- Use the `Network > LinkAggregation Create` command to create a bond between two or more network interfaces.
- Use the `Network > VLAN Tag` command to tag a VLAN to a physical interface or bond interface.

For detailed information about the `LinkAggregation` and the `VLAN` command options, refer to the *NetBackup Appliance Command Reference Guide*.

10 From the **Main_Menu** > **Network** view, use the following commands to set the time zone, the date, and the time for this appliance:

- Set the time zone by entering the following command:

  ```
  TimeZone Set
  ```

  Select the appropriate time zone from the displayed list.
- Set the date and the time by entering the following command:

  ```
  Date Set Month Day HHMMSS Year
  ```

Where *Month* is the name of the month.
Where *Day* is the day of the month from 0 to 31.
Where *HHMMSS* is the hour, minute, and seconds in a 24-hour format. The fields are separated by semi-colons, for example, HH:MM:SS.
Where *Year* is the calendar year from 1970 through 2037.

11 From the **Main_Menu > Settings > Alerts > Email** view, use the following commands to enter the SMTP server name and the email addresses for appliance failure alerts.

Enter the SMTP server name	`Email SMTP Add Server [Account] [Password]` The *Server* variable is the host name of the target SMTP server that is used to send emails. The [Account] option identifies the name of the account that was used or the authentication to the SMTP server. The [Password] option is the password for authentication to the SMTP server.
Enter email addresses	`Email Software Add Addresses` Where Addresses is the user's email address. To define multiple emails, separate them with a semi-colon.

12 Set the role for the appliance to a media server.

Note: Before you configure this appliance as a media server, you must add the name of this appliance to the master server that must work with this appliance.

From the **Main_Menu** > **Appliance** view, run the following command:

```
Media MasterServer
```

Where *MasterServer* is either a standalone master server, a multihomed master server, or a clustered master server. The following defines each of these scenarios:

Standalone master server	This scenario shows one master server host name. This name does not need to be a fully qualified name as long as your appliance recognizes the master server on your network. The following is an example of how the command would appear. `Media MasterServerName`
Multihomed master server	In this scenario, the master server has more than one host name that is associated with it. You must use a comma as a delimiter between the host names. The following is an example of how the command would appear. `Media MasterNet1Name,MasterNet2Name`
Clustered master server	In this scenario, the master server is in a cluster. Symantec recommends that you list the cluster name first, followed by the active node, and then the passive nodes in the cluster. This list requires you to separate the node names with a comma. The following is an example of how the command would appear. `Media MasterClusterName,ActiveNodeName,PassiveNodeName`

Multihomed clustered master server	In this scenario, the master server is in a cluster and has more than one host name that is associated with it. Symantec recommends that you list the cluster name first, followed by the active node, and then the passive nodes in the cluster. This list requires you to separate the node names with a comma. The following is an example of how the command would appear.
	`Media MasterClusterName,ActiveNodeName,`
	`PassiveNodeName,MasterNet1Name,MasterNet2Name`
	To prevent any future issues, when you perform the appliance role configuration, Symantec recommends that you provide all of the associated master server names.

13 After you set the role configuration, the disk storage prompts appear for the AdvancedDisk and the Deduplication (MSDP) partitions.

To configure storage partitions, you must do the following:

- Enter a storage pool size in GB or TB.
  To skip the storage pool size configuration for any partition, enter **0** when prompted for its size. To keep the storage pool at its current size, press **Enter**.
- Enter a disk pool name.
  The default names are *dp_adv_<hostname>* for AdvancedDisk and *dp_disk_<hostname>* for Deduplication. To keep the default names, press **Enter**.
- Enter a storage pool name.
  The default names are *stu_adv_<hostname>* for AdvancedDisk and *stu_disk_<hostname>* for Deduplication. To keep the default names, press **Enter**.

The storage prompts appear in the following order:

```
AdvancedDisk storage pool size in GB/TB [default size]:
AdvancedDisk diskpool name:
AdvancedDisk storage unit name:
MSDP storage pool size in GB/TB [default size]:
MSDP diskpool name:
MSDP storage unit name:
```

After you configure the storage partitions, a summary of the storage configuration appears with the following prompt:

```
Do you want to edit the storage configuration? [yes, no]
```

Type **yes** to make any changes, or type **no** to keep the current configuration.

14 Disconnect the laptop from the **NIC1** appliance port.

Note: If your network uses the 192.168.x.x IP address range, refer to the following topic for important information:

See "About NIC1 (eth0) port usage on NetBackup 52xx appliances" on page 93.

---

15 After all appliances are configured and operational, you are ready to install client software on the computers that you want to back up.

See "Downloading NetBackup client packages to a client from a NetBackup appliance" on page 94.

See "Installing NetBackup client software on clients through CIFS and NFS shares" on page 97.

About NIC1 (eth0) port usage on NetBackup 52xx appliances

By default, NIC1 (eth0) is factory set to IP address 192.168.229.233. This private network address is reserved to provide a direct connection from a laptop to perform the initial configuration. NIC1 (eth0) is typically not connected to your network environment.

Once the initial configuration has been completed, you can connect NIC1 (eth0) to an administrative network that does not provide any backup data transfer. However, you may need to change the default IP address if your primary network uses the same IP address range. NetBackup appliances do not support the use of any network configuration in the same range as the administrator interface on NIC1 (eth0).

For example, if NIC2 (eth1) is set to the 192.168.x.x IP address range, you must change the default IP address of NIC1 (eth0) to a different IP address range.

To change the IP address for NIC1 (eth0) after the initial configuration has been completed, do one of the following:

- From the NetBackup Appliance Web Console
  After logging into the appliance, click **Settings > Network > Network Settings**. In the **Network Configuration** section, edit the IPv4 address setting for NIC1 (eth0).
  For more information, see the *NetBackup Appliance Administrator's Guide*.

- From the NetBackup Appliance Shell Menu
  After logging into the appliance, use the `Network > IPv4` command to change the IP address for NIC1 (eth0).
  For more information, see the *NetBackup Appliance Command Reference Guide*.

About configuring the maximum transmission unit size

The MTU property controls the maximum transmission unit size for an Ethernet frame. The standard maximum transmission unit size for Ethernet is 1500 bytes (without headers). In supported environments, the MTU property can be set to larger values up to 9000 bytes. Setting a larger frame size on an interface is commonly referred to as using jumbo frames. Jumbo frames help reduce fragmentation as data is sent over the network and in some cases, can also provide better throughput and reduced CPU usage. To take advantage of jumbo frames, the Ethernet cards, drivers, and switching must all support jumbo frames. Additionally, each server interface that is used to transfer data to the appliance must be configured for jumbo frames.

Symantec recommends that if you configure the MTU property of an interface to values larger than 1500 bytes, make sure that all systems that are connected to the appliance on the specific interface have the same maximum transmission unit size. Such systems include but are not limited to NetBackup clients and remote desktops. Also verify the network hardware, OS, and driver support on all systems before you configure the MTU property.

You can configure the MTU property for an interface by using the `SetProperty` command in the NetBackup Appliance Shell Menu.

See the `SetProperty` command in the *Symantec NetBackup Appliance Command Reference Guide*.

Downloading NetBackup client packages to a client from a NetBackup appliance

You can download NetBackup client software from a NetBackup appliance to any client that you want to back up. The logon page of the NetBackup Appliance Web Console provides a **Download Packages** section to download the client packages.

The packages are listed by operating system type in a drop-down box as follows:

- All
- Windows

- Linux
- Solaris
- AIX
- HP
- BSD
- Mac OS
- VMware vCenter Plug-in

Note: If you download Linux, UNIX, Solaris, AIX, or BSD packages, Symantec recommends GNU tar version 1.16 or higher to extract the .tar packages.

For more information, see the following Technote on the Symantec Support website:

http://www.symantec.com/docs/TECH154080

In addition to the downloading instructions, this procedure also includes the steps to extract and install the downloaded files on to the client.

To download NetBackup client packages from a NetBackup appliance to a client

1. Log in to the client that you want to back up.
2. Open a browser window and enter the appliance URL.
3. In the middle of the landing page, in the section **Download Packages**, click on the drop-down box to see the list of packages.
4. Right-click the selected package and specify the location to download it onto the client.

   Example locations are as follows:

   - On Windows platforms, download the package to `C:\temp` or to the desktop.

     To determine the type of hardware on your Windows system, right-click **My Computer** and select **Properties**.
   - On Linux or UNIX platforms, download the package to `/tmp`.

   Note: If the message **No packages found** appears after you make a selection, that client package is not currently installed on the appliance. Refer to the following topic to download client packages on to the appliance:

   ---

5. Unzip or untar the package.

6 Install the client software as follows:

- Windows systems
  Click the **setup.exe** file.
- UNIX systems
  Run the `.install` script.

7 After you have successfully installed the client software, add the appliance master server name to the client as follows:

Windows systems

- After NetBackup has been installed on the client, open the Backup, Archive, and Restore interface.
  Start > All Programs > Symantec NetBackup > Backup, Archive, and Restore
- From the Backup, Archive, and Restore interface, select **File > Specify NetBackup Machines and Policy Type...**
- From the **Specify NetBackup Machines and Policy Type** dialog, enter the server name in the field **Server to use for backups and restores**. Then click **Edit Server List** and click **OK**.
- In the dialog box that appears, enter the fully qualified host name of the appliance master server and click **OK**.
- Close the Backup, Archive, and Restore interface.
- Restart the NetBackup Client Services by opening a Windows Command prompt. Then, enter `services.msc` and press **Enter**.

UNIX systems

- On the client, navigate to the following location:
  `cd /usr/openv/netbackup`
- Enter `ls` to see the contents of the directory.
- Open the `bp.conf` file in a text editor.
- Enter the fully qualified host name of the appliance master server.
- Save the changes and close the file.

See "Installing NetBackup client software on clients through CIFS and NFS shares" on page 97.

See "Downloading the NetBackup Administration Console to a Windows computer from a NetBackup appliance" on page 97.

Downloading the NetBackup Administration Console to a Windows computer from a NetBackup appliance

You can download the NetBackup Administration Console software from a NetBackup appliance to a Windows computer that you want to use to access the appliance. The Windows computer does not require NetBackup installation to use the administration console. The logon page of the NetBackup Appliance Web Console provides a **Download Packages** section to download the NetBackup Administration Console package.

In addition to the downloading instructions, this procedure also includes the steps to extract and install the downloaded files on to the client.

To download the NetBackup Administration Console package from a NetBackup appliance to a Windows computer

1. Log into the Windows computer that you want to use for appliance access.
2. Open a browser window and enter the appliance URL.
3. In the middle of the landing page, in the section **Download Packages**, click on the drop-down box and select **Windows**.
4. When the package file name appears under the drop-down box, right-click on it and select either **Download Linked File** or **Download Linked File As**, then specify the location to download the package onto the Windows computer.

   For example, download the package to `C:\temp` or to the desktop.
5. Unzip the package.
6. Install the administration console software as follows:
   - On the client, navigate to the `Addons/JavaInstallFiles` directory.
   - Click on the **setup.exe** file.

See "Downloading NetBackup client packages to a client from a NetBackup appliance" on page 94.

See "Installing NetBackup client software on clients through CIFS and NFS shares" on page 97.

Installing NetBackup client software on clients through CIFS and NFS shares

After all appliance configuration has been completed, you can use the following procedures to install Windows and UNIX client software on the clients that are used

with NetBackup appliances. These procedures explain how to obtain the software packages through a CIFS or an NFS share.

Note: If you have existing NetBackup clients that you want to use with the appliance master server, they must be version 6.0 or later. For these clients, you only need to add the appliance master server name to the client.

To install the NetBackup client software on a UNIX client through an NFS share

1. On the UNIX client computer where you want to install the NetBackup client software, log on as root.
2. Mount the following NFS share:

   <*appliance_name*>:/inst/client
3. Browse the files within the NFS share directory. Files that are similar to the following appear:

```
.packages          clientconfig       quickinstall.exe

PC_Clnt            docs               unix-client-install
```

4. Run the `unix-client-install` script.

   This action installs the NetBackup client software.
5. Add the appliance master server name to the `bp.conf` file on the client as follows:
   - On the client, navigate to the following location:
     `cd /usr/openv/netbackup`
   - Enter `ls` to see the contents of the directory.
   - Open the `bp.conf` file in a text editor.
   - Enter the fully qualified host name of the appliance master server.
   - Save your changes and close the file.

See "Downloading NetBackup client packages to a client from a NetBackup appliance" on page 94.

Appendix A

Hardware checklists

This appendix includes the following topics:

- Rack front
- Rack rear
- Verifying NetBackup 5230 hardware operations
- Verifying NetBackup 5220 hardware operations
- Appliance self tests

Rack front

Use the list in Table A-1 to check items visible from the front of the rack.

Table A-1 Requirements for hardware accessible from the front

Yes, No, N/A	Tasks
	Verify that the appliance is secured in the rack, on top of any storage shelves.
	For the NetBackup 5220 Appliance, verify that the eight disk drives in slots 0 to 7 in the front panel are securely installed.
	For the NetBackup 5230 Appliance: ■ Verify that the two disk drives in slots 0 and 1 in the front panel are installed securely. ■ Verify that the eight storage disks, in slots 4 to 11, are installed securely.
	Verify that the Symantec Storage Shelves, if used with the appliance, are securely installed. All shelves should be installed beneath the appliance to prevent the rack from tipping.

Rack rear

Use the list in Table A-2 to assure that all components visible from the back of the rack are installed correctly.

Table A-2 Requirements for hardware accessible from the rack rear

Yes, No, N/A	Tasks
	Verify that the back of each appliance and storage shelf is secured in the rack.
	Verify that the power cords that are connected to each appliance are connected to a 240-VAC power source.
	Verify that the power cords that are connected to each storage shelf are connected to a 240-VAC power source.
	Verify that eth0 on the rear panel of the appliance is only used for management purposes. This port should not be connected to the customer's production network.
	Verify that Ethernet cables connect the 1Gb or 10Gb Ethernet ports on the appliance to a switch or other network interface.
	Verify that the cable in the IPMI port is secure.
	Verify that a SAS cable connects each SAS port on the appliance to a SAS_IN port on the first storage shelf. The maximum supported length of the SAS cable is 1 meter (3.28 feet).

Verifying NetBackup 5230 hardware operations

Do the following series of checks with each storage shelf, after turning on the power switches located in the back panel of the shelf.

To verify operational status

1. Turn on the storage shelf that is farthest from the appliance.
2. Verify that the I/O module and power module LEDs on the rear panel are green.
3. Verify that the LEDs on the disk drives seen in the front panel are green.

4 Check the system LEDs on the right side of the storage shelf. Verify that the Power (1) and Global Enclosure Status (2) LEDs are solid green, and that the Heartbeat (3) LED flashes green.

5 Repeat the previous steps for all storage shelves.

6 Use the power button on the front, right-hand side of the appliance to turn on the appliance.

7 Go to the rear panel of the appliance.

8 Verify that the LED on the bottom of each power module is solid green.

9 Check the LEDs on the built-in Ethernet ports. These LEDs should be solid amber when connected to the network, or flash amber when network activity occurs.

10 Go to the front panel of the appliance.

11 Check the system LEDs on the right side of the appliance. The light surrounding the ON button (1) should be green. The System Status LED (2) should be green.

12 Check the LEDs on disk drive slots 0 and 1, which should be green.

13 Check the LEDs on disk drive slots 4 through 11, which should also be green.

Verifying NetBackup 5220 hardware operations

Do the following series of checks with each storage shelf, after turning on the power switches located in the back panel of the shelf.

To verify operational status

1 Turn on the storage shelf that is farthest from the appliance.

2 Verify that the I/O module and power module LEDs on the rear panel are green.

3 Verify that the LEDs on the disk drives seen in the front panel are green.

4 Check the system LEDs on the right side of the storage shelf. Verify that the Power (1) and Global Enclosure Status (2) LEDs are solid green, and that the Heartbeat (3) LED flashes green.

5 Repeat the previous steps for all storage shelves.

6 Use the power button on the front, right-hand side of the appliance to turn on the appliance.

7 Go to the rear panel of the appliance.

8 Verify that the LED on the bottom of each power module is solid green.

9 Check the LEDs on the built-in Ethernet ports. These LEDs should be solid amber when connected to the network, or flash amber when network activity occurs.

10 Go to the front panel of the appliance.

11 Check the system LEDs on the right side of the appliance, which should be solid green.

LED	State	Indication
System status (1)	Solid green	Normal operation
System status (1)	Flashes green	Degraded performance
System status (1)	Solid amber	Critical or unrecoverable condition
System status (1)	Flashes amber	Non-critical condition
System status (1)	Not lit	POST is running or the system is turned off.
Power, sleep (2)	Solid green	The system has power or the system is in the SO state.
Power, sleep (2)	Flashes green	The system is in sleep or in the ACPI S1 state.
Power, sleep (2)	Not lit	The power is off or the system is in the ACPI S4 or S5 state.

LED	State	Indication
Power button	Solid green	The system has a link to the network to which it is connected.
Power button	Blinking green	Network activity

12 Check the LEDs on the disk drives, slots 0 to 7. The LED on the left side of each drive carrier should be green to indicate that power is on.

Appliance self tests

An appliance self-test command can be run from the NetBackup Appliance Shell Menu to determine if the functional components of the appliance operate correctly. The tested components include the disk drives, logical disks, batteries, and other hardware components.

To perform the self tests

1 Verify that you are still logged in as the appliance administrator, as previously defined when bringing up the hardware for the first time.

   If you are not logged in as the administrator, use PuTTY to open a new Secure Shell (ssh) session.

2 The cursor should be next to the `Main_Menu` prompt.

3 Enter `Support` and press **Enter**.

4 Enter `Test Hardware` and press **Enter**.

The appliance runs tests on various hardware components and parameters. An **OK**, **Warning**, or **Failure** message displays in the State column for each component.

Appendix B

Initial configuration checklist

This appendix includes the following topics:

- Symantec NetBackup appliance initial configuration checklist

Symantec NetBackup appliance initial configuration checklist

This checklist is intended to help you plan for the initial configuration of your appliance.

For a new appliance, use the following tables to record the initial configuration settings for this appliance. If this appliance is ever factory reset or reimaged, the appliance must be configured again. The recorded settings in the checklist can save valuable time and help get the appliance back on line quickly.

When using the hard copy or printed version of this checklist, make sure to place the completed checklist in a secure location.

You can also obtain a PDF version of the checklist to download and save to a location of your choice. The PDF file also lets you enter the settings so that you can either save or print the completed checklist.

To access the latest version of this checklist, see the following link:

www.symantec.com/docs/DOC6675

Table B-1 Create Bond

Field	Setting
Network Interface	

Table B-1 Create Bond *(continued)*

Field	Setting
Bond Mode	
IP Address	
Subnet Mask	

Table B-2 Tag VLAN

Field	Setting
Select Interface	
Description (for Select Interface field above)	
VLAN Id	
IP Address (IPv4 or IPv6)	
Subnet Mask	

Table B-3 Add Static Route

Field	Setting
Destination IP	
Destination Subnet Mask	
Gateway	
Network Interface	

Table B-4 Host Configuration

Field	Setting
Host Name	
Domain Name System (DNS) ■ Domain Name Suffix ■ DNS IP Address ■ Search Domain(s)	DNS: ■ _____ ■ _____ ■ _____

Table B-4 Host Configuration *(continued)*

Field	Setting
Host Name Resolution (no DNS) ■ IP address ■ Fully qualified host name ■ Short host name	No DNS: ■ _____ ■ _____ ■ _____

Table B-5 Password change

Field	Setting
Old admin password	
New admin password	
Confirm new admin password	

Table B-6 Date and time configuration

Field	Setting
Time zone	
NTP Server IP	
Date and Time	

Table B-7 Alerting Configuration

Field	Setting
Notification Interval (in 15-minute intervals)	
Enable SNMP Alert	
SNMP server (required only if you check **Enable SNMP Alert**)	
SNMP port	
SNMP community	
SMTP server	
Software administrator email address	
Hardware administrator email address	

Table B-7 Alerting Configuration *(continued)*

Field	Setting
Sender email address	
SMTP account	
Password	

Table B-8 Call Home Configuration

Field	Setting
Enable Call Home	
Enable proxy server	
Enable proxy tunneling	
Proxy server (required only if you check **Enable proxy server**)	
Proxy port (required only if you check **Enable proxy server**)	
Proxy user name	
Proxy password	

Table B-9 Registration

Field	Setting
Appliance Name	
Company Name	
Street	
City	
State or Province	
ZIP or Postal Code	
Country	
Contact Name	
Contact Number	

Table B-9 Registration *(continued)*

Field	Setting
Contact Email	

Table B-10 Role Configuration

Field	Setting
Master or Media	
Master server name (required only if you check **Media**)	

Table B-11 AdvancedDisk storage configuration

Field	Setting
Storage Unit name	
Disk Pool Name	
Size	

Table B-12 Deduplication (MSDP) Disk Configuration

Field	Setting
Storage Unit name	
Disk Pool Name	
Size	

Appendix C

Adding a storage shelf to an operational appliance

This appendix includes the following topics:

- About adding an additional Symantec Storage Shelf to an operational NetBackup 52xx appliance
- Installing and connecting an additional Symantec Storage Shelf to an operational NetBackup 52xx appliance
- Adding the disk space of additional Symantec Storage Shelf units to an operational NetBackup 52xx appliance from the NetBackup Appliance Web Console
- Adding the disk space of additional Symantec Storage Shelf units to an operational NetBackup 52xx appliance from the NetBackup Appliance Shell Menu

About adding an additional Symantec Storage Shelf to an operational NetBackup 52xx appliance

If you have a NetBackup 52xx appliance that currently includes one Symantec Storage Shelf, you can expand the disk storage of the appliance by adding another Symantec Storage Shelf.

NetBackup appliance software versions 2.5 - 2.6.0.2 let you connect up to two Symantec Storage Shelf units. Starting with software version 2.6.0.3, up to four Symantec Storage Shelf units can be connected.

Adding an additional Symantec Storage Shelf to an operational appliance requires that you perform the following tasks:

- Installing the new Symantec Storage Shelf
  This task involves mounting the new units in the rack and connecting the SAS and the power cables.
  See "Installing and connecting an additional Symantec Storage Shelf to an operational NetBackup 52xx appliance" on page 111.
- Adding the new disk storage space to the system
  This task makes the disk storage space of the new units available for use.
  See "Adding the disk space of additional Symantec Storage Shelf units to an operational NetBackup 52xx appliance from the NetBackup Appliance Web Console" on page 113.
  See "Adding the disk space of additional Symantec Storage Shelf units to an operational NetBackup 52xx appliance from the NetBackup Appliance Shell Menu" on page 115.

Note: When you add an additional Symantec Storage Shelf to an operational appliance, Symantec recommends that you schedule this task during low system activity.

Installing and connecting an additional Symantec Storage Shelf to an operational NetBackup 52xx appliance

Use the following procedure to install and connect an additional Symantec Storage Shelf to an operational NetBackup 52xx appliance.

Note: When you add a storage shelf to an operational system, it is not necessary to shut down the appliance server or any existing storage shelves.

To install and connect an additional Symantec Storage Shelf to an operational NetBackup 52xx appliance

1. Install the new storage shelf units in the rack.
2. Locate the SAS cables that are shipped with each storage shelf and connect them as described in the following diagram and text descriptions:

- On the first or the existing storage shelf, in the leftmost I/O module, connect one end of an SAS cable into the SAS_OUT port. The SAS_OUT port is labeled number 2.

Connect the other end of this SAS cable to the SAS_IN port in the leftmost I/O module on the second storage shelf. The SAS_IN port is labeled number 1.

- On the first or the existing storage shelf, in the rightmost I/O module, connect one end of another SAS cable into the SAS_OUT port.
  Connect the other end of this SAS cable to the SAS_IN port in the rightmost I/O module on the second storage shelf.
- To connect a third storage shelf unit, continue the same connection path starting from the second storage shelf.
- To connect a fourth storage shelf unit, continue the same connection path starting from the third storage shelf.

3 Connect the power cables to each new storage shelf and turn on the power to each unit.

Note: Symantec strongly recommends that you connect power cables to both power supplies on each storage shelf unit. This helps to ensure consistent power to the units and also helps to prevent problems from a power loss on any single power supply. Symantec also recommends that you enable the Call Home feature to monitor the power status of each unit and to provide alerts if only one power supply is plugged in or has failed.

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4 To add the storage space of the new storage shelf units to the system, refer to the following topics:

See "Adding the disk space of additional Symantec Storage Shelf units to an operational NetBackup 52xx appliance from the NetBackup Appliance Web Console" on page 113.

See "Adding the disk space of additional Symantec Storage Shelf units to an operational NetBackup 52xx appliance from the NetBackup Appliance Shell Menu" on page 115.

Adding the disk space of additional Symantec Storage Shelf units to an operational NetBackup 52xx appliance from the NetBackup Appliance Web Console

The following procedure describes how to add new storage shelf disk space to a NetBackup appliance using the NetBackup Appliance Web Console.

To add new storage shelf disk space to a NetBackup appliance using the NetBackup Appliance Web Console

1. Launch the NetBackup Appliance Web Console and verify that the new storage devices appear on the **Monitor > Hardware** page. If the new storage devices do not appear, check the cable connections and make sure that the power is on.
2. Click **Manage** > **Storage**.
3. Select the **Disks** tab.
4. Click the **Click here to scan for new disks** option.
5. In the **Do you want to scan for new disk?** dialog box, click **OK** to start the scan.
6. When the scan is complete, click **OK** to refresh the **Disk** tab.

   In the **Disk** column, a new ID should appear for the new storage shelf units. The new entries should have the following attributes:

   - **Type = Expansion**.
   - **Status = New Available**
7. In the **Status** column, next to **New Available**, click **Add** to activate the storage in the RAID.
8. In the **Confirmation** dialog box, click **Yes** to start a scan.

   When the process completes, the following message should appear:

   Storage operation completed. Succeeded.
9. Click **OK** to refresh the system.

   After the system refreshes, the **Disks** tab should show the following attributes for the new storage shelf units:

   - **Type = Expansion**
   - **Status = In Use**
   - **Unallocated = *n* TB**
     Where *n* is the usable volume or disk space available in the new storage shelf.

Adding the disk space of additional Symantec Storage Shelf units to an operational NetBackup 52xx appliance from the NetBackup Appliance Shell Menu

The following procedure describes how to add new storage shelf disk space to a NetBackup appliance using the NetBackup Appliance Shell Menu.

To add new storage shelf disk space to a NetBackup appliance using the NetBackup Appliance Shell Menu

1. Use PuTTY to start an SSH session to access the NetBackup Appliance Shell Menu.

   Note: You can also connect a laptop, keyboard and monitor, or KVM to the appliance to access the NetBackup Appliance Shell Menu.

2. Log in to the NetBackup Appliance Shell Menu. The **Main_Menu** prompt appears.
3. Go to the **Manage** view as follows:

   Enter `manage` and press `Enter`.
4. Go to the **Storage** view as follows:

   Enter `storage` and press `Enter`.
5. Go to the **Show** view as follows:

   Enter`show` and press `Enter`.

   Information about the system appears. The **Disk ID** column should show the new storage shelf units as **Expansion Unit Storage (unit n)**, where *n* is 3, 4 or 5. The **Status** for the units should appear as **Not Supported**.
6. Perform a scan as follows:
   - At the **Main_Menu** prompt, enter `manage` and press `Enter`.
   - Enter `storage` and press `Enter`.
   - Enter `scan` and press `Enter`.

   The scan takes a couple of minutes to complete.
7. View the available storage space as follows:
   - Navigate to the **Storage** view.
   - At the prompt, enter `Show ALL` and press `Enter`.

- In the **Disk ID** table, locate and write down or copy the ID of the disk that has the following attributes:
  - **Operating system = Expansion**
  - **Source = New Available**

8 From the **Storage** view, enter `add` and press `Enter`. The **Add expansion unit storage** wizard is launched.

9 At the prompt, enter the ID of the new expansion unit that you copied earlier and press `Enter`.

Appendix D

NetBackup 5220 hardware installation

This appendix includes the following topics:

- Product documentation
- Product overview
- Installing hardware into racks
- About the cables
- Hardware verification and turning on the NetBackup 5220 and storage shelves

Product documentation

This document describes hardware installation procedures for the NetBackup 5220 appliances running at least version 2.6.0.2. The document is available to customers and end users.

The table below lists hardware-related documentation for the NetBackup 5220 appliance and Symantec Storage Shelf.

Table D-1 NetBackup 5220 and Symantec Storage Shelf hardware-related documentation

Document	Description
Product Description	Describes all aspects of the appliance and storage shelf. Provides safety, compliance, and environmental information.

Table D-1 NetBackup 5220 and Symantec Storage Shelf hardware-related documentation *(continued)*

Document	Description
Safety and Maintenance Guide	Provides detailed safety information. Anyone who works on the hardware that is associated with the appliance and the storage shelf should understand all safety concerns. Provides guidelines for routine monitoring and physical maintenance of the hardware.

You can find the documentation that includes information on the NetBackup 52xx appliances at the following URL:

http://www.symantec.com/docs/DOC2792

Documents that are provided at this location include:

- *NetBackup 52xx Appliance Administrator Guide*
- *NetBackup 52xx Command Reference Guide*
- *NetBackup 52xx Appliance Troubleshooting Guide*
- *NetBackup 52xx Appliance Release Notes*

See "Product overview" on page 118.

Product overview

The NetBackup 5220 is an integrated high-density and high-performance backup appliance. It encapsulates network backup needs. It is a scalable appliance with an internal capacity of 4 TB of formatted capacity.

The appliance has the ability to add another 48 TB or 72 TB of external storage with up to two Symantec Storage Shelves. The storage shelf functions as an expansion unit that contains 16 disk drive modules. Two of the disk drives are used for parity. One disk drive is a hot spare. The remaining 13 disk drives provide storage.

The NetBackup Appliance release version 2.6.0.3 provides the ability to add up to 144 TB of external storage with up to four Symantec Storage Shelves.

The NetBackup 5220 enclosure is 2U high and the Symantec Storage Shelf enclosure is 3U high. Both devices fit into standard 19" racks.

Refer to the following sections in this document for additional hardware details.

See "NetBackup 5220 front and rear panels" on page 119.

See “Symantec Storage Shelf front and rear panels” on page 125.

See “Dimensions” on page 119.

See “NetBackup 5220 Appliance front and rear panels - details” on page 120.

See “Symantec Storage Shelf front and rear panels - details” on page 126.

Dimensions

The heaviest devices in any equipment rack should be installed in the bottom of the rack. If heavy devices are installed at the top of the rack, the rack may tip over. Injury to personnel and damage to equipment is very possible. The Symantec Storage Shelf is heavier than the appliance. Therefore, you must install the storage shelf in the bottom of the rack. Install the appliance above the storage shelves.

The following list describes the dimensions of the appliance:

- Height: 8.7 cm (3.5”)
- Width: 43.0 cm (16.9”)
- Depth: 70.4 cm (27.8”)
- Weight: Approximately 22.7 kg (50 lbs)

The rack rails that are provided for the appliance are extensible to 31.5” (800mm). The part number of these rails is AXXPRAIL. This distance is the maximum depth that is allowed between rack posts. If the distance between rack posts is longer than 31.5” (800mm) the rails and the appliance cannot be properly installed. Other rails may have different lengths. The width of the appliance is 19” (482.6mm).

The following list describes dimensions of the storage shelf:

- Height: 13.1 cm (5.25”)
- Width: 44.7 cm (17.6”)
- Depth: 56.1 cm (22.1”)
- Weight: 32.5 kg (71.7 lbs)
  The rack rails that are provided for the Symantec Storage Shelf are extensible to 36” (914mm). This distance is the maximum depth that is allowed between rack posts. If the distance between rack posts is longer than 36” (914mm) the rails and the appliance cannot be properly installed. The width of the storage shelf is 19” (482.6mm).

See “Product overview” on page 118.

NetBackup 5220 front and rear panels

The following figures show the NetBackup 5220 appliance front and rear views.

Figure D-1 Appliance front panel

Figure D-2 Appliance rear panel

See "Product overview" on page 118.

NetBackup 5220 Appliance front and rear panels - details

This section describes the front and the rear panels, ports, and indicators of the NetBackup 5220 Appliance.

Figure D-3 Appliance front panel - details

Table D-2 Appliance front panel details

Number	Description
1	Appliance enclosure handle (one each on left and right sides)

Table D-2 Appliance front panel details *(continued)*

Number	Description
2	Storage disk drive modules (qty 8) for 2.5" 1 TB SAS hard disk drives. Disk drive slots are labeled 0 through 7, from left to right. Slot 7 is the hot spare disk. These disk drives form a RAID 6 group. **Warning:** Do not rearrange the disk drives. The disks must remain in their factory-installed slots for proper operation of the appliance.
3	Disk drive module handle (qty one per disk drive module)
4	Slimline drive bay (functionality not available with NetBackup 5220)
5	Flex Bay containing two non-hot-swappable SATA hard disk drives (HDDs) . These disk drives form a RAID 1 group. The two SATA drives are built in to the appliance as system disks.
6	Control panel

The control panel is located in the upper right-hand corner of the appliance front panel.

Figure D-4 Appliance control panel

Table D-3 Appliance control panel details

Number	Image	LED Function
1		Hard disk activity Random flashing green light indicates hard disk drive activity (SAS). No light indicates no hard disk drive activity.
2		NIC 1 Activity Continuous green light indicates a link between the system and the network to which it is connected. Flashing green light indicates network activity.
3		NIC 2 Activity Continuous green light indicates a link between the system and the network to which it is connected. Flashing green light indicates network activity.
4		System Status Solid amber indicates a critical or non-recoverable condition. Solid green indicates normal operation. Flashing green indicates degraded performance. Flashing amber indicates a non-critical condition. No light indicates POST is running or the system is off.
5		Power/Sleep Continuous green light indicates the system has power that is applied to it or the system is in S0 state. Flashing green indicates the system is in sleep or ACPI S1 state. No light indicates the power is off or the system is in ACPI S4 or S5 state.
6		System identification Solid blue indicates system identification is active. No light indicates system identification is not activated.

The eight SAS disk drive modules each contain one disk drive. One disk inside a carrier defines the “Disk Module.”

The following figure shows the slot assignments for the disk drive modules in the appliance. Slot 7 contains the hot spare. The disks are formatted at the factory. Do not rearrange the disks from their original locations.

Figure D-5 Appliance disk drive module slot locations

Each module contains two LEDs. The LED on the left of each module (1) indicates Power or Activity. The LED on the right (2) indicates disk Faults if there are any faults.

Figure D-6 Appliance disk drive LEDs

The following table lists the indications of the appliance disk drive module LEDs.

Table D-4 Appliance disk drive LED indications

LED	Color	Indication
Power/activity	Solid green Blinks green	Disk drive power is on. Disk drive activity is present.
Fault	Solid amber Not lit	A disk drive fault occurs. No disk drive faults occur.

The following photograph and list describe the rear panel of the appliance.

Figure D-7 Appliance rear panel details

Table D-5 Appliance rear panel details

Number	Description
1	Low Profile PCI Express (PCIe) Add-in Card Slots (qty 2)
2	Full-height PCIe Add-in Card Slots (qty 3)
3	Upper Power Supply Module
4	Upper Power Receptacle
5	Lower Power Receptacle
6	Lower Power Supply Module
7	I/O Expansion Module (not available)
8	Remote management port, also known as the IPMI port
9	NIC2 Ethernet port to customer's production network or lab
10	NIC1 Private management Ethernet port to laptop
11 and 12	USB 2.0 ports
13	DB-9 Serial B Connector (reserved)
14	Video Graphics Array (VGA) port
15	RJ-45 Serial A Connector

One PCIe riser assembly includes five PCIe add-in card slots. The five PCIe slots are numbered from top to bottom and from left to right. The following diagram identifies the five slots.

Figure D-8 Appliance PCIe slot numbers

Some appliance configurations include FC HBA cards for VMware, Optimized Deduplication over FC, or tape library connectivity.

When FC HBA cards are installed in slots 2 or 4 they can be used as Fibre Transfer Media Server (FTMS) cards. One port on each card is configured as the initiator port. This port is shown in yellow in the following diagram. The other port on each card is configured as the target port and is shown in blue. An FC HBA card that is installed in slot 3 can be used as an initiator for Tape Deduplication.

Figure D-9 FTMS ports

See "Product overview" on page 118.

Symantec Storage Shelf front and rear panels

The following figures show the Symantec Storage Shelf front and rear views.

Figure D-10 Symantec Storage Shelf front panel

Figure D-11 Symantec Storage Shelf rear panel

See "Product overview" on page 118.

Symantec Storage Shelf front and rear panels - details

The front panel of the storage shelf contains 16 SAS disk drive modules. Two disk drives are used for parity. Slot 16 contains the disk drive that is used as a hot spare. Thirteen disk drives comprise the RAID6 storage volume.

The following illustration shows the slot assignments for the disk drives.

Figure D-12 Storage shelf disk drive slot assignments

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16

The front panel shows two different sets of LEDs;

- Two LEDs each per disk module, for a total of 16 sets of LEDs
- Six system LEDs showing status of the entire device

Both sets of LEDs are shown in the following diagram.

Figure D-13 Storage shelf front panel LEDs

The front panel LEDs are explained in the following table.

Table D-6 Storage shelf front panel LEDs

LED number	LED name	States	Indications
1	System power	Not lit Solid green	Off On
2	Global enclosure status	Not lit Solid green Amber Red	Off On One power supply off Both power supplies off
3	Reserved	N/A	N/A
4	Disk drive status	Green Amber	Operation normal Operation not normal
5	Disk drive power and activity	Blue Amber	Operation normal Operation not normal
6	I/O Module #1 activity	Not lit Continuous green flash	No activity Activity
7	I/O Module #2 activity	Not lit Flashing green	No activity Activity

Table D-6 Storage shelf front panel LEDs *(continued)*

LED number	LED name	States	Indications
8	Heartbeat	Not lit	System off
		Flashes green once every 4 seconds	One I/O module is connected to an appliance
		Flashes green once every 2 seconds	Two I/O modules are connected to an appliance.

Each I/O module in the Symantec Storage Shelf contains three network ports; a serial port, a SAS IN port, and a SAS OUT port. A power supply with fans is located below each I/O module.

Figure D-14 Storage Shelf rear panel

Number	Component	Function
1	Serial port	Used by Symantec Technical Support.
2	Release latch	Unlocks the I/O Modules and allows removal of the module.
3	I/O Module #1	Provides redundant connectivity from a storage shelf to an appliance, or to another storage shelf.
4	SAS_IN port	Connects a storage shelf to an appliance, or to another storage shelf.
5	SAS_OUT port	Connects a storage shelf to another storage shelf when there is more than one storage shelf.
6	I/O Module #2	Provides redundant connectivity from a storage shelf to an appliance, or to another storage shelf.

Number	Component	Function
7	Power supply #1	Connects a redundant AC power source to the storage shelf.
8	Fan #1	Provides air cooling to Power Supply #1 and the inside of the storage shelf. Refer to the Hardware monitoring information in the *NetBackup 52xx Administrator Guide* for details.
9	Fan #2	Provides air cooling to Power Supply #1 and the inside of the storage shelf. Refer to the Hardware monitoring information in the *NetBackup 52xx Administrator Guide* for details.
10	Power supply #2	Connects a redundant AC power source to the storage shelf.
11	Fan #3	Provides air cooling to Power Supply #2 and the inside of the storage shelf. Refer to the Hardware monitoring information in the *NetBackup 52xx Administrator Guide* for details.
12	Fan #4	Provides air cooling to Power Supply #2 and the inside of the storage shelf. Refer to the Hardware monitoring information in the *NetBackup 52xx Administrator Guide* for details.

See "Connecting an appliance and one or more storage shelves" on page 140.

About the installation flow

Warning: NetBackup equipment and containers can weigh in excess of 70 lbs (31.75 kg). Improper handling can result in injury or equipment damage. Use appropriate techniques, tools, and materials when you handle NetBackup equipment.

The hardware installation flow is as follows:

- Understand the NetBackup Appliance and the Symantec Storage Shelf.
- Check safety precautions.
- Check the installation requirements.
  The rack rails that are provided for the appliance are extensible to 31.5" (800mm). The part number of these rails is AXXPRAIL. This distance is the maximum depth that is allowed between rack posts. If the distance between rack posts is longer than 31.5" (800mm) the rails and the appliance cannot be properly

installed. Other rails may have different lengths. The width of the appliance is 19” (482.6mm).

The rack rails that are provided for the Symantec Storage Shelf are extensible to 36” (914mm). This distance is the maximum depth that is allowed between rack posts. If the distance between rack posts is longer than 36” (914mm) the rails and the appliance cannot be properly installed. The width of the storage shelf is 19” (482.6mm).

- Unpack the devices.
- Install rack rails in the equipment racks for the NetBackup Appliance and Symantec Storage Shelf. The storage shelf is heavier than the appliance. All storage shelves should be installed at the bottom of the rack, under the appliance.
- Install the NetBackup Appliance and Symantec Storage Shelf into the rack rails. The appliance height is 2U and the storage shelf height is 3U. Guide pins on the devices are used to position the devices correctly on the rail. It sits completely inside the rack.
- Screws are provided with the hardware as needed. Insert the screws into the rack. Use the screws in back and in front to secure the devices to the rack.
- If your appliance rails have built-in pins instead of screws, secure the pins in the rack holes. The blue pin indicates the bottom of the rail.
- Connect the two SAS cables between the appliance and the Symantec Storage Shelf that is closest to the appliance.
- Plug the two power cables which are provided for each device into appropriate AC power supplies.
- Turn on the storage shelf first, and let it initialize. If you have two storage shelves, turn on the storage shelf that is not connected to the appliance. When that storage shelf has initialized turn on the other storage shelf and let it initialize.
- Turn on the appliance
- Ensure that the devices operate properly and begin the configuration for the device.

See “Installing hardware into racks” on page 130.

Installing hardware into racks

When you have all of the tools and equipment that you need, you can begin to install the hardware. It is recommended to install the storage shelf, or shelves, at the bottom of the rack, due to weight.

Removing the protective film from the storage shelf

The Symantec Storage Shelf ships with a clear, protective film on the top, bottom, and sides of the chassis. The front panel and the rear panel do not include any film. You need to remove the film before you install the storage shelf into the rack. The storage shelf does not install properly if the film is not removed.

To remove the protective film and retain the labels

Warning: Make sure that another person is available to help lift the storage shelf.

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1. Peel the protective film from the top rear of the storage shelf.
2. Lift up one end of the storage shelf and peel the film from the bottom of the chassis.
3. When approximately half of the film is removed, lift the other end of the storage shelf and remove the remaining film.
4. Peel the film from the sides of the storage shelf.
5. Discard all of the film.

See "Installing the Symantec Storage Shelf guide rails" on page 131.

Installing the Symantec Storage Shelf guide rails

Each left and right mounting rail for the Symantec Storage Shelf is shipped as a unit. The front and back of each rail slide apart a few inches to allow for precise fitting into the rack cabinet. The bottom of each rail includes a sturdy metal ledge on which the Symantec Storage Shelf sits.

To install the Symantec Storage Shelf guide rails

1. Obtain the left and right mounting rails. The fronts of these rails mount on the front of the vertical metal posts of the rack cabinet.
2. Facing the rack cabinet, align the left rail over the vertical metal post on the left side of the rack. Be sure that the support ledge is on the bottom of the rail and inside the cabinet. The storage shelf sits upon the ledge.
3. Place the alignment pin in the top hole of the rail. Make sure that it passes through the rack and fasten the back of the pin.
4. Use a standard rack screw in the bottom hole of the rail, to secure the rail to the rack.

5 Slide the rear of the mounting rail into the rear metal post of the rack.

6 Repeat these steps for the mounting rail on the right side of the rack. Be sure that the support ledge is on the bottom of the rail, inside the cabinet.

See "Installing the Symantec Storage Shelf into a rack" on page 132.

Installing the Symantec Storage Shelf into a rack

Verify that the left and right mounting rails are installed successfully.

CAUTION

One fully-loaded or storage shelf weighs up to 33 kg.(73 lbs). More than two people are required to move and install each device. You can remove the power supplies if you want to decrease the weight during installation.

To install the Symantec Storage Shelf into a rack

1 Wear an ESD-preventive wrist strap and ESD-preventive gloves.

2 Slide the Symantec Storage Shelf along the mounting rails into the rack cabinet.

3 Fasten all screws with an M4 Phillips screw driver.

4 Ensure that the Storage Shelf sits properly and all screws are secure.

5 Secure the left (1) and right (2) rack handles to the rack posts with the screws that are provided.

See "Installing the Symantec Storage Shelf guide rails" on page 131.

Installing the NetBackup 5220 rack rails

Before installing the devices in the rack cabinet, determine the installation positions of the toolless guide rails according to the installation planning of the devices.

To install the NetBackup 5220 guide rails

1. Looking at the front of the rack cabinet, place the left guide rail on the left post of the rack cabinet.
2. Keep the bottom of the guide rail parallel to the bottom of the planned installation position.
3. Insert the guide pins on the front and rear of the guide rails into the holes on the front and the rear posts of the cabinet.
4. Pull out the left and the right rail extenders as far as they extend easily and safely.

See "Installing the NetBackup 5220 Appliance into a rack" on page 133.

Installing the NetBackup 5220 Appliance into a rack

Verify that the guide rails are installed successfully.

One fully-loaded device weighs up to 33 kg.(73 lbs). More than two persons are required to move and install the device.

To install the NetBackup 5220 into a rack

1. Wear an ESD-preventive wrist strap and ESD-preventive gloves.

   Note: Locate the three heavy screws projecting from the left and the right sides of the NetBackup 5220. These three screws fit into the three slots in the rail extenders.

2. Using at least two people, lift the NetBackup 5220 and place it into the rail extenders. Make sure that the rail slots securely fit the screws on the sides of the device.
3. Gently slide the device into the rack.
4. If needed, install a front mounting plate to the front of each rail, using a screw to fasten it.
5. Repeat the previous steps to install a guide rail to the right side of the cabinet.

See "Installing the NetBackup 5220 rack rails" on page 132.

About the cables

This chapter describes how to connect cables of the NetBackup 5220, including network cables, optical fibre cables, and power cables.

See “Cable examples” on page 134.

See “Connecting the VGA cable (optional)” on page 135.

See “Connecting the network cables” on page 136.

See “Connecting the optical fibres” on page 137.

See “Connecting the NetBackup 5220 power cables” on page 138.

See “Connecting the Symantec Storage Shelf power cables” on page 138.

Cable examples

The following table shows the cable examples.

Table D-7 Cables

Component	Example
PS/2 to USB adapter cable	
KVM cable	
100/1000 Mbit/s network cable	

Table D-7 Cables *(continued)*

Component	Example
LC multimode fibre	
SAS interconnect cable (with RAID connectors)	
AC power cable	

See "Connecting the VGA cable (optional)" on page 135.

Connecting the VGA cable (optional)

Connecting the Video Graphics Array (VGA) cable is optional. You can connect the cable to a computer directly or through a Keyboard Video Mouse (KVM) adaptor or switch.

To connect the VGA cable

1 Insert the connector of a VGA cable into the video port on the lower left side of the rear panel of the NetBackup 5220 Appliance.

2 Connect the other end of the cable into a KVM switch or adapter.

See "About the cables" on page 134.

Connecting the network cables

The NetBackup 5220 appliance includes two 1Gb Ethernet ports and one remote management port. These ports are accessed on the rear panel of the device.

Figure D-15 Appliance network ports (rear panel)

Table D-8 Network interface ports

Port	Details
NIC1/eth0	Private network/management Ethernet port provides a channel for system management of the NetBackup 5220. The default IP address is **192.168.1.1**.
NIC2/eth1	Public network Ethernet port provides a channel for the backup of customer data.

Table D-8 Network interface ports *(continued)*

Port	Details
IPMI	Intelligent Platform Management Interface port enables remote data gathering and monitoring of hardware status.

See "About the cables" on page 134.

Connecting the optical fibres

The NetBackup 5220 supports a tape out card (Fibre Channel, FC) and a 10 GE NIC, both of which are connected to other devices through optical fibres. Using the tape out card (Fibre Channel) as an example, this section describes how to connect an optical fibre. The procedure for connecting an optical fibre to the 10GE NIC is the same as that for connecting an optical fibre to the tape out card (Fibre Channel).

Caution: The laser beams of an optical interface board or inside an optical fibre can cause eye damage. When installing or maintaining optical fibres or optical transceivers, do not look into the outlet of the optical fibre or transceiver directly.

When connecting optical fibres, note the following:

- An optical transceiver is electrostatic sensitive and should be placed in an ESD-preventive and dust-proof environment for transportation, storage, and use.
- Optical fibres and optical transceivers not in use must be protected with dust caps. If the optical transceiver is contaminated, carefully clean the optical interface.
- Keep the surface of all optical connectors clean and free from scratches.
- Do not squeeze, distort, fold, or repair an optical fibre. Do not bend the optical fibre into a circle with a radius less than 5 cm. Otherwise, the optical fibre may be damaged, which reduces the system performance or causes data loss.

To connect optical fibres

1. Take the cap of the optical transceiver out of the interface of the tape out card (2-port 8Gb FC HBA, Fibre Channel).
2. Remove an optical fibre from its packaging.
3. Remove the caps of the optical connectors.
4. Plug an optical connector into the interface of the card.

5 Ensure that the optical connector is securely inserted into the optical transceiver.

6 Connect the other optical connector of the optical fibre to an FC switch or a tape library.

See "About the cables" on page 134.

Connecting the NetBackup 5220 power cables

The appliance has two power modules, one stacked upon the other and accessible on the rear panel of the device. Each module requires a separate AC power cable and main AC power outlet.

When connecting a power cable, wear an ESD-preventive wrist strap to prevent injuries.

To connect the NetBackup 5220 power cables:

1 Plug one end of a power cable to a power module of the NetBackup 5220.

2 Plug the other end of the power cable into an AC power socket.

3 Connect the second power cable to the second power module and to a second power socket.

4 Confirm that both AC power cables are connected and that any grounds are correctly placed.

See "Connecting the VGA cable (optional)" on page 135.

Connecting the Symantec Storage Shelf power cables

The storage shelf has two power modules, one placed next to the other and accessible on the rear panel of the device. Each module requires a separate AC power cable and main AC power outlet. The information that is provided in this section applies to all of the storage shelves that are used with the appliance.

When connecting a power cable, wear an ESD-preventive wrist strap to prevent damage to components or persons.

To connect the Symantec Storage Shelf power cables

1 Plug one end of a power cable to a power module of a Symantec Storage Shelf.

2 Plug the other end of the power cable into an AC power socket.

3 Connect the second power cable to the second power module and to a second power socket.

4 Confirm that both AC power cables are connected and that any grounds are correctly placed.

NetBackup storage shelves currently ship with two AC power cords. To improve the power distribution within a rack environment, Symantec will ship two of the Power Distribution Unit (PDU) compatible cords (C13-C14) instead of the AC power cords. The transition to the new cords will be gradual.

The C13 connector attaches to the rear panel of the storage shelf.

Table D-9 describes the components in the connector.

Table D-9 C13 connector details

Number	Component color
1	Green and yellow
2	Blue
3	Brown

The C14 plug connects to the Power Distribution Unit (PDU) in the equipment rack.

Table D-10 describes the components in the plug.

Table D-10 C14 plug details

Number	Component color
1	Green and yellow
2	Brown
3	Blue

See “About the cables” on page 134.

Connecting an appliance and one or more storage shelves

The following figures show the rear panel connections between the appliance and the storage shelves. SAS cables are provided to connect the devices. Two SAS cables ship with each storage shelf. The maximum supported length of each SAS cable is 1 meter (3.28 feet).

The NetBackup 5220 Appliance release 2.6.0.3 supports the use of a maximum of four storage shelves.

Figure D-16 NetBackup 5220 Appliance connected to four Symantec Storage Shelves

The following schematic shows the SAS_OUT ports on the appliance. SAS_IN and SAS_OUT ports on the storage shelves are shown. Cables connect the following:

- The SAS_IN ports of Storage Shelf #1 connect to the appliance.
- The SAS_OUT ports of Storage Shelf #1 connect to the SAS_IN ports of Storage Shelf #2.

- The SAS_OUT ports of Storage Shelf #2 connect to the SAS_IN ports of Storage Shelf #3.
- The SAS_OUT ports of Storage Shelf #3 connect to the SAS_IN ports of Storage Shelf #4.
- The SAS_OUT ports of Storage Shelf #4 do not connect to any other device.

The following schematic shows the maximum of four storage shelves attached to an appliance.

Figure D-17 NetBackup 5220 Appliance connected to four Symantec Storage Shelves - schematic

See "Symantec Storage Shelf front and rear panels - details" on page 126.

Hardware verification and turning on the NetBackup 5220 and storage shelves

This section provides information that needs to be checked after the hardware installation and cable connections are completed, but before the device is turned on.

DANGER

Ensure that you prevent personnel injuries or device damage. Before checking the device installation and cable connections, confirm that all power to the appliance is turned off.

Verify that the device and cables are installed correctly. The following table provides the instructions that you can use to check device installation and cable connections.

Table D-11 Installation confirmation

Component	Correct Installation	Incorrect Installation
NetBackup 5220 Appliance	The appliance is placed securely in the rack cabinet.	The appliance is slanted or loose within the rack cabinet.
Symantec Storage Shelf	The shelf, or shelves, are secured in the rack cabinet.	The shelf is slanted or loose within the rack cabinet.
AC power cables	The AC power cables of the appliance are connected securely between the power modules of the device and the main AC power supply. The AC power cables of the storage shelf are connected securely between the power modules of the device and the main AC power supply.	▪ Only one power cable is connected to a device. ▪ There are no power cables connected to a device.
SAS cables	SAS cables connect the RAID card in the appliance to the SAS_IN ports to the first storage shelf. SAS cables connect the SAS_OUT ports of the first storage shelf to the SAS_IN ports of the second storage shelf. Shelf #3 and shelf #4 are connected in the same manner.	▪ SAS cables are not connected to the RAID card in the appliance. ▪ SAS cables connect the RAID card of the appliance to ports other than the SAS_IN ports of the first storage shelf. ▪ The SAS_IN ports of the second storage shelf are not connected to the SAS_OUT ports of the first storage shelf.

See "Turning on the storage shelf and the appliance" on page 143.

Turning on the storage shelf and the appliance

Caution: If you are using the appliance with one or two Symantec Storage Shelves, turn on Storage Shelf #1 first. This storage shelf is connected to the appliance. When Storage Shelf #1 has initialized, turn on Storage Shelf #2. This storage shelf is connected to Storage Shelf #1.

All devices must be correctly installed and all cables must be connected properly.

When turning on the appliance, do not remove or handle any disks, optical fibres, or network cables. Otherwise, data may be lost and equipment may be damaged.

To turn on the appliance

1 Connect both AC power connectors on the rear panel, right-hand side, of the appliance to two main AC power supply outlets.

The following table lists the components of the appliance power modules.

Number	Component
1	Fan
2	Module handle
3	On/Alarm indicator
4	AC power socket
5	Spring leaf

2 Turn on the power from the front of the appliance. The power button is near the control panel on the right side of the appliance.

The On/Off switch of the appliance is located on the control panel on the front of the device, top right-hand side.

Figure D-18 NetBackup 5220 control panel and On/Off switch

Figure D-19 NetBackup 5220 Appliance On/Off switch

Refer to the Control Panel on the front right-hand side of the appliance for more information. System status messages scroll down the screen. Use the left, right, up, and down buttons to access messages.

Check the status of each disk drive LED on the front panel of the appliance to determine whether the appliance is operating properly. Check the power supply LEDs on the rear of the appliance to verify that they are operating properly.

See "Hardware verification and turning on the NetBackup 5220 and storage shelves" on page 141.

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