

Symantec NetBackup™ Deduplication Appliance Software Getting Started Guide

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Revision 1

NetBackup 5020
NetBackup 5000



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Symantec Corporation
350 Ellis Street
Mountain View, CA 94043

<http://www.symantec.com>

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North America and Latin America supportsolutions@symantec.com

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Deduplication Appliance Software overview

This chapter includes the following topics:

- [About the Deduplication Appliance Software](#)
- [About the PureDisk component of the Deduplication Appliance Software](#)

About the Deduplication Appliance Software

The Deduplication Appliance Software 1.4.3.1 release is an enterprise-level data deduplication solution. The Deduplication Appliance Software 1.4.3.1 release includes PureDisk 6.6.4.

Symantec supports the following deduplication appliance platforms:

- NetBackup 5020
- NetBackup 5000

For more information about Symantec appliances, see the following website :

<http://www.symantec.com/business/support/index?page=landing&key=58991>

Symantec occasionally publishes release-specific information for the Deduplication Appliance Software releases after a release has been made available to the public. For late-breaking news about the Deduplication Appliance Software release, see the following website :

<http://www.symantec.com/docs/TECH145136>

Warning: The Deduplication Appliance Software that is installed on the NetBackup Deduplication Appliance uses third-party components as part of its architecture. As an administrator, you should not upgrade third-party components to a newer version; doing so may affect your ability to obtain support from Symantec. Symantec monitors the releases of these third-party components. Symantec also provides upgrades and patches to address vulnerability, performance, and stability problems that can affect the appliance.

The Linux operating system is part of the Deduplication Appliance Software and is based on the standard SUSE Linux operating system by Novell. Symantec removed some packages from the SUSE Linux installation and added some packages to make Linux suitable for the appliance platform. A complete list of Linux packages that are contained in the Deduplication Appliance Software, as well as the source code for such packages, is available from Symantec upon request.

Do not install additional third-party software on the appliance. Any such installation is an unsupported activity. Such installations can cause service interruptions and problems with product stability.

About the PureDisk component of the Deduplication Appliance Software

During the appliance deployment process, you use a wizard to configure PureDisk services on each appliance. The PureDisk backup environment is called a *storage pool*. A single deduplication appliance upon which you configured one or more PureDisk services is called a *storage pool node*.

You can configure a PureDisk storage pool from one or more appliances. If you have one appliance, you can configure an *all-in-one* storage pool. If you have two or more appliances, you can configure a *multinode* storage pool in which each node hosts specific services.

For example, in an all-in-one storage pool, the following services are all on the same deduplication appliance node:

- The storage pool authority. This service is the main service in a storage pool. Each storage pool has one storage pool authority service.
- The content router, which stores file content.
- The metabase engine, which stores file metadata.
- The metabase server, which manages metabase engine queries.

- The NetBackup export engine, which sends information to a NetBackup environment. This service becomes operational only if you enable the NetBackup export feature.

In a multinode configuration, the first node you configure hosts the storage pool authority service and (optionally) other services. The additional nodes you configure host additional instances of all the other non-storage pool authority services. For example, users often configure additional appliances as dedicated content router nodes.

The following contain more PureDisk overview information:

- See “[About NetBackup interoperation with the deduplication appliance](#)” on page 13.
- See “[About backing up files and restoring files](#)” on page 14.
- The *Deduplication Appliance Software Administrator's Guide*
- The *PureDisk Getting Started Guide*.
- The general PureDisk documentation website :
<http://www.symantec.com/docs/DOC2238>
- The PureDisk 6.6.4 documentation website :
<http://www.symantec.com/docs/DOC5794>

About NetBackup interoperation with the deduplication appliance

The PDLinux operating system resides on a mirrored disk RAID set inside each appliance. Other disks host a storage directory, and the PureDisk application writes all your backups to this storage directory.

After you configure the appliance, you can deploy the appliance in the following ways:

- As a NetBackup OpenStorage disk pool. After the appliance is configured, download a PureDisk client onto a supported NetBackup media server. The *PureDisk Deduplication Option Guide* explains how to configure the appliance as a PureDisk Deduplication Option (PDDO) storage server. A PDDO implementation reduces the amount of backup data that NetBackup stores in a datacenter. PDDO enables a NetBackup media server to send data to a PureDisk storage pool for deduplication.
- As a PureDisk backup and restore storage pool for servers and laptops.
- As an appliance that performs both as an OpenStorage disk pool and as a backup and restore storage pool.

About backing up files and restoring files

The first step in backing up data is to create a *data selection*. A data selection specifies a list of files and directories that you want to include in a backup. For example, you can include all the files on a particular client in a data selection. You can back up a data selection on a regular basis by including it in a backup policy. Alternatively, you can make a quick one-time backup of a data selection.

When PureDisk performs a backup, it separates the file content from the file's metadata. It writes file content to secondary disk storage, and it writes file metadata to a distributed database that is called a metabase. The metadata consists of information about the file such as its owner, where it resides on a client, when it was created, and other information. The metadata also includes a unique fingerprint that identifies the file's content to PureDisk.

When you restore files, you restore the files or directories that you need. You do not need to restore an entire data selection.

Planning the deduplication appliance configuration

This chapter includes the following topics:

- [About planning the deduplication appliance configuration](#)
- [Preparing to configure the deduplication appliance](#)

About planning the deduplication appliance configuration

The following topic explains how to plan your deduplication appliance configuration:

See [“Preparing to configure the deduplication appliance”](#) on page 15.

Preparing to configure the deduplication appliance

The following procedure explains tasks you need to perform before you begin to configure the deduplication appliance.

To prepare for configuration

- 1 Use the packing list in the appliance's box to verify the appliance box's contents.
- 2 Decide which of the following configuration methods you want to use:
 - Laptop method. You can attach a laptop computer to the appliance and perform the configuration from the laptop. When you attach a laptop to the appliance, you configure the appliance through the Web-based Configuration Wizard. This method is the typical configuration method.

- Keyboard, monitor, and mouse method. You can attach a keyboard, a monitor, and a mouse to the appliance and perform the configuration from these devices. When you attach these devices to the appliance, you configure the appliance through the appliance's command-line based shell menu.
- 3 (Optional) For each appliance that you want to configure, work with your site's network administrator to provision each appliance in the Domain Name Server (DNS).

Perform this step if your site has a DNS and you want the appliance to use the DNS.

Note: Symantec recommends that you configure the appliance to use a DNS. If you do not have a DNS, plan to use the configuration instructions that explain how to create a `hosts` file.

- 4 Decide how many storage pools you want to configure and assign roles to each appliance.

Symantec installs an identical and a complete set of services on each appliance. If you have more than one appliance, you can configure them into storage pools of various sizes. For example, you can configure a single appliance into an all-in-one storage pool. If you have several appliances, you can configure them into a few all-in-one storage pools or into a few 2-node or 3-node appliances. If you configure more than one storage pool, these storage pools can replicate backup data to each other.

Each storage pool has a one main node that is called the *storage pool authority node*. In an all-in-one storage pool, that single node is the storage pool authority node. In a multinode storage pool, you can select any node to be the storage pool authority node during the initial configuration. It does not matter which appliance you choose to configure as the storage pool authority node because each appliance is identical.

- Example 1. If you have one appliance, configure that appliance as one, single-node, complete, *all-in-one* storage pool.
- Example 2. If you have two appliances, either you can configure two single-node storage pools, or you can configure one *multinode* storage pool. A multinode storage pool is a storage pool that consists of two or more appliances.

If you want to configure two appliances into one storage pool, configure the storage pool authority service and all default services on one appliance. This appliance becomes known as the storage pool authority node. Each

storage pool can have only one storage pool authority node. You can configure the second appliance with only a content router.

Note: If you want to configure a multinode storage pool, Symantec recommends that you plan, rack, cable, and configure the network for all the appliances at the same time. After the network configuration is complete on all appliances, run the Configuration Wizard to configure the appliances nodes into one or more storage pools.

For more information and examples of storage pool configurations, see the following manual:

PureDisk Getting Started Guide

- 5 For each appliance that you want to configure, obtain the following information from your network administrator:

Information to obtain

My network information

What kind of a network is available for the appliance?

- A 1-GB network?
- A 10-GB network?
- Both a 1-GB network and a 10-GB network?
- A Fibre Channel infrastructure?

Fibre Channel cards are not automatically included in deduplication appliances. Contact your sales representative if you want to order an appliance that is equipped with the optional Fibre Channel cards.

A static IP address for each appliance that you want to configure. If you have multiple appliances and you want to configure a multinode storage pool, obtain a static IP address for each appliance.

You can configure a secondary network for administrative use after you complete the initial configuration. For information about how to configure the secondary administrative network, see the *Deduplication Appliance Software Administrator's Guide*.

A fully qualified domain name (FQDN) for each appliance that you want to configure. For example, `node1.acct.com`.

If you have multiple appliances and you want to configure a multinode storage pool, obtain an FQDN for each appliance.

Information to obtain

Netmask

Default gateway (optional)

IP address of your site's primary DNS server (optional)

IP address of your site's secondary DNS server (optional)

IP address of your site's network time protocol (NTP) server

My network information

Note: Symantec supports the 10-GB/s Ethernet dual-port NIC and the 1-GB/s Ethernet quad-port NIC on NetBackup 5020 appliances only.

6 Obtain the following equipment:

- Ethernet cables and/or fiber optic cables to attach the appliance to the network.

If you want to attach the appliance to a 10-GB network, obtain one fiber optic cable.

If you want to attach the appliance to a 1-GB network, use one of the Ethernet cables that are included in the appliance box.

- A Windows laptop computer and an additional Ethernet cord. This equipment is required if you want to use a laptop computer to perform the configuration. Use an Ethernet cord to connect the laptop computer to the appliance during the configuration process. If the laptop has a 10 Base T NIC or a 100 Base T NIC, obtain a crossover cable.

The laptop needs to be installed with the Windows operating system and a browser. Use one of the following browsers:

- Internet Explorer 9, 8, or 7
- Firefox 5, 4, or 3

The appliance's displays are best viewed with 1280 X 1024 screen resolution. To maximize screen space, Symantec recommends that you remove all toolbars on the Web browser.

OR

An additional keyboard, monitor, and mouse. These devices are required if you want to configure the appliance by directly attaching this equipment to the appliance.

Alternatively, you can attach the appliance to an existing KVM switch and access the appliance console.

- 7** For each complete storage pool that you want to configure, gather and record the following planning information:

Information to obtain	My information
Storage pool name.	_____
(Optional) Description.	_____
Note: This field accepts alphanumeric characters and spaces. Do not include special characters.	
(Optional) Storage pool location.	_____
The default is <code>Unknown</code> . After you configure your storage pool, you can change this location name in the administrative Web UI.	
(Optional) Department.	_____
The default is <code>Unknown</code> . After you configure your storage pool, you can change this department name in the administrative Web UI.	
Is this appliance a central storage pool?	_____
A central storage pool can gather backup statistics from other storage pools. For information about central storage pools, see the <i>PureDisk Administrator's Guide</i> .	
If you plan to configure only one storage pool at your site, do not check the central storage pool box in the Storage Pool Configuration Wizard.	
If you want to configure more than one storage pool, you can designate one storage pool as the central storage pool for reporting purposes.	
Storage pool authority (SPA) password	_____
(Recommended) IP address or FQDN of the NTP server.	_____
Time zone	_____
FQDN of your site's SMTP server	_____

- 8** Proceed to the following:
 See [“About racking the deduplication appliance and connecting the appliance to your network”](#) on page 21.

Connecting the deduplication appliance to your network

This chapter includes the following topics:

- [About racking the deduplication appliance and connecting the appliance to your network](#)
- [Racking the deduplication appliance and connecting the deduplication appliance to your network](#)
- [\(Conditional\) Configuring the laptop computer to communicate with the deduplication appliance](#)
- [Configuring the network](#)

About racking the deduplication appliance and connecting the appliance to your network

The following topics explain how to rack the appliance and how to connect the appliance to your corporate network:

- See [“Racking the deduplication appliance and connecting the deduplication appliance to your network”](#) on page 22.
- See [“\(Conditional\) Configuring the laptop computer to communicate with the deduplication appliance”](#) on page 25.
- See [“Configuring the network”](#) on page 26.

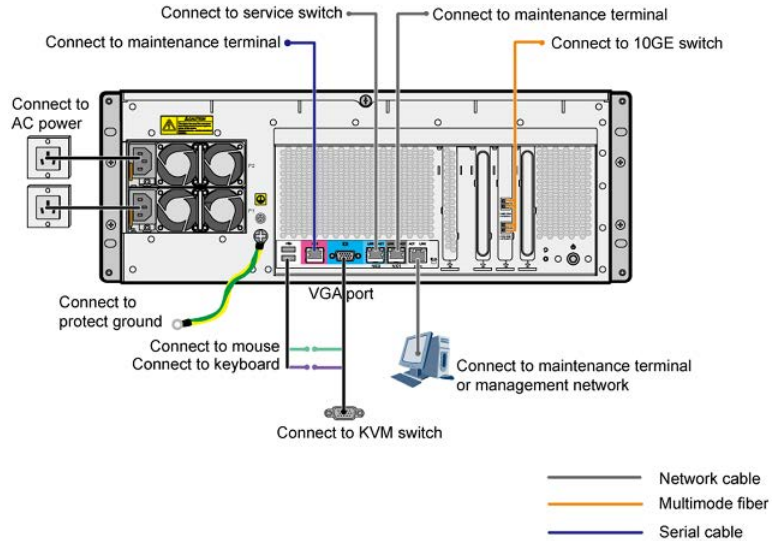
Note: If you have multiple appliances, Symantec recommends that you perform the procedures in this chapter on each appliance before you start the Storage Pool Configuration Wizard. It is often easier to configure all the nodes for a multinode storage pool at the same time rather than to add nodes later to a production storage pool

Racking the deduplication appliance and connecting the deduplication appliance to your network

The following procedure explains how to rack the 5000 and the 5020 appliance and how to connect them to your corporate network.

To rack a 5000 or 5020 deduplication appliance and connect the deduplication appliance to your network

- 1 Install the rails in the rack.
Secure the rails to the rack using screws.
- 2 Install the appliance.
Using a screwdriver and the provided screws, attach the NetBackup Deduplication Appliance to your existing rack.
- 3 Connect the power supply.
Plug the power cables into the back of the appliance. Plug the other end of the power cables into a power source with surge protection.
- 4 Connect the cables.
By default, the NetBackup 5020 does not have any optional cards. The back of a standard NetBackup 5020 in the default configuration is as follows:



If you have the default PCI card set shown in the preceding figure, your options are as follows:

- If only a 1-GB network is available, plug one end of an Ethernet cord into the blue port that is labeled NIC 2. Plug the other end of that cord into your 1-GB network.
- If only a 10-GB network is available, plug one end of a fiber optic cable into one of the ports that are on the vertically mounted PCI card. Plug the other end of that cable into your 10-GB network. The 10-GB ports are not labeled on the appliance. On the PCI card, the port on top is NIC 3. The port on the bottom is NIC 4.
- If both a 1-GB network and a 10-GB network are available, plug one end of a fiber optic cable into one of the ports that are on the vertically mounted PCI card. Plug the other end of the cable into your 10-GB network. The 10-GB ports are not labeled on the appliance. On the PCI card, the port on top is NIC 3. The port on the bottom is NIC 4. During the configuration process, use the 10-GB network. After the configuration is complete, the appliance uses the 10-GB network for backups, restores, data removal, and other storage pool actions. At a later time, you can configure the appliance to use the 1-GB network or the 10-GB network for storage pool administration.

If you have optional cards installed in your appliance, use the information that came in the boxes to connect the deduplication appliance to your corporate network. Proceed to the following step:

Step 5

If you no longer have the cord or the cabling information that was included with the optional cards, use the procedure at the following website to attach the cords or cables to the appliance and to attach the appliance to your corporate network

<http://www.symantec.com/docs/DOC3687>

Note: If you have more than one appliance, connect all the appliances you have to your corporate network at this time. That is, complete this procedure on each appliance before you start the Network Configuration Wizard on the storage pool authority node.

- 5 Connect the appliance to the devices that you want to use for configuration, as follows:

- To perform the configuration through a laptop, use an Ethernet cord. Make sure that the laptop is running the Windows operating system. If the laptop has a 10 Base T NIC or a 100 Base T NIC, use a crossover cable. Attach one end of the Ethernet cord from the appliance box to the laptop computer. Plug the other end of the Ethernet cord into the gray port on the appliance that is labeled NIC 1.
- To perform the configuration through an attached keyboard, monitor, and mouse, plug those devices into the appropriate ports on the appliance.

Make sure that the laptop or the devices that you want to use for configuration purposes are connected to the deduplication appliance that you want to specify as the storage pool authority node. If you have only one appliance, that appliance is automatically defined as the storage pool authority node. If you have more than one appliance, only one appliance can assume the role of the storage pool authority.

- 6 On the back of the hardware appliance, press the turn on button to start the system.

When the appliance boots, the system might hang and issue the following message on the console:

```
The battery hardware is missing or malfunctioning.
```

If the preceding message appears, press the Enter key, and continue to boot the system. The battery recharges when used.

- 7 Proceed to one of the following:

(Conditional) Configuring the laptop computer to communicate with the deduplication appliance

- If you attached a laptop computer to the appliance, proceed to the following:
See “[\(Conditional\) Configuring the laptop computer to communicate with the deduplication appliance](#)” on page 25.
- If you attached a keyboard, monitor, and mouse to the appliance, proceed to the following:
See “[Configuring the network](#)” on page 26.

(Conditional) Configuring the laptop computer to communicate with the deduplication appliance

Perform the procedure in this topic if you want to configure the appliance by using a laptop computer.

After you perform the configuration, you can access the appliance's administrative Web UI through a browser on that laptop or through a browser on any other computer with a network connection.

The following procedure explains how to assign an IP address to the laptop so the laptop can communicate with the appliance. This procedure might differ depending on your Windows operating system level.

To configure the laptop computer to communicate with the deduplication appliance

- 1 Click **Start > Settings > Network Connections**.
- 2 In the **Network Connections** window, right-click on **Local Area Connection** and select **Properties**.
- 3 On the **Local Area Connection Properties** window, under **This connection uses the following items**, select **Internet Protocol (TCP/IP)** and click **Properties**.
- 4 On the **Internet Protocol (TCP/IP) Properties** window, click **Alternate Configuration**.
- 5 On the **Alternate Configuration** tab, select **User configured** and complete the following fields:
 - In the **IP Address** field, type the following:

`169.254.1.number`

For *number*, specify a number between 2 and 255. It does not matter what number you specify. This address is used only during configuration. For example, type 169.254.1.5.

- In the **Subnet mask** field, type 255.255.255.0.
 - Click **OK** to close the **Internet Protocol (TCP/IP) Properties** window.
 - Click **OK** to close the **Local Area Connection Properties** window.
 - Close the **Network Connections** window.
- 6 Proceed to the following:
See “[Configuring the network](#)” on page 26.

Configuring the network

This topic explains how to configure the appliance on the corporate network. Choose one of the following software interfaces for the network configuration process:

- **Network Configuration Wizard.** If you attached a laptop computer to the appliance, Symantec recommends that you use this method. The Configuration Wizard guides you through the network configuration process.
- **Appliance shell menu.** The shell menu enables you to connect to the appliance through a Secure Shell connection and configure many appliance characteristics, including the network. After you use the shell menu to configure the network, use the Configuration Wizard to perform the storage pool configuration.

If you attached a keyboard, monitor, and mouse to the appliance, use the appliance shell menu to configure the network.

Before you begin, contact your network administrator and obtain the IP addresses and FQDNs of each computer with which the appliance needs to communicate. This list can include the address information for NetBackup media servers, clients you want to attach to the appliance, and other computers. If you have more than one appliance, and you want to configure a multinode storage pool, include the address information for this particular node and for all the other nodes in the storage pool. Use the following table to record the information you need:

Computer name	IP address	FQDN	Host name
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

The following procedures explain how to configure the appliance on your corporate network:

- See [“Using the Network Configuration Wizard to configure the network”](#) on page 27.
- See [“Using the command-line shell menu to configure the network or to configure the hosts file”](#) on page 33.

Using the Network Configuration Wizard to configure the network

The following topics explain how to use the Network Configuration Wizard to configure the network:

- See [“Starting the Network Configuration Wizard”](#) on page 27.
- See [“Completing the Network Configuration - Specify Network Interfaces page”](#) on page 28.
- See [“\(Conditional\) Completing the Network Configuration - Edit local hosts file page”](#) on page 30.
- See [“Completing the Summary page”](#) on page 31.

Starting the Network Configuration Wizard

The following procedure explains how to start the Configuration Wizard. The Configuration Wizard helps you connect the appliance to your corporate network.

To start the Network Configuration Wizard

- 1 On the device that is connected to the deduplication appliance, open a Web browser and type the following URL:

```
http://169.254.1.1/Installer
```
- 2 (Conditional) Affirm the security exception for the installer.
Depending on your site's security policies, you might see a browser security certificate affirmation page when you start the installer.
- 3 On the logon page, in the **User Name** field, type `root`.
- 4 In the **Password** field, type `P@ssw0rd`.
In the preceding password, the sixth character is the numeral zero (0).
- 5 Click **Log on**.

- 6 On the welcome page, click **Start the network configuration wizard**.
- 7 Proceed to the following:
See “[Completing the Network Configuration - Specify Network Interfaces page](#)” on page 28.

Completing the Network Configuration - Specify Network Interfaces page

The following procedure explains how to complete the **Network Configuration - Specify Network Interfaces** page.

To configure the network from the Network Configuration Wizard

- 1 On the **Network Configuration - Specify Network Interfaces** page, complete the following fields:

Field Name	Content
Network Interface	<p>Use the pull-down menu to select the network interface you want to configure at this time.</p> <p>During an initial configuration, select the interface that corresponds to the port you used when you attached the appliance to the network, as follows:</p> <ul style="list-style-type: none">■ For the 5000 and 5020:<ul style="list-style-type: none">■ If you attached the appliance to the 1-GB network, select <code>eth1</code>. On the back of the appliance, this interface is labeled <code>NIC2</code>.■ If you attached the appliance to a 10-GB network, select either <code>eth2</code> or <code>eth3</code>. Select the one that corresponds to the port that you used when you cabled the appliance to your network. The PCI card on the back of the appliance hosts two ports. The upper port corresponds to <code>eth2</code>; on the back of the appliance, this interface is labeled <code>NIC3</code>. The lower port corresponds to <code>eth3</code>; on the back of the appliance, this interface is labeled <code>NIC4</code>.

You can configure a secondary network for administrative use after you complete the initial configuration.

For information about how to configure the secondary administrative network, see the *Deduplication Appliance Software Administrator's Guide*.

Field Name	Content
IP Address	<p>Type the IP address that you want to assign to the interface in the Network Interface pull-down menu.</p> <p>After the initial configuration is complete, you cannot restart the Network Configuration Wizard to change an appliance's primary node IP address.</p>
Set as Node IP Address	<p>Check this box if you want the software to use the IP address in the IP Address field as the appliance's primary node IP address. When the box is checked, the software uses the IP address in the IP Address field to identify this appliance in reports, in the administrative interface, and so on. During the initial configuration, check this box.</p> <p>Clear this box if you want the software to use the IP address in the IP Address field as a secondary network on this appliance. For example, if you restarted the Network Configuration Wizard to specify an IP address for a secondary network after the storage pool was configured, clear this box</p>
Netmask	<p>Type the netmask for this interface.</p> <p>This value is the netmask that you obtained from your network administrator.</p>
Default Gateway	<p>(Optional) Type the default gateway for this interface.</p> <p>This value is the gateway that you obtained from your network administrator.</p>
Name Servers	<p>(Optional) Type the IP address of your site's primary and/or secondary Domain Name Server (DNS). If you have more than one DNS, use a comma to separate the names.</p>
Search Domains	<p>(Optional) Type the address of your site's search domain. If you have more than one search domain, use a comma to separate the names.</p>

If you restart the wizard after the initial configuration and select the primary network interface from the **Network Interface** pull-down menu, certain fields are grayed out. The grayed out fields are the **IP Address** field, the **Set as Node IP Address** box, and the **Netmask** field. You cannot use the Network Configuration Wizard to change an appliance's primary node IP address.

2 Proceed as follows:

- If you specified a DNS, proceed to the following:
 See [“Completing the Summary page”](#) on page 31.

- If you did not specify a DNS, click **Edit local hosts file**, and proceed to the following:
See “[\(Conditional\) Completing the Network Configuration - Edit local hosts file page](#)” on page 30.

(Conditional) Completing the Network Configuration - Edit local hosts file page

The following procedure explains how to use the **Network Configuration - Edit local hosts file** page to add, update, and delete entries from the appliance's `/etc/hosts` file.

To add, update, or delete host file information

1 Add, update, or delete host file information, as follows:

- To add a new entry in the hosts file, perform the following steps:
 - In the **Add/Replace** box, type the IP address, the fully qualified domain name, and any domain aliases for the appliance.
The **Host Names** field must contain the fully qualified domain name that is associated with the IP address. To specify multiple host names, type the host names in a comma-separated list.
 - Click the **Add/Replace** button to add the information to the **Host Names** list.
- To edit an existing entry in the hosts file, perform the following steps:
 - In the **Host List** box, click anywhere in the row that corresponds to the IP address you want to change.
This action places the entry in the **Add/Replace** box.
 - Make your changes and click the **Add/Replace** button.
- To delete an entry from the hosts file, perform the following steps:
 - In the **Host List** box, click the box in the left column that corresponds to the IP address you want to delete.
 - Click **Delete**.
To delete multiple entries, select all entries you want to delete and click **Delete**.

To delete all entries, click the box next to **IP Address** and click **Delete**.

- 2 Click **Save** to commit changes to the `/etc/hosts` file and return to the **Network Configuration** page.

After you click **Save**, the changes are committed to the `hosts` file.

If you need to complete an initial network configuration, continue with this procedure.

If you made changes to an existing storage pool, you can click **Cancel** at this time to exit the wizard. The changes you made have been written to the `hosts` file.

- 3 Use the appliance shell menu to verify the `/etc/hosts` file.

Perform the following steps:

- Connect to the appliance by using a Secure Shell (SSH) agent.
For example, you can use the PuTTY, which is available as a free download.

- Log into the appliance.
By default, the user name is `sysadmin`, and the password is `P@ssw0rd`.
In the preceding password, the sixth character is the numeral zero (0).

- Type `network` at the system prompt and press Enter.
For example:

```
> network
```

- Type `hosts show` at the system prompt and press Enter.
The output displays the `/etc/hosts` file information for this appliance.

- 4 Proceed to the following:

See [“Completing the Summary page”](#) on page 31.

Completing the Summary page

The following procedure explains how to complete the **Summary** page.

To complete the Summary page

- 1 After the network configuration is complete, click **Finish**.
- 2 Determine your next step.
 - Do you want to configure multiple appliances into a multinode storage pool? Do you have additional appliances that you want to use for this storage pool that are not yet connected to your network?
If you can answer **yes** to both questions, proceed as follows:

- Attach your configuration device (the laptop, or the keyboard, monitor, and mouse) to another unconfigured appliance.
- Start the Configuration Wizard on that appliance, and use the Network Configuration Wizard to connect that appliance to your network. See [“Starting the Network Configuration Wizard”](#) on page 27.
- Do you want to configure this appliance into a single-node, all-in-one storage pool?
If you can answer **yes** to this question, proceed as follows:
 - If you specified a DNS when you ran the Network Configuration Wizard, start the Storage Pool Configuration Wizard on this appliance. See [“Configuring the storage pool on a deduplication appliance”](#) on page 40.
 - If you did not specify a DNS when you ran the Network Configuration Wizard, use the command-line shell menu to configure the hosts file on this appliance. See [“\(Conditional\) Configuring the hosts file”](#) on page 36.
- Do you want to configure multiple appliances into a multinode storage pool? Is this appliance the last appliance that you need to connect to your network?
If you can answer **yes** to both questions, proceed as follows:
 - If you specified a DNS when you ran the Network Configuration Wizard, close your browser. Then start the Storage Pool Configuration Wizard on the appliance that you want to use as the storage pool authority node. See [“Configuring the storage pool on a deduplication appliance”](#) on page 40.
 - If you did not specify a DNS when you ran the Network Configuration Wizard, close your browser. Then use the command-line shell menu to configure hosts file on all the appliances in this storage pool. See [“\(Conditional\) Configuring the hosts file”](#) on page 36.
- Are you adding this appliance to an existing storage pool?
If you can answer **yes** to this question, proceed as follows:
 - If you specified a DNS when you ran the Network Configuration Wizard, close your browser window. Then start the Storage Pool Configuration Wizard on the storage pool authority node. You need to add this appliance to the storage pool's existing topology. For information about how to start the Storage Pool Configuration Wizard, see the following:

See [“Starting the Storage Pool Configuration Wizard on a deduplication appliance”](#) on page 41.

For information about how to add the new appliance to the storage pool, see one of the following:

See [“\(Conditional\) Configuring additional nodes”](#) on page 44.

See [“\(Conditional\) Configuring additional nodes \(after manually configuring the nodes on your corporate network\)”](#) on page 46.

- If you did not specify a DNS when you ran the Network Configuration Wizard, close your browser. Then use the command-line shell menu to configure a hosts file on this appliance.

See [“\(Conditional\) Configuring the hosts file”](#) on page 36.

Note: Make sure to configure all appliances on the network before you proceed to another task in this configuration process.

Using the command-line shell menu to configure the network or to configure the hosts file

If you attached a keyboard, monitor, and mouse to the appliance, you can use the command-line shell menu to configure the network. The following topics explain how to perform this configuration:

- See [“Configuring the network from the command-line shell menu”](#) on page 33.
- See [“\(Conditional\) Configuring the hosts file”](#) on page 36.

Configuring the network from the command-line shell menu

The following procedure explains how to configure the appliance on the corporate network from the appliance's command-line shell menu.

To configure the network from the appliance shell menu

- 1 Connect to the appliance by using a Secure Shell (SSH) agent.

For example, you can use the PuTTY, which is available as a free download.

- 2 Log into the appliance.

By default, the user name is `sysadmin`, and the password is `P@ssw0rd`.

In the preceding password, the sixth character is the numeral zero (0).

- 3 Type `nodeinfo` at the system prompt and press Enter.

Verify that the information that the `nodeinfo` returns. On a new, unconfigured appliance, the IP address is `169.254.1.1`.

- 4 Type `network` at the system prompt.

For example:

```
> network
```

- 5 Type the following `config addr` command to specify an IP address and other information for the appliance:

```
> config addr 169.254.1.1 ethnum ip_address netmask
```

Remember that `169.254.1.1` is the IP address of the appliance as it was configured during manufacturing. In this step, you assign the IP address you obtained from your network administrator to the appliance.

The parameters are as follows:

- For `num`, specify the number of the appliance port into which the cable that attaches the appliance to your corporate network is plugged. If the appliance is connected to a 1-GB network, `num` is 1. If the appliance is connected to a 10-GB network, `num` is either 2 (for the upper 10-GB port) or 3 (for the lower 10-GB port).
- For `ip_address`, specify the IP address that you want to assign to this appliance. This address is the IP address you obtained from your network administrator.
- For `netmask`, specify the netmask that you obtained from your network administrator.

For example, you can use the following `config addr` command to configure an appliance on a 10-GB network or on a 1-GB network. This command specified IP address `10.100.100.101` and netmask `255.255.50.50`:

```
> config addr 169.254.1.1 eth2 10.100.100.101 255.255.50.50
```

- 6 (Optional) Type the following `route add` command to specify the default gateway:

```
> route add 169.254.1.1 0.0.0.0 0.0.0.0 gateway
```

For `gateway`, specify the gateway address you received from your network administrator.

For example:

```
> route add 169.254.1.1 0.0.0.0 0.0.0.0 10.100.10.100
```

- 7 (Optional) Type the following `ping` command to verify that the appliance can communicate with the default gateway:

```
> ping gateway_IP
```

For *gateway_IP*, specify the IP address of the gateway that you specified in the following step:

Step 6

For example:

```
> ping 10.100.10.100
```

- 8 Type the following `ping` command to verify that the appliance can communicate with itself:

```
> ping appliance_IP
```

For *appliance_IP*, specify the IP address of the appliance.

- 9 Open a Web browser on a different computer and type the following URL:

```
http://address/Installer
```

For *address*, specify the IP address that you specified in the following step:

Step 5

- 10 (Conditional) Affirm the security exception for the installer.

Depending on your site's security policies, you might see a browser security certificate affirmation page when you start the installer.

- 11 On the logon page, in the **User Name** field, type `root`.

- 12 In the **Password** field, type `P@ssw0rd`.

In the preceding password, the sixth character is the numeral zero (0).

- 13 Click **Log on**.

- 14 On the welcome page, click **Start the network configuration wizard**.

- 15 Examine the **Network Configuration** page.

Perform the following tasks on this page:

- Check the **Set as Node IP Address** box. When the box is checked, the software uses the IP address in the **IP Address** field to identify this appliance in reports, in the administrative interface, and so on.
- If the appliance has access to a Domain Name Server (DNS), specify the DNS on this page.

- Verify the information that appears in each field. If you need to correct any of the fields, make your corrections at this time.

For specific information about the fields on this page, see the procedure in the following topic:

See [“Completing the Network Configuration - Specify Network Interfaces page”](#) on page 28.

16 Click **Next**.

17 Observe the network configuration progress on the **Progress** page.

18 When the network configuration is complete, click **Finish**.

19 Proceed to one of the following topics:

- If you have more than one appliance, attach your configuration device (the laptop, or the keyboard, monitor, and mouse) to another appliance and repeat this procedure. Make sure to configure all appliances on the network before you proceed to another task in this configuration process.
- If you specified a DNS when you ran the Network Configuration Wizard, proceed to the following:
See [“About configuring the storage pool on a deduplication appliance”](#) on page 39.
- If you did not specify a DNS when you ran the Network Configuration Wizard, proceed to the following:
See [“\(Conditional\) Configuring the hosts file”](#) on page 36.

(Conditional) Configuring the hosts file

Perform the procedure in this topic if the appliance is not connected to a Domain Name Server (DNS).

The appliance's shell menu system provides access to operating system utilities from within a menu system. The shell menu simplifies the administration of the appliance. This topic explains how to use the shell menu to create a list of computers with which the appliance needs to communicate. The information you need for the list includes each computer and the addressing information for that computer. For general information about the shell menu, see the *Deduplication Appliance Software Administrator's Guide*.

The following procedure explains how to establish a connection from the appliance to the other computers in the appliance's environment.

To configure the `hosts` file

- 1 Use a Secure Shell (SSH) agent to connect to the appliance.
For example, you can use the PuTTY, which is available as a free download.
If you have more than one appliance, connect to the appliance that you want to use as the storage pool authority node first.

- 2 Log into the appliance.
The default, user name is `sysadmin`, and the password is `P@ssw0rd`.
In the preceding password, the sixth character is the numeral zero (0).

- 3 Type `network` at the system prompt and press Enter.

For example:

```
> network
```

- 4 Type the following `hosts add` command to add the first computer with which the appliance needs to communicate:

```
> hosts add ip_address fqdn host_name
```

The parameters are as follows:

- For *ip_address*, specify the IP address of another computer.
- For *fqdn*, specify the fully qualified domain name of the other computer.
- For *host_name*, specify the short host name of the other computer.

For example, if a media server with IP address 10.182.2.230 exists at your site, add the following line to make sure that the appliance can communicate with that media server:

```
> hosts add 10.182.2.230 my_mediaserver.myco.com my_mediaserver
```

Tip: To see the current set of entries in the `hosts` file, type `hosts show` at the system prompt.

- 5 Type the following command to verify that the appliance can communicate with the newly added host:

```
> ping host_name
```

For *host_name*, specify the host name you added in the previous step. The `ping` is successful only if the other computer's host name has a valid IP address and a valid gateway.

For example:

```
> ping my_mediaserver
```

If communication is successful, the `ping` command's output is similar to the following:

```
PING my_mediaserver (10.182.2.230) 56(84) bytes of data.  
64 bytes from my_mediaserver (10.182.2.230): icmp_seq=1 ttl=63 time=0.308 ms  
64 bytes from my_mediaserver (10.182.2.230): icmp_seq=2 ttl=63 time=0.301 ms  
64 bytes from my_mediaserver (10.182.2.230): icmp_seq=3 ttl=63 time=0.290 ms  
64 bytes from my_mediaserver (10.182.2.230): icmp_seq=4 ttl=63 time=0.308 ms  
  
--- my_mediaserver ping statistics ---  
4 packets transmitted, 4 received, 0% packet loss, time 3001ms  
rtt min/avg/max/mdev = 0.290/0.301/0.308/0.022 ms
```

- 6 Repeat the following steps, as needed, to establish a connection between the appliance and all required computers:
 - Step 4
 - Step 5
- 7 (Conditional) Configure the `hosts` file on other appliances.

Perform this step if you have more than one appliance and you want to configure a multinode storage pool.

Log into another appliance and repeat this procedure on that appliance.
- 8 Proceed to the following:

See [“About configuring the storage pool on a deduplication appliance”](#) on page 39.

Configuring the storage pool on a deduplication appliance

This chapter includes the following topics:

- [About configuring the storage pool on a deduplication appliance](#)
- [Configuring the storage pool on a deduplication appliance](#)
- [Starting the Storage Pool Configuration Wizard on a deduplication appliance](#)
- [Completing the Topology Discovery page](#)
- [Completing the Network Reconfiguration page](#)
- [Completing the Licenses pages](#)
- [Completing the Storage Pool Details page](#)
- [Completing the Summary page](#)
- [Completing the Implementation Status page](#)

About configuring the storage pool on a deduplication appliance

After all the appliances are attached to your corporate network, you can start the Storage Pool Configuration Wizard and group the appliances into one or more storage pools

The following topics explain how to configure the storage pool:

- See [“Configuring the storage pool on a deduplication appliance”](#) on page 40.
- See [“Starting the Storage Pool Configuration Wizard on a deduplication appliance”](#) on page 41.
- See [“Completing the Topology Discovery page”](#) on page 43.
- See [“Completing the Network Reconfiguration page”](#) on page 47.
- See [“Completing the Licenses pages”](#) on page 47.
- See [“Completing the Storage Pool Details page”](#) on page 49.
- See [“Completing the Summary page”](#) on page 51.
- See [“Completing the Implementation Status page”](#) on page 52.

Configuring the storage pool on a deduplication appliance

The following procedure explains how to configure the storage pool:

To configure the storage pool on a deduplication appliance

- 1 Start the Storage Pool Configuration Wizard.
See [“Starting the Storage Pool Configuration Wizard on a deduplication appliance”](#) on page 41.
- 2 Complete the **Topology Discovery** page.
See [“Completing the Topology Discovery page”](#) on page 43.
- 3 Complete the **Network Reconfiguration** page.
See [“Completing the Network Reconfiguration page”](#) on page 47.
- 4 Complete the **PureDisk Licenses** page.
See [“Completing the Licenses pages”](#) on page 47.
- 5 Complete the **Storage Pool Details** page.
See [“Completing the Storage Pool Details page”](#) on page 49.
- 6 Complete the **Summary** page.
See [“Completing the Summary page”](#) on page 51.
- 7 Complete the **Implementation Status** page.
See [“Completing the Implementation Status page”](#) on page 52.

Starting the Storage Pool Configuration Wizard on a deduplication appliance

After you specify the network information for all the appliances you want to configure, you can run the Storage Pool Configuration Wizard to configure the appliances into storage pool nodes. If you want to add an appliance to the storage pool at a later date, you can run the Storage Pool Configuration Wizard to add the new appliance to the storage pool's topology.

Note: Make sure that each appliance is attached to your corporate network before you start the Storage Pool Configuration Wizard. For more information about the Network Configuration Wizard, see the following:

See [“About racking the deduplication appliance and connecting the appliance to your network”](#) on page 21.

The following procedure explains how to start the Storage Pool Configuration Wizard.

To start the Storage Pool Configuration Wizard

- 1 Open a Web browser and type the following URL:

```
http://address/Installer
```

For *address*, type the IP address of the appliance that you want to configure as the storage pool authority node.

- 2 (Conditional) Affirm the security exception for the installer.

Depending on your site's security policies, you might see a browser security certificate affirmation page when you start the installer.

- 3 On the logon page, in the **User Name** field, type `root`.

- 4 In the **Password** field, type `P@ssw0rd`.

In the preceding password, the sixth character is the numeral zero (0).

- 5 Click **Log on**.

- 6 On the Configuration Wizard welcome page, click **Start the storage pool configuration wizard**.

You can perform other tasks from the landing page after your configuration is complete. For more information about these tasks, see the *Deduplication Appliance Software Administrator's Guide*.

The following topic provides general Storage Pool Configuration Wizard information:

- See “[Guidelines for creating passwords](#)” on page 42.
 - See “[Cancel button effects](#)” on page 42.
- 7 On the End-user License Agreement page, review the agreement and agree to continue with the configuration.
 - 8 Proceed to the following:
 - See “[Completing the Topology Discovery page](#)” on page 43.

Guidelines for creating passwords

Symantec recommends that the root user's password be a mix of the following four classes of characters:

- Uppercase letters
- Lowercase letters
- Digits
- Special characters

Passwords must be at least seven characters long. For a seven-character password to be valid, it must contain characters from all four classes. For an eight-character password to be valid, it can contain characters from only three of the four classes.

If the password begins with an uppercase letter or ends with a digit, that initial uppercase letter or final digit does not count toward the total number of classes used

The deduplication appliance has several accounts and passwords. The configuration procedure explains how to set them. For more information about these passwords, see the *Deduplication Appliance Software Administrator's Guide*.

Caution: Do not include international characters in the root user's password. If you create a password with international characters, you cannot log in again.

Cancel button effects

If you click the **Cancel** button in the lower right corner of a Storage Pool Configuration Wizard page, the wizard exits. The wizard records the configuration specifications as you typed them and before you clicked **Cancel**. If you want to change your specifications later, restart the wizard, and respecify your selections.

Some Storage Pool Configuration Wizard pages have a **Cancel** button in the middle of the page. If you click that middle **Cancel** button, the wizard cancels the activity for that page only.

Completing the Topology Discovery page

The **Topology Discovery** page helps you to configure the storage pool authority node and (optionally) other nodes for your storage pool.

If you configure only one deduplication appliance, then the storage pool authority service and all other services reside on that node. That single node is referred to as the *storage pool authority node*. There can be only one storage pool authority service that is configured in a storage pool. If you do not configure other nodes, this single-node storage pool is referred to as an *all-in-one* storage pool.

If you have more than one deduplication appliance, you can configure a storage pool authority node and additional nodes. A storage pool with two or more nodes is referred to as a *multinode* storage pool. The first node you configure hosts the storage pool authority service. The node is referred to as the storage pool authority node. The additional nodes host additional copies of the content router service, metabase engine service, metabase server service, and NetBackup export engine service.

The procedures that follow explain how to configure the storage pool authority node and additional nodes. The additional nodes are optional. By adding additional nodes, you expand the storage pool's capacity.

Proceed as follows:

- (Required) Perform the following procedure to configure the storage pool authority node:
See [“Configuring the storage pool authority node”](#) on page 43.
- (Conditional) Perform the following procedure to configure additional nodes:
See [“\(Conditional\) Configuring additional nodes”](#) on page 44.

Configuring the storage pool authority node

Every storage pool requires that you configure one storage pool authority node. Complete this procedure for both all-in-one storage pools and for multinode storage pools.

The following procedure explains how to configure the storage pool authority node.

To configure the storage pool authority node

1 Examine the **Topology Discovery** page.

Observe that this page has two panes: **Discovered Nodes** and **Nodes in Storage Pool**.

Make sure that the node you want to configure as the storage pool authority node appears in the lower **Nodes in Storage Pool** pane. This node is the node you want to configure as the storage pool authority node. The **Status** field displays **SPA Pending Installation** for this node.

At this time, you can disregard the information in the upper **Discovered Nodes** pane.

2 In the **Nodes in Storage Pool** pane, type the fully qualified domain name (FQDN) you obtained from your network administrator for this node into the **New Full Name (FQDN)** field.

3 Proceed as follows:

- If this node is the only node you want to configure, click **Next** and proceed to the following:
See [“Completing the Network Reconfiguration page”](#) on page 47.
- If you want to add more nodes to this storage pool, proceed to the following:
See [“\(Conditional\) Configuring additional nodes”](#) on page 44.

(Conditional) Configuring additional nodes

Perform this procedure if you want to configure a multinode storage pool during initial installation. Also complete this procedure if you want to add additional nodes to an existing storage pool. The procedure in this topic assumes that you physically connected the additional nodes to your corporate network and that the Storage Pool Configuration Wizard automatically detected the additional nodes on your corporate network

Note: For versions 1.4.1.1 and earlier of the Deduplication Appliance Software, within a multinode storage pool, only the storage pool authority node has a `sysadmin` account. When you add an additional node to a storage pool, the software removes the `sysadmin` account from the newly added node.

The following procedure explains how to configure additional, non-storage pool authority nodes.

To configure additional nodes

1 Examine the **Topology Discovery** page.

Verify that the **Nodes in Storage Pool** pane in the bottom half of the page contains a line for the appliance that you specified as the storage pool authority node

Determine whether the **Discovered Nodes** pane in the top half of the page lists all the non-storage pool authority nodes that you want to include in the storage pool. The Storage Pool Configuration Wizard can detect deduplication appliances on your network. In some cases, you need to configure the nodes that the wizard cannot detect automatically.

Proceed as follows:

- If all the nodes that you want to configure are listed, complete this procedure to configure those nodes at this time. Proceed to the following:
[Step 2](#)
- If one or more of the nodes that you want to configure are not listed, you need to physically connect the node to your corporate network. Then configure the network for this node manually. The appliance software cannot automatically detect this node on the network. At this time, close the Storage Pool Configuration Wizard, and proceed to the following:
See [“About racking the deduplication appliance and connecting the appliance to your network”](#) on page 21.
After you configure the network information for the unlisted node, proceed to the following:
See [“\(Conditional\) Configuring additional nodes \(after manually configuring the nodes on your corporate network\)”](#) on page 46.

2 In the **Discovered Nodes** pane, select all of the nodes you want to include in this storage pool.

To select a node, click in the box to the left of the node's serial number.

Select only the nodes you want to include in this storage pool. If there are additional nodes listed in the **Discovered Nodes** pane, you can configure the other nodes into other storage pools at another time.

3 Click **Add Node to Storage Pool**.

Observe that the node information for each node you selected moves to the **Nodes in Storage Pool** pane.

- 4 In the **Nodes in Storage Pool** pane, complete the **New Full Name (FQDN)** field for each node.

Type the fully qualified domain name that you obtained from your network administrator.

- 5 (Conditional) Check **Activate added CR node automatically**.

Note: Do not check this box during an initial storage pool configuration.

Symantec does not recommend that you select the **Activate added CR node automatically** option. If there is a large amount of data in the existing storage pool, the rerouting process can take a long time and affect the user backups. Symantec recommends that you select a time when there is no job running to activate the added content router node manually.

- 6 Click **Next**.
- 7 Proceed to the following:

See “[Completing the Network Reconfiguration page](#)” on page 47.

(Conditional) Configuring additional nodes (after manually configuring the nodes on your corporate network)

The following procedure explains how to add a node to the storage pool after physically connecting the node to your corporate network and manually configuring the node on your corporate network

To continue the configuration

- 1 Return to the Storage Pool Configuration Wizard session in your browser.

If you logged out of the wizard, restart the wizard, and click **Next** until you arrive at the **Topology Discovery** page.

For information about how to start the Storage Pool Configuration Wizard, see the following:

See “[Starting the Storage Pool Configuration Wizard on a deduplication appliance](#)” on page 41.

- 2 In the **Nodes in Storage Pool** pane, click **Add Node Manually**.
The **Add New Node** subpage appears.
- 3 In the **New Full Name (FQDN)** field, type the FQDN of the deduplication appliance that you obtained from your network administrator.

- 4 In the **New Node's Root Password** field, type the administrator's root password for this deduplication appliance.

By default, the password is P@ssw0rd. If you changed the password, specify the new password you created. In the default password, the sixth character is the numeral zero (0).
- 5 Click **OK**.

The **Topology Discovery** page appears.

Note that the node you configured appears in the **Nodes in Storage Pool** pane.
- 6 In the **Nodes in Storage Pool** pane, complete the **New Full Name (FQDN)** field for this node.

Type the fully qualified domain name that you obtained from your network administrator.
- 7 Proceed as follows:
 - If this node is the last node that you want to add to this storage pool, click **Next** and proceed to the following:
See [“Completing the Network Reconfiguration page”](#) on page 47.
 - If you have more nodes to add to this storage pool, return to the following step in this procedure:
[Step 2](#)

Completing the Network Reconfiguration page

The following procedure explains how to complete the **Network Reconfiguration** page.

To complete the **Network Reconfiguration** page

- 1 Wait for the node configuration to complete.
- 2 Click **Next**.
- 3 Proceed to the following:
See [“Completing the Licenses pages”](#) on page 47.

Completing the Licenses pages

The **Licenses** page lets you add and remove licenses. When you configure a storage pool for the first time, make sure to add all the license keys you obtained from Symantec Corporation.

The following procedures explain how to complete the licensing pages:

- See [“Completing the License Key Management page”](#) on page 48.
- See [“Completing the Add Additional License Key subpage”](#) on page 48.

Completing the License Key Management page

The following procedure explains how to complete the **License Key Management** page.

To verify license keys

- ◆ Examine the **License Keys** table.
 - If the **License Keys** table shows all the license keys that pertain to this storage pool, then you do not need to add or remove any licenses at this time
Click **Next**.
Proceed to the following:
See [“Completing the Storage Pool Details page”](#) on page 49.
 - If the page displays 'No license keys installed', or if you want to install more license keys, click **Add License**.
Proceed to the following:
See [“Completing the Add Additional License Key subpage”](#) on page 48.
 - If you need to remove one of the license keys, click the button to the left of the license key that you want to remove and click **Remove License**.

Completing the Add Additional License Key subpage

The following procedure explains how to complete the **Add Additional License Keys** subpage.

To complete the Add Additional License Keys subpage

- 1 Enter one of the license keys you received from Symantec Corporation into the **License Key** field.

You can use your mouse to copy and paste this license key from the license file that you received from Symantec Corporation. Alternatively, type the license key exactly as you received it.

- 2 Click **Ok**.

After you click **Ok**, the wizard presents the **License Key Management** page.

For information about how to complete the **License Key Management** page, see the following:

See “[Completing the License Key Management page](#)” on page 48.

Completing the Storage Pool Details page

The following procedure explains how to complete the **Storage Pool Details** page.

To complete the Storage Pool Details page

- 1 In the **ID** field, accept the ID number that the wizard presents to you.

Each storage pool in your environment must have a unique ID number.

Note: Record the storage pool ID number in a safe place.

Failure to record and then correctly reuse this number can result in an inoperable storage pool after a storage pool authority replication (SPAR) restore or another disaster recovery operation.

- 2 (Optional) In the **Name** field, type a name for this storage pool.

Every storage pool must have a name. Perform this step if you want to specify a unique name for this storage pool. By default, the name is `Deduplication Appliance`.

This name appears in the administrative Web UI. You can include special characters in the **Name** field.

- 3 (Optional) In the **Description** field, type a description for this storage pool.

- 4 In the **Location** field, accept the description of `Default location` for this storage pool or type a new location.

If you do not type a new location name, the default location appears as **Unknown location** in the administrative Web UI.

After installation, you can use the administrative Web UI to add additional locations.

- 5 In the **Department** field, accept the description of `Default department` for this storage pool or type a new department name.

If you do not type a new department name, the default department appears as **Unknown department** in the administrative Web UI.

After installation, you can use the administrative Web UI to add additional departments.

- 6 (Optional) Check the **This is the Central Storage Pool Authority (SPA)** box.

Check the **Central Storage Pool Authority (SPA)** box if you want to designate this storage pool as a central storage pool. Symantec recommends that you configure only one central storage pool in your enterprise network.

A central storage pool is one that performs all the functions of an independent storage pool but also has central reporting capabilities. A central storage pool authority can generate licensing and capacity reports for all storage pools that report in to the central storage pool. After you complete the configuration, you can launch the administrative Web UI and specify the storage pools that report to the central storage pool.

You can enable central reporting now, or you can use the administrative Web UI to enable central reporting at a later time.

For more information about central reporting, see the following:

The PureDisk Administrator's Guide

- 7 In the **SPA Password** field, type the password you want users to type when they log into the administrative Web UI.

During manufacturing, this password is set to `P@ssw0rd`. Symantec recommends that you change this password at this time.

In the preceding password, the sixth character is the numeral zero (0).

- 8 In the **Confirm Password** field, retype the password you typed in the following step:

Step 7

- 9 (Recommended) In the **External NTP Server** field, type the FQDN of your site's Network Time Protocol (NTP) server.

Symantec recommends the use of an NTP server in production environments. If no NTP server is available, use the appliance shell menu to set the system date after the storage pool is configured. For more information about how to set the date manually, see the following:
See [“About completing the deduplication appliance deployment”](#) on page 53.
- 10 In the **Time Zone** field, pull down the menu and select the time zone in which this storage pool resides.

You can select only one time zone for a storage pool. You cannot configure multiple time zones in a single storage pool.
- 11 In the **SMTP Server** field, type the FQDN of your site's simple mail transfer protocol (SMTP) server.

The appliance uses this SMTP server to send event escalations by email. By default, the **SMTP Server** field is set to `127.0.0.1`, which is `localhost`.
- 12 In the **Email ID(s)** field, specify one or more email addresses to which the appliance can send hardware alerts.

When necessary, the deduplication appliance sends a hardware alert to the email addresses you specify in this field. If you want to specify more than one email address, use a semicolon (;) character to separate the email addresses.
- 13 Click **Next**.

Proceed to the following:
See [“Completing the Summary page”](#) on page 51.

Completing the Summary page

The following procedure explains how to complete the **Summary** page.

To complete the Summary page

- 1 Visually inspect the **Summary** page.
- 2 Proceed as follows:
 - If the **Summary** page appears correct, click **Next** and proceed to the following:
See [“Completing the Implementation Status page”](#) on page 52.

- If the **Summary** page appears incorrect, click **Back** and correct the configuration.

Completing the Implementation Status page

The following procedure explains how to complete the **Implementation Status** page.

To complete the Implementation Status page

- 1 After the configuration completes, click **Finish**.
- 2 Proceed to the following:
See “[About completing the deduplication appliance deployment](#)” on page 53.

Completing the deduplication appliance deployment

This chapter includes the following topics:

- [About completing the deduplication appliance deployment](#)
- [Completing the deduplication appliance deployment](#)
- [Deploying the deduplication appliance in your backup environment](#)
- [Firewall and networking requirements for deduplication appliances](#)
- [Deduplication appliance documentation overview](#)

About completing the deduplication appliance deployment

The following topics explain how to complete a deployment and where to look for more information:

- See [“Completing the deduplication appliance deployment”](#) on page 54.
- See [“Deploying the deduplication appliance in your backup environment”](#) on page 56.
- See [“Firewall and networking requirements for deduplication appliances”](#) on page 57.
- See [“Deduplication appliance documentation overview”](#) on page 59.

Completing the deduplication appliance deployment

The following procedure explains how to complete the deduplication appliance's deployment.

To complete the deployment

1 (Conditional) Set the storage pool time.

Perform this step if you did not specify an external NTP server on the Storage Pool Configuration Wizard's **Storage Pool Details** page.

Use the appliance shell menu, and perform the following steps:

- At the operating system prompt, type the following to start the appliance shell menu:

```
# ssh -l sysadmin address
```

For *address*, type the FQDN of the storage pool authority node.

- Enter the `sysadmin` password when prompted. By default, the `sysadmin` password is `P@ssw0rd`. In the password, the sixth character is the numeral zero (0).
- Within the appliance shell menu, select `support`.
- Type the following to set the date and clock:

```
clock settime hours:minutes:seconds day month year
```

For *hours*, *minutes*, and *seconds*, specify the integers that correspond to the units of the current time.

For *day*, specify the day of the month.

For *month*, specify January, February, March, April, May, June, July, August, September, October, November, **OR** December.

For more information about the appliance shell menu, see the *Deduplication Appliance Software Administrator's Guide*.

2 Change the Configuration Wizard password.

The appliance is configured with a Configuration Wizard password of `P@ssw0rd`. Complete the following steps to change this password:

- Type the following to start the Configuration Wizard :

```
http://address/Installer
```

For *address*, type the FQDN or the IP address of the storage pool node.

- On the login page, complete the **User Name** field, complete the **Password** field, and click **Log on**.
- On the welcome page, click **Change configuration wizard password**
- Complete the fields on the page that appears.

3 Change each node's root password.

Each node is preconfigured with `P@ssw0rd` as the operating system root user's password. In the password, the sixth character is the numeral zero (0).

Change this password now, as follows:

- Log into the node's operating system as `root`.
- Use the `passwd(1)` command to change the root password.

4 Check your firewall software and the appliance ports.

The following topic describes the ports that need to be opened on the appliances:

See [“Firewall and networking requirements for deduplication appliances”](#) on page 57.

5 Configure the intelligent platform management interface (IPMI).

The IPMI enables you to manage and monitor the deduplication appliance remotely. When you manage the appliance through the IPMI, the appliance must be connected to a power source, but it does not need to be turned on . If you want the ability to monitor the appliance through an ISM console in an emergency, make sure that you enable this capability shortly after you configure the appliance

For information about how to enable the IPMI, see the *Deduplication Appliance Software Administrator's Guide*.

6 (Conditional) Specify Fibre Channel communication.

Perform this step if the appliance is configured with a Fibre Channel card.

When the appliance is equipped with a Fibre Channel card, and the card is installed properly on a working storage pool, then the appliance can use the Fibre Channel communication for data transfers. If Fibre Channel communication fails, the appliance uses the Ethernet connection. Perform the following steps:

- Use your switch manufacturer's documentation to configure the Fibre Channel zones.

- Enable Fibre Channel communication. You can enable this communication through either the administrative Web UI or by using the command-line shell.

For information about how to enable Fibre Channel data transfers, see the *Deduplication Appliance Software Administrator's Guide*.

7 (Optional) Enable optional features.

The deduplication appliance supports several optional features, such as SNMP traps for hardware monitoring, virtual local area networks (VLANs), Symantec Critical System Protection (SCSP), and others.

For information about these features, see the *Deduplication Appliance Software Administrator's Guide*.

8 Proceed to the following:

See [“Deploying the deduplication appliance in your backup environment”](#) on page 56.

Deploying the deduplication appliance in your backup environment

After the appliance is configured, you can begin to deploy the appliance in your backup environment. The following procedure gets you started and points you to where to go for more information.

To deploy the deduplication appliance in your backup environment

1 Start the administrative Web UI and familiarize yourself with the interface.

The administrative Web UI is a browser-based interface that enables you to configure backups, perform restores, and administer a storage pool. To start the administrative Web UI, type the following command into a browser:

```
https://address
```

For *address*, type the storage pool authority node's FQDN or IP address. If you enabled virtual local area networks (VLANs), specify the VLAN address.

If you start the administrative Web UI in a Firefox 3.0 browser, the presence of an old security certificate on your system might cause the browser to generate a message similar to the following

```
An error occurred during a connection to storage.pool.com.
```

```
You have received an invalid certificate. Please contact the server administrator or email correspondent ...
```


To work around this problem, use Internet Explorer or remove the old security certificate. To remove the old security certificate, complete the following steps:

- From the Firefox main menu, select **Tools > Options > Advanced > Encryption > View Certificates > Servers**.
- In the **Certificate Manager** window, remove the certificate for that server.
- Start a new Firefox browser, and open the link.

If the previous procedure does not resolve the problem, and Firefox generates the same message, press Ctrl+F5 and accept the certificate.

- 2 Use the instructions in the following manuals to configure clients:

See the *PureDisk Deduplication Option Guide* to configure PDDO and to install a PureDisk PDDO plugin on a NetBackup media server.

See the *PureDisk Client Installation Guide* to install backup and restore agent software on clients.

- 3 Use the instructions in the following manual to plan and configure backups:

See the *PureDisk Backup Operator's Guide*.

Firewall and networking requirements for deduplication appliances

[Table 5-1](#) explains the ports that need to be open within a storage pool and to other types of computers in your backup environment. If any firewalls exist between individual appliances or between a storage pool and other deduplication hosts, open the ports indicated.

Table 5-1 Appliance ports

Source	Destination	Port	Protocol	Purpose and notes
All appliance services	Storage pool authority appliance	21	TCP	Facilitates operating system upgrades on the appliance.
Storage pool authority	All appliance services	22 (SSH)	TCP	Facilitates Deduplication Appliance Software upgrades
Administrator's host system	Storage pool authority appliance	22 (SSH)	TCP	Performs inquiries
All appliance services	Storage pool authority appliance	123	TCP and UDP	Synchronize time using NTPD service

Table 5-1 Appliance ports (*continued*)

Source	Destination	Port	Protocol	Purpose and notes
Administrator's host system and all storage pool nodes	Samba shared file system on the storage pool authority node	137	UDP	Facilitates Samba (SMB) protocol
Administrator's host system and all storage pool nodes	Samba shared file system on the storage pool authority node	138	UDP	Facilitates Samba (SMB) protocol
Administrator's host system and all storage pool nodes	Samba shared file system on the storage pool authority node	139	TCP	Facilitates Samba (SMB) protocol
All appliance services	Storage pool authority	443 (HTTPS)	TCP	Monitors the communication among all other services
Administrator's host system	Storage pool authority	443 (HTTPS)	TCP	Connects to storage pool authority and then to the storage pool's administrative Web UI
Administrator's host system	Storage pool authority	445	TCP	Facilitates Samba (SMB) protocol
Storage pool authority	Security broker	2821	TCP	Authenticates between each appliance. Authenticates from the storage pool authority to the security broker.
Administrator's host system and all storage pool nodes	Network file system on the storage pool authority node	4001	TCP and UDP	Network file system (NFS)
Administrator's host system and all storage pool nodes	Network file system on the storage pool authority node	4002	TCP and UDP	Network file system (NFS)
Administrator's host system	Storage pool authority node	8443	TCP	Use for Configuration Wizard.
All appliances in the storage pool	Content router	10082	TCP	Exchanges data
Metabase server	Metabase engine	10085	TCP	Processes data selection queries. Open only on metabase engine nodes.

Table 5-1 Appliance ports (*continued*)

Source	Destination	Port	Protocol	Purpose and notes
Hosts that deduplicate data	NetBackup deduplication manager	10102	TCP	Deduplicates data
Storage pool authority appliances	Content router appliances	11111	UDP	Enables the storage pool authority appliance to detect added appliances.
Deduplication storage pool	NetBackup media server and NetBackup master server	13724	TCP and UDP	Facilitates the communication with NetBackup.
Deduplication storage pool	NetBackup	13782	TCP and UDP	Facilitates the communication with NetBackup.

For more information about port use in the NetBackup product family, see the following:

- *NetBackup 6.x and 7.x firewall port requirements* at <http://www.symantec.com/docs/TECH136090>.
- *PureDisk Getting Started Guide* at <http://www.symantec.com/docs/DOC5794>.
- *About deduplication port usage* at <http://www.symantec.com/docs/HOWTO70523>.

Deduplication appliance documentation overview

The Deduplication appliance's documentation consists of the following manuals:

- *The Symantec NetBackup Deduplication Appliance Software Getting Started Guide*
- *The Symantec NetBackup Deduplication Appliance Software Administrator's Guide*

The PureDisk 6.6.4 software resides on the deduplication appliance. You can obtain PureDisk 6.6.4 documentation in PDF format from the following website :

<http://www.symantec.com/docs/DOC5794>

For an overview of the PureDisk software documentation that includes a summary of each manual's contents, see the *Symantec NetBackup Deduplication Appliance Software Administrator's Guide*.

The deduplication appliance interoperates with the NetBackup Appliance and with the NetBackup software product. The NetBackup Appliance and the NetBackup software product documentation consist of several user guides and administrator guides.

All NetBackup, PureDisk, and appliance documentation is available in PDF format from the following Symantec website :

<http://www.symantec.com/business/support>

Adding additional appliance nodes to the storage pool

This appendix includes the following topics:

- [About adding additional appliance nodes to the storage pool](#)
- [Adding additional nodes to an existing storage pool](#)

About adding additional appliance nodes to the storage pool

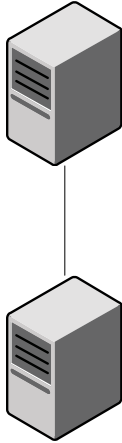
As your storage pool grows, you might need to add capacity. If you add an additional appliance, you add the following additional services:

- A content router
- A metabase engine
- A metabase server
- A NetBackup export engine

For example, the following figure shows storage pool `orange`, which is a two-node storage pool:

Figure A-1 Storage pool orange with two appliances

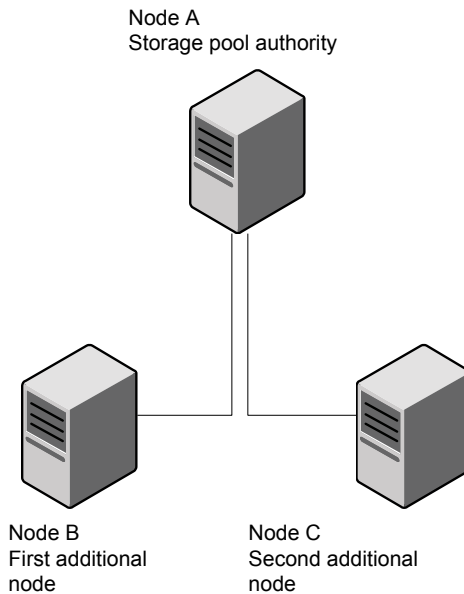
Node A
Storage pool authority



Node B
Additional node

You can increase the capacity of this storage pool when you add an additional appliance, which makes storage pool *orange* a three-node storage pool. The original storage pool authority node manages the existing second node and the additional third node. The three-node storage pool is as follows:

Figure A-2 Storage pool orange with three appliances



Note: For versions 1.4.1.1 and earlier of the Deduplication Appliance Software, within a multinode storage pool, only the storage pool authority node has a `sysadmin` account. When you add an additional node to a storage pool, the software removes the `sysadmin` account from the newly added node.

The following topic explains how to add additional nodes to an existing storage pool:

See [“Adding additional nodes to an existing storage pool”](#) on page 63.

Adding additional nodes to an existing storage pool

The following procedure explains how to add a new node to a storage pool.

To add an appliance to the storage pool

- 1 Verify that the new node you want to add to the storage pool has the same Deduplication Appliance Software version level as the rest of the nodes in the storage pool.

In the shell menu, you can use the `support > applianceversion` command or the `PureDisk > show` command to retrieve the software version of an appliance. For information about the shell menu, see the *Deduplication Appliance Software Administrator's Guide*.

If you need to upgrade the software on an individual node, see the release notes for the upgrade software level. The release notes for the Deduplication Appliance Software releases are at the following website :

<http://www.symantec.com/business/support/index?page=landing&key=58991>

Note: If you want to add additional nodes to a storage pool, make sure that they are all running the same Deduplication Appliance Software release level.

- 2 Determine if the environment has one or more VLANs configured.

From the configuration wizard:

- Click the **Configure VLAN Topology** link.
- Click **Cancel** on the **Message from webpage** popup on the **VLAN Configuration** page. This choice advances you to the **VLAN Configuration - Node List** page.
- Review the information in the **Subnet Mapping Status** field. If the VLAN Topology feature is enabled, **Configured** appears in the field. If the VLAN Topology feature is not enabled, **Unconfigured** appears in the field.

From the administrative shell menu:

- Enter the `vzone` mode.
- Run the `config show` command. If no records are displayed, the VLAN Topology feature is not in use.

- 3 Install the new appliance and begin the configuration process.

Plan, rack, and cable the appliance, and then connect the appliance to your corporate network. The following topics explain how to complete these steps:

- See “[About planning the deduplication appliance configuration](#)” on page 15.

- See [“Racking the deduplication appliance and connecting the deduplication appliance to your network”](#) on page 22.
 - See [“\(Conditional\) Configuring the laptop computer to communicate with the deduplication appliance”](#) on page 25.
 - See [“Configuring the network”](#) on page 26.
- 4 Close your browser window.
 - 5 (Conditional) Configure the hosts file for this appliance.
 Perform this step if you did not specify DNS information for this appliance in the Network Configuration Wizard.
 See [“\(Conditional\) Configuring the hosts file”](#) on page 36.
 - 6 In a new browser window, type the following URL to start the Storage Pool Configuration Wizard on the storage pool authority node:

```
http://address/Installer
```

 For *address*, specify the storage pool authority's node IP address or fully qualified domain name (FQDN).
 - 7 (Conditional) Affirm the security exception for the installer.
 Depending on your site's security policies, you might see a browser security certificate affirmation page when you start the installer.
 - 8 On the logon page, in the **User Name** field, type `root`.
 - 9 In the **Password** field, type the password.
 By default, the password is `P@ssw0rd`.
 In the preceding password, the sixth character is the numeral zero (0).
 - 10 Click **Log on**.
 - 11 On the welcome page, click **Start the storage pool configuration wizard**.
 - 12 On the **Topology Discovery** page, in the **Discovered Nodes** pane, select the new node.
 The next several steps describe how to complete the **Topology Discovery** page if you want to add a node. For more information about the **Topology Discovery** page, see the following:
 See [“Completing the Topology Discovery page”](#) on page 43.
 - 13 On the **Topology Discovery** page, click **Add Node to Storage Pool** pane, select the new node.

14 On the **Topology Discovery** page, specify the node in one of the following ways:

- If you did not change the new node's root password, complete the **New Full Name (FQDN)** field in the **Node in Storage Pool** pane.
- If you changed the new node's root password, click **Add Node Manually**. On the **Add New Node** subpane, complete the **New Full Name (FQDN)** field, complete the **New Node's Root Password** field, and click **OK**. These actions add the node to the **Nodes in Storage Pool** pane of the **Topology Discovery** page.

15 (Conditional) Check **Activate added CR node automatically**.

Use the following information to determine whether you can check **Activate added CR node automatically**:

- Check the box if the following are all true:
 - You want to enable the content router capability in the new appliance.
 - The new appliance has a storage capacity that is identical to all the other appliances in the storage pool.
For example, if you added a NetBackup 5020 appliance to a storage pool that currently includes only other NetBackup 5020 appliances, then all the appliances have identical storage capacities.
 - The VLAN Topology feature is enabled in this storage pool *and* the new node is configured for this storage pool's VLANs.
When you check the box, the appliance software activates the new content router on the new appliance automatically. This action also starts a job to reroute the content routers. A rerouting job redistributes stored data evenly across all the content routers in the storage pool.
- Do not check the box if one of the following is true:
 - The VLAN Topology feature is enabled in the storage pool but the new node is not configured for this storage pool's VLANs.
 - You do not want to enable the content router in the new appliance.
 - You want to enable the content router in the new appliance, but the new appliance has a storage capacity that is different from the storage capacity of the existing appliances
For example, if you added a NetBackup 5020 appliance to a storage pool that currently includes only NetBackup 5000 appliances (which have a smaller storage capacity), then the new appliance's storage capacity is different from the other appliances in the storage pool.

Later steps in this procedure explain how to activate the content router and reroute the storage pool data manually.

16 Click **Next** on the **Topology Discovery** page.

17 Click **Next** through the rest of the wizard pages.

On the **Implementation** page, click **Finish**.

For more information about how to configure a node in a storage pool, see the following:

See [“About configuring the storage pool on a deduplication appliance”](#) on page 39.

18 Change the new node's root password.

Each node is preconfigured with `P@ssw0rd` as the operating system root user's password. In the password, the sixth character is the numeral zero (0).

Change this password now, as follows:

- Log into the appliance operating system as `root`.
- Use the `passwd(1)` command to change the root password.

You are finished with this procedure if you want to use the content router service on the new node and you clicked **Activate added CR node automatically** in the Configuration Wizard. In this case, the appliance automatically activates the content router and starts a rerouting job.

Proceed to the next step if you need to activate a NetBackup Export Engine or if you need to activate the content router manually.

19 (Conditional) Configure the VLAN for this node.

Perform this step if VLANs are enabled in this storage pool.

The *Deduplication Appliance Software Administrator's Guide* explains how to configure a VLAN. Make sure to configure the node interfaces and recreate the VLAN mapping table.

20 (Conditional) Activate the new services on the new appliance node.

Perform this step as needed. The new node you added includes a content router, a metabase engine, a metabase server, and a NetBackup Export Engine. If you want to activate any of the new services, complete the following steps:

- Type the following URL into a new browser window, and log into the administrative Web UI as `root`:

```
https://address
```

For *address*, type the storage pool authority node's FQDN or IP address.

- Click **Settings > Topology**
 - In the left pane, click the node you just added.
 - In the left pane, click **Content Router** or click **NBU Export Engine**.
 - In the right pane, click one of the following:
 - **Activate Content Router**
 - **Activate NetBackup Export Engine**
- 21** (Conditional) From within the administrative Web UI, reroute the content routers in this storage pool.

Perform this step if you want to use the content router service on the new node and the appliances have unequal storage capacities.

The rerouting process ensures that all backup data is evenly distributed across the content routers in the storage pool.

For information about how to reroute a storage pool's content routers, see the following manual:

PureDisk Administrator's Guide

Technical specifications

This appendix includes the following topics:

- [About deduplication appliance technical specifications](#)
- [Technical specifications for the 5000 and the 5020 deduplication appliance](#)
- [Safety and EMC standards compliance for the 5000 and the 5020 deduplication appliance](#)
- [Industry standards compliance for the 5000 and the 5020 deduplication appliance](#)
- [Certifications for the 5000 and the 5020 deduplication appliance](#)
- [FCC information for the 5000 and the 5020 deduplication appliance user](#)

About deduplication appliance technical specifications

The information in this section applies to the NetBackup Deduplication Appliance 5000 and 5020.

Technical specifications for the 5000 and the 5020 deduplication appliance

The following information describes the appliance specifications.

Table B-1 Technical specifications for the appliance

Specification	Description
Power requirements	<ul style="list-style-type: none"> ■ Input voltage range 100 V to 127 V, 200 V to 240 V ■ Input voltage frequency range 47 Hz to 63 Hz ■ Power consumption 550 W. Power supplies rated to 700 W maximum.
Dimensions and weight	<ul style="list-style-type: none"> ■ Dimensions 6.90 in. H x 17.56 in. W x 27 in. D (175 mm H x 446 mm W x 685 mm D) ■ Weight 104 lbs. (47 kg)
Temperature	<ul style="list-style-type: none"> ■ Operating temperature range 41° to 95°F (5°C to 35°C) ■ Non-operating (storage) temperature range -40° to 158°F (-40° C to +70° C) ■ Transport temperature range -40° to 158°F (-40° C to +70° C) ■ Temperature gradient 50° F (10° C) /hour
Relative humidity	5% RH to 85% RH
Noise level	Maximum noise level: 72 dBA (at an ambient temperature of 77° F or 25° C)
Protocol standard compliance	<ul style="list-style-type: none"> ■ IPMI2.0 Intelligent Platform Management Interface Specification Second Generation v2.0, Document Revision 1.0 ■ SMBIOS System Management BIOS (SMBIOS) Reference Specification, Version 2.5 ■ SATA II Serial ATA Working Group, Serial ATA II: Extensions to Serial ATA. Revision 1.0a ■ ACPI Advanced Configuration and Power Interface Specification, Revision 3.0, September 2 ■ IP RFC0791: Internet Protocol

Safety and EMC standards compliance for the 5000 and the 5020 deduplication appliance

The following information describes the listed compliance standards for the appliance.

Table B-2 Safety and EMC standards compliance for the deduplication appliance

Standard	Version
IT equipment safety standard	GB4943-2001
IEC standard	IEC 60950-1
Underwriters Laboratories (UL) safety standard	UL 60950-1
US EMC standard	FCC, 47 CFR Part 15, Subpart B
European safety standard	EN 60950-1
European safety directive	LVD Directive 2006/95/EC
European EMC directive	EMC Directive 2004/108/EC
European EMC standard	EN 55024: 1998+A1+A2

Industry standards compliance for the 5000 and the 5020 deduplication appliance

The following information describes the industry compliance standards for the deduplication appliance.

Table B-3 Industry standards compliance for the deduplication

Standard	Version
Ethernet standard	IEE 802.3
Fast Ethernet (FE) standard	IEE 802.3u
Gigabit Ethernet (GE) standard	IEE 802.3z
IEEE standard test access interface and boundary-scan architecture	IEEE 1149.1-2001
Failure mode and effects analysis (FMEA)	IEC 812

Table B-3 Industry standards compliance for the deduplication (*continued*)

Standard	Version
Reliability, maintainability, and availability standard	IEC 863
Environmental protection	ECMA TR/70

Certifications for the 5000 and the 5020 deduplication appliance

The following describes the certifications that apply to the deduplication appliance.

Table B-4 NetBackup Deduplication Appliance certifications

Certification	Description
CCC	CCC (China Compulsory Certification), which is released for the products relating to human health and safety, lives and health of animals and plants, environmental protection, and public safety.
CE	CE (Conformite Europeenne), including EMC directive 2004/108/EC and low voltage directive 2006/95/EC.
C-tick	A product with a C-tick compliance label complies with applicable EMC and radiocommunication requirements. The C-tick label is mandatory for related products in Australia and New Zealand.
FCC	Chapter 15 in FCC (Federal Communications Commission) Rules and Regulations. The device conforms to the standard for level A digital device according to the test.
REACH	REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) is a compellent management rule to manage all the chemicals entering into European market preventively
UL	Underwriters Laboratories, Inc. (UL) is a nonprofit product safety test and certification institute.

Table B-4 NetBackup Deduplication Appliance certifications (*continued*)

Certification	Description
RoHS	RoHS (Restriction of the Use of Certain Hazardous Substances), a directive for environmental protection that was released by the EU in 2003. Management on the environmental impact from the electrical and the electronic products during at the production and the disposal stages. RoHS restricts the maximum amount of the hazardous substances of the products at the production stage.
WEEE	The EU Directive on Waste of Electric and Electronic Equipment. Electrical and electronic products that are sold in the EU market must comply with this directive and have the mark of cross out of the wheeled bin.

FCC information for the 5000 and the 5020 deduplication appliance user

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user must correct the interference at their own expense

Modifications not expressly approved by the manufacturer can void the user's authority to operate the equipment under FCC rules.

Bezel installation instructions

This appendix includes the following topics:

- [About installing the bezel](#)
- [Installing the bezel on the 5000 and the 5020 deduplication appliance](#)

About installing the bezel

The information in this section applies to the NetBackup Deduplication Appliance 5000 and 5020.

Installing the bezel on the 5000 and the 5020 deduplication appliance

Use the following procedure to install the bezel on NetBackup appliances.

Note: Sliding the appliance around on the rack while it is turned on runs the risk of accidental power loss and may result in data loss.

How to install the bezel on NetBackup appliances

- 1 Remove the NetBackup appliance from the rack, or slide it out of the rack so there is enough clearance to use a screwdriver on the back side of the appliance.
- 2 Remove the existing screws that hold the handles in place. Discard the screws and handles.

- 3** Working from the rear of the appliance, position a 6x32 screw in the upper hole of the handle location. From the front of the appliance, place the ball stud through the same hole and fasten the ball to the stud by hand. Tighten the screw with the screwdriver. Repeat this step on the other side of the appliance.
- 4** Replace the NetBackup appliance in the rack.
- 5** Align the bezel with the front face of the NetBackup appliance and gently press the bezel onto the ball studs. You should hear the bezel click when the ball studs engage.

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