Symantec NetBackup™ Installation Guide

UNIX and Linux

Release 7.5

21220074

Symantec

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North America and Latin America	supportsolutions@symantec.com

Contents

Chapter 1

Preparing for installation

This chapter includes the following topics:

About changes in NetBackup 7.5

The following describes some important changes to NetBackup version 7.5. For complete details, see the *NetBackup Release Notes* for version 7.5.

Note: If you currently use NetBackup 6.x and plan to upgrade to version 7.5, be aware that NetBackup versions 7.0 and 7.1 contained many changes and enhancements. Before you upgrade from any 6.x version to 7.5, refer also to the *NetBackup Release Notes* for versions 7.0 and 7.1 for complete details. You can also refer to the following topics for a summary of changes in NetBackup versions 7.0 and 7.1: See "About changes in NetBackup 7.0" on page 23.See " About changes in NetBackup 7.1" on page 21.

Table 1-1 Changes in NetBackup 7.5

Change	Description
Enhanced NetBackup image metadata management	Starting with NetBackup 7.5, all backup image metadata is stored in the relational database (NBDB). Previous versions stored this data in both the NBDB and flat ASCII files (image header files). The following describes the advantages of this change: ■ Eliminates the consistency issues for any data that previously existed in multiple databases. ■ Improves the product search performance, especially in large catalogs. ■ Improves the performance of restores, policy scheduling, and image cleanups. After an upgrade from a previous version of NetBackup, post-upgrade migration of pre-existing image metadata from the file system to the NetBackup database occurs. **Caution:** This enhancement affects upgrades. To help ensure a successful upgrade to NetBackup 7.5, please visit the NetBackup 7.5 Upgrade Portal for complete upgrade details: http://www.symantec.com/docs/TECH74584 For full details about the image migration process and help to plan for this migration, refer to the following: See "About image metadata migration after upgrades to NetBackup 7.5" on page 15. See "Planning for image metadata migration after an upgrade to NetBackup 7.5" on page 19.

Table 1-1 Changes in NetBackup 7.5 *(continued)*

Change	Description
UNIX platforms	The following describes the UNIX platform changes: ■ Linux zSeries SUSE 64-bit This platform now uses SLES 10, patch 2. NetBackup 7.5 cannot be installed on these systems if the OS kernel is older than 2.6.16. ■ Linux RedHat x86_64 and Linux zSeries RedHat 64-bit These platforms now use RH 5, update 4. NetBackup 7.5 cannot be installed on these systems if the OS kernel is older than 2.6.18. ■ Solaris x64 Starting with NetBackup 7.5, this platform supports Informix 11. ■ Macintosh OS X This platform now uses version 10.6. NetBackup 7.5 cannot be installed on these client systems if the OS version is older than 10.6.
UNIX server packages	NetBackup 7.5 completes the native packaging implementation for servers on the HP-UX, RHEL, SLES, and AIX platforms as follows: ■ The installation script installs the package by using the appropriate OS installation command for that server platform. ■ After the installation has completed, use the appropriate native package management system query command to see the list of NetBackup server packages. ■ Removing NetBackup 7.5 and later server software requires the use of the specific OS package removal command.
Novell NetWare	This platform is no longer supported for use as a client.
Windows IA64	Server and client support are discontinued for this platform in NetBackup 7.5. NetBackup 7.5 provides back-level support only for Windows IA64 clients.

Table 1-1 Changes in NetBackup 7.5 *(continued)*

Change	Description
NetBackup Product Improvement Program	Starting with NetBackup 7.5, the NetBackup Product Improvement Program captures installation deployment and product usage information. During the installation, you can choose to participate in the NetBackup Product Improvement Program and send this information automatically and in a secured manner to Symantec. The information received becomes part of a continuous quality improvement program that helps Symantec understand how customers configure, deploy, and use the NetBackup product. This information is then used to help Symantec identify improvements in product features, testing, technical support, and future requirements. To learn more about the NetBackup Product Improvement Program, refer to the NetBackup license agreement section **17.19 Privacy; Data Protection**. The following describes where to find the license agreement: ■ UNIX See the file `LICENSE` in the base directory of the UNIX images on the DVD media or from the downloaded media images from FileConnect. ■ Windows From the DVD media or the downloaded media images from FileConnect, start the installation wizard (`Browser.exe`). On the **Home** page, click **Installation**. On the **Installation** page, select either **Server Software Installation** or **Client Software Installation**. On the **Welcome** page, click **Next** to advance to the **License Agmt** page.
UNIX clusters	■ `ssh` command Starting with NetBackup 7.5, UNIX clusters can run the `ssh` command. The root user guidelines for the `ssh` command are the same as those for the `rsh` command. ■ Cluster node upgrade order Starting with NetBackup 7.5, you can select whether to first upgrade the inactive node or the active nodes.

About image metadata migration after upgrades to NetBackup 7.5

The following information describes important details about the image metadata migration processes that occur after you upgrade to NetBackup 7.5.

After an upgrade from a previous NetBackup version, post-upgrade migration of all pre-existing image metadata from the file system to the NetBackup database occurs.

Please note the following in regard to this migration:

- The `LIST_FS_IMAGE_HEADERS` entry is created automatically when the post-upgrade image metadata migration has completed.

  Warning: Do not manually create the `LIST_FS_IMAGE_HEADERS` entry. Premature creation of this entry causes non-migrated images to be unrecognized during NetBackup processing. This problem can result in possible data loss. For a complete explanation about this entry, see the *NetBackup Administrator's Guide, Volume I*.

- Image metadata consistency checking that is comparable to the `bpdbm -consistency 2 -move` command is performed as part of the image metadata migration.
  For more information about consistency checking details and the `bpdbm` command, see the *NetBackup Commands Reference Guide*.
- Until migration is complete, NetBackup behavior is affected.
  See "Planning for image metadata migration after an upgrade to NetBackup 7.5" on page 19.

A number of methods are available to accomplish the migration. Before you upgrade, review the following information to determine the most appropriate method to help reduce the effect on normal NetBackup operations:

In Table 1-2:	Review the methods for image metadata migration.
On the NetBackup 7.5 Upgrade Portal:	Review the *NetBackup 7.5 Upgrade Guide*. This guide describes the estimated migration times based on the migration method and the number of images to be migrated. Click on the following link to go to the portal: http://www.symantec.com/docs/TECH74584
In the *NetBackup Installation Guide for 7.5*:	See "Planning for image metadata migration after an upgrade to NetBackup 7.5" on page 19.

Table 1-2 Image metadata migration methods for upgrades to NetBackup 7.5

Method	Description
Typical migration method (default)	This method is useful in a backup environment that has the following: Acceptable CPU performance and a catalog image count where NetBackup operations are acceptable during each step of the serial image migration. Use this method for environments with or without capacity managed disk policies, such as SLP or DSSU. The following describes how this method works: ■ An image is migrated after a NetBackup process updates the image. ■ At the first instance of the `nbstserv` process, images to be deleted, DSSU images, and images associated with storage lifecycle policy (SLP) jobs are migrated. Auto Image Replication images are also included. **Note:** For more information about `nbstserv`, see the *NetBackup Administrator's Guide, Volume I*. ■ As part of catalog cleanup, any images that are associated with Advance Disk policies, BasicDisk policies, and tape policies are migrated.

Table 1-2 Image metadata migration methods for upgrades to NetBackup 7.5 *(continued)*

Method	Description
AdvancedDisk priority method	This method is useful in a backup environment that has the following: Acceptable CPU performance and a catalog image count where NetBackup operations are acceptable during each step of the serial image migration. Use this method if you require AdvancedDisk reporting immediately after the `nbstserv` portion of the migration. The following describes how this method works: ■ Before the upgrade, create the following touch-file: `./netbackup/bin/MERGE_ALL_IMAGE_HEADERS` ■ An image is migrated after a NetBackup process updates the image. ■ At the first instance of the `nbstserv` process, images to be deleted, DSSU images, and storage lifecycle policy (SLP) jobs are migrated. Auto Image Replication images and any images that are associated with Advance Disk policies are also included. ■ As part of catalog cleanup, any images that are associated with BasicDisk policies and tape policies are migrated.

Table 1-2 Image metadata migration methods for upgrades to NetBackup 7.5 *(continued)*

Method	Description
Large catalog image count method	This method uses the `cat_import` command and is useful in a backup environment that has the following: Acceptable CPU performance, but a catalog image count that is high enough that you want to reduce the impact on NetBackup operations during the image metadata migration. After the `nbstserv` image migration has completed, and before the normal catalog cleanup is scheduled to begin, multiple instances of this command can be run in parallel to migrate images on a client by client basis. For more details about the `cat_import` command, see the *NetBackup Commands Reference Guide*. Before you execute this command, plan your usage as follows: ■ Determine client priority. ■ Analyze system performance characteristics to determine the desired number of `cat_import` commands to run in parallel. ■ Run concurrent `cat_import` processes by client priority. ■ Monitor the migration rate of each `cat_import` process to determine performance characteristics.

While the image metadata migration is in progress, certain NetBackup operations cannot run while images are merged into their new locations.

The following describes the affected NetBackup operations that cannot run until after the migration has completed:

- Fragment deletion of expired disk images does not occur.
- Capacity managed disk policies such as a storage lifecycle policy (SLP) or a disk staging storage unit (DSSU) are not likely to start. If they do start, they may encounter issues with insufficient available space in the disk volume.
- SLP operations cannot run.
- Automated Image Replication operations cannot run.
- Until either the catalog cleanup job or the `cat_import` image metadata migration has completed, NetBackup must search for images in both the flat file system and the NBDB repositories. Therefore, the performance of NetBackup image catalog queries is affected.

To help you prepare and plan for a successful upgrade, refer to the following topic:

See "Planning for image metadata migration after an upgrade to NetBackup 7.5" on page 19.

Planning for image metadata migration after an upgrade to NetBackup 7.5

Because each NetBackup environment configuration is unique, post-upgrade migration performance varies. Factors include but are not limited to environments with multiple platforms, complex configurations, or very large catalogs.

To help you gauge the amount of time for the migration process to complete, see the *NetBackup 7.5 Upgrade Guide* located on the NetBackup 7.5 Upgrade Portal. Click on the following link to go to the portal:

http://www.symantec.com/docs/TECH74584

To help you prepare for a successful upgrade to NetBackup 7.5, Symantec recommends that you review the information in the following procedures. Make any necessary additions to your upgrade plans that apply to your specific backup environment.

To prepare for monitoring the image metadata migration that occurs after the upgrade

1. For upgrades from NetBackup 6.5 or later, run the following command to determine the number of storage lifecycle policy (SLP) image-related records:
   - On UNIX systems:
     ```
     nbstlutil list -l | grep " I " | wc -l
     ```
   - On Windows systems:
     ```
     nbstlutil list -l | %SystemDrive%\Windows\System32\find.exe
     /C " I "
     ```
2. Run the following command to determine the number of images in the flat file system:

   Note: Because each NetBackup environment configuration is unique, the execution time of this command varies. Factors include but are not limited to environments with multiple platforms, complex configurations, or very large catalogs.

   - On UNIX systems:
     ```
     bpimagelist -idonly -d 01/01/1970 00:00:00 | wc -l
     ```

- On Windows systems:

```
bpimagelist -idonly -d 01/01/1970 00:00:00 |
%SystemDrive%\Windows\System32\find.exe /C " ID: "
```

3. Determine the method that you plan to use to accomplish the image metadata migration, as follows:
   - Review and familiarize yourself with the different methods available to accomplish the image metadata migration.
     See "About image metadata migration after upgrades to NetBackup 7.5" on page 15.
   - Review the image metadata migration performance data that is related to the different migration methods.
     See the *NetBackup 7.5 Upgrade Guide* on the NetBackup 7.5 Upgrade Portal.
     http://www.symantec.com/docs/TECH74584
   - With the information from the previous bulleted items, determine the appropriate method that you plan to use. Document the method steps in your upgrade plan.
4. For NetBackup configurations that use capacity managed disk storage units such as an SLP or a disk staging storage unit (DSSU):

   Plan to expire additional images from capacity managed disk volumes. For complete details, see the *NetBackup 7.5 Upgrade Guide* on the NetBackup 7.5 Upgrade Portal:

   http://www.symantec.com/docs/TECH74584
5. For backup environments that use disk-based storage units, do the following:

   As close to starting the upgrade as possible, run the following command to delete expired disk image fragments:

```
nbdelete -allvolumes
```

After you have completed the previous steps, you are ready to upgrade to NetBackup 7.5. The upgrade procedure is included in the *NetBackup 7.5 Installation Guide*.

After you have completed the upgrade procedure, you are ready to perform the post-upgrade tasks as necessary for the migration method that you selected.

To perform the necessary post-upgrade tasks

1. Monitor the progress of the specific processes in the image metadata migration method you have selected, as follows:
   - For `nbstserv`, run the following command:

- On UNIX systems:
  ```
  nbstlutil list -l | grep " I " | wc -l
  ```
- On Windows systems:
  ```
  nbstlutil list -l | %SystemDrive%\Windows\System32\find.exe
  /C " I "
  ```

Note: For more information about `nbstserv`, see the *NetBackup Administrator's Guide, Volume I.*

- For the catalog cleanup job, use the **Activity Monitor** progress log. In the **Jobs** tab pane, double-click on the specific image cleanup job. When the **Job Details** dialog box appears, click on the **Detailed Status** tab.
- For each `cat_import` process, review the progress indications in `STDOUT`.

2 Be aware of the expected NetBackup behavior during the image metadata migration, as follows:

- While `nbstserv` is migrating image metadata information:
  Fragment deletion of expired disk images does not occur (see step 5 in the previous procedure).
- Capacity managed disk policies such as SLP or DSSU are not likely to start. If they do start, they may encounter issues with insufficient available space in the disk volume.
- SLP operations cannot run until after the migration has completed.
- Automated Image Replication operations cannot run until after the migration has completed.
- Until either the catalog cleanup job or the `cat_import` image metadata migration has completed, NetBackup must search for images in both the flat file system and the NBDB repositories. Therefore, the performance of NetBackup image catalog queries is affected.

3 To get a backup of the new NetBackup databases after the migration has completed, run a full hot catalog backup.

About changes in NetBackup 7.1

The following describes a summary of important changes in NetBackup 7.1.

Note: If you currently use NetBackup 6.x and plan to upgrade to version 7.5, be aware that versions 7.0 and 7.1 contained many changes and enhancements. Before you upgrade from NetBackup 6.x to 7.5, see the *NetBackup Release Notes* for versions 7.0. and 7.1 for complete details.

NetBackup Access Control	Starting with NetBackup 7.1, this option is installed with the NetBackup server and the client packages (if the platform supports the product). A separate installation or upgrade procedure is no longer required. However, a valid license is still required to enable the product and the option must be configured to be used. The components have been renamed to NetBackup Product Authentication and Authorization.
UNIX systems	■ Native packaging for NetBackup clients NetBackup 7.1 delivers the following NetBackup clients in their native package formats: AIX, HP-UX, Linux, and Solaris. Installation on these systems is unchanged, therefore the packages are not standalone. However, removal of NetBackup from these systems now requires the use of native commands. See "About NetBackup server software removal on UNIX systems" on page 105. All other UNIX client packages are delivered in the same format as previous versions.
Windows systems	■ New preinstallation Environment Checker feature This feature lets you check those computers where you plan to install or upgrade to NetBackup 7.1 or later. After you run the Environment Checker, a summary of the results identifies any potential issues that may prevent a successful installation or upgrade. Also, a log is generated that describes the complete results and identifies which areas to address before you install or upgrade to NetBackup 7.1 or later. ■ Improved integrated cluster installation and upgrade process The process to install and upgrade cluster installations has been improved to provide feedback to customers, and to validate cluster environments before configuration takes place.

About changes in NetBackup 7.0

The following describes a summary of important changes in NetBackup 7.0.

Note: If you currently use NetBackup 6.x and plan to upgrade to version 7.5, be aware that versions 7.0 and 7.1 contained many changes and enhancements. Before you upgrade from NetBackup 6.x to 7.5, see the *NetBackup Release Notes* for versions 7.0. and 7.1 for complete details.

Veritas Storage Migrator (VSM)	This product has reached its end of life and is no longer supported.
NetBackup Operations Manager (NOM)	Starting with NetBackup 7.0, NOM has been replaced with OpsCenter. If your current 6.x NetBackup environment includes NOM 6.x, you can upgrade NOM to OpsCenter with an upgrade to NetBackup 7.0 or later.

Platform and operating system support changes

Starting with NetBackup 7.0, the following platform support changes apply:

- Except for FreeBSD clients and Mac clients, all UNIX 32-bit system support has been discontinued.
  To upgrade these systems to NetBackup 7.0 or later, you must first migrate your current NetBackup 6.x catalogs and databases to a system with a supported 64-bit platform.
  However, 32-bit media servers and the clients that use NetBackup 6.x are compatible with NetBackup 7.x 64-bit master servers.
  Also, NetBackup requires OpenStorage vendor plug-ins to be 64-bit. When you upgrade a media server that is used for OpenStorage to NetBackup 7.x, you also must update the vendor plug-in to a 64-bit version.
  For details about how to replace the servers that currently use these unsupported platforms, refer to the following section:
  See "About replacing NetBackup server types not supported in NetBackup 7.x" on page 37.
- IRIX and Tru64 are no longer supported.
  Servers and clients with these operating systems that use NetBackup 6.x are compatible with NetBackup 7.x servers.
- All 64-bit platforms are supported except for FreeBSD clients and Mac clients.
- Windows IA64 is supported only as a client.
- Linux SUSE and Linux RedHat Itanium are no longer supported for use as master or media servers. These platforms are only supported as a client.
- HP-UX PA-RISC is no longer supported as a master server. This platform is supported only as a true media server (media server without the EMM server) or a true client.
- Novell NetWare is no longer supported for use as a media server. This platform is only supported as a client.

UNIX package consolidation

Starting with NetBackup 7.0, most of the add-on products and database agents are now installed with the NetBackup server or the client package. Separate installation for these products is no longer needed.

The following products are now included in the NetBackup server package (if the platform supports the product):

- BMR master server
- NDMP
- Vault

The following products are now included in the NetBackup client package (if the platform supports the product):

- BMR Boot server
- DB2
- Encryption
- Informix
- LiveUpdate agent
- Lotus Notes
- Oracle
- SAP
- Snapshot Client
- Sybase

The binaries for the listed products are laid down with the server or the client package. A valid license is still required to enable the product. If product configuration was required previously (such as `db2_config`), configuration is still required.

Note: For Solaris server upgrades, the older versions of any listed products here must be removed before an upgrade to NetBackup 7.0 or later. For example, `VRTSnbdb2`, `SYMCnbdb2`, `VRTSnbenc`, `SYMCnbenc`, and others. The installation script displays a list of the packages it finds that must be removed.

The French, Japanese, and the Chinese language packages remain as separate add-ons. The process to install and upgrade these products remains the same.

Clustered media server support changes

New NetBackup 7.0 or later media server installations cannot be clustered. However, existing 6.x clustered media servers can be upgraded to version 7.0 or later and remain clustered.

About NetBackup mixed version support

You can run mixed versions of NetBackup between master servers, media servers, and clients. This back-level support lets you upgrade NetBackup one server at a time, which minimizes the effect on overall system performance. Symantec supports only certain combinations of servers and clients.

Table 1-3 lists the supported mixed version configurations for NetBackup 7.5.

Table 1-3 Supported NetBackup mixed version configurations

Configuration	Master server version	Media server version	Client version
1	7.5	7.5	7.5 (For catalog backups, see the note immediately after this table.)
2	7.5	7.5	6.0.x, 6.5.x, or 7.x (For catalog backups, see the note immediately after this table.)
3	7.5	6.0.x, 6.5.x, or 7.x	6.0.x, 6.5.x, or 7.x Clients in this configuration must use a version that is equal to or earlier than media server versions. (For catalog backups, see the note immediately after this table.)

Note: The NetBackup catalog resides on the master server. Therefore, the master server is considered to be the client for a catalog backup. If your NetBackup configuration includes a media server, it must use the same NetBackup version as the master server to perform a catalog backup.

NetBackup versions 7.0 and later do not support Windows 2000 systems. However, you can still use NetBackup version 6.x on Windows 2000 clients with your NetBackup 7.x servers.

The following describes what type of action to take if you have any clients that run Windows 2000:

Existing NetBackup customers with Windows 2000 clients at NetBackup version 6.x:	No action is required. These clients are compatible with NetBackup version 7.x master and media servers. To ensure future compatibility, it is recommended that you replace these clients with those that use a more current operating system.
New NetBackup customers with Windows 2000 systems:	You must install NetBackup version 6.x client software on your Windows 2000 systems. To obtain NetBackup version 6.x, contact your Symantec NetBackup representative or call technical support.

For complete information on mixed version support, see the *NetBackup Release Notes* for version 7.5. Refer to the section "NetBackup backward compatibility".

About Symantec Operations Readiness Tools

Symantec Operations Readiness Tools (SORT) is a set of Web-based tools that supports Symantec enterprise products. For NetBackup, SORT provides the ability to collect, analyze, and report on host configurations across UNIX/Linux or Windows environments. This data helps to assess whether your systems are ready for an initial NetBackup installation or for an upgrade from your current version.

To access SORT, go to the following Web page:

http://sort.symantec.com/netbackup

Once you get to the SORT page, more information is available as follows:

- **Installation and Upgrade Checklist**
  Use this tool to create a checklist to see if your system is ready for a NetBackup installation or an upgrade.
- **Hot fix and EEB Release Auditor**
  Use this tool to find out whether a release that you plan to install contains the hot fixes that you need.
- **Custom Reports**

Use this tool to get recommendations for your system and Symantec enterprise products, tips for risk assessment, and product license tracking.

About NetBackup 7.5 availability

NetBackup 7.5 is available in the following formats:

- DVD media kit
  All necessary software and documentation files are provided on several DVDs.
  See "About the NetBackup media kit" on page 28.
- Electronic Software Distribution (ESD) images
  The DVD image files are posted and available for download on the **FileConnect** Website.
  See "About the NetBackup Electronic Software Distribution (ESD) images" on page 30.

About the NetBackup media kit

The media kit includes a DVD for each supported UNIX platform or operating system and one DVD for Windows. The label on each DVD provides a brief description of its contents.

NetBackup documentation is also included. All documentation for the NetBackup software products in this release is included.

Printed materials include a Getting Started Guide. Documentation on the DVDs is in Portable Document Format (PDF). You can use Acrobat Reader to open, view, and print the files.

If Autorun is enabled on your Windows system, you see a Web page that lists the documents that you can select to view. On UNIX or Linux systems, or if Autorun is disabled on the Windows system, navigate to the DVD drive to view the DVD contents. From that drive, you can select the documents to view or copy them to a local drive.

The following table describes the contents of each DVD.

Table 1-4 NetBackup 7.5 DVD contents

DVD No.	Platform OS	Contents
1	AIX 64-bit	■ Server and supported options ■ NetBackup documentation

Table 1-4 NetBackup 7.5 DVD contents *(continued)*

DVD No.	Platform OS	Contents
2	HP-UX IA64	■ Server and supported options ■ NetBackup documentation
3	HP-UX PA-RISC 64-bit	■ Media server and supported options ■ NetBackup documentation
4	Linux RedHat x86_64	■ Server and supported options ■ NetBackup documentation
5	Linux SUSE x86_64	■ Server and supported options ■ NetBackup documentation
6	Solaris SPARC64	■ Server and supported options ■ NetBackup documentation
7	Solaris x86-64	■ Server and supported options ■ NetBackup documentation
8	Windows x86 and x64	■ Server and supported options ■ All x86 and x64 clients ■ NetBackup documentation
9	Linux zSeries RedHat x64	■ Media server and supported options ■ NetBackup documentation
10	Linux zSeries SUSE x64	■ Media server and supported options ■ NetBackup documentation
11	UNIX clients	■ All UNIX clients ■ NetBackup documentation
12	Clients in LiveUpdate format	■ All UNIX and Windows clients in LiveUpdate format ■ Readme document
13	OpsCenter (1 of 3)	■ All Windows platforms ■ ICS (NBAC)

Table 1-4 NetBackup 7.5 DVD contents *(continued)*

DVD No.	Platform OS	Contents
14	OpsCenter (2 of 3)	■ RedHat ■ SUSE ■ Solaris x86 ■ ICS (NBAC)
15	OpsCenter (3 of 3)	■ AIX ■ HP-UX IA64 ■ Solaris SPARC ■ ICS (NBAC)
16	OpenVMS (CD format)	NetBackup Client for OpenVMS

See "About the NetBackup Electronic Software Distribution (ESD) images" on page 30.

See "About NetBackup server installation requirements for UNIX systems" on page 30.

About the NetBackup Electronic Software Distribution (ESD) images

The ESD images for NetBackup 7.5 are available for download from the **FileConnect** Web page. The images adhere to a 1.8G size limitation.

To ensure the accuracy of the ESD download, some of the product images have been split into smaller, more manageable files. Before you uncompress any file, you must first join the split image files that you can identify as `1 of 2` and `2 of 2`. A `Download Readme.txt` file on **FileConnect** describes how to join the files together.

See "About NetBackup 7.5 availability" on page 28.

See "About the NetBackup media kit" on page 28.

About NetBackup server installation requirements for UNIX systems

Before you install NetBackup, make sure that your backup environment meets the following requirements:

General requirements

Make sure that you have the following hardware and software already set up:

- All NetBackup installation DVDs or ESD images, appropriate license keys, and the root password for all servers.
- The `gzip` and the `gunzip` commands must be installed on the local system. The directories where these commands are installed must be part of the root user's `PATH` environment variable setting.
- A server of a supported hardware type that runs a supported version of its operating system (with applicable patches), adequate disk space, and supported peripherals. For details on these requirements, refer to the *NetBackup Release Notes*.
- All NetBackup servers must recognize and be recognizable by their client systems. In some environments, this means that each must be defined in the other's `/etc/hosts` file. Other environments may use the Network Information Service (NIS) or Domain Name Service (DNS).
- For reasonable performance of the NetBackup-Java interfaces, you need 512 MB of RAM. Of that space, 256 MB must be available to the interface program (`jnbSA` or `jbpSA`).
- The minimum screen resolution configuration is 1024x768, 256 colors.

Other backup software

Symantec recommends that you remove any other vendor backup software currently configured on your system before you install this product. Other vendor backup software can negatively affect how NetBackup installs and functions.

Media servers

Ignore references to media servers if you do not plan to install any. They are not required.

Memory considerations

To accommodate the NetBackup server software and NetBackup catalogs, Symantec recommends the following:

- Master and media servers in a production environment with several database agents enabled, should have a minimum of 2 GB of memory each.
- Any client should have a minimum of 512 MB of memory in this type of environment.

Disk space considerations	On the NetBackup server, the installation directory contains the software and the NetBackup catalog. Both of these can become quite large. If space is an issue, you can install NetBackup on an alternate file system. The installation lets you select an alternate install location, and creates the appropriate link from `/usr/openv`.
NFS compatibility	Symantec does not support installation of NetBackup in an NFS-mounted directory. File locking in NFS-mounted file systems can be unreliable.
Kernel reconfiguration	For some peripherals and platforms, kernel reconfiguration is required. For more details, see the *NetBackup Device Configuration Guide*.
Red Hat Linux	For Red Hat Linux, NetBackup requires server networking.

About file descriptor limits for UNIX and Linux systems

To help NetBackup run efficiently, Symantec recommends that you set the file descriptor limit (soft limit) on UNIX and Linux systems to at least 8000.

To check the current operating system (OS) file descriptor setting, use the following command:

```
# /usr/bin/ulimit -a
```

In the command output, look for the **nofiles(descriptors)** entry.

The following describes the affected file and parameters for each OS:

Solaris	To set a permanent limit, in the `/etc/system` file, add the following lines:
	
	`* rlim File Descriptors`
	
	`set rlim_fd_max=65536`
	
	`set rlim_fd_cur=8000`
	
	Where `max` is the maximum file descriptors on the system, and `cur` shows the maximum file descriptors per process.

AIX	In the /etc/security/limits file, add the following line `nofiles = 8000` **Note:** On AIX systems, the hard limit is unlimited.

HP	From the Systems Administrator's Menu (SAM), in the `/etc/sysconfigtab` file, change the `nfiles` setting to 8000.

Linux	In the `/etc/security/limits.con file`, add the following lines:
	`* soft nofile 8000`
	`* hard nofile 65535`

After you change any of these settings, you must restart the NetBackup server.

For more information on setting file descriptors, refer to your OS documentation.

For more information on recommendations for changing file descriptor settings, refer to the following tech notes:

http://www.symantec.com/docs/TECH15131

http://www.symantec.com/docs/TECH70191

http://www.symantec.com/docs/TECH75332

http://www.symantec.com/docs/TECH137761

Special installation guidelines for Solaris systems

Several kernel-tunable parameters, such as Message Queue, Semaphore, and Shared Memory Parameters, can affect NetBackup performance. If you adjust these values, you may prevent your system performance from slowing down or even reaching a deadlock state.

For more information about parameter definitions and examples, see the *NetBackup Backup Planning and Performance Tuning Guide* on the support Web site.

The following examples show how you may need to modify certain parameters for Solaris 10 systems:

Message Queue parameters

- It may be necessary to increase the system's message queue resources to avoid having NetBackup daemons hang.
  For example, you may need to edit the `/etc/system` file to include or change the following parameters:

```
set msgsys:msginfo_msgmap=512
set msgsys:msginfo_msgmax=8192
set msgsys:msginfo_msgmnb=65536
set msgsys:msginfo_msgmni=256
set msgsys:msginfo_msgssz=16
set msgsys:msginfo_msgtql=512
set msgsys:msginfo_msgseg=8192
```

  After editing the file, you must reboot the NetBackup server.

Semaphore parameters

- You must allocate enough semaphores on UNIX systems, or errors may occur. System requirements vary, but the following changes to the `/etc/system` file should be sufficient for an average system:

```
set semsys:seminfo_semmap=64
set semsys:seminfo_semmni=1024
set semsys:seminfo_semmns=1024
set semsys:seminfo_semmnu=1024
set semsys:seminfo_semmsl=300
set semsys:seminfo_semopm=32
set semsys:seminfo_semume=64
```

  After editing the file, you must reboot the NetBackup server.

Special installation guidelines for HP-UX systems

Use the following guidelines when you install NetBackup on HP-UX systems:

- Install NetBackup on a file system that supports long file names.
- During NetBackup installation, the following error may occur when the NetBackup database is created:

```
SQL error (-832) -- Connection error: Insufficient system
resources - failed to allocate a SYSV semaphore
```

  To correct the error, increase the number of semaphores in the HP-UX kernel.

For details on how to change HP-UX parameters, see the *NetBackup Backup Planning and Performance Tuning Guide, Chapter 11: OS-Related Tuning Factors*.

Special installation guidelines for UNIX clustered environments

Use the following guidelines when you install NetBackup in clustered systems:

- Ensure that each node in the NetBackup cluster can run the `rsh` command or its equivalent (on HP-UX, the command is `remsh`). Starting with NetBackup 7.5, you can also use the `ssh` command. The root user must be able to perform a remote login to each node in the cluster without entering a password. This remote login is necessary for installation and configuration of the NetBackup server and any NetBackup options. After installation and configuration are completed, it is no longer required.
- You must install, configure, and start the cluster framework before you install NetBackup. For additional installation prerequisites and installation notes, see the *NetBackup Clustered Master Server Administrator's Guide*.
- You must have defined a virtual name using DNS, NIS, or `/etc/hosts`. The IP address is defined at the same time. (The virtual name is a label for the IP address.) Use this virtual name and IP address only for the NetBackup resource.

About NetBackup Access Control

Starting with NetBackup 7.1, NetBackup Access Control (NBAC) is installed with NetBackup. However, the option still requires a valid license key and must be configured for use. For complete details, see the *NetBackup Security and Encryption Guide*.

If you currently use NBAC in NetBackup versions 6.x through 7.0.1, a separate upgrade is no longer required. Upgrades to version 7.x automatically migrate all NBAC files from a shared location to a location within NetBackup.

See "How to install NetBackup" on page 51.

See "About NetBackup server installation requirements for UNIX systems" on page 30.

About storage device configuration

Reliable use of NetBackup depends on the proper configuration of your storage devices. To ensure reliable backups and restores, you must first install and configure devices to work with the operating system.

Before you install or upgrade to NetBackup 7.1 or later, use the following guidelines to configure storage devices to work with the operating system:

New installations and upgrades	Before you install or upgrade to NetBackup 7.1 or later, Symantec recommends that you install and configure your devices with the latest version of drivers.
Connections and settings	To prepare and connect new devices, perform the following tasks: ■ Set the SCSI ID (target). Make sure that it is set it to an available SCSI ID. ■ Physically attach your device to a compatible host bus adapter where that SCSI ID is available. Compatible means that both the device and the host bus adapter are of the same type. For example, single-ended, high voltage differential, low voltage differential, or Fibre Channel.
Configuration	To configure storage devices to work with the operating system, refer to the following documentation: ■ The instructions from the device and the operating system vendors. ■ The *NetBackup Device Configuration Guide*. See the chapter that is appropriate for your operating system.
NetBackup installation	After all storage devices are installed, configured, and verified to work with the operating system, you can install NetBackup.

Warning: An improperly configured device can lead to backup failures, data loss, or both.

See "About NetBackup server installation requirements for UNIX systems" on page 30.

Locating supported robot types

You can find a list of the supported robot types in the *Symantec NetBackup Server/Enterprise Server 7.x Hardware Compatibility List*.

For your convenience, Symantec periodically updates this document on the Symantec support Web site.

To find the latest robot types that this release supports

- Click on the following link to access the *Symantec NetBackup Server/Enterprise Server 7.x Hardware Compatibility List*:

  http://www.symantec.com/docs/TECH76495

About replacing NetBackup server types not supported in NetBackup 7.x

Certain hardware support and operating system support has been discontinued in NetBackup 7.x. These systems must be replaced with supported systems before an upgrade to NetBackup 7.x.

For complete details about hardware and operating system support in NetBackup 7.x versions, refer to the following documents:

- *NetBackup Release Notes* for 7.5
  http://www.symantec.com/docs/DOC5041
  Refer to the sections "About platform and operating system support changes" and "About NetBackup Compatibility Lists".
- *NetBackup Enterprise Server and Server 7.x OS Software Compatibility List*
  http://www.symantec.com/docs/TECH76648
- NetBackup server 7.x hardware compatibility list
  http://www.symantec.com/docs/TECH76495

The following describes the general guidelines to replace unsupported servers before an upgrade to NetBackup 7.x:

Platform and operating system	The platform and the architecture of the new system can be different than the system that you replace, provided that you observe the following rules: ■ An unsupported Windows server (hardware or operating system) should be replaced with a supported Windows server. ■ An unsupported UNIX or Linux server (hardware or operating system) should be replaced with any other supported UNIX or Linux server platform and operating system. However, Red Hat Linux master servers are an exception (see the following item). ■ An unsupported Red Hat Linux master server must be replaced by another Red Hat Linux master server. The version of Red Hat Linux and the server architecture may be different. For complete details on replacing NetBackup servers in regard to platforms and operating systems, refer to the following documents on the Symantec support Web site: ■ For Windows master servers: http://www.symantec.com/docs/TECH77447 ■ For UNIX master servers: http://www.symantec.com/docs/TECH77448 ■ For media servers: http://www.symantec.com/docs/TECH77811 ■ OpenStorage users should also refer to the following document for details about specific considerations in regard to upgrades to NetBackup 7.x: http://www.symantec.com/docs/TECH77812
NetBackup version	The new supported system must use the exact same version of NetBackup as the old system. You cannot migrate catalogs and databases from one NetBackup version to a different version. For example, the old server uses NetBackup 6.5.2. You must install this same version on the new server before you can upgrade.

Hot catalog backup	On the old system, you must create a hot catalog backup. This backup is then used to restore the catalog to the new supported system and complete the migration. The method that you use to create the catalog backup can make a difference in how you restore it on the new system. For example: ■ Whether you back up the catalog to tape or disk ■ Whether you back up the catalog to a master server or a media server For complete details on how to create a hot catalog backup, see the *NetBackup Troubleshooting Guide*.

How to replace unsupported NetBackup master servers

The following steps describe only the primary tasks to replace an unsupported master server.

For complete detailed instructions, refer to the following documents on the Symantec support Web site:

http://www.symantec.com/docs/TECH77447

http://www.symantec.com/docs/TECH77448

OpenStorage users should also refer to the following document for details about specific considerations in regard to upgrades to NetBackup 7.x:

http://www.symantec.com/docs/TECH77812

To replace an unsupported master server

1. Configure a new supported master server with the same name as the old unsupported master server.

   See "About replacing NetBackup server types not supported in NetBackup 7.x" on page 37.

2. Install the same version of NetBackup on the new master server that is used on the old master server.

   You must install NetBackup to the exact same path and location as the old server.

3. On the old master server, create a hot catalog backup.

   For complete details on how to create a hot catalog backup, see the *NetBackup Troubleshooting Guide*.

4. Shut down the old master server and remove it from your backup environment.

5 Install the new master server in your backup environment.

6 Restore the catalog backup.

7 Run some test backups and restores to verify successful operation.

After you verify successful operation, you can upgrade to NetBackup 7.x.

How to replace unsupported NetBackup media servers

The following steps describe only the primary tasks to replace an unsupported media server.

For complete detailed instructions, refer to the following document on the Symantec support Web site:

http://www.symantec.com/docs/TECH77811

OpenStorage users should also refer to the following document for details about specific considerations in regard to upgrades to NetBackup 7.x:

http://www.symantec.com/docs/TECH77812

To replace an unsupported media server

1 Deactivate the old media server through the NetBackup Administration Console, or by running the following command:

```
nbemmcmd -updatehost -machinename <Media Server> -machinestateop
set_admin_pause -machinetype media -masterserver <Master Server>
```

2 Shut down the old media server.

3 Configure a new supported media server with the same name and IP address as the old media server.

Note: To use a new IP address, make sure that you update the DNS.

4 Connect all backup storage devices to the new media server.

5 Install the same version of NetBackup on the new media server that is used on the old media server. You must install NetBackup to the exact same path and location as the old server.

Also, make sure that you specify the same list of additional servers that were identified on the old server.

6 Install the new media server in your backup environment.

7 Activate the new media server through the NetBackup Administration Console, or by running the following command:

```
nbemmcmd -updatehost -machinename <Media Server> -machinestateop
clr_admin_pause -machinetype media -masterserver <Master Server>
```

8 Run the device discovery on the new media server so that all connected backup storage devices are recognized.

9 Run some test backups and restores to verify successful operation.

After you verify successful operation, you can upgrade to NetBackup 7.x.

Chapter 2

NetBackup licenses

This chapter includes the following topics:

About NetBackup license key requirements

To install NetBackup master server or media server software, you must enter a NetBackup product license key.

To obtain license keys, you must order a license SKU when you order your NetBackup products.

After you place your order, Symantec sends you an email with a license certificate that includes the following information:

List of NetBackup licenses purchased	This list includes all of the licenses for the products that you ordered. Keep this list in a secure location. You may be asked for a product license key if you ever need to contact technical support for assistance.
Serial number for access to download NetBackup products	Instead of a DVD media kit, you can use this serial number to download the Electronic Software Distribution (ESD) images for NetBackup product installation. Go to the following Web site and enter this serial number to download the ESD images to your system: https://fileconnect.symantec.com/LangSelection.jsp

When you install NetBackup, Symantec recommends that you enter all other product license keys on the master server when you are prompted. Although you can add these license keys later, it is easier to enter them when you install the master server software.

For detailed information on how to administer NetBackup license keys, refer to the *NetBackup Administration Guide, Volume I*.

See "About NetBackup server installation requirements for UNIX systems" on page 30.

About NetBackup license compatibility

To use your current NetBackup license keys to upgrade servers, add-on products, and database agents to NetBackup 7.5, the following are required:

- NetBackup versions 6.x or 7.0.x must already be installed.
- You must have a valid maintenance contract for all licensed NetBackup products.

Note: You cannot upgrade to NetBackup 7.5 if your current installed version is NetBackup 5.x. You must first upgrade to NetBackup 6.0 or 6.5, and then you can upgrade to NetBackup 7.5. Any 6.x version can be upgraded directly to 7.5.

Upgrade licenses and software may be obtained from the Symantec Licensing Portal at the following Web site:

https://licensing.symantec.com/acctmgmt/index.jsp

For detailed information and procedures on how to administer license keys, refer to the *NetBackup Administrator's Guide, Volume I*.

See "About license key entry" on page 44.

About license key entry

License keys for all NetBackup SKUs must be entered on the master server. License keys for some SKUs must also be entered on the media server, depending on the capabilities that you require for the media server.

Table 2-1 describes the license keys that must be entered on each server.

Table 2-1 Required license keys for NetBackup media servers

Media server type	Required licenses (based on media server capabilities)
Enterprise media servers	■ NetBackup Enterprise Server 7.5 UNX ■ NetBackup Enterprise Server 7.5 WIN/LNX/SOLX64 ■ NetBackup Standard Infrastructure 7.5 XPLAT1 Front End TBYTE ■ NetBackup Enterprise Infrastructure 7.5 XPLAT1 Front End TBYTE ■ NetBackup Platform Base ■ NetBackup Option Library Based Tape Drive 7.5 XPLAT ■ NetBackup Option Shared Storage Option 7.5 XPLAT ■ NetBackup Option NDMP 7.5 XPLAT ■ NetBackup Media Server Encryption Option for Enterprise Server, UNIX ■ NetBackup Media Server Encryption Option for Enterprise Server, Windows/Linux
SAN media servers	■ NetBackup Enterprise Client, UNIX ■ NetBackup Enterprise Client, Windows/Linux ■ Media Server Encryption Option for SAN Media Server (Enterprise Client), UNIX ■ Media Server Encryption Option for SAN Media Server (Enterprise Client), Windows/Linux

Enter license keys by using one of the following methods:

- During NetBackup master server and media server installation (recommended)
  The installation script prompts you to enter the license keys for all NetBackup products that you plan to install.
- NetBackup Administration Console
  After NetBackup master server or media server installation, open the console and click **Help > License Keys**.
- Command-line interface (UNIX only)
  After NetBackup master server or media server installation, use the following command:

  ```
  /usr/openv/netbackup/bin/admincmd/get_license_key
  ```

Note: You can log on to a NetBackup server from almost any server in a system to view, enter, and administer license keys. When you administer license keys remotely, make sure that you view the licenses of the system you intend to change. You do not want to add or change a license key on the wrong server.

Frequently asked questions about license keys

Symantec customers have asked the following questions about how to manage license keys.

Is the license system for NetBackup the same as the license system in other Symantec products?	NetBackup uses a common license system that other Symantec products also use. Please remember, however, that the common license system provides flexibility in the license features that each product implements. For example, NetBackup does not have a node-locked license system, but some other products do.
Can I use NetBackup if all I have is a media kit?	No. The media kit by itself does not allow any access to NetBackup. You always need a license key (either permanent or evaluation). License keys should always be delivered with the media kit, so you should never find yourself with a media kit and no key.
What does the license key look like? What information does it contain?	The key is a multi-digit alphanumeric string (for example: 8EPP-ABCD-9XYZ-XYZ9-8881-VCF4-OIUF-AJDC). The key contains information on the following: ■ Whether the key is for NetBackup Server or NetBackup Enterprise Server ■ Whether the key is for a server, a client, an agent, or an option (and which one) ■ Whether the key is a permanent key or an evaluation key ■ Information about how and where the key was generated
Is the license key serialized?	Yes, serialization information is embedded in the key.

Can I see reports on what license keys I have?	Yes. Information about license keys is stored on the master server. To access the information, open the NetBackup Administration Console and select **Help > License Keys**. On UNIX servers, you can also run the following command: `/usr/openv/netbackup/bin/admincmd/get_license_key` For more information on how to view reports, refer to the *NetBackup Administrator's Guide, Volume I*.
How do I enable options and agents?	When you install NetBackup, you are prompted to enter the license keys for all options and agents. If you purchase an agent or other add-on product at a later date, you can enter its license key manually. Open the NetBackup Administration Console and select **Help > License Keys**. On UNIX servers, you can also run the following command: `/usr/openv/netbackup/bin/admincmd/get_license_key` Some options require that you have your original NetBackup DVDs, because additional binaries must be installed. You should always keep your NetBackup DVDs in a safe place.
Should I save license keys after they have been entered?	Yes. Always store copies of your license keys in a secure place.
What should I do if I have lost my license key(s)?	Symantec has a record of all license keys that are issued to customers. Customers who lose their license key(s) can call Order Management to get copies of their license keys. ■ For Americas, Japan, PacRim, Australia: 650.318.4265 FAX: 650.335.8428 ■ For Europe, Middle East and Africa: 00.353.61.365232 FAX: 00.353.61.365223 If you have purchased NetBackup from a Symantec partner, you need to contact that partner for information on your key.

How are large volume orders handled?	Many NetBackup installations are very large, and the license keys are long. License keys that you enter multiple times can be time-consuming. You can request a single license key for each type of NetBackup component you purchase. For example, you can obtain one license key for use with 50 Oracle agents. Site licenses enable unrestricted use for specific NetBackup agents or options. You still need a unique license key for each type of NetBackup component that you purchase. Separate license keys are required for components like NetBackup Server, a Lotus Notes agent, or any NDMP option.
What about license keys for customers with site licenses?	Site licenses are handled much like large volume orders are. The certificate for a site license states that the license key is good for unlimited copies.
Do I need a license key to enable NetBackup Remote Administration Consoles?	No. NetBackup Remote Administration Consoles do not require special license keys. You can install them on any computer with access to the master server.
Can a license key be used multiple times?	Yes. You can use your license keys multiple times. You are, however, legally bound to install and use only the number of NetBackup servers, clients, agents, and options for which you purchase licenses.
How do existing customers get license keys?	All NetBackup customers who have current maintenance contracts with Symantec automatically receive the latest version of NetBackup. You receive the NetBackup media kit and license keys for every component for which you purchased licenses. If your maintenance is through a Symantec partner, you upgrade through the partner. Contact the partner for more details.
What if I do not get the right license keys?	If you believe that you received an incorrect license key, contact Order Management using the number on your license key certificate. Technical support does not issue permanent license keys. You can obtain license keys only through Order Management. Technical support can provide temporary one-month license keys to you while issues regarding permanent license keys are resolved.
What does an evaluation license key enable?	The evaluation license key enables unrestricted use of NetBackup, its agents, and its options for a predetermined period of time.

Am I notified when an evaluation is about to expire?	To find out when a license key expires, open the NetBackup Administration Console and select **Help > License Keys**. On UNIX servers, you can also run the following command: `/usr/openv/netbackup/bin/admincmd/get_license_key`
What happens when an evaluation license key expires?	The NetBackup services or daemons are shut down. When you attempt to use the product you are informed that its evaluation period has expired.
Does NetBackup save the backup configuration and catalog information when evaluation license keys expire?	Yes. Customers who add a permanent license key to an evaluation version of NetBackup have immediate access to their catalog information and configuration information.
How do I upgrade from an evaluation license to a permanent license?	It is easy. When you purchase a permanent license, you add that license to NetBackup. All the configuration information and catalog data from your evaluation version is retained. To enter your permanent license key, open the NetBackup Administration Console and select **Help > License Keys**. On UNIX servers, you can also run the following command: `/usr/openv/netbackup/bin/admincmd/get_license_key`

Chapter 3

Installing server software

This chapter includes the following topics:

How to install NetBackup

For new NetBackup installations, install the software in the following order:

Step 1	Install master server software.
Step 2	Install media server software (NetBackup Enterprise only).
Step 3	Install the NetBackup Remote Administration Console (optional).
Step 4	Install client software.
Step 5	Install any NetBackup add-on products (such as language packages).

Before you proceed with any installation procedure, be sure to review the installation requirements.

See "About NetBackup server installation requirements for UNIX systems" on page 30.

How the installation script works

When you install NetBackup server software, client software is also installed.

When you install NetBackup 7.5, the following options are also installed if the platform supports them:

- BMR Master Server
- NDMP
- Symantec Product Authentication and Authorization (NetBackup Access Control)
- Vault
- BMR Boot Server
- DB2
- Encryption
- Informix
- LiveUpdate agent
- Lotus Notes
- Oracle
- SAP
- Snapshot Client
- Sybase

After installation is complete, a valid license key for each option must be entered to enable its functionality. Each option must also be configured as needed.

In addition to server software and options, the installation script performs the following tasks:

Host names	Places the host name in the `/usr/openv/netbackup/bp.conf` file on the server. For clustered environments, the script places the virtual host name in the `/usr/openv/netbackup/bp.conf` file on the server.

Automatic startup and shutdown scripts	Adds automatic startup and shutdown scripts to the appropriate directories on the various supported platforms.
Solaris systems	The installation procedure prompts you for the name of an alternate root path. An alternate boot environment lets you install NetBackup on a different file system. For example, suppose that Host B's `root`, `usr`, `etc`, `tmp`, and `var` file systems are mounted on Host A as follows: `/alt`, `/alt/usr`, `/alt/etc`, `/alt/tmp`, and `/alt/var`. When you log in to Host A, you can specify `/alt` as the alternate root environment and install NetBackup on Host B. This feature applies to NetBackup servers only and not options or clients.
PBX	For the platforms that support PBX, NetBackup versions 7.x install or update PBX when the client software is installed. If the computer where you install NetBackup does not already have PBX and the platform supports it, the installation script installs PBX. If PBX already exists on the computer, the installation script performs one of the following tasks: ■ Updates the existing version if it is older than the version that is included with 7.5. ■ Does not update PBX if the existing version is the same or later than the version that is included with 7.5. **Note:** If you upgrade from NetBackup 6.0 or 6.5, PBX may not upgrade correctly. If the PBX upgrade is not successful, use the ICS disk from your 6.0 or 6.5 package to remove the older version. For complete details, see the *Infrastructure Core Services Installation Guide* for those NetBackup versions.

About mounting the NetBackup software media

Use the examples in the following table as guidelines when you mount NetBackup DVDs. Check with your hardware vendor to see if you may need to use other flags or options.

Table 3-1 Flags and options for mounting NetBackup DVDs

Flags or options	Defined
`-v`, `-t`, `-F`	Specifies the type of file system to mount.
`-o`	Translates the file names properly if required.
`-r`	Specifies that you want to mount the DVD for reading.
`device_path`	Specifies the name of the DVD drive.
`mount_point`	Specifies the directory where you want to mount the DVD.

See "Mounting NetBackup software media on AIX systems" on page 54.

See "Mounting NetBackup software media on FreeBSD systems" on page 55.

See "Mounting NetBackup software media on HP-UX systems" on page 55.

See "Mounting NetBackup software media on Linux systems" on page 57.

See "Mounting NetBackup software media on Solaris systems" on page 57.

Mounting NetBackup software media on AIX systems

For AIX systems, you must create a mount point before you mount the DVD.

The following procedure describes how to mount the DVD with either the smitty or the manual method.

To mount the DVD on AIX systems

1. Log in as root.
2. Mount the DVD with one of the following methods:
   - smitty

     ```
     smitty cdrfs
     ```

     OR

     ```
     smitty mountfs
     ```

   - Manually
     Create the mount point (for example, `mkdir /cdrom`), and then run the `mount` command, as follows:

     ```
     mount -v cdrfs -r device_path mount_point
     ```

For example, the following command mounts the DVD manually with `/cdrom` as the mount point and `/dev/cd0` as the device path:

```
mount -v cdrfs -r /dev/cd0 /cdrom
```

Mounting NetBackup software media on FreeBSD systems

For FreeBSD systems, you must create a mount point before you mount the DVD.

The following procedure describes how to mount the DVD.

To mount the DVD on FreeBSD systems

1. Log in as root.
2. Create the mount point. For example, `mkdir /cdrom`.
3. Mount the DVD, as follows:

   ```
   mount -r -t cd9660 device_path mount_point
   ```

   For example, the following command mounts the DVD using `/cdrom` as the mount point and `/dev/acd0c` as the device path:

   ```
   mount -r -t cd9660 /dev/acd0c /cdrom
   ```

Mounting NetBackup software media on HP-UX systems

To mount and unmount the DVD on HP-UX varies, depending on the version of the operating system you are running.

Use one of the following mounting procedures as is appropriate for your operating system version.

To mount the DVD on HP-UX operating systems earlier than 11.23

1. Log in as root.
2. Create the mount point. For example, `mkdir /cdrom`.

3 Start the PFS daemons, as follows:

```
nohup pfs_mountd &
nohup pfsd &
```

4 Mount the DVD, as follows:

```
pfs_mount -o xlat=unix device_path mount_point
```

To find the device path, you can run `ioscan -fn`.

For example, the following command mounts the DVD using `/cdrom` as the mount point and `/dev/rdsk/c3t2d0` as the device path:

```
pfs_mount -o xlat=unix /dev/rdsk/c3t2d0 /cdrom
```

To unmount the DVD on HP-UX operating systems earlier than 11.23

1 Unmount the DVD, as follows:

```
pfs_umount mount_point
```

For example, the following command unmounts a DVD that used `/cdrom` as the mount point:

```
pfs_umount /cdrom
```

2 Stop the following processes with the `kill` command:

```
pfs_mountd
pfsd
pfs_mountd.rpc
pfsd.rpc
```

To mount the DVD on HP-UX 11.23 or later operating systems

1 Log in as root.

2 Mount the DVD, as follows:

```
mount -F cdfs device_path mount_point
```

To unmount the DVD on HP-UX 11.23 or later operating systems

1. Unmount the DVD, as follows:

   ```
   umount mount_point
   ```

2. Remove the DVD from the drive.

Mounting NetBackup software media on Linux systems

For Linux systems, you must create a mount point before you mount the DVD.

The following procedure describes how to mount the DVD.

Note: The RedHat automounter may mount the DVD with insufficient rights. If the installation from the DVD fails with the message **Permission denied**, use the following steps to mount the DVD manually.

To mount the DVD on Linux systems

1. Log in as root.
2. Create the mount point. For example, `mkdir /cdrom`.
3. Mount the DVD, as follows:

   ```
   mount device_path mount_point
   ```

   For example, the following command mounts the DVD using `/cdrom` as the mount point and `/dev/cdrom` as the device path:

   ```
   mount /dev/cdrom /cdrom
   ```

Mounting NetBackup software media on Solaris systems

For Solaris systems, use Volume Manager to mount the DVD.

The following procedure describes how to mount the NetBackup software media.

To mount the DVD on Solaris systems

1. Log in as root.
2. If **Volume Manager (vold)** is running, the DVD mounts automatically.

   If **vold** is not running, start it up as follows:

   ```
   /usr/sbin/vold &
   ```

Installing NetBackup master server software on UNIX

The master server manages backups, archives, and restores. The master server is where the NetBackup catalog resides which includes the internal databases that contain information about NetBackup configuration and backups.

Use the following guidelines for a new master server installation:

Designate master server	Designate the computer that you want to be the master server and install the master server software on that computer first.
EMM server	By default, the installation script installs the Enterprise Media Manager (EMM) Server software on the master server. This configuration is preferred and is the most efficient. **Note:** Although the EMM server can be located on a media server, Symantec recommends that you keep it on the master server. To locate the EMM on a media server requires that you perform another procedure. After all NetBackup server software (master and media) is installed, you must move the NetBackup database and the EMM server to the designated media server. For complete details, refer to the *NetBackup Administrator's Guide for UNIX and Linux, Volume I*. See the section "Moving the NetBackup Database from one host to another".
License keys	During master server installation, you must enter a NetBackup product license key. You must also enter license keys for any additional NetBackup product options or agents that are used on the server or its clients. These additional license keys must be entered on the master server. If you add, delete, or make and save any license key updates in the NetBackup-Java Administration Console, you must restart the console. For more information on how to administer NetBackup licenses, see the *NetBackup Administrator's Guide, Volume I*.
HP PA-RISC	Starting with NetBackup 7.0, this platform is not supported as a master server or as a media server that contains the EMM server. It is only supported as a true media server (no EMM) or a true client.

Linux SUSE and Linux Red Hat Itanium	Starting with NetBackup 7.0, these platforms are no longer supported for use as a master server or as a media server. These platforms are only supported as true clients.
IBMzSeries RedHat and IBMzSeries SUSE	Starting with NetBackup 7.0.1, these platforms are supported for use as media servers only.

To install NetBackup master server software

1 Log in to the server as root.

2 Use one of the following methods to start the installation script:

DVD	■ Insert the NetBackup Server DVD for the appropriate platform into the drive. Check the DVD label to identify its contents. See "About the NetBackup media kit" on page 28. ■ If necessary, mount the DVD. See "About mounting the NetBackup software media" on page 53. ■ Enter the following command: *cd_directory*/install The *cd_directory* is the path to the directory where you can access the DVD.
ESD images (downloaded files)	■ Navigate to the location where the installation images reside. ■ Enter the following command: ./install

3 When the following message appears, press **Enter** to continue:

```
Installing NetBackup Server software.

Do you wish to continue? (y/n) [y]
```

4 For the NetBackup installation location and the option to upload the installation and the platform information to Symantec, enter the appropriate platform information as follows:

For Solaris systems:

- NetBackup is set up by default to install to the running root environment.
  To install to the running root environment, press **Enter**.
  To change the installation location, type **n** and press **Enter**.
  Then enter the appropriate destination.
- When the following question appears, press **Enter** to accept the default (**y**) or type **n** and press **Enter**:

  ```
  Participate in the NetBackup Product Improvement
  Program? (y/n) [y]
  ```

- When the following question appears, press Enter to accept the default (**y**):

  ```
  NetBackup and Media Manager binaries will be installed
  in /opt/openv and a link will be created from /usr/openv
  to opt/openv, if it  does not exist.
  Is this okay? (y) [y, n,?, q]
  ```

  To accept the default (**y**), press **Enter**.
  To change the installation location, type **n** and press **Enter**.
  Then enter the appropriate destination.

For all other UNIX systems:

- When the following question appears, press **Enter** to accept the default (**y**) or type **n** and press **Enter**:

  ```
  Participate in the NetBackup Product Improvement
  Program? (y/n) [y]
  ```

- When the following question appears, press **Enter** to accept the default (**y**).

  ```
  The NetBackup and Media Manager software is built
  for use on <platform> hardware. Do you want to install
  NetBackup and Media Manager files? [y,n] (y)
  ```

- When the following question appears, select where to install NetBackup and Media Manager software:

  ```
  NetBackup and Media Manager are normally
  installed in /usr/openv.
  Is it OK to install in /usr/openv? [y,n] (y)
  ```

  To accept the default (**y**), press **Enter**.
  To change the installation location, type **n** and press **Enter**.
  Then enter the appropriate destination.

5 Enter the NetBackup Server or Enterprise Server license key.

6 Type **y**, then follow the prompts to add license keys for other NetBackup options and agents.

Although you can add license keys later, you should enter them now. If you add any license keys later through the NetBackup-Java Administration Console, you must restart the console.

7 After all license keys are entered, type **q** to quit the License Key Utility and complete the server software installation.

8 Verify or enter the correct computer name when prompted by the following message:

```
Installing NetBackup Enterprise Server version: 7.5
If this machine will be using a different network interface than
the default (name), the name of the preferred interface
should be used as the configured server name. If this machine
will be part of a cluster, the virtual name should be used as the
configured server name.
The domainname of your server appears to be "domain". You
may choose to use this domainname in your configured NetBackup
server name, or simply use "name" as the configured
NetBackup server name.
Would you like to use "name.domain" as the configured NetBackup server
name of this machine? [y, n] (y)
```

- To accept the displayed (default) name, press **Enter**.
- To change the displayed (default) name, type **n** and enter the name that you want.
- For a clustered NetBackup server, enter the virtual name for the NetBackup server and not the actual local host name.

9 Identify or verify the master server by answering the following question when it appears:

```
Is <name> the master server? [y, n] (y)
```

- To accept the displayed name (which is the name that you identified in the previous step), press **Enter**.
- If you entered a virtual name for the server in the previous step, the installation script presents the following question:

```
Is this server part of a cluster installation?
```

If the answer is yes, press **y** and answer the series of cluster configuration questions that appear.
If the answer is no, press **n**.

10 Identify whether there are any media servers for this master server by answering the following question when it appears:

```
Do you want to add any media servers now? [y, n] (n)
```

- If there are no media servers for this master server, press **Enter** and proceed to the next step.
- If there are media servers for this master server, type **y** and enter the name of each media server.
  When you enter the media server names, you must enter the computer name and the domain name. For example:

  alpha.min.symantec.com

  Where `alpha` is the computer name and `min.symantec.com` is the domain name.
  The media server names that you enter here are added to the `bp.conf` file on the master server, automatically. After you install the media server software later, the master server can then communicate with the media servers immediately.
- To add a media server to an existing and an operational NetBackup environment, you cannot use the procedures in this guide. For complete details on how to add a media server to an existing and an operational NetBackup environment, see the *NetBackup Administration Guide, Volume II*.

11 When the following message appears, identify the name of the EMM server.

```
NetBackup maintains a centralized catalog (separate from the
image catalog) for data related to media and device
configuration, device management, storage units, hosts and host
aliases, media server status, NDMP credentials, and other
information. This is managed by the Enterprise Media Manager
server.
Enter the name of the Enterprise Media Manager (default: <name>)
```

- To accept the displayed (default) master server name and install the EMM server on the master server, press **Enter**.
- On a clustered master server, enter the virtual name of the master server.

Symantec does not support installing the EMM on an NFS-mount.

12 Answer the following question when it appears:

```
Do you want to start the NetBackup job-related processes so backups and
restores can be initiated? [y, n] (y)
```

- If you have (or want to have) a clustered NetBackup server, type **n**.
- For non-clustered installations, press **Enter** to accept the default answer (**y**) and start the NetBackup processes and the EMM server.
  You must start these processes now because the EMM server must be running when you install any media servers later.

13 For a clustered NetBackup master server, repeat these steps on every node on which you want to run NetBackup.

Continuing with NetBackup software installation

After you have installed the master server software, you are ready to install media server software or client software depending on your environment.

- If you have media servers in your system, you are ready to install media server software.
  See "Installing NetBackup media server software on UNIX" on page 63.
- If there are no media servers in your environment, you are ready to install client software on client machines.
  - See "Installing UNIX clients locally" on page 132.
  - To install client software on clients from the master server location (recommended), you must first install the client type software on the master server.
    See "Installing client type software on a master server" on page 68.

Installing NetBackup media server software on UNIX

This section describes how to install a new NetBackup media server. Use this information to install the server software on a computer with no existing version of NetBackup.

Media server software manages the robotic and the storage devices within your NetBackup environment.

After you have installed the master server and the EMM server software, you are ready to install media server software on media server computers.

Use the following guidelines when you install new media servers:

Designate media servers	Designate the computers that you want to be media servers and install the media server software on them.
Clusters	New or initial NetBackup 7.x media servers cannot be installed as clusters. However, existing media servers with NetBackup 6.x that are clustered can be upgraded to NetBackup 7.x and still remain clustered.
EMM server	The EMM server must be installed and running before you install media server software.
License keys	When you install NetBackup media server software, you must enter a NetBackup product license key. You must also enter license keys for any additional NetBackup product options or agents that are used on the server or its clients. These additional license keys must be entered on each media server. For more information on how to administer NetBackup licenses, see the *NetBackup Administrator's Guide for UNIX and Linux, Volume I*. **Note:** If you make and save any license key changes in the NetBackup-Java Administration Console, you must restart the console.
IBMzSeries RedHat and IBMzSeries SUSE	Starting with NetBackup 7.0.1, these platforms are supported for use as media servers only.

To install NetBackup media server software

1. Log in to the server as root.
2. Use one of the following methods to start the installation script:

DVD	■ Insert the NetBackup Server DVD for the appropriate platform into the drive. Check the DVD label to identify its contents. See "About the NetBackup media kit" on page 28. ■ If necessary, mount the DVD. See "About mounting the NetBackup software media" on page 53. ■ Enter the following command: `cd_directory/install` The *cd_directory* is the path to the directory where you can access the DVD.

ESD images (downloaded files)

- Navigate to the location where the installation images reside.
- Enter the following command:

```
./install
```

3 When the following message appears, press **Enter** to continue:

```
Installing NetBackup Server software.
Do you wish to continue? (y/n) [y]
```

4 For the NetBackup installation location and the option to upload the installation and the platform information to Symantec, enter the appropriate platform information as follows:

For Solaris systems:

- NetBackup is set up by default to install to the running root environment.
  To install to the running root environment, press **Enter**.
  To change the installation location, type **n** and press **Enter**. Then enter the appropriate destination.
- When the following question appears, press **Enter** to accept the default (**y**) or type **n** and press **Enter**:

  ```
  Participate in the NetBackup Product Improvement
  Program? (y/n) [y]
  ```

- When the following question appears, press Enter to accept the default (**y**):

  ```
  NetBackup and Media Manager binaries will be installed
  in /opt/openv and a link will be created from
  /usr/openv to opt/openv, if it  does not exist.
  Is this okay? (y) [y, n,?, q]
  ```

  To accept the default (**y**), press **Enter**.
  To change the installation location, type **n** and press **Enter**. Then enter the appropriate destination.

For all other UNIX systems:

- When the following question appears, press **Enter** to accept the default (**y**) or type **n** and press **Enter**:

  ```
  Participate in the NetBackup Product Improvement
  Program? (y/n) [y]
  ```

- When the following question appears, press **Enter** to accept the default (**y**).

  ```
  The NetBackup and Media Manager software is built
  for use on <platform> hardware. Do you want to install
  NetBackup and Media Manager files? [y,n] (y)
  ```

- When the following question appears, select where to install NetBackup and Media Manager software:

  ```
  NetBackup and Media Manager are normally
  installed in /usr/openv.
  Is it OK to install in /usr/openv? [y,n] (y)
  ```

  To accept the default (**y**), press **Enter**.
  To change the installation location, type **n** and press **Enter**. Then enter the appropriate destination.

5. Enter the NetBackup Server or NetBackup Enterprise Server license key.
6. Type **y**, then follow the prompts to add license keys for other NetBackup options and agents.

   Although you can add license keys later, you should enter them now. If you add any license keys later through the NetBackup-Java Administration Console, you must restart the console.
7. After all license keys are entered, type **q** to quit the License Key Utility and complete the server software installation.
8. Verify or enter the correct computer name when prompted by the following message:

   ```
   Installing NetBackup Enterprise Server version: 7.5
   If this machine will be using a different network interface than
   the default (name), the name of the preferred interface
   should be used as the configured server name. If this machine
   will be part of a cluster, the virtual name should be used as the
   configured server name.
   The domainname of your server appears to be "domain". You
   may choose to use this domainname in your configured NetBackup
   ```

```
server name, or simply use "name" as the configured
NetBackup server name.
Would you like to use "name" as the configured NetBackup server
name of this machine? [y, n] (y)
```

- If the displayed (default) media server name is correct, press **Enter**.
- If the displayed (default) media server name is not correct, type **n** and enter the correct name.

9 Identify the master server that you have already installed, by answering the following question when it appears:

```
Is <name> the master server? [y,n]
```

- Type **n** and enter the fully qualified domain name of the master server.
- If the master server is clustered, enter the virtual name of the master server.

10 When the following message appears, identify the name of the EMM server.

```
Enter the name of the Enterprise Media Manager (default: <name>)
```

The master server name is displayed by default.

- If you installed the EMM server on the master server, press **Enter** to accept the displayed (default) name.
  If you have a clustered master server, enter the virtual name for the master server and not the actual local host name.

11 Repeat steps 1 through 10 to install media server software on any remaining media servers.

About pushing client software from a master server to clients

You can increase the speed of client installation by pushing the software from the master server to the clients. This method eliminates the need for a local installation at each client.

The following describes how to prepare your NetBackup environment for client software installation from the master server.

- Install the client type software on the master server. Be sure to install all of the client types that pertain to your NetBackup configuration.
  See "Installing client type software on a master server" on page 68.

- Before you can push client software from the master server, each client name must be assigned to a NetBackup policy. Policies are created on the master server.
  When you create a policy, you must identify the policy type, which indicates the operating system on the clients that are assigned to that policy. Without a policy, the remote installation (or push) fails because the master server does not know the operating system of the client.
  For information on how to create NetBackup policies, refer to the *NetBackup Administrator's Guide for UNIX and Linux, Volume I.*
- After the required policies are created, you can push client software from the master server to the clients.
  See "About remote installation methods for UNIX clients" on page 133.

Installing client type software on a master server

Client type software must be installed on the master server to perform the following operations:

- Assign clients to NetBackup policies so that those clients can be backed up.
- Install (or push) client software from the master server to clients.
  For each UNIX client type, the client installation script lets you install the client software onto the master server. You can then install (or push) the client software from the master server to the clients.

To install client type software on a master server

1. Log in to the server as root.
2. Use one of the following methods to start the installation script:

DVD	■ Insert the NetBackup UNIX Clients DVD into the drive. See "About the NetBackup media kit" on page 28. ■ If necessary, mount the DVD. See "About mounting the NetBackup software media" on page 53. ■ Enter the following command: `cd_directory/install` The *cd_directory* is the path to the directory where you can access the DVD.

ESD images (downloaded files)	■ Navigate to the location where the installation images reside. ■ Enter the following command: `./install`

3 When the following message appears, press **Enter** to continue:

```
Installing NetBackup Client Software.
Do you wish to continue? (y/n) [y]
```

4 Select all of the client types that you want to install and follow the installation prompts.

Installing NetBackup add-on products

After your initial installation is complete, you can install any other NetBackup add-on products (such as language packages).

How to configure the window manager for the Java Interface (NetBackup-Java compatible platforms)

Always set your window manager so that windows become active only when you click inside the windows. Do not enable auto focus, where windows become active if you move the mouse pointer over them. The NetBackup-Java interfaces do not run properly with auto focus enabled.

Chapter 4

Installing alternative administrative interfaces

This chapter includes the following topics:

About the NetBackup Remote Administration Console for Windows

If your NetBackup server has no graphics display capabilities, you must install an alternative administrative interface. It may also be desirable for various other configurations, such as mixed environments that use the Windows and the UNIX platforms.

Note: You can skip this section if you do not want or need to administer a NetBackup server remotely from a Windows NetBackup client.

The NetBackup Remote Administration Console is an interface-only version of NetBackup for Windows that you can use to administer NetBackup servers from another computer. The computer that runs the NetBackup Remote Administration Console does not require NetBackup software.

The following is a brief description of the NetBackup Remote Administration Console operation:

- The console lets you perform all NetBackup operations exactly like the NetBackup Administration Console on a local Windows NetBackup server. You

can create backup policies, manage volumes, view status, monitor tape drives, and perform other operations.

- The console displays the name of the server it administers, rather than a local host name.
- The console can only administer other NetBackup servers. It cannot act as a master or a media server.

Installing the NetBackup Remote Administration Console

The NetBackup Remote Administration Console is supported on Windows Server 2003/XP, Windows Server 2008/Vista, and Windows Server 2008 R2/Windows 7.

Installation is a two-step process as follows:

- Install the NetBackup Remote Administration Console.
- Add the NetBackup Remote Administration Console host name to the server list of the hosts that you want to administer.
  You must also add the host names of the servers that you want to administer to the server list on the host where you install the remote console.
  The following table shows an example of the required server list entries for each host. RAC1 refers to the Remote Administration Console.

Host name	Required server list entries
Master1	RAC1
Media1	RAC1
Media2	RAC1
RAC1	Master1, Media1, Media2

To install the NetBackup Remote Administration Console

1. On the computer where you want to install the NetBackup Remote Administration Console, start the NetBackup Installation Wizard with one of the following methods:
   - DVD media
     Insert the NetBackup for Windows DVD in the drive. If Autorun is disabled, navigate to the DVD drive and run `Browser.exe`.
   - ESD images (downloaded files)
     Navigate to the directory where the images reside and run `Browser.exe`.
2. On the initial screen, click **Installation**.

3 On the **Installation** screen, click **Server Software Installation**.

4 On the **Welcome** screen, review the content and click **Next**.

5 On the **License Agreement** screen, accept the terms of the license agreement and click **Next**.

6 On the **Installation Type** screen, select **Install to this computer only,** click **Typical**, and then click **Next**.

7 On the **NetBackup License Key and Server Type** screen, select **NetBackup Remote Administration Console**. You do not need a license key to install the Remote Administration Console.

8 On the **NetBackup System Names** screen, provide the following information:

Client Name	Enter the name of the local computer where you want to install the remote console. (The name should appear by default.)
Master Server	Enter the name of the NetBackup master server. (If NetBackup master server software is installed on this computer, the name should appear by default.)
Additional Servers	Enter the names of any additional NetBackup servers that you want to allow access to this server. To enter more than one name, separate each name with a comma or press **Enter** after you enter each name.

9 On the **Ready to Install the Program** screen, review the summary of your selections. Then, click **Install**.

10 After the installation completes, do the following:

- Click **View Log** to review the installation details.
- Click **Finish**.
  If you clicked the box next to **Launch NetBackup Administration Console now**, the Remote Administration Console appears. If you did not click the box, start the console by selecting **Start > Programs > Symantec NetBackup > NetBackup Administration Console**.
  This action starts the console on the local host, not on any remote host.

11 Add the required host names to the server lists of all hosts.

See "Configuring server lists for the NetBackup Remote Administration Console" on page 74.

Configuring server lists for the NetBackup Remote Administration Console

The following methods are available to configure server lists for the NetBackup Remote Administration Console:

- Use the NetBackup Administration Console
- On UNIX servers, edit the `bp.conf` file.
- On Windows servers, edit the system registry.

To configure server lists for the NetBackup Remote Administration Console by using the NetBackup Administration Console

1. On the **NetBackup Administration Console** in the left pane, click **Host Properties > Master Servers**.
2. In the **Master Servers** window in the right pane, right-click the name of the host server and select **Properties**.
3. In the **Master Server Properties** window, click the **Servers** icon from the tree in the left pane.
4. In the **Servers** window, click **Add**.
5. Enter the name of the host that is to run the NetBackup Remote Administration Console.
6. Click **Add**. The name of the host appears in the **Additional Servers** list.
7. Click **Close** and **OK**.

To configure server lists for the NetBackup Remote Administration Console by editing the bp.conf file on UNIX servers

1. Log in to the master server as root.
2. Edit the following file:

   `/usr/openv/netbackup/bp.conf`.
3. At the end of the `SERVER =` lines, add the following line:

   `SERVER = Remote-Administration-Console-machine-name`

   The `Remote-Administration-Console-machine-name` is the name of the computer where you installed the NetBackup Remote Administration Console.

To configure server lists for the NetBackup Remote Administration Console by editing the system registry on Windows servers

1. Log on to the master server as the administrator.
2. **Click Start > Run...**.

3 Enter `regedit.exe` and click **OK**.

4 In the **Registry Editor** window, locate the following file:

`HKEY_LOCAL_MACHINE\SOFTWARE\VERITAS\NetBackup\CurrentVersion\Config`

5 In the right pane, double-click on **Server**.

6 In the **Edit Multi-String** window, enter the name of the Remote Administration Console host and click **OK**.

7 Close the **Registry Editor** window.

Adding remote servers to administer from an existing NetBackup Remote Administration Console

If you have an existing NetBackup Remote Administration Console installed and you want to add a remote master server to administer, use this procedure.

To add a remote server to administer from an existing NetBackup Remote Administration Console

1 Log on to the host where the NetBackup Remote Administration Console is installed, and open the console.

2 In the left pane of the NetBackup Remote Administration Console, select **Host Properties > Master Server**.

3 In the **Master Servers** window in the right pane, right-click the name of the host server and select **Properties (Read/Write)**.

4 In the **Master Server Properties** window, click the **Servers** tab.

5 In the **Global Operations** field, in the **Add to all lists** field, enter the host name. Make sure that you enter the name of the host that is to run the NetBackup Remote Administration Console.

6 Click the **+** icon (the name of the host appears in the **Additional Servers** list), then click **OK**.

About the NetBackup-Java Administration Console

The NetBackup-Java Administration Console can be used to administer one or more UNIX or Windows NetBackup servers. It provides all of the standard NetBackup server interfaces. The console can be used to create backup policies, manage volumes, view status, monitor tape drives, and other operations.

On Java-capable UNIX hosts (servers and clients), this console is installed automatically when you install NetBackup.

On Windows hosts, this console must be installed separately.

Note: You can skip this section if you do not want or need to administer a NetBackup server remotely from a Windows NetBackup client.

See "Installing the NetBackup Java Administration Console for version 7.5 on Windows" on page 76.

Installing the NetBackup Java Administration Console for version 7.5 on Windows

Use the following guidelines when you install version 7.5 of the console:

- Install the console from the NetBackup DVD for Windows or from the ESD (downloaded) files.
- Any computer that runs the console should have at least 512 MB of physical memory.

To install version 7.5 of the NetBackup Java Administration Console on Windows

1. On the computer where you want to install the console, do one of the following:
   - Insert the appropriate DVD that contains the NetBackup software.
     On Windows systems with Autorun enabled, the installation starts automatically.
     On Windows systems with Autorun disabled, navigate to the DVD directory and run `Browser.exe`.
   - Navigate to the location where the downloaded files reside and run `Browser.exe`.
2. On the initial screen, select **Installation**.
3. On the **Installation** screen, select **Java Windows Administration Console Installation**.
4. On the **Welcome** screen, review the content and click **Next**.
5. On the **License Agreement** screen, accept the agreement and click **Next**.
6. On the **NetBackup Installation Type** screen, select **Install to this computer only** and **Typical**. Then, click **Next**.
7. On the **Ready to Install the Program** screen, review the Installation Summary and click **Install**.

8 On the **Installation Complete** screen, click **Finish**.

9 To open the console, click **Start > Programs > Symantec NetBackup > NetBackup Java version 7.5**.

In a site that contains multiple master servers, you can configure the systems so that one **NetBackup Administration Console** can access remote servers. Indicate a remote server by using one of the following methods:

- Use the **File > Change Server** menu command.
- Use the **NetBackup-Java Administration Console**. Indicate a remote system upon NetBackup login.

Note: To log in to any **NetBackup Administration Console**, your login credentials must be authenticated from the connecting master or media server. This is true whether or not NetBackup Access Control (NBAC) is in use.

The **NetBackup Administration Console** on Windows and the NetBackup-Java Administration Console on UNIX are backward-compatible in the following situations:

- From the console of an x.x.x (double-dot) or x.x.x.x (triple-dot) release to the console of any release that shares the fist and second digits.
  For example, a NetBackup 7.0.1 console can administer a NetBackup 7.0 master server. However, a NetBackup 7.1 console (a single-dot release) cannot administer a 7.0 or 7.0.1 master server because the second digits are not the same. Figure 4-1 shows examples of each.
- The NetBackup-Java Administration Console on UNIX offers an exception when the `-r` option is used with the `jnbSA` command to start the console.
  The `-r` option lets a x.x NetBackup-Java Administration Console connect to another UNIX master server that is several versions earlier, regardless of whether the second digit is the same.
  For example, a 7.5 NetBackup-Java Administration Console can connect to a NetBackup master server at 7.1, 7.0, 6.5, or 6.0. Figure 4-2 shows examples of back-level console support.
  Use the `-r` option to launch the console on the UNIX system as follows:

  ```
  ./jnbSA -r release_version
  ```

  For example, to connect to a 7.0 master server from a 7.5 NetBackup-Java Administration Console, enter the following on the 7.5 master server to start the 7.0 console:

  ```
  ./jnbSA -r 7.0
  ```

  If no `-r` option is specified, the default is the current NetBackup version.

Figure 4-1 Examples of supported and unsupported back-level console configurations

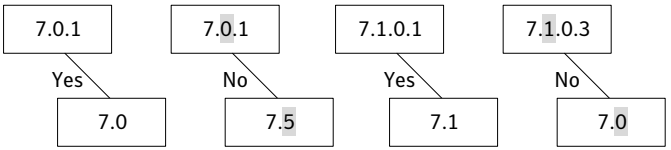
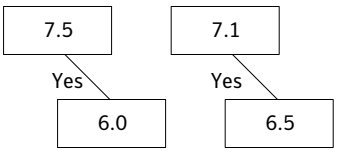


Figure 4-2 Examples of additional NetBackup-Java Administration Console back-level support using the jnbSA -r option



See the *NetBackup Installation Guide* for information about installing earlier versions of the NetBackup-Java Administration Console.

Methods for administering multiple versions of NetBackup servers

Table 4-1 describes the available methods to administer NetBackup 7.5 with an earlier version console. The order of the listed methods does not imply any preference.

Table 4-1 Methods for administering multiple versions of NetBackup servers

Method	Notes
Earlier versions of the NetBackup-Java Administration Console on UNIX platforms	The earlier versions available in a release are all of those supported in a mixed version environment with the current release. For example, all versions back to and including the last major release. In the NetBackup 7.5 release, the 7.1, 7.0, 6.5.x, and the 6.0.x console versions are available.
Earlier versions of the NetBackup-Java Administration Console on Windows platforms	

Table 4-1 Methods for administering multiple versions of NetBackup servers *(continued)*

Method	Notes
Remote display-back from UNIX servers	From a Windows computer, you can access the Java Windows Administration Console on a UNIX NetBackup server by using connectivity software applications.
At the console on the NetBackup server	Use the appropriate NetBackup-Java Administration Console on the NetBackup server with the earlier version of the console.

Installing multiple versions of the NetBackup-Java Administration Console on Windows

To install multiple versions of the NetBackup interface in a mixed version environment, note the following restrictions and guidelines:

Updates	Only the most recent version of the NetBackup-Java Administration Console can be updated (or patched).
`auth.conf` file	The NetBackup-Java Capabilities Authorization configuration file (`auth.conf`), must always be located in `install_path\java`. For example, `C:\Program Files\Veritas\java`. The file must exist there regardless of how many versions of the console are installed, or in which directories they are installed. The file is only used for administering NetBackup on this Windows host, and default settings exist if the file is not present. For more information about these defaults, see the section "Authorizing NetBackup-Java users" in the *NetBackup Administrator's Guide for Windows, Volume I.*
Console version location	You must install each Java console version to a different folder.

To install earlier versions of the NetBackup-Java Administration Console

1. Insert the appropriate version NetBackup Windows installation media with the NetBackup-Java Administration Console that you want to install.
2. Select one of the following consoles, based on the NetBackup version:

- For NetBackup 6.0 versions, select **NetBackup Installation** and click **Install Java Administration Console**. Select whether you want to install the 32-bit or the 64-bit console.
- For NetBackup 6.5 versions, select **NetBackup Installation** and click **Install Java Windows Administration Console**. Select whether you want to install the 32-bit or the 64-bit console.
- For NetBackup 7.0 and 7.1 versions, select **Installation** and click **Java Windows Administration Console Installation**.

3 If a different version of the Java console has already been installed, specify a new folder location to prevent overwriting the earlier installation.

For example, specify `C:\Program Files\Veritas\nbjava65` for version 6.5 Java consoles.

4 To complete the installation, click **Finish**.

Removing earlier versions of the NetBackup-Java Administration Console on Windows

In some cases, you can remove earlier versions of the NetBackup-Java Administration Console by using the **Add/Remove Programs** feature. You can use this method if the version that you want to remove appears in the list of programs.

If the version that you want to remove does not appear in the list of programs, you must manually remove it. Use the following procedure.

To manually remove earlier versions of the NetBackup-Java Administration Console

1 Remove the folder where the earlier version NetBackup-Java Administration Console is installed.

2 Remove the appropriate menu item from the **Start > Programs > NetBackup** menu.

3 Remove any relevant desktop shortcuts.

Chapter 5

Upgrading server and client software

This chapter includes the following topics:

Requirements for upgrading UNIX servers to NetBackup 7.5

Before you upgrade, refer to the *NetBackup Release Notes* for version 7.5 for complete details about the changes that may affect how to upgrade your NetBackup environment.

Warning: To help ensure a successful upgrade to NetBackup 7.5, please proceed immediately to the following NetBackup 7.5 Upgrade Portal for complete upgrade details: http://www.symantec.com/docs/TECH74584

Warning: If you currently use NetBackup versions 7.0.x and want to upgrade a Solaris SPARC media server that hosts a media server deduplication pool, an updated version of the `pduninstall.sh` script is required. The new script must be installed before you upgrade to NetBackup 7.5. Please see the following Technote on the Symantec Support Web site to download the updated script: http://symantec.com/docs/TECH146243. If you upgrade before this file is updated, the Technote also describes the necessary steps that you must follow to fix any related problems.

Note: If you currently use NetBackup 6.x and plan to upgrade to version 7.5, be aware that NetBackup versions 7.0 and 7.1 contained many changes and enhancements. Before you upgrade from any 6.x version to 7.5, you should refer to the *NetBackup Release Notes* for versions 7.0 and 7.1 for complete details. You can also refer to the following topics for a summary of changes in NetBackup 7.0 and 7.1: See " About changes in NetBackup 7.1" on page 21. and See "About changes in NetBackup 7.0" on page 23.

The following describes the general requirements for UNIX server upgrades:

Supported upgrade paths	■ Direct upgrades to NetBackup 7.5 You can upgrade directly to NetBackup 7.5 from versions 6.x, 7.0, or 7.1. This installation guide includes the procedures for these upgrades. ■ Upgrades from 5.x versions If you currently use NetBackup 5.x versions, you cannot upgrade directly to 7.5. You must first upgrade to NetBackup 6.0 or 6.5. Symantec recommends that you upgrade to 6.5. An upgrade guide is posted on the upgrade portal at the following location: http://www.symantec.com/docs/TECH52785. After you upgrade to 6.5, you can upgrade to 7.5.
Back up databases	Before you proceed with any upgrade procedure, always back up your existing NetBackup database. If an error occurs during the upgrade, you can roll back to the previous version and still retain your information from the database backup.

Review installation requirements	Many of the NetBackup server installation requirements also apply to NetBackup upgrades. Review these requirements before you upgrade. See "About NetBackup server installation requirements for UNIX systems" on page 30.
Converting a master server to a media server	When you perform an upgrade, a master server cannot be changed to a media server. To make this change, you must first remove the earlier version of NetBackup, then install the new version.
Converting a non-failover server to a NetBackup failover server	For NetBackup Enterprise upgrades, you cannot convert an existing non-failover server to a highly available failover NetBackup server.
Version support between servers and clients	Make sure that the NetBackup version on each server is at least equal to the version on any clients. Earlier software versions on servers can encounter problems with later software versions on clients.
Add-on product versions	Add-ons must be at the same version as the NetBackup server or the client where the add-on is installed.
NetBackup Access Control (NBAC)	Starting with NetBackup 7.1, NetBackup Access Control (NBAC) is installed with NetBackup. If you currently use NBAC in NetBackup versions 6.x through 7.0.1, a separate upgrade is no longer required. An upgrade to version 7.1 or later automatically migrates all NBAC files from a shared location to a location within NetBackup.
Conflicts with older clients and new features	If you have NetBackup clients that are unsupported for NetBackup 7.x, you may encounter problems with new features in this release. If you do not plan to upgrade these earlier version clients, move them to a separate policy.
gzip and gunzip locations	Ensure that the `gzip` and the `gunzip` commands are installed on the local system. The directories where these commands are installed must be part of the root user's path environment variable setting.

`nblog.conf` file updates

An upgrade to NetBackup 7.5 overwrites the `nblog.conf` file with a new file and resets all logging levels to their default values. If you changed any logging level values from their default in your current NetBackup environment, you must change them after the upgrade.

Upgrades to NetBackup 7.5 also reset the following features:

- Logging Level
  This feature was introduced in NetBackup 6.0 GA. Upgrading to 7.5 resets this feature to its default (`DebugLevel=1` and `DiagnosticLevel=6`).
  To change the Logging Level to the desired setting after you upgrade, refer to the *NetBackup Administrator's Guide, Volume I*.
- LogRecycle
  This feature was introduced in NetBackup 6.0 MP4. Upgrading to 7.5 resets this feature to False (off).
  To change LogRecycle to the desired setting after you upgrade, refer to the *NetBackup Troubleshooting Guide*. You should also refer to the information at the following Website:
  http://www.symantec.com/docs/TECH44292

The following describes requirements for NetBackup server upgrades that are specific to certain configurations:

NetBackup Operations Manager (NOM)

Starting with NetBackup 7.0, NOM has been replaced with OpsCenter. The new name retains the same functionality as NOM and includes additional features.

All NOM 6.0 MPx and 6.5.x versions can be upgraded to OpsCenter (NetBackup 7.x).

Solaris systems	The installation procedure prompts you for the name of an alternate root path. This path is used in an alternate boot environment that lets you install NetBackup on a different file system. For example, suppose that Host B's `root`, `usr`, `etc`, `tmp`, and `var` file systems are mounted on Host A as follows: `/alt`, `/alt/usr`, `/alt/etc`, `/alt/tmp`, and `/alt/var`. When you log in to Host A, you can specify `/alt` as the alternate root environment and install NetBackup on Host B. This feature applies to NetBackup servers only and not options or clients.

Clustered environments	■ Refer to the *NetBackup Clustered Master Server Administrator's Guide* for cluster installation prerequisites and notes, specific to your cluster environment. This installation guide describes cluster installation, but may not provide details for your particular configuration. ■ An existing non-failover NetBackup server cannot be converted to a highly available failover NetBackup server. ■ Before you upgrade, you must have the cluster frameworks installed, configured, and started. ■ Cluster environments are only supported with NetBackup Enterprise Server. ■ The name that you enter during the upgrade for the NetBackup server must be the virtual server name, not the actual local host name. ■ Make sure that each node in the cluster where you install NetBackup can run the `rsh` command or its equivalent. (On HP-UX, the command is `remsh`). Starting with NetBackup 7.5, you can also use the `ssh` command The root user must be able to perform a remote login to each node in the cluster without entering a password. This remote login is necessary for installation and configuration of the NetBackup server and any NetBackup options. After installation and configuration are completed, it is no longer required. ■ The virtual server name must be defined by using DNS, NIS, or `/etc/hosts`. The IP address is defined at the same time. (The virtual name is a label for the IP address.) ■ The `CLUSTER_NAME` must be exactly the same in each `bp.conf` configuration file. This requirement ensures that the device configuration information for each cluster node in the EMM database is stored properly. Otherwise, the upgrade may not detect all of the cluster nodes.

Allowing for reinstallation of earlier versions of NetBackup

If you ever intend to reinstall a previous version of NetBackup after you have performed an upgrade, backups are essential. If you need to reinstall, these backups contain your most recent data.

Note: For clustered environments, you cannot reinstall an earlier version of NetBackup.

To allow for reinstalling earlier versions of NetBackup

1. Back up all databases (media, volume, configuration, device) and catalogs on the master and the remote media servers.
2. Back up all NetBackup patches, scripts, and the `bp.conf` entries that are specific to the earlier NetBackup version.

   You do not have to upgrade your clients at this time; only the master and the remote media servers.

About the upgrade order for NetBackup 7.5

If you use NetBackup OpsCenter, you must first upgrade those product components before you upgrade to NetBackup 7.5. Upgrading OpsCenter first helps to ensure that it can interact with the new features in NetBackup 7.5. For complete instructions about how to upgrade NetBackup OpsCenter, see the *NetBackup OpsCenter Administrator's Guide*.

The following describes the order in which to upgrade all of these products. If you do not use NetBackup OpsCenter, upgrade NetBackup as described in the last step.

Step 1	Upgrade OpsCenter Agent.
Step 2	Upgrade OpsCenter Server.
Step 3	Upgrade OpsCenter View Builder.
Step 4	Upgrade your NetBackup environment in the following order: ■ Back up the current NetBackup databases. ■ Upgrade master servers. ■ Upgrade media servers. ■ Upgrade NetBackup Remote Administration Consoles. ■ Upgrade clients. ■ Upgrade any installed NetBackup add-on products (such as language packs). **Note:** If your current NetBackup environment uses a remote EMM (an EMM installed on a media server), you must upgrade this server first. Once you upgrade the remote EMM, you must upgrade all master servers that communicate with it. NetBackup does not support the use of a later version EMM server with an earlier version master server.

The installation process automatically searches to determine if an earlier NetBackup version exists on your system. The presence of an existing version dictates that you are about to perform an upgrade.

Before you proceed with any upgrade, be sure to review the upgrade requirements.

See "Requirements for upgrading UNIX servers to NetBackup 7.5" on page 81.

See "About NetBackup mixed version support" on page 26.

See "About NetBackup server installation requirements for UNIX systems" on page 30.

Upgrading server software from versions 6.x or 7.x to 7.5

Before you begin an upgrade, Symantec recommends that you review the *NetBackup Release Notes* document that is included with your media kit or the electronic product image files. This document describes important changes in NetBackup 7.5 that you should be familiar with before you upgrade.

Before you begin any upgrade to NetBackup 7.5, refer to the following topics to help you prepare and plan for the upgrade:

See "About image metadata migration after upgrades to NetBackup 7.5" on page 15.

See "Planning for image metadata migration after an upgrade to NetBackup 7.5" on page 19.

Caution: To help ensure a successful upgrade to NetBackup 7.5, please visit the following NetBackup 7.5 Upgrade Portal for complete upgrade details: http://www.symantec.com/docs/TECH74584

Warning: If you currently use NetBackup versions 7.0.x and want to upgrade a Solaris SPARC media server that hosts a media server deduplication pool, an updated version of the `pduninstall.sh` script is required. The new script must be installed before you upgrade to NetBackup 7.5. Please see the following Technote on the Symantec Support Web site to download the updated script: http://symantec.com/docs/TECH146243. If you upgrade before this file is updated, the Technote also describes the necessary steps that you must follow to fix any related problems.

Note: If you currently use NetBackup 6.x and plan to upgrade to version 7.5, be aware that NetBackup versions 7.0 and 7.1 contained many changes and enhancements. Before you upgrade from any 6.x version to 7.5, you should refer to the *NetBackup Release Notes* for versions 7.0 and 7.1 for complete details. You can also refer to the following topics for a summary of changes in NetBackup 7.0 and 7.1: See " About changes in NetBackup 7.1" on page 21. and See "About changes in NetBackup 7.0" on page 23.

Remember that starting with NetBackup 7.1, NetBackup Product Authentication, and Authorization (NetBackup Access Control) is included and installed with NetBackup. A valid license is still required to enable the product and configuration is also required to use the feature.

The following information is a reminder of major changes in NetBackup 7.0 that affect upgrades:

HP PA-RISC	Starting with NetBackup 7.0, this platform is not supported as a master server or as a media server that contains the EMM server. It is only supported as a true media server (no EMM) or a true client.
IBMzSeries RedHat and IBMzSeries SUSE	Starting with NetBackup 7.0.1, these platforms are supported for use as media servers only.
Veritas NetBackup Storage Migrator (VSM)	VSM has reached its end of life and is not supported in versions 7.0 or later. Before you upgrade from version 6.x to 7.x, you must decide which of the following actions to take: ■ To keep VSM, leave the server at the current 6.x version. ■ Before you upgrade to version 7.x, unmigrate all files and remove VSM and any related products. For instructions on how to remove VSM, refer to one of the following sources: *NetBackup Storage Migrator Installation Guide*. `VSM_README.txt` file (located at the top of the Solaris SPARC and HP PA-RISC media)

32-bit systems	NetBackup 7.x server software is 64-bit compatible only and cannot be installed on 32-bit systems. If you have 32-bit systems with NetBackup 6.x master servers that you want to upgrade, you must first migrate the NetBackup catalog and databases to a supported 64-bit system. See "About replacing NetBackup server types not supported in NetBackup 7.x" on page 37.

UNIX package consolidation

Starting with NetBackup 7.0, most of the add-on products and database agents are now installed with the NetBackup server or the client package. Separate installation for these products is no longer needed.

The following products are now included in the NetBackup server package (if the platform supports the product):

- BMR master server
- NDMP
- Vault

The following products are now included in the NetBackup client package (if the platform supports the product):

- BMR Boot server
- DB2
- Encryption
- Informix
- LiveUpdate agent
- Lotus Notes
- Oracle
- SAP
- Snapshot Client
- Sybase

The binaries for the listed products are laid down with the server or the client package. A valid license is still required to enable the product. If product configuration was required previously (such as `db2_config`), configuration is still required.

Note: For Solaris server upgrades, the older versions of any listed products here must be removed before an upgrade to NetBackup 7.x. For example, `VRTSnbdb2`, `SYMCnbdb2`, `VRTSnbenc`, `SYMCnbenc`, and others. The installation script displays a list of the packages it finds that must be removed.

The French, the Japanese, and the Chinese language packages remain as separate add-ons. The process to install and upgrade these products remains the same.

Warning: If you remove the earlier versions after an upgrade to version 7.x, part of the NetBackup installation is destroyed and the product cannot function.

Clusters

Starting with NetBackup 7.5, you can decide the order in which to upgrade the nodes. Either the active node or the inactive nodes can be upgraded first.

NetBackup Administration Console	The NetBackup Administration Console must be closed when you upgrade NetBackup. Otherwise, NetBackup may cause a failure that forces you to restart the procedure.

You should schedule your upgrade and reconfiguration for a time when backups do not run. However, the upgrade procedure instructs you to deactivate all policies to ensure that backups do not interfere with the upgrade. You can also temporarily modify policies so that backups do not run while you upgrade and reconfigure NetBackup.

To upgrade server software from versions 6.x or 7.x to 7.5

1. Run a hot catalog backup. If an error occurs during the upgrade, you can roll back to the previous version and still retain your information from the catalog backup.

   This step is especially important for upgrades from 6.x versions because cold catalog backup support was discontinued starting with NetBackup 7.0.

   Catalog backups are typically scheduled to occur automatically from a catalog backup policy. You can also initiate a hot catalog backup manually as follows:

   Note: If a catalog backup policy does not exist, you must first create and configure one to run a hot catalog backup. For complete details, see the *NetBackup Administartor's Guide, Volume I*.

   - In the **NetBackup Administration Console**, expand **NetBackup Management > Policies**.
   - Select the catalog backup policy you want to run.
   - Select **Actions > Manual Backup**.

   You can also run the `bpbackup` command from the command line to perform a full hot catalog backup. For complete details about this command, see the *NetBackup Commands Reference Guide*.

2. Log on as the root user on the server.
3. Deactivate all NetBackup policies as follows:

For NetBackup Administration Console users:

- Open the NetBackup Administration Console on the master server.
- From the tree on the left, select **Policies**.
- In the right pane, select all of the NetBackup policies that appear.
- Right-click on the selected policies, then select **Deactivate**.

For command-line users, enter the following commands:

- Navigate to the following directory:
  `cd /usr/openv/netbackup/bin/admincmd`
- To deactivate NetBackup policies, enter the following command:
  `./bpplinfo` *`policy_name`* `-modify -inactive`

4 Deactivate disk staging storage units as follows:

For NetBackup Administration Console users:

- On the master server, open the NetBackup Administration Console.
- From the tree on the left, expand **NetBackup Management > Storage Units**.
- In the right pane, double-click on a disk staging storage unit.
- When the **Change Storage Unit** dialog box appears, select **Staging Schedule**.
- When the **Disk Staging Schedule** dialog box appears, click the **Exclude Dates** tab.
- Select the date in the calendar that matches the date of the system upgrade, then click **OK**. The storage unit is then disabled on that date.
- Click **OK** to close the **Disk Staging Schedule** dialog box, then click **OK** to close the **Change Storage Unit** dialog box.
- Repeat these tasks for each disk staging storage unit.

For command-line users, navigate to the following directory:

`cd /usr/openv/netbackup/bin/admincmd`

Enter the following command:

`./bpschedulerep` *`schedulename`* `-excl` *`mm/dd/yyyy`*

5 Deactivate all media servers as follows:

For NetBackup Administration Console users:	■ Open the NetBackup Administration Console on the master server. ■ From the tree on the left, select **Media and Device Management > Devices > Media Servers**. ■ In the right pane, select all of the media servers that appear. ■ Right-click the media servers and select **Deactivate**.

For command-line users:

```
/usr/openv/volmgr/bin/vmoprcmd -deactivate_host -h device_host
```

6 If the NetBackup Administration Console is open, you must close it now.

7 For clustered environments, perform the following tasks:

- If necessary, edit the `bp.conf` and the `vm.conf` files as follows:
  If a `REQUIRED_INTERFACE` entry exists, replace it with a `CLUSTER_NAME` entry. Otherwise, add a new `CLUSTER_NAME` entry. This entry should be defined as the virtual server name.
  For a master server, make sure that the first `SERVER` entry matches the `CLUSTER_NAME` entry for the `bp.conf` file.
- Freeze the NetBackup Group so that migrations do not occur while the inactive nodes are upgraded.
- If you have a VCS cluster configured, you can freeze the NetBackup Group by using the Cluster Manager interface or the command line.
- Before you proceed with a cluster upgrade, refer to the *NetBackup Clustered Master Server Administrator's Guide* for other cluster upgrade requirements.

8 For Solaris servers only, remove the 6.x or 7.x versions of all add-on products and database agents.

Note: The installation script displays a list of the add-on products and the agents that are currently installed. The script also offers to remove these earlier versions for you and Symantec recommends this method.

Warning: You also have the option to remove these items manually before the upgrade occurs. These items must be removed before you upgrade to version 7.x. If you remove these items after an upgrade to version 7.x, part of the NetBackup installation is destroyed and the product cannot function. If you decide to remove these products manually, you must stop the upgrade here. Refer to the appropriate NetBackup 6.x or 7.x documentation for instructions on how to remove each add-on product or agent.

---

9 For Solaris systems, all of the NetBackup scripts that you may have modified are removed when you complete this step.

Perform each of the following tasks in the order as shown:

- Save any files that you have modified and want to keep.
- Remove the current NetBackup server package by using the appropriate command:

  For version 6.0: `pkgrm VRTSnetbp`

  For versions 6.5 and later: `pkgrm SYMCnetbp`

  The following prompt appears:

  ```
  Are you doing this pkgrm as a step in an upgrade
  process?
  ```

- Enter **`y`**.

10 For AIX systems, this step deletes any robotic control paths. In an AIX clustered environment, you must perform this step on all nodes in the cluster.

For more information about the robotic control paths, see the *NetBackup Device Configuration Guide*.

- Remove the `ovpass` driver, as follows:

  ```
  /usr/openv/volmgr/bin/driver/remove_ovpass
  ```

11 Ensure that you have license keys for all of the NetBackup servers, clients, options, and agents that you ordered.

When you install a NetBackup Enterprise master or a media server, you must enter a NetBackup Enterprise server license key.

For more information on how to administer NetBackup licenses, see the *NetBackup Administrator's Guide, Volume I*.

12 Use one of the following methods to start the upgrade script:

DVD	■ Insert the NetBackup Server DVD for the appropriate platform in the drive. Check the DVD label to identify its contents. See "About the NetBackup media kit" on page 28. ■ If necessary, mount the DVD. See "About mounting the NetBackup software media" on page 53. ■ Enter the following command: `cd_directory/install` The *cd_directory* is the path to the directory where you can access the DVD.
ESD images (downloaded files)	■ Navigate to the location where the installation images reside. ■ Enter the following command: `./install`

13 Follow the prompts in the installation script to install the NetBackup server binaries.

During the active node upgrade, the following question appears:

```
Do you want to start the NetBackup job-related daemons so
backups and restores can be initiated? [y,n] (y)
```

Enter **n** and press **Enter**.

Do not start the NetBackup job-related processes until all nodes are upgraded.

14 For clustered environments only, unfreeze the NetBackup group.

15 After you have finished the upgrade, you can configure NetBackup Access Control (NBAC).

For detailed information, see the *NetBackup Security and Encryption Guide*.

16 After all servers are upgraded, reactivate the following in the order as shown:

- All media servers
- All disk staging storage units
- All NetBackup policies, except for catalog backup policies.

Warning: Do not reactivate any catalog backup policies until after the image metadata migration has completed. Also, do not attempt any catalog recovery operations until after the image metadata migration has completed. Once the image metadata migration is finished, remember to reactivate catalog backup policies.

17 For upgrades to NetBackup 7.5, the image metadata migration must be completed to finish the upgrade. Refer to the following information for complete details:

- See "About image metadata migration after upgrades to NetBackup 7.5" on page 15.
- Click on the following link to go to the NetBackup 7.5 Upgrade Portal and review the *NetBackup 7.5 Upgrade Guide*:
  http://www.symantec.com/docs/TECH74584
  This guide describes the estimated migration times based on the migration method and the number of images to be migrated.
- See "Planning for image metadata migration after an upgrade to NetBackup 7.5" on page 19.

After all server software is upgraded, you are ready to install or upgrade client software.

See "About NetBackup client installation" on page 115.

Upgrading clients after servers are upgraded

The `update_clients` installation script lets you push client software to clients. It does not let you push client software to a remote client that is also a NetBackup media or master server. You cannot push software this way because the server software and client binaries must be of the same version on a single host.

The `update_clients` installation script can determine the full client list that is configured on the server. When it is run without any parameters, it attempts to update all clients (as determined by `/usr/openv/netbackup/bin/admincmd/bpplclients`). If you do not want to

upgrade all clients, you can specify a subset of clients. Use the hardware type and operating system parameters or use the `-ClientList` parameter.

You can run `update_clients` from a media server. The `-ClientList` parameter is required in this situation. The script lets you maintain a media server and a set of clients at an earlier release level than the master server. Doing so requires the informed use of the `update_clients -ClientList` command on a master server and a media server to avoid unwanted client upgrades.

For clustered environments, you can push client software only from the active node.

During a client upgrade, the new client files are written to a directory in `/tmp` on the client. This directory must have sufficient space to temporarily store the new client files to ensure a successful upgrade. If sufficient space is not available, a status message informs you that the upgrade script could not write to the location in the `/tmp` directory. To resolve this issue, allocate more space to the `/tmp` directory and perform the upgrade procedure again. The temporary directory is removed when the upgrade is complete.

To upgrade clients after you have upgraded servers

1 Use one of the following methods to start the installation script:

DVD

- Insert the NetBackup UNIX Clients DVD into the drive.
  See "About the NetBackup media kit" on page 28.
- If necessary, mount the DVD.
  See "About mounting the NetBackup software media" on page 53.
- Enter the following command:

  cd_directory`/install`

  The *cd_directory* is the path to the directory where you can access the DVD.

ESD images (downloaded files)	■ Navigate to the location where the installation images reside. ■ Enter the following command: `./install`

2 When the following message appears, press **Enter** to continue:

```
Installing NetBackup Client Software.
Do you wish to continue? (y/n) [y]
```

The client binaries represent the operating system versions where the binaries were compiled. The binaries typically function perfectly on later versions of the operating system. For example, HP PA-RISC 11.11 binaries also are used on the HP PA-RISC 11.23 level of the operating system.

3 Select the client type that you want to load and follow the prompts to load that client type. Repeat as necessary until all desired client types have been loaded.

Make sure that you load the software for all of the UNIX client types that you intend to push to from this server. Otherwise, you cannot add these client types to the NetBackup policy configuration.

4 After the installation is complete, unmount the DVD.

5 As a root user on the NetBackup master server, enter the following command to see whether `bprd` is running:

```
/usr/openv/netbackup/bin/bpps
```

If `bprd` is running, stop it with the following command:

```
/usr/openv/netbackup/bin/admincmd/bprdreq -terminate
```

6 Enter the following command to make sure that backups or restores are not in progress:

```
/usr/openv/netbackup/bin/admincmd/bpdbjobs
```

7 Update UNIX client software by running the `update_clients` script. Specify the host names of the individual nodes (not virtual names) in the list of clients.

Use one of the following commands:

If you do not use a `-ClientList` file:	`/usr/openv/netbackup/bin/update_clients`

If you use a `-ClientList` file:	`/usr/openv/netbackup/bin/update_clients -ClientList` *filename*

The `-ClientList` parameter is required on a media server.

For more than 30 clients, you can divide the list into multiple files and run `update_clients` for each file.

To create a client list file, perform the following steps:

- Change to the NetBackup `admincmd` directory, as follows:

  ```
  cd /usr/openv/netbackup/bin/admincmd
  ```

- Use the `bpplclients` command to create a file that contains a list of clients currently configured in the NetBackup database. The options to use on this command differ depending on whether you push from a master server or from a media server, as follows:

If you push from the master server:	`./bpplclients -allunique -noheader >` *file*
If you push from a media server:	`./bpplclients -allunique -noheader -M \` *m_server_name > file*

  The option descriptions are as follows:

`m_server_name`	Name of the NetBackup master server in this environment.
`file`	Name of the file to contain the list of unique clients. If no clients have been configured in the NetBackup database, the file is empty.

  The `bpplclients` command writes output to `file` in the following format:

  ```
  hardware os client
  ```

`hardware`	The hardware name. For example, run the `ls` command in directory `/usr/openv/netbackup/client`.
`os`	The operating system name. For example, run the `ls` command in directory `/usr/openv/netbackup/client/`*hardware*`.`
`client`	The name of the client.

The contents of `file` might look like the following example:

```
Solaris Solaris9 curry
```

- (Optional) Edit `file`.
  Perform this step to change the contents of `file`. Edit `file` to contain only those clients you want to update with NetBackup client software. The host names of the clients must be the clients' individual node names. They cannot be virtual names. The `hostname` command and the `domainname` command return the correct values for the individual node names. The format can be either `hostname` or `hostname.domainname`.

8 The `update_clients` script requests information from you. The following information appears in the script:

```
Starting update_clients script.
There are N clients to upgrade.
Do you want the bp.conf file on the clients updated to list this
server as the master server? (y/n) [y]
```

Type either **y** or **n**.

```
Enter the number of simultaneous updates you wish to take
place. [1 - 30] (default: 15):
```

Press **Enter**.

```
The upgrade will likely take Y to Z minutes.
Do you want to upgrade clients now? (y/n) [y]
```

Type either **y** or **n**.

9 After all servers and clients are updated, start the `bprd` daemon as the root user on the master server by entering the following command:

```
/usr/openv/netbackup/bin/initbprd
```

10 After you have upgraded the NetBackup software, proceed to following topic:

See "Completing your system update after an upgrade" on page 101.

Completing your system update after an upgrade

After you have upgraded servers and clients, you may need to perform additional tasks to complete the update of your NetBackup environment.

Perform any of the following that apply to your NetBackup environment:

Master server privileges	If you upgraded a master server that allowed nonroot users to administer NetBackup, you must reconfigure the permissions and the group. The default permissions and group on the newly installed files allow only a root user to perform NetBackup administration.
Add-on products	Upgrade any add-on products (such as NetBackup language packages) on all upgraded clients. All add-on products should be at the same version as the NetBackup client.
NetBackup scripts	If you made changes to NetBackup scripts before the upgrade, apply those changes to the new, upgraded versions of the scripts.

Automatic file changes from an upgrade

When you upgrade from an earlier NetBackup version, certain customizable scripts are overwritten. Before NetBackup overwrites these scripts, it saves copies of them as a record of your modifications.

The following examples describe how this process works:

Example 1: goodies directory	Your current NetBackup version is 6.5 and you modified files in the goodies directory. For example:
	`/usr/openv/netbackup/goodies`
	After an upgrade to NetBackup 7.5, the following directory is created automatically and contains the modified files from the earlier version:
	`/usr/openv/netbackup/goodies.6.5`
	If you made changes to these scripts before the upgrade, apply those changes to the new 7.5 scripts.

Example 2: bin directory	Your current NetBackup version is 6.5 and you modified files in the bin directory. For example:
	`/usr/openv/netbackup/bin/backup_notify`
	After an upgrade to NetBackup 7.5, any modified scripts in the bin directory now include the earlier version in their file name. For example:
	`backup_notify.6.5`
	If you made changes to these scripts before the upgrade, apply those changes to the new 7.5 scripts.

Table 5-1 describes the files and scripts that are overwritten when you upgrade from an earlier UNIX version of NetBackup:

Table 5-1 Overwritten files and scripts on UNIX systems

Path	Affected files and scripts
/usr/openv/netbackup/bin/goodies	All files
/usr/openv/netbackup/help	All files
/usr/openv/volmgr	Some files and directories
/usr/openv/netbackup/bin	backup_notify backup_exit_notify bpend_notify (present only if used) bpend_notify_busy (present only if used) bpstart_notify (present only if used) dbbackup_notify diskfull_notify initbpdbm initbprd restore_notify session_notify session_start_notify userreq_notify
/usr/openv/volmgr/bin/goodies	drive_mount_notify (present only if used) drive_unmount_notify (present only if used)
/usr/openv/volmgr/bin	shared_drive_notify

Chapter 6

Removing NetBackup server software

This chapter includes the following topics:

About NetBackup server software removal on UNIX systems

NetBackup removal procedures remove NetBackup completely, along with any installed add-on products. Each procedure gives you the opportunity to save any data that you want and to remove add-on products before you remove NetBackup.

Symantec recommends that you use the following order when you remove NetBackup server software:

- Save any data that you require.
  This task is very important if you plan to reinstall NetBackup at a later date.
- Remove any add-on products before you remove NetBackup server software.
- Remove the NetBackup server software.

See "Removing NetBackup from UNIX servers" on page 106.

See "About NetBackup software removal on UNIX clients" on page 143.

See "Removing NetBackup from UNIX clients" on page 143.

Removing NetBackup from UNIX servers

Use this procedure to remove NetBackup from a UNIX server. You may also need to reference other documents for procedures of specific tasks to remove NetBackup successfully.

Use the following guidelines when you remove NetBackup from UNIX servers:

NetBackup relational database (NBDB) location	If you moved the NBDB files in `/usr/openv/db/data` from their default installation location, this procedure includes a step that describes how to remove these files.
Clustered environments	Before you begin to remove NetBackup, you must remove NetBackup from the cluster application. Follow the instructions in your cluster documentation on how to remove a group, then you can remove NetBackup. You must remove NetBackup from each node in the cluster.
Alternate root path (Solaris systems only)	If you identified an alternate root path in your NetBackup 7.5 installation or upgrade, the process prompts you with the alternate root path. You can use the `pkgrm -R` command from the alternate root location. This command applies only to NetBackup Solaris servers, not add-ons, or clients.
HP-UX Service Guard Clusters	If NetBackup has been configured to run as a clustered package, you must also delete the following directory: `/etc/cmcluster/netbackup`
PBX	When you remove NetBackup, PBX is not removed. You must remove PBX manually. This procedure includes a step that describes how to perform this task. **Warning:** Do not remove PBX if your server uses other Symantec software products that require PBX to run.
NetBackup Administration Console	The NetBackup Administration Console must be closed when you remove NetBackup. Otherwise, NetBackup may cause a failure that forces you to restart the procedure.

To remove NetBackup from UNIX servers

1. Log on as the root user on the server.
2. Perform a catalog backup.
3. If the NetBackup Administration Console is open, you must close it now.
4. Save all important data from any add-on products that you have installed.

5 Stop the NetBackup/Media Manager daemons with the following command:

```
/usr/openv/netbackup/bin/bp.kill_all
```

6 Identify any installed add-on products by using the following command:

AIX	`lslpp -L`
HP-UX	`swlist`
Linux	`rpm -qa`
Solaris	`pkginfo`

Remove each identified add-on product.

7 For Solaris systems only, run the following command:

```
/usr/openv/volmgr/bin/driver/sg.install -deinstall
<pkg-install-root>
```

8 To unregister NetBackup from the VxUL master configuration that is stored in the `/etc/vx/vrtslog.conf` file, run the following command:

```
/usr/openv/netbackup/bin/vxlogcfg -r -p 51216
```

The `-p` option specifies the product ID, which is 51216 for NetBackup.

9 If BMR is supported and enabled on the server, remove the associated files with the following command:

```
/usr/openv/netbackup/bin/bmrsetupmaster -undo -f
```

10 To unregister all NetBackup products with LiveUpdate, enter the following command:

```
/usr/openv/netbackup/bin/nblu_registration -r
```

11 If you moved the NBDB files from their default installation location, you must delete these files manually as follows:

- Navigate to the following directory where the NBDB files reside:
  `/usr/openv/db/data`
- Open the `vxdbms.conf` file.
  This file contains a list of the database-related files and the path for each file.
- Delete each of the database-related files.

12 If NetBackup Fibre Transport is supported and enabled on the server, remove the associated files with the following command:

```
/usr/openv/netbackup/bin/admincmd/nbftsrv_config -d
```

13 For the clients that support PureDisk, remove all PureDisk files with the following command:

```
/opt/pdde/pddeuninstall.sh -basedir /usr/openv/pdde/ -ostdir
/usr/openv/lib/ost-plugins/ -forceclean
```

14 To remove the NetBackup server package, run the following command:

AIX	`installp -u SYMCnetbp`
HP-UX	`swremove SYMCnetbp`
Linux	`rpm -e SYMCnetbp`
Solaris	`pkgrm SYMCnetbp` ■ When the script asks if you want to remove the installed package `SYMCnetbp`, enter **`y`** and press **`Enter`**. ■ When the script asks if you want to continue with the package removal using superuser permission, enter **`y`** and press **`Enter`**.

15 Remove the NetBackup-Java Display Console by using the appropriate native command as follows:

AIX	`installp -u SYMCnbjava`
HP-UX	`swremove SYMCnbjava`
Linux	`rpm -e SYMCnbjava`
Solaris	`pkgrm SYMCnbjava`

16 Remove the NetBackup Java Runtime Environment by using the appropriate native command as follows:

AIX	`installp -u SYMCnbjre`
HP-UX	`swremove SYMCnbjre`
Linux	`rpm -e SYMCnbjre`
Solaris	`pkgrm SYMCnbjre`

17 Remove the NetBackup client by using the appropriate native command as follows:

AIX	`installp -u SYMCnbclt`
HP-UX	`swremove SYMCnbclt`
Linux	`rpm -e SYMCnbclt`
Solaris	`pkgrm SYMCnbclt`

18 Remove PBX with the appropriate native command as follows:

Note: Remember, you should not remove PBX if your server uses other Symantec software products that require PBX to run.

AIX	`installp -u VRTSpbx`
HP-UX	`swremove VRTSpbx`
Linux	`rpm -e VRTSpbx`
Solaris	`pkgrm VRTSpbx`

19 To remove the `/usr/openv` directory, select one of the following methods:

Warning: The `rm -f /usr/openv` command also removes any add-on products that are installed on the computer where you perform this command.

- If `/usr/openv` is the actual directory, run the following command:

```
rm -rf /usr/openv
```

- If `/usr/openv` is a symbolic link to that directory, run the following commands:

```
cd /usr/openv
pwd
ls
```

Warning: Before you continue, make sure that you are at the correct location and verify that the subdirectories are what you expect them to be. To help prevent removing the wrong directories, the previous commands verify your current location and list the files in that directory. After you verify the directory location and its contents, remove the directory with the next commands.

```
rm -rf *
cd /
rm -f /usr/openv
```

20 For Linux systems only:

If you modified the startup and the shutdown scripts, run the following command:

```
/sbin/chkconfig --del netbackup
```

See "About NetBackup startup and shutdown scripts" on page 151.

21 Remove the following startup scripts:

On AIX systems:

```
/etc/rc.netbackup.aix
```

On HP-UX systems:

```
/sbin/init.d/netbackup
/sbin/rc1.d/K001netbackup
/sbin/rc2.d/S777netbackup
```

On Linux Debian systems:

```
/etc.init.d/netbackup
/etc/rc0.d/K01netbackup
/etc/rc1.d/K01netbackup
/etc/rc2.d/S95netbackup
```

On Linux Red Hat systems:

```
/etc/rc.d/init.d/netbackup
/etc/rc.d/rc0.d/K01netbackup
/etc/rc.d/rc1.d/K01netbackup
/etc/rc.d/rc2.d/S77netbackup
/etc/rc.d/rc3.d/S77netbackup
/etc/rc.d/rc5.d/S77netbackup
/etc/rc.d/rc6.d/K01netbackup
```

The following startup scripts appear only if NetBackup Fiber Transport was enabled on the server:

```
/etc/rc.d/init.d/nbftserver
/etc/rc.d/rc0.d/K03nbftserver
/etc/rc.d/rc1.d/K03nbftserver
/etc/rc.d/rc2.d/S21nbftserver
/etc/rc.d/rc3.d/S21nbftserver
/etc/rc.d/rc5.d/S21nbftserver
/etc/rc.d/rc6.d/K03nbftserver
```

On Linux SUSE systems:

```
/etc/init.d/netbackup
/etc/init.d/rc0.d/K01netbackup
/etc/init.d/rc2.d/S77netbackup
/etc/init.d/rc3.d/S77netbackup
/etc/init.d/rc5.d/S77netbackup
/etc/init.d/rc6.d/K01netbackup
```

The following startup scripts appear only if NetBackup Fiber Transport was enabled on the server:

```
/etc/init.d/nbftserver
/etc/init.d/rc2.d/K01nbftserver
/etc/init.d/rc2.d/S05nbftserver
/etc/init.d/rc3.d/K01nbftserver
/etc/init.d/rc3.d/S05nbftserver
/etc/init.d/rc5.d/K01nbftserver
/etc/init.d/rc5.d/S05nbftserver
```

On other servers:

```
/etc/init.d/netbackup
/etc/rc0.d/K01netbackup
/etc/rc1.d/K01netbackup
/etc/rc2.d/S77netbackup
```

The following startup scripts appear only if NetBackup Fiber Transport was enabled on the server:

```
/etc/init.d/nbftserver
/etc/rc0.d/K03nbftserver
/etc/rc1.d/K03nbftserver
/etc/rc2.d/S21nbftserver
```

22 For AIX systems only:

- In the `/etc/inittab` file, remove the following NetBackup entry:

  ```
  /etc/rc.netbackup.aix
  ```

- In the `/etc/rc.shutdown` file, remove the following line:

  ```
  /etc/rc.netbackup.aix stop
  ```

23 Remove Symantec LiveUpdate components as follows:

- If NetBackup is the only Symantec product that currently uses LiveUpdate, run the following command:

  ```
  /opt/Symantec/LiveUpdate/uninstall.sh -a
  ```

- If LiveUpdate is the only product installed in the `/opt/Symantec` directory, remove the following files:

  ```
  rm -f /etc/Symantec.conf
  rm -f /etc/Product.Catalog.JavaLiveUpdate
  ```

24 To remove the NetBackup-Java application state data for the root account, run the appropriate command as follows:

Warning: Do not insert a space between the slash character (/) and the period or dot character (.) of `/.veritas`. A space between these characters removes all of your files from the root level and beyond.

- To remove the NetBackup-Java application state data for the root account for all releases, run the following command:

  ```
  /bin/rm -rf /.veritas
  ```

- To remove the NetBackup-Java application state data for the root account for a specific release, run the following command:

  ```
  /bin/rm -rf /.veritas/java/<version>
  ```

  Where *<version>* is the six-digit NetBackup version number. For example, NetBackup version 7.5 with no upgrades applied would be entered as **750000**.

25 Inform NetBackup-Java users that they can remove their `$HOME/.veritas` directory.

The `$HOME/.veritas` and the `$HOME/.veritas/java` directories contain application state information, that is saved when the user exits NetBackup-Java applications. The saved information includes table column order and size. The process removes this directory for the root user only.

The common subdirectory in `$HOME/.veritas/java/.userPrefs/vrts` can be removed.

26 If you enabled NetBackup Access Control, NetBackup placed several files on clients and servers. These files can be divided into the following categories:

NetBackup application temporary files	These files are removed with NetBackup.

Individual user (cache) files

These cache files reside in the `$HOME/.vxss` directory. Inform all users that they can remove this directory.

Files are generated in the `/.vxss` directory by a Single Sign-On operation of the NetBackup Administration Console on the host where the console runs. The NetBackup Administration Console cleans these files when an exit function is performed, so the directory does not always contain temporary files. However, if a system crash were to occur, any files in the directory may be left behind. With the console shutdown , you can delete these files safely with no data loss.

NetBackup also creates cached certificates for client and server NetBackup applications. These files reside within the `/.vxss` directory. These files typically have a name that is consistent with a DNS entry for a network interface, as in `machine.company.com`. Example directory entries are as follows:

```
/usr/openv/var/vxss/credentials/machine.company.com
```

```
/usr/openv/var/vxss/credentials/dhcp
```

These files are created with the command `bpnbat -LoginMachine`. If you plan to reinstall NetBackup on the same computer at a later date, do one of the following:

- Preserve the certificates in the `vxss/credentials` directory.
- If you do not preserve the certificates, you must provide the computer identity password as originally set on the Root+AB broker. As an alternative, you can reset the password on the Root+AB broker when you reinstall.

For more information on Root+AB brokers, see the *NetBackup Security and Encryption Guide*.

For more information on NetBackup Access Control and how to remove it, see the *NetBackup Security and Encryption Guide*.

Chapter 7

Installing NetBackup client software

This chapter includes the following topics:

About NetBackup client installation

By definition, NetBackup servers are also clients. When you install NetBackup server software, client software is also installed.

When you install client software, you perform a true client installation since no server software is installed.

Client software can be installed locally at each individual computer or remotely. The operating system determines which clients can be installed remotely.

Windows	A Windows host can only push client software to Windows clients. NetBackup does not need to be installed on the host that is used to perform the remote client installation.
UNIX	A NetBackup UNIX server can only push client software to UNIX clients. NetBackup software and client type software must be installed on the server that is used to perform the remote client installation.

About NetBackup client installation on Windows

The NetBackup client installation wizard for Microsoft Windows lets you select the appropriate setup and installation options from a series of wizard screens. After you select options, a window appears that lets you verify your selections before the installation begins.

While the installation is in progress, a dialog box provides details of the installation and the setup progress. When the installation is completed, a final window shows the results.

Note the following when you install NetBackup client software on Windows systems:

Client installation restrictions	You cannot install NetBackup client software on the computers that currently have NetBackup server software. In these cases, you must first remove the NetBackup server software. See the *NetBackup Installation Guide for Windows.*.
User permissions	■ By default on Windows 2003, 2008, and 2008 R2 Server systems, only administrators have write permission to the `Program Files` directory. ■ NetBackup writes log files and progress files to the following location: `Program Files\VERITAS\NetBackup\Logs` To perform backups and restores with the Backup, Archive, and Restore interface, users must have write permission to the `Logs` directory. Users without write permission to this directory receive an error message, and the backup or restore is canceled. The administrator account has write permission by default, but you must ensure that other users also have write permission.

About Windows client system requirements

The following describes the hardware and the software requirements for successful installation of NetBackup client software.

Local installation	To install NetBackup client software locally, the system must meet the following configuration requirements: ■ Microsoft Windows 2003/XP, Windows 2008/Vista, or Windows 2008 R2/Windows 7 ■ Any TCP/IP transport that is Windows Sockets compliant. (Use of the TCP/IP transport that comes with the server or the operating system is recommended.) ■ A network adapter that your TCP/IP transport supports
Remote installation	To install NetBackup client software remotely, the system must meet the following configuration requirements: ■ All the requirements for local installations must be met. ■ The source system must run Windows 2003, 2008, or 2008 R2 Server. ■ Administrator privileges are required for the user that performs remote installations.
NetBackup version compatibility	The NetBackup client version that you install must be the same or earlier than the installed version of NetBackup server software. Later client versions cannot be used with earlier server versions. See "About NetBackup mixed version support" on page 26.

About Windows client installation methods

You can install NetBackup clients on Windows systems with the following methods:

Local installation	The installation wizard installs the client software only on the computer where you run the installation. See "Installing NetBackup Windows clients locally" on page 118.
Remote installation	The installation wizard scans the network for available clients where you can install the client software. The source computer must run Windows 2003, 2008, or 2008 R2 Server. Also, a remote installation requires system administrator privileges. **Note:** You cannot install clients remotely from NetBackup Windows servers to UNIX computers. See "Installing NetBackup Windows clients remotely" on page 121.

Silent installation	A silent installation is a process that does not require interactive input. However, you must edit the `silentclient.cmd` file before you run it. See "Installing NetBackup Windows clients silently" on page 127.

See "About NetBackup client installation" on page 115.

Installing NetBackup Windows clients locally

Follow these instructions to install the NetBackup client software on your local Windows system. You can stop the installation process at any time by clicking **Cancel** or by clicking **Back** to return to the previous window.

Note: After client installation, you may need to restart the system for the changes to take effect.

To install NetBackup client software locally on Windows systems

1. Log on as administrator on the host where you want to install the client software.
2. Start the NetBackup Installation Wizard with one of the following methods:
   - DVD media
     Insert the NetBackup for Windows DVD in the drive. If Autorun is disabled, navigate to the DVD drive and run `Browser.exe`.
   - ESD images (downloaded files)
     Navigate to the directory where the images reside and run `Browser.exe`.
3. On the initial screen, select **Installation**.
4. On the **Installation** screen, select **Client Software Installation**.
5. On the **Welcome** screen, review the content and click **Next**.
6. On the **License Agreement** screen, accept the terms of the agreement and click **Next**.

7 On the **Symantec NetBackup Client Installation Type** screen, provide the following information:

Where to install	For a local installation, select **Install to this computer only**.
Typical	Select this option to install NetBackup default features and settings.
Custom	Select this option to choose the NetBackup features to install and the settings that you want.

Click **Next**.

8 This step applies only to **Custom** installations. For **Typical** installations, skip to step 10.

On the **Symantec NetBackup Client Features** screen, you can select the features to install and where the NetBackup files are installed.

Feature List	Click the icon next to any feature and a drop-down menu appears. Select **Install** or **Do not install**.
Destination Folder	By default, NetBackup files are installed to the following location: `C:\Program Files\VERITAS` To change the folder destination where NetBackup is installed: ■ Click **Change**. ■ Browse to the preferred location and designate a new or an existing folder. ■ Click **Next**. **Note:** For upgrades, you cannot change the destination.

9 This step applies only to **Custom** installations. For **Typical** installations, skip to the next step.

On the **NetBackup Options** screen, select from the following options:

At System Startup

Enable or disable the following options:

- **Start NetBackup Client Service Automatically**
  By default, this option is enabled so that NetBackup services are available immediately after system startup.
- **Start NetBackup Client Job Tracker Automatically**
  By default, this option is disabled. To start this option manually after installation, click **Start > All Programs > Symantec NetBackup > NetBackup Client Job Tracker**.

Ports

On this screen, you can change port numbers, if it is necessary in your configuration.

You may need to change a port number if you encounter conflicts when NetBackup and another industry product try to share the same port. Another example is if a port conflict occurs with a firewall, which may cause security issues.

To change a port number, select the port number that you want to replace and type the new number.

Click **Next**.

10 On the **NetBackup Services** screen, provide the following startup account and startup type information for NetBackup client services:

Use the built-in system account

By default, this box is checked so that NetBackup uses the built-in system account. When this box is checked, the fields below it are disabled.

To specify a different system account:

- Click this box to remove the check mark.
- Enter the account information in the following fields:
  Username
  Password
  Domain

Abort install if a reboot is required	This option determines how the installation proceeds if a restart is required as part of the installation or upgrade. If you select this option and the installation process determines that a restart is required, the installation (or upgrade) stops. The system is then rolled back to its original state. If you do not select this option, the installation (or upgrade) proceeds even if the installation process determines that a restart is required.

11 On the **NetBackup System Names** screen, the following fields are populated automatically. Normally, changes are not required. Except for the **Client Name**, you can make changes as needed for your configuration.

Client Name	Do not change this name.
Master Server Name	If necessary, change this name to the appropriate master server where the client backup images are to be stored.
Additional Servers	Enter all of the master server and media server names that you want this client to access.

12 On the **Ready to Install the Program** screen, review the **Installation Summary** that shows your selections from the previous steps. Then select one of the following options:

- Click **Install** to start the installation.
- Click **Back** to view the previous screens and make any changes, then return to this screen and click **Install**.
- Click **Cancel** to cancel the installation.

After you click **Install**, the installation process begins and a screen appears that shows you the installation progress. This process may take several minutes.

13 On the **Installation Complete** screen, click **Finish**.

Installing NetBackup Windows clients remotely

Use this procedure to install NetBackup client software to multiple computers on your network, including the local computer. You can stop the installation process at any time by clicking **Cancel**.

When you install Windows clients remotely, note the following:

Requirements	Review the requirements for Windows client installation. See "About Windows client system requirements" on page 116.
Privileges	You must have administrator privileges on the remote clients for the NetBackup installation to complete successfully.
Client name entries	During installation, the client name is written to the registry in lowercase. For backups to work, the policies on the NetBackup server must specify the client names in lowercase.
Reboot after installation	You may need to restart the local or the remote systems for the changes to take effect. A message appears to alert you if a restart is needed.

To install NetBackup client software remotely on Windows systems

1. Log on as administrator on the host or the system server.
2. Start the NetBackup Installation Wizard with one of the following methods:
   - DVD media
     Insert the NetBackup for Windows DVD in the drive. If Autorun is disabled, navigate to the DVD drive and run `Browser.exe`.
   - ESD images (downloaded files)
     Navigate to the directory where the images reside and run `Browser.exe`.

   On the initial screen (**Home**), select **Installation**.
3. On the **Installation** screen, select **Client Software Installation**.
4. On the **Welcome** screen, review the content and click **Next**.
5. On the **License Agreement** screen, accept the terms of the agreement and click **Next**.

6 On the **Symantec NetBackup Client Installation Type** screen, provide the following information:

Where to install	For remote installation, select **Install to multiple computers on your network**. The procedure does not install the client on the local host unless you add it to the list of systems that you want to install.
Typical	Select this option to install NetBackup default features and settings.
Custom	Select this option to choose the NetBackup features to install and the settings that you want.

7 This step applies only to **Custom** installations. For **Typical** installations, skip to the next step.

On the **NetBackup Options** screen, select from the following options:

At System Startup	Enable or disable the following options: ■ **Start NetBackup Client Service Automatically** By default, this option is enabled so that NetBackup services are available immediately after system startup. ■ **Start NetBackup Client Job Tracker Automatically** By default, this option is disabled. To start this option manually after installation, click **Start > All Programs > Symantec NetBackup > NetBackup Client Job Tracker**.
Ports	On this screen, you can change port numbers, if it is necessary in your configuration. You may need to change a port number if you encounter conflicts when NetBackup and another industry product try to share the same port. Another example is if a port conflict occurs with a firewall, which may cause security issues. To change a port number, select the port number that you want to replace and type the new number.

8 On the **NetBackup Services** screen, provide the following startup account and startup type information for NetBackup client services:

Use the built-in system account

By default, this box is checked so that NetBackup uses the built-in system account. When this box is checked, the fields below it are disabled.

To specify a different system account:

- Click this box to remove the check mark.
- Enter the account information in the following fields:
  Username
  Password
  Domain

Terminate NetBackup processes

Check this box to prevent a reboot while you perform a remote installation. When you check this box, processes that use the NetBackup executables and DLLs are stopped.

Warning: For Oracle users, if you select this option, you must take down your database before you continue the installation.

Abort install if a reboot is required

This option determines how the installation proceeds if a restart is required as part of the installation or upgrade on the remote system.

If you select this option and the installation process determines that a restart is required, the installation (or upgrade) stops. The system is then rolled back to its original state.

If you do not select this option, the installation (or upgrade) proceeds even if the installation process determines that a restart is required.

9 On the **NetBackup System Names** screen, the following fields are populated automatically. Change these fields to meet your specific needs.

Master Server Name

If necessary, change this name to the appropriate master server where the client backup images are to be stored.

Additional Servers

Enter all of the master server and media server names that you want the clients to access.

10 On the **Symantec NetBackup Remote Hosts and Features** screen, specify the hosts where you want NetBackup and any selected features installed.

- **Destination Systems**
  Right-click the **Windows Destination Computers** icon and select from the drop-down menu , or use the following icons:

Browse

Click here to search the network for the hosts where you want to install NetBackup.

- On the **Available Systems** dialog box, select the computer to add and click **Next**.
- On the **Remote Computer Login Credentials** dialog box, enter the **User Name** and the **Password** of the account to be used to perform the installation on the remote computers.
- If you plan to install to multiple remote computers, click the box next to **Remember User Name and Password**. Selecting this option prevents the need to enter this information for each remote computer.
- Click **OK**.
- On the **Remote Destination Folder** dialog box, verify or change the **Destination Folder** where NetBackup is installed.

  The default location is `C:\Program Files\Veritas`.

  If you plan to install to multiple remote computers and you want to use the same location, click the box next to **Use this folder for subsequent systems**. Selecting this option prevents the need to enter the location for each remote computer.

Import

Click here to import a text file that contains a list of host names. When you create the text file, the host names must be defined in the following format:

```
Domain\ComputerName
```

Add	Click here to add a host manually. ■ On the **Manual Remote Computer Selection** dialog box appears, enter the **Domain** and the **Computer Name**, then click **OK**. ■ On the **Remote Computer Login Credentials** dialog box, enter the **User Name** and the **Password** of the account to be used to perform the installation on the remote computers. If you plan to add and install to multiple remote computers, click the box next to **Remember User Name and Password**. Selecting this option prevents the need to enter this information for each remote computer. ■ Click **OK**. ■ On the **Remote Destination Folder** dialog box, verify or change the **Destination Folder** where NetBackup is installed. The default location is `C:\Program Files\Veritas`. If you plan to install to multiple remote computers and you want to use the same location, click the box next to **Use this folder for subsequent systems**. Selecting this option prevents the need to enter the location for each remote computer. ■ Click **OK**.
Remove	To remove a host from the **Destination Systems** list, select the host and click here.
Change	Click here to change the destination for NetBackup file installation on the selected remote host.

- **Features**
  Click a feature icon and select either **Install** or **Do not install** from the drop-down menu .
- Click **Next**.

11 On the **Ready to Install the Program** screen, review the **Installation Summary** that shows your selections from the previous steps. Then select one of the following options:

- Click **Install** to initiate the installation.
- Click **Back** to view the previous screens and make any changes, then return to this screen and click **Install**.

- Click **Cancel** to cancel the installation.

After you click **Install**, the installation process begins and a screen appears that shows you the installation progress for each computer. This process may take several minutes.

Up to five remote installations occur simultaneously. When a remote installation is completed, another one begins so that a maximum of five installations are in progress.

If you click **Cancel** after you click **Install**, the installation does not stop immediately. Installation continues on all remote hosts where the installation has already started. Any specified hosts after that point do not get client software installed.

NetBackup considers any remote installations that were completed when you clicked **Cancel** to be successful.

12 Examine the installation log on the following location:

```
%ALLUSERSPROFILE%\Symantec\NetBackup\InstallLogs\
```

An installation log file provides detailed installation information and shows whether any errors occurred.

Note: When you perform a remote installation to multiple computers, this option only lets you view the log for the local computer. Each computer that you selected for installation contains its own installation log file. To view the log file of a remote computer, open a Windows Explorer window and enter `\\<COMPUTERNAME>`.

Search the installation log for the following error indications:

- Strings that include `Return Value 3`.
- Starting with NetBackup 7.0, important log messages are color coded as follows:
  Yellow = warning.
  Red = error.

Installing NetBackup Windows clients silently

A silent installation process does not require interactive input. It does, however, require that you edit the `silentclient.cmd` file before you run it.

Silent installations of NetBackup clients are not supported if you want to run the NetBackup services as a user instead of a local administrator.

To install NetBackup with a custom services account, refer to the following topics:

See "Installing NetBackup Windows clients locally" on page 118.

See "Installing NetBackup Windows clients remotely" on page 121.

Use the following procedure to perform a silent installation of a local NetBackup client.

To perform a silent installation of NetBackup client software on Windows

1. Insert the NetBackup installation DVD in the drive or navigate to the location where the ESD images (downloaded files) reside.
2. In a **Microsoft Windows Explorer** window, navigate to the DVD drive.
3. Copy the contents of the one of the following directories to a temporary folder on your hard drive. For example, C:\temp.
   - `PC_Clnt\x86`
   - `PC_Clnt\x64`
4. Since the original source files are read-only, change the permissions for the copied files on the hard drive to allow the update.
5. In the temporary directory, use a text editor to edit the `silentclient.cmd` file so the script installs the client software as needed.
6. Run the `silentclient.cmd` script.
7. To verify that the installation was successful, check the installation log file in the following directory:

   `%ALLUSERSPROFILE%\Symantec\NetBackup\InstallLogs`

How to configure NetBackup clients

You can configure NetBackup clients by performing one of the following actions:

To add servers or media servers:	■ Start the Backup, Archive, and Restore interface. ■ Click **File > Specify NetBackup Machines**.
To display and change the client properties:	■ Start the Backup, Archive, and Restore interface. ■ Click **File > NetBackup Client Properties**.

To display and change the server properties:

- Open the NetBackup Administration Console.
- Expand **Host Properties** and click **Clients**.
- In the right pane, right-click on the client and choose **Properties**.
  In the dialog box that appears, on the **Servers** tab, all NetBackup servers that require access to your Windows client must be listed.

For complete information on client configuration, see the *NetBackup Administrator's Guide, Volume I*.

About NetBackup client installation on UNIX

You can install UNIX clients either locally at the client computer or remotely from your UNIX NetBackup server. To install client software remotely from a UNIX NetBackup server, the client type software must first be installed on the UNIX server.

Note: Macintosh OS X clients are UNIX-based clients. Follow the same UNIX client installation procedures in this section.

Note the following when you install NetBackup client software on UNIX systems:

UNIX package consolidation

Starting with NetBackup 7.0, many of the add-on products and database agents are now installed with the NetBackup client package. Separate installation for these products is no longer needed.

The following products are now included in the NetBackup 7.5 client package (if the platform supports the product):

- BMR Boot server
- DB2
- Encryption
- Informix
- LiveUpdate agent
- Lotus Notes
- Oracle
- SAP
- Snapshot Client
- Sybase

The binaries for the listed products are laid down with the client package. A valid license is still required to enable the product. If product configuration was required previously (such as `db2_config`), configuration is still required.

The French, Japanese, and Chinese language packages remain as separate add-ons. The process to install and upgrade these products remains the same.

`gzip` and `gunzip` commands

The `gzip` and the `gunzip` commands must be installed on each system. The directories where the commands are installed must be part of the root user's `PATH` environment variable setting.

NetBackup-Java compatibility

To initiate a backup or a restore from a UNIX client, the following graphical interfaces are available:

- Clients that are compatible with NetBackup-Java may use the NetBackup-Java interface (`jbpSA`).

  Refer to the *NetBackup Release Notes* for a list of NetBackup-Java capable hosts.
- Clients that are not compatible with NetBackup-Java can use the `bp` interface. They also support a login from any NetBackup 7.5 UNIX server's NetBackup client console with the `jbpSA` command.

  Clients that are not compatible with NetBackup-Java are Macintosh OS X, IBM pSeries Linux, and FreeBSD.

About UNIX client installation methods

You can install NetBackup clients on UNIX systems with the following methods:

Local installations

- This method installs the client software on the computer where you run the installation script.
- To install clients to a location other than the default, you must create and link a directory before you install the client software. First create the directory where you want the software to reside, then create `/usr/openv` as a link to that directory.
- On IBM zSeries Linux clients, you must transfer the NetBackup DVD or ESD image contents to a location that is readable by the virtual Linux environment. You can transfer the image with FTP or NFS mounting commands.

See "Installing UNIX clients locally" on page 132.

Remote (push) installations	■ You can "push" the client software from your UNIX NetBackup server to your UNIX client computers. The UNIX client must be a true client and not a media server or a master server. The preferred installation method is to push the client software. ■ Before you can push to a UNIX client, you must first install the NetBackup client type software on the server. Then, you must create a policy that includes the client name. See "Installing client type software on a master server" on page 68. ■ You cannot install Windows client software remotely from a NetBackup UNIX server. Firewalls can also prevent remote client installation. ■ Clients such as the IBM zSeries Linux may not have a locally mounted DVD device or access to the NetBackup DVD or ESD images. In these cases, you must push the client software from a UNIX master server or a media server. ■ The following remote installation methods are available: See "Installing client software with the ftp method" on page 137. See "Installing client software with the rsh method" on page 134. See "Installing client software with the ssh method" on page 139. See "Installing client software with the sftp method" on page 139.

See "About NetBackup client installation" on page 115.

Installing UNIX clients locally

The following procedure installs the NetBackup client software on a local computer.

To install client software locally on a UNIX client

1 Use one of the following methods to start the installation script:

DVD	■ Insert the NetBackup UNIX Clients DVD into the drive. See "About the NetBackup media kit" on page 28. ■ If necessary, mount the DVD. See "About mounting the NetBackup software media" on page 53. ■ Enter the following command: `cd_directory/install` The *cd_directory* is the path to the directory where you can access the DVD.
ESD images (downloaded files)	■ Navigate to the location where the installation images reside. ■ Enter the following command: `./install`

2 When the following message appears, press **Enter** to continue:

```
Installing NetBackup Client Software.
Do you wish to continue? (y/n) [y]
```

The client binaries represent the operating system versions where the binaries were compiled. The binaries typically function perfectly on later versions of the operating system. For example, HP PA-RISC 11.11 binaries also are used on the HP PA-RISC 11.23 level of the operating system. The installation procedure attempts to load the appropriate binaries for your system. If the script does not recognize the local operating system, it presents choices.

3 Follow the prompts to complete the installation.

4 After the installation is complete, select **Exit from this Script**.

About remote installation methods for UNIX clients

You can push the client software from a UNIX master server to a client host by using the following methods:

- `rsh`
  See "Installing client software with the rsh method" on page 134.
- `ftp`
  See "Installing client software with the ftp method" on page 137.
- `ssh`

See "Installing client software with the ssh method" on page 139.

- `sftp`

  See "Installing client software with the sftp method" on page 139.

Note: For installation in clustered environments, enter the virtual name for the NetBackup server and not the actual local host name. You can only push client software from the active node.

Installing client software with the rsh method

Before you perform this procedure, read the following guidelines:

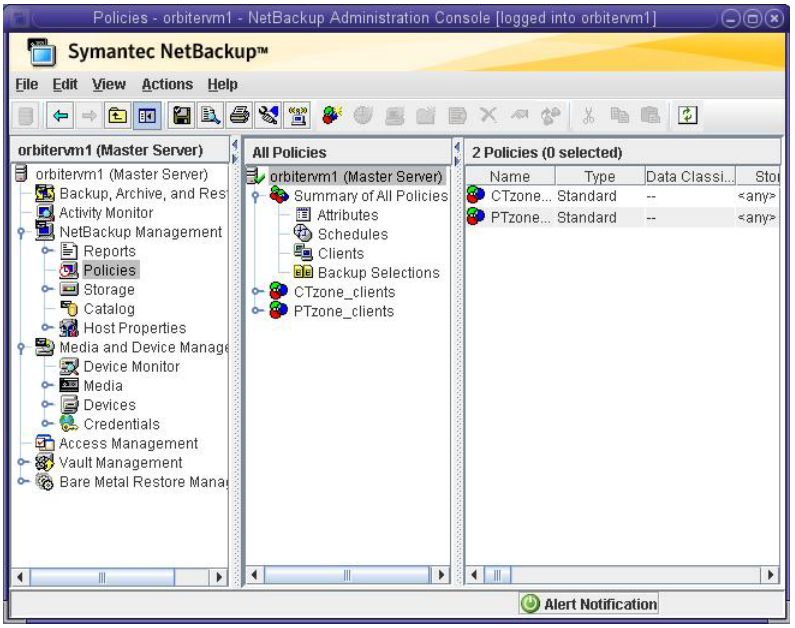
Client `/.rhosts` file	To use this method, the UNIX client must have an entry for the server in its `/.rhosts` file. The `/.rhosts` entries enable software installation, but they are not necessary for correct operation of NetBackup software.
Client software location	If you want to install client software to a location other than the default, you must first create and link to the desired directory. Create the directory where you want the client software to reside, and then create `/usr/openv` as a link to that directory.
Backup policies	Make sure that the clients are assigned to a backup policy.
For Macintosh OS X	By default, this operating system version does not enable the Remote Shell daemon (`rshd`). Run the following command to enable the daemon: `launchctl load -w /System/Library/LaunchDaemons/shell.plist`

To install client software from a UNIX master server to UNIX clients with the `rsh` method

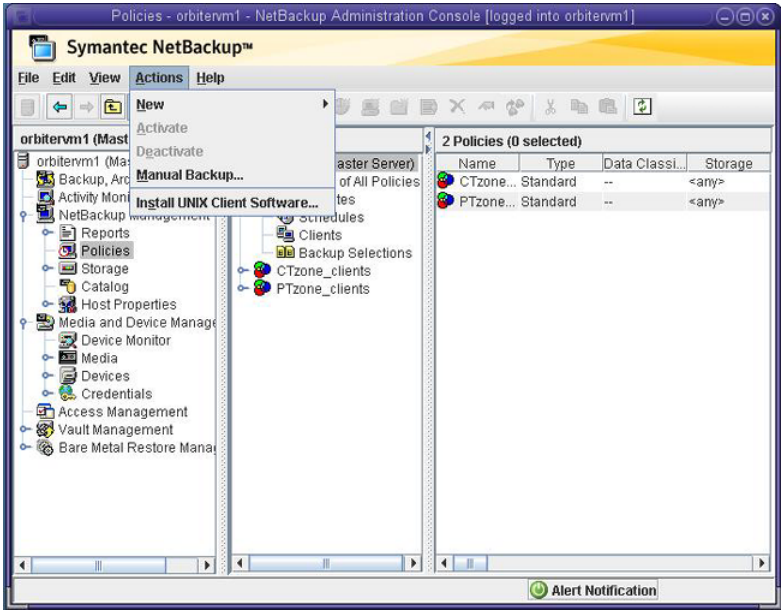
1. Start the NetBackup Administration Console.
2. On the **Login** dialog box, provide the name of the NetBackup server that contains the policy configuration with the clients.

   You can install the client software only from the NetBackup server that you specify in the **Login** dialog box when you start the interface. The clients must be defined in a policy on this NetBackup server.
3. In the main **NetBackup Administration Console** window, do the following:

- In the left pane where the master server properties appear, click the icon next to **NetBackup Management**. The tree expands to show the available options.
- In the center **All Policies** pane, select the master server.

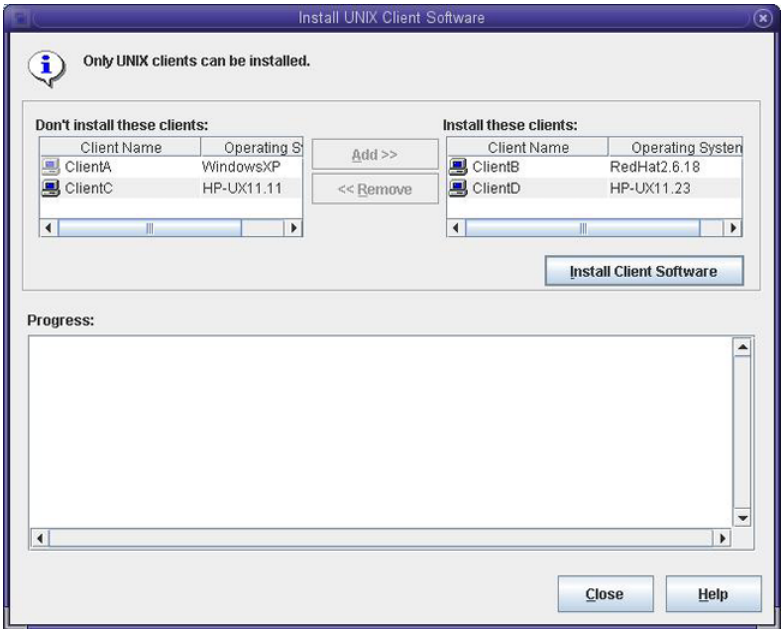


4 Click **Actions > Install UNIX Client Software**.



5 In the **Install UNIX Client Software** window, click on the appropriate client names in the **Don't install these clients** list to select the clients you want to install. Then, click **Add >>**.

The clients are moved to the **Install these clients** list.



6 To start the installation, click **Install Client Software**.

You cannot stop the installation after it has started.

Client software installation can take a minute or more per client. NetBackup writes messages in the **Progress** field as the installation proceeds.

During installation, NetBackup copies client software from `/usr/openv/netbackup/client` on the server to `/usr/openv` on the client.

If the installation fails on a client, NetBackup notifies you but keeps the client in the policy.

7 After the installation is complete, click **Close**.

Installing client software with the ftp method

Before you perform this procedure, read the following guidelines:

Access to clients	You must have a login ID and password that you can use to access the clients through FTP.
Client software location	If you want to install client software to a location other than the default, you must first create and link the desired directory. Create the directory where you want the software to reside, and then create `/usr/openv` as a link to that directory.
Backup policies	Make sure that the clients are assigned to a backup policy.
Macintosh OS X	By default, this operating system version does not enable the FTP daemon (`ftpd`), which is required. To enable the daemon, run the following command: `launchctl load -w /System/Library/LaunchDaemons/ftp.plist`

To install client software from a UNIX master server to UNIX clients with the ftp method

1. To move the client software from the server to the `/tmp` directory on the client, run the `install_client_files` script on the NetBackup server.

   Use one of the following commands:

   - To move software to one client at a time, enter the following command:
     `/usr/openv/netbackup/bin/install_client_files ftp` *`client user`*
     The *`client`* is the host name of the client.
     The *`user`* is the login ID that FTP requires on the client.
   - To move software to all clients at once:
     `/usr/openv/netbackup/bin/install_client_files ftp` *`ALL user`*
     The *`ALL`* option specifies that you want to install all clients that are configured in any backup policy on the server.
     The *`user`* is the login ID required by FTP on the client.
     If you have not set up a `.netrc` file, the `install_client_files` script prompts you for a password for each client.

2. After the script runs, the root user on each client computer must run the following script:

   `sh /tmp/bp.<pid>/client_config`

   The *`pid`* is the process ID. The `client_config` script installs the binaries.

Installing client software with the ssh method

This client installation method is based on the usage of the SunSSH and the OpenSSH products, which must be at specific version and patch levels. For more information about these patches, please refer to the *Symantec NetBackup 7.5 Release Notes*, Chapter 3: Product dependencies, Table 3-1.

Before you perform this procedure, read the following guidelines:

SSH daemon (`sshd`)	To use the ssh method, the UNIX client must have `sshd` enabled and configured to allow root user logins.
Client software location	If you want to install client software to a location other than the default, you must first create and link the desired directory. Create the directory where you want the client software to reside, and then create `/usr/openv` as a link to that directory.
Backup policies	Make sure that the clients are assigned to a backup policy.
Macintosh OS X	By default, this operating system version does not enable `sshd`. You must first enable this daemon to perform the following procedure successfully. ■ In the **System Preferences** pane, select **Sharing**. ■ Select **Remote Login** to enable `sshd`.

To install client software from a UNIX master server to UNIX clients with the ssh method

◆ On the NetBackup server, run the `install_client_files` script.

Use one of the following commands:

- To move software to only one client at a time:
  `/usr/openv/netbackup/bin/install_client_files ssh client`
  The *client* is the host name of the client.
- To move software to all clients at once:
  `/usr/openv/netbackup/bin/install_client_files ssh ALL`
  The *ALL* option specifies that you want to install all clients that are configured in any backup policy on the server.

Installing client software with the sftp method

This client installation method is based on the usage of the SunSSH and the OpenSSH products, which must be at specific version and patch levels. For more

information about these patches, please refer to the *Symantec NetBackup 7.5 Release Notes*, Chapter 3: Product dependencies, Table 3-1.

Before you perform this procedure, read the following guidelines:

SSH daemon (`sshd`)	To use this method, the UNIX client must have `sshd` enabled and configured to allow root or non-root user logins.
Client file location	If you want to install client software to a location other than the default, you must first create and link the desired directory. Create the directory where you want the software to reside, and then create `/usr/openv` as a link to that directory.
Backup policies	Make sure that the clients are assigned to a backup policy.
Macintosh OS X	By default, these operating system versions do not enable `ssh`. You must first enable this daemon to perform the following procedure successfully. ■ In the **System Preferences** pane, select **Sharing**. ■ Select **Remote Login** to enable `sshd`.

To install client software from a UNIX master server to UNIX clients with the `sftp` method

1 To move the client software from the server to the `/tmp` directory on the client, run the `install_client_files` script on the NetBackup server.

Use one of the following commands:

- To move software to one client at a time:
  `/usr/openv/netbackup/bin/install_client_files sftp` *`client user`*
  The *`client`* is the host name of the client.
  The *`user`* is the login ID that SSH requires on the client.
- To move software to all clients at once:
  `/usr/openv/netbackup/bin/install_client_files sftp` *`ALL user`*
  The *`ALL`* option specifies that you want to install all clients that are configured in any backup policy on the server.
  The *`user`* is the login ID required by FTP on the client.

2 After the script runs, the root user on each client computer must run the following script:

`sh /tmp/bp.<`*`pid`*`>/client_config`

The *`pid`* is the process ID. The `client_config` script installs the binaries.

Adding a UNIX client after initial server installation

You may want to add UNIX clients after the server installation if you forgot to select one during the installation. You may also add a new UNIX client type to your backup environment.

To install client software later, you must first install the NetBackup client software onto the NetBackup server.

To add UNIX client types to servers after initial installation

1 Use one of the following methods to start the installation script:

DVD	■ Insert the NetBackup UNIX Clients DVD into the drive. See "About the NetBackup media kit" on page 28. ■ If necessary, mount the DVD. See "About mounting the NetBackup software media" on page 53. ■ Enter the following command: `cd_directory/install` The *cd_directory* is the path to the directory where you can access the DVD.
ESD images (downloaded files)	■ Navigate to the location where the installation images reside. ■ Enter the following command: `./install`

2 When the following message appears, press **Enter** to continue:

```
Installing NetBackup Client Software.
Do you wish to continue? (y/n) [y]
```

The client binaries represent the operating system versions where the binaries were compiled. The binaries typically function perfectly on later versions of the operating system. For example, HP PA-RISC 11.11 binaries also are used on the HP PA-RISC 11.23 level of the operating system. The installation procedure attempts to load the appropriate binaries for your system. If the script does not recognize the local operating system, it presents choices.

3. Select the client type that you want to load and follow the prompts to install that client type. Repeat as necessary until all of the client types you want are loaded.

   Make sure that you load the software for all of the UNIX client types that you intend to install remotely from the server.

4. After the installation is complete, unmount the DVD.

5. Install the NetBackup client software on the clients you specified.

   See "About remote installation methods for UNIX clients" on page 133.

Chapter 8

Removing NetBackup client software

This chapter includes the following topics:

About NetBackup software removal on UNIX clients

Use the following guidelines when you remove NetBackup from UNIX clients:

When you remove NetBackup client software, PBX is not removed. You must remove PBX manually. The client software removal procedure in this document includes a step that describes how to perform this task.

Warning: Do not remove PBX if your client uses other Symantec software products that require PBX to run.

Removing NetBackup from UNIX clients

Use the following procedure to remove all NetBackup client software components from a UNIX client.

To remove NetBackup software from a UNIX client

1. Log in to the client system as the root user.
2. Stop the NetBackup daemons by entering the following command:

```
/usr/openv/netbackup/bin/bp.kill_all
```

3 Identify any installed add-on products by using the following command:

AIX	`lslpp -L`
HP-UX	`swlist`
Linux	`rpm -qa`
Solaris	`pkginfo`

Remove each identified add-on product.

4 To unregister NetBackup from the VxUL master configuration that is stored in the `/etc/vx/vrtslog.conf` file, run the following command:

```
/usr/openv/netbackup/bin/vxlogcfg -r -p 51216
```

The `-p` option specifies the product ID, which is 51216 for NetBackup.

5 To unregister all NetBackup products with LiveUpdate, enter the following command:

```
/usr/openv/netbackup/bin/nblu_registration -r
```

6 For the clients that support the PureDisk agent, remove all PureDisk files with the following command:

```
/opt/pdde/pddeuninstall.sh -forceclean
```

7 For the clients that support the NetBackup-Java Display Console, remove the console with the appropriate command as follows:

AIX	`installp -u SYMCnbjava`
HP-UX	`swremove SYMCnbjava`
Linux	`rpm -e SYMCnbjava`
Solaris	`pkgrm SYMCnbjava`

8 For the clients that support the NetBackup Java Runtime Environment (JRE), remove JRE with the appropriate command as follows:

AIX	`installp -u SYMCnbjre`
HP-UX	`swremove SYMCnbjre`
Linux	`rpm -e SYMCnbjre`
Solaris	`pkgrm SYMCnbjre`

9 For native package clients, remove the NetBackup client by using the appropriate commands as follows:

AIX	`installp -u SYMCnbclt`
HP-UX	`swremove SYMCnbclt`
Linux	`rpm -e SYMCnbclt`
Solaris	`pkgrm SYMCnbclt`

10 Remove PBX with the appropriate native command as follows:

Note: Remember, do not remove PBX if your client uses other Symantec software products that require PBX to run.

AIX	`installp -u VRTSpbx`

Debian	`/opt/VRTSpbx/bin/vxpbx_exchanged stop`
	`rm -rf /opt/VRTSpbx`
	`rm -rf /etc/vx/VxICS`

FreeBSD	`pkg_delete VRTSpbx`
HP-UX	`swremove VRTSpbx`
Linux	`rpm -e VRTSpbx`

Macintosh OS X	`/opt/VRTSpbx/bin/vxpbx_exchanged stop`
	`rm -r /Library/Receipts/VRTSpbxApp.pkg`
	`rm -r /opt/VRTSpbx`
	`rm -r /etc/vx/VxICS`
	`rm -r /usr/share/man/man1/pbxcfg.1`
	`rm -r /Library/StartupItems/vxpbx_exchanged`

Solaris	`pkgrm VRTSpbx`

11 For all clients, navigate to the `/usr/openv` directory and proceed as follows:

Warning: The `rm -f /usr/openv` command also removes any add-on products that are installed on this computer.

- If `/usr/openv` is the actual directory, run the following command:

  ```
  rm -rf /usr/openv
  ```

- If `/usr/openv` is a symbolic link to that directory, run the following commands:

  ```
  cd /usr/openv
  pwd
  ls
  ```

  Warning: Before you continue, make sure that you are at the correct location and verify that the subdirectories are what you expect them to be. To help prevent removing the wrong directories, the previous commands verify your current location and list the files in that directory. After you verify the directory location and its contents, remove the directory with the next commands.

  ```
  rm -rf *
  cd /
  rm -f /usr/openv
  ```

12 For Linux systems only:

If you modified the startup and the shutdown scripts, run the following command:

```
/sbin/chkconfig --del netbackup
```

See "About NetBackup startup and shutdown scripts" on page 151.

13 Remove the following startup scripts:

AIX

```
/etc/rc.netbackup.aix
```

FreeBSD

```
/usr/local/etc/netbackup
/usr/local/etc/rc.d/S77netbackup.sh
```

HP-UX

```
/sbin/init.d/netbackup
/sbin/rc1.d/K001netbackup
/sbin/rc2.d/S777netbackup
```

Linux Debian

```
/etc.init.d/netbackup
/etc/rc0.d/K01netbackup
/etc/rc1.d/K01netbackup
/etc/rc2.d/S95netbackup
```

Linux Red Hat

```
/etc/rc.d/init.d/netbackup
/etc/rc.d/rc0.d/K01netbackup
/etc/rc.d/rc1.d/K01netbackup
/etc/rc.d/rc2.d/S77netbackup
/etc/rc.d/rc3.d/S77netbackup
/etc/rc.d/rc5.d/S77netbackup
/etc/rc.d/rc6.d/K01netbackup
```

Linux SUSE

```
/etc/init.d/netbackup
/etc/init.d/rc0.d/K01netbackup
/etc/init.d/rc2.d/S77netbackup
/etc/init.d/rc3.d/S77netbackup
/etc/init.d/rc5.d/S77netbackup
/etc/init.d/rc6.d/K01netbackup
```

Macintosh OS X

```
/Library/StartupItems/netbackup/Resources/netbackup
/Library/StartupItems/netbackup/StartupParameters.plist
/Library/StartupItems/netbackup/netbackup
```

Other clients

```
/etc/init.d/netbackup
/etc/rc0.d/K01netbackup
/etc/rc1.d/K01netbackup
/etc/rc2.d/S77netbackup
```

14 For AIX systems only:

- In the `/etc/inittab` file, remove the following NetBackup entry:
  `/etc/rc.netbackup.aix`
- In the `/etc/rc.shutdown` file, remove the following line:
  `/etc/rc.netbackup.aix stop`

15 Remove Symantec LiveUpdate components as follows:

- First, examine the following file to see if NetBackup is the only product that uses LiveUpdate:
  `/etc/Product.Catalog.JavaLiveUpdate`
- If no entries in the file contain the string NetBackup, run the following commands:

```
/opt/Symantec/LiveUpdate/uninstall.sh -a
rm -f /etc/Symantec.conf
```

Note: Before you remove the following product catalog file, make sure that it is empty. The empty file size is equal to 0 bytes. If the product catalog file is not empty, do not remove it because other Symantec products still require it.

```
rm -f /etc/Product.Catalog.JavaLiveUpdate
```

16 To remove the NetBackup-Java application state data for the root account, run the appropriate command as follows:

Warning: Do not insert a space between the slash character (/) and the period or dot character (.) of "`/.veritas`". A space between these characters removes all of your files from the root level and beyond.

- To remove the NetBackup-Java application state data for the root account for all releases, run the following command:

```
/bin/rm -rf /.veritas
```

- To remove the NetBackup-Java application state data for the root account for a specific release, run the following command:
  `/bin/rm -rf /.veritas/java/<version>`
  Where *<version>* is the six-digit NetBackup version number. For example, NetBackup version 7.5 with no upgrades applied would be entered as **750000**.

17 Inform NetBackup-Java users, that they can remove their `$HOME/.veritas` directory and portions of the `$HOME/.veritas/java` directory.

The `$HOME/.veritas/java` and `$HOME/.veritas` directories contain application state information, that is saved when the user exits NetBackup-Java applications. The saved information includes table column order and size. The process removes this directory for the root user only.

The `common` subdirectory in `$HOME/.veritas/java/.userPrefs/vrts` can be removed.

18 If you enabled NetBackup Access Control, NetBackup created new files on the clients and the servers that can be divided into the following categories:

- Individual user files
  Individual user cache files exist in their home directories (for example, in `$HOME/.vxss`). Inform those users that they can remove the `$HOME/.vxss` directory.
- NetBackup application temporary files
  NetBackup temporary files are removed with NetBackup.

Removing NetBackup Windows client software

Use the following procedure to remove NetBackup Windows client software.

To remove NetBackup Windows client software

1 If it is open, close the NetBackup Backup, Archive, and Restore interface.

2 Open the Windows **Control Panel** (select **Start > Settings > Control Panel**).

3 Select **Add/Remove Programs**.

4 Select **Symantec NetBackup Client**.

5 Click **Remove**.

Chapter 9

Configuring NetBackup

This chapter includes the following topics:

About NetBackup startup and shutdown scripts

When you install NetBackup, the installation script also performs configuration of startup and shutdown scripts. Startup scripts allow the NetBackup daemons to start automatically when the system boots. Shutdown scripts automatically terminate the startup scripts at system shutdown.

The installation process copies the NetBackup startup and shutdown scripts to the appropriate operating system location.

For non-cluster upgrades, any existing NetBackup related startup and shutdown scripts are saved, and the newly released versions of those scripts are installed.

Table 9-1 lists the links for the startup and the shutdown scripts for the various platforms that are installed during NetBackup installation.

Table 9-1 NetBackup startup and shutdown script links by platform

Platform	Links

AIX	`/etc/rc.netbackup.aix`
	■ The NetBackup installation script edited the `/etc/inittab` file and added the following entry to ensure that the script is called during a level-two boot:
	`netbackup:2:wait:/etc/rc.netbackup.aix`
	■ To shut down, add the following line to the `/etc/rc.shutdown` file:
	`/etc/rc.netbackup.aix stop`

FreeBSD	`/usr/local/etc/rc.d/S77netbackup.sh ->/usr/local/etc/netbackup`
HP-UX	`/sbin/rc1.d/K001netbackup ->/sbin/init.d/netbackup` `/sbin/rc2.d/S777netbackup ->/sbin/init.d/netbackup`

Linux Debian	`/etc/rc0.d/K01netbackup ->/etc/init.d/netbackup`
	`/etc/rc1.d/K01netbackup ->/etc/init.d/netbackup`
	`/etc/rc2.d/S95netbackup ->/etc/init.d/netbackup`

Linux Red Hat	`/etc/rc.d/rc0.d/K01netbackup ->/etc/rc.d/init.d/netbackup`
	`/etc/rc.d/rc1.d/K01netbackup ->/etc/rc.d/init.d/netbackup`
	`/etc/rc.d/rc2.d/S77netbackup ->/etc/rc.d/init.d/netbackup`
	`/etc/rc.d/rc3.d/S77netbackup ->/etc/rc.d/init.d/netbackup`
	`/etc/rc.d/rc5.d/S77netbackup ->/etc/rc.d/init.d/netbackup`
	`/etc/rc.d/rc6.d/K01netbackup ->/etc/rc.d/init.d/netbackup`

Table 9-1 NetBackup startup and shutdown script links by platform *(continued)*

Platform	Links
Linux SUSE	/etc/init.d/rc0.d/K01netbackup ->/etc/init.d/netbackup /etc/init.d/rc2.d/S77netbackup ->/etc/init.d/netbackup /etc/init.d/rc3.d/S77netbackup ->/etc/init.d/netbackup /etc/init.d/rc5.d/S77netbackup ->/etc/init.d/netbackup /etc/init.d/rc6.d/K01netbackup ->/etc/init.d/netbackup
Macintosh OSX	/Library/StartupItems/netbackup/Resources/netbackup /Library/StartupItems/netbackup/StartupParameters.plist /Library/StartupItems/netbackup/netbackup
Solaris	/etc/rc0.d/K01netbackup ->/etc/init.d/netbackup /etc/rc1.d/K01netbackup ->/etc/init.d/netbackup /etc/rc2.d/S77netbackup ->/etc/init.d/netbackup

About NetBackup server configuration

After all server software is installed, you are ready to configure NetBackup to work with the robotic and the storage devices in your environment. Remember, these devices must already be configured and recognized by the operating system before you can configure NetBackup.

See "About storage device configuration" on page 35.

Use the following guidelines when you configure NetBackup:

NetBackup Enterprise servers	The procedures for configuring master and media servers are very similar. However, Symantec recommends that you configure all server information such as storage devices and volumes from the master server. Following this order helps ensure that the master servers properly administer the media servers. **Warning:** Communication problems between the master server and the media server do not prevent you from running the configuration wizards. Therefore, do not run the wizards on the media server until the problems are corrected. If you run any of the wizards when a communication problem exists, the master server cannot recognize the information that you enter. You must first correct the problem. After you correct the problem, run the configuration wizards from the master server.
Clustered environments	■ Configure devices on every node in the cluster. ■ Start by configuring all storage devices from the active node so that they work with NetBackup. ■ For a NetBackup failover server, attach all of the devices to each node in the cluster on which NetBackup is installed. Refer to the clustering vendor's documentation for information on how to migrate to another node. ■ Unless otherwise noted, configure NetBackup to use the virtual host names of master servers and media servers in the cluster. For complete information on to how to configure an add-on product to fail over, see the *NetBackup Clustered Master Server Administrator's Guide*.

For initial NetBackup server configuration, Symantec recommends that you launch the NetBackup Administration Console and click the **Getting Started** icon. A series of wizards guide you through the following configuration procedures:

- **Configure Storage Devices**
  See "About the Device Configuration Wizard" on page 156.
- **Configure Volumes**
  See "About the Volume Configuration Wizard" on page 158.
- **Configure the Catalog Backup**
  See "About the Catalog Backup Wizard" on page 159.
- **Create a Backup Policy**
  See "About the Backup Policy Configuration Wizard" on page 160.

If NetBackup is already configured and you want to change a specific area, click the appropriate wizard on the NetBackup Administration Console.

For complete information on all of the NetBackup wizards and how to configure NetBackup, see the *NetBackup Administrator's Guide*.

See "About storage device configuration" on page 35.

Starting the NetBackup Administration Console

Use the following procedures to open the NetBackup Administration Console to configure NetBackup. The **Getting Started** wizard guides you through the primary configuration steps to make NetBackup function.

Note: Other wizards are available from the initial NetBackup Administration Console window that are not part of the **Getting Started** wizard. For example, you can configure disk pools or create a snapshot backup policy. See the *NetBackup Administrator's Guide, Volume I* for complete information about all NetBackup wizards.

On Windows systems, if you clicked the checkbox **Launch Administration Console** that appears at the end of NetBackup installation, you can skip this procedure.

To start the NetBackup Administration Console on Windows

1. Log on to the NetBackup server as the Administrator.
2. Click **Start > Programs > Symantec NetBackup > NetBackup Administration Console**.
3. To begin configuration, on the Administration Console, click **Getting Started**.

   The **Getting Started** screen appears and prompts you to begin device configuration.

   Note: If you still need to configure devices to work with the operating system, close the wizard. You must first configure those devices as specified by the device and the operating system vendors.

To start the NetBackup Administration Console on UNIX

1. Log in to the NetBackup server as root.

   For clustered environments, log in to the active node as root.

   If you need to run the user interface on a computer other than the NetBackup server, log on to that computer. For UNIX systems, log in as root.

2. Enter the following command:

   ```
   /usr/openv/netbackup/bin/jnbSA &
   ```

3. Enter the password for root.

   For clustered environments, when you log in to the NetBackup Administration Console, specify the virtual host name in the **Host** field.

4. Click **Login**.

5. To begin configuration, on the Administration Console, click **Getting Started**.

6. On the initial **Getting Started** screen, review the content and click **Next**.

   The following screen prompts you to **Configure Storage Devices**.

   Note: If you still need to configure devices to work with the operating system, close the wizard. You must first configure those devices as specified by the device and the operating system vendors.

About the Device Configuration Wizard

Before you can run backups, you must define your storage devices for NetBackup. This wizard guides you through this process. However, you must be certain that you have configured your storage devices correctly for your operating system. NetBackup cannot function reliably unless devices are installed and configured correctly.

See "About storage device configuration" on page 35.

For clustered environments, begin configuring all storage devices from the active node. For a NetBackup failover server, Symantec recommends that you attach all of the devices to every node on which NetBackup is installed.

For complete instructions, refer to the *NetBackup Clustered Master Server Administrator's Guide*.

This wizard takes you through the following processes:

- Scans the hosts for backup devices

- Verifies the devices that were automatically detected
- Verifies and corrects the drive configuration
- Updates the device configuration

The wizard presents the following information when you configure devices:

Device configuration

- When the wizard displays the **Device Hosts** screen, you must specify the hosts on which to auto-discover and configure devices (NetBackup Enterprise servers only).
- When the wizard displays the **Backup Devices** screen, confirm that the list of devices is complete and accurate. If a known backup device does not appear in this list, take the following action:
  - Verify that the backup device is physically attached to the host.
  - Verify that all installation procedures specified by the device and by the operating system vendor have been performed successfully.
  - Verify that all drives correspond to the proper device. If you need to move a drive, select the drive and drag it to the correct location.
- For clusters, ensure that you perform storage device configuration on each node. Begin on the active node, then move the NetBackup active node to another node and perform the storage device configuration on that node. Repeat for each node of the cluster on which NetBackup runs.

  Note: By default, robotic daemons and NetBackup add-on products do not cause NetBackup to failover if they fail. You can configure robotic devices and NetBackup add-on products to fail over NetBackup if the robot or the add-on product fails. Before you configure NetBackup to failover, robots must be configured and recognized by the operating system. For complete details about fail over configuration, refer to the *NetBackup Clustered Master Server Administrator's Guide*.

Defining storage units	■ You define storage units from the **Configure Storage Units** screen. If your system does not have a tape device, you can store data on a disk by defining disk storage units. ■ When you enter a path for a storage unit, the following rules apply: ■ Use the correct path separators (forward slash (/) for UNIX and backward slash (\) for Windows). ■ Use a colon (:) to specify a drive separation on Windows platforms. ■ Use the following characters only: Alphabetic characters (ASCII A-Z, a-z) Numeric characters (0-9) Miscellaneous characters: plus (+), minus (-), underscore (_), or period (.)

See "About the Volume Configuration Wizard" on page 158.

About the Volume Configuration Wizard

After you have configured your storage devices, the Getting Started Wizard starts the Volume Configuration Wizard. However, if you only have disk storage capability, NetBackup skips this wizard.

This wizard lets you initiate an inventory of each configured robot. NetBackup automatically updates the volume database if it finds new robotic media during the inventory. In addition, you can define new volumes for use in stand-alone drives.

For complete information about volumes or volume configuration for stand-alone drives, refer to the *NetBackup Administrator's Guide, Volume I*.

Note: For clustered environments, configure volumes from the active node.

This wizard lets you do the following tasks:

- Select a device for volume configuration
- Perform an inventory of the robot
- Create new volumes
- Create new volume groups

The wizard presents the following information when you configure volumes and perform inventory:

Robot or device inventory	■ NetBackup conducts an inventory of the robot or the device that you selected. To view the results after the inventory has completed, see the **Results:** field. ■ After the device inventory has completed, the wizard prompts you to identify which device slots contain cleaning media. If you upgraded NetBackup and have pre-existing barcode rules, the barcode reader automatically detects the designated slots for the cleaning media. If you do not designate cleaning slots, NetBackup considers all media (including cleaning media) as typical media and tries to overwrite it. ■ After the inventory has completed, you are prompted to identify which device slots contain cleaning media. If you identify one or more slots as cleaning media in the **Identify Cleaning Media** screen, you see the **Robot Inventory (Cleaning Media)** screen. This screen displays the results after the software updates the EMM database. If you do not designate cleaning media, NetBackup considers all media to be typical media (including cleaning media) and tries to overwrite it.
Standalone drives	■ Specify the number of volumes for the device. ■ The wizard does not let you configure cleaning tapes for standalone drives.
Multiple drive types	When you specify multiple drive types, the following are true: ■ Media that is written by one robot drive may not work in any other drive. If this situation occurs, NetBackup considers the robot to have more than one type of drive. ■ If the robot has more than one type of drive, the wizard cannot inventory the robot.

See "About the Catalog Backup Wizard" on page 159.

About the Catalog Backup Wizard

The NetBackup catalog contains information about your configuration and the locations of backed up files and directories. If a disk fails and your catalog is lost, a catalog backup makes it easy to restore your data and resume your backup schedule.

Therefore, you must configure a catalog backup policy before any data gets backed up.

This wizard lets you create a policy for an online, hot catalog backup. Online, hot catalog backups can back up the catalog while normal client backups are in progress.

A catalog backup policy lets you specify the following information:

- The destinations for the catalog backup
  A backup destination can be any configured storage device. For additional disaster recovery protection, you can specify a second location for your catalog backup.

  Note: Although NetBackup supports catalog backup to disk, Symantec recommends that you back up the catalog to removable media that gets stored offsite.

- When the catalog backup occurs
- The location of the disaster recovery file that is needed to recover from the catalog backup

Use the following guidelines to configure a catalog backup:

- Configure a catalog backup policy before any other files or data are backed up.
- For clustered systems, configure the catalog backup policy from the active node.

For complete details about catalog backups, see the chapter "Protecting the NetBackup catalog" in the *NetBackup Administrator's Guide, Volume I*.

For instructions on how to configure a catalog backup in clustered environments, see the *NetBackup Clustered Master Server Administrator's Guide*.

About the Backup Policy Configuration Wizard

This wizard lets you define a backup policy for a group of one or more clients. For clustered environments, configure the policy from the active node.

The wizard lets you specify the following:

- Policy names and types
- Clients
- Files and directories to back up
- Backup types
- Backup rotations

- Starting times of backups

The wizard prompts you to choose the type of backup that you want a policy to perform.

Table 9-2 describes the available backup types.

Table 9-2 Backup type descriptions

Backup type	Description
Full backup	Backs up all files that are specified in the file list.
Incremental backup	Backs up all the changed files that are specified in the file list.
Differential backup	Also referred to as a Differential incremental backup. Backs up the files that have changed since the last successful incremental or full backup. All files are backed up if no previous backup has been done.
Cumulative backup	Also referred to as a Cumulative incremental backup . Only the files that changed since the last full backup that was successful are backed up. All files are backed up if no previous backup has been done.
User backup	Initiated manually by a user to back up specific files.

Use the following guidelines when you create backup policies:

- The list that appears on the **Client List** screen of the Backup Policy Wizard is a list of clients that are backed up. You can add, change, or delete clients from the list.
- You can select how often you want a backup policy to run for full or incremental backups. In addition, you can select the retention period for the backups.

After you have completed the Backup Policy Wizard , you are asked if you want to perform an installation verification test. To do this test, click the **Activity Monitor** in the left pane of the NetBackup Administration Console. You can now monitor the progress of the backup job.

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