NetBackup™ Installation Guide

UNIX and Linux

Release 6.5

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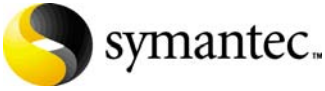

NetBackup Installation Guide

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NetBackup 6.5

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Chapter 1

Preparing for installation

This chapter includes the following topics:

- "Pre-installation software requirements"
- "Requirements for NetBackup server installation"
- "Configuring storage devices for the operating system"

Pre-installation software requirements

This release of NetBackup contains many changes and enhancements that have caused the software to become larger. You can read a brief description of these enhancements in the *NetBackup Release Notes*.

Depending on the type of platform you install, the growth in the software may require you to mount more CDs than in earlier releases.

NetBackup license key requirements

When you install a NetBackup master or media server, you must enter a NetBackup base product license key. Check your release package to make sure that you have license keys for all the NetBackup servers, options, and agents that you requested.

Enter all product license keys on the master server when you are prompted during the installation.

For more information about license keys, refer to "NetBackup licenses" on page 73.

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

NetBackup supported platforms

The *NetBackup Release Notes* document provides a "Supported Platforms and Operating Systems" table that identifies which clients to install with which operating systems.

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

The following lists all of the configurations for which Symantec provides support.

Master Server Version	Media Server Version	Client Version
NetBackup 6.5	6.5	6.5
NetBackup 6.5	6.5	6.0, 5.0MP4 (or later) or 5.1
NetBackup 6.5	6.0MP3 (or later), 5.0MP4 (or later), or 5.1	6.0, 5.0MP4 (or later) or 5.1

Caution: Before you upgrade the NetBackup server software, you must back up your NetBackup catalogs and verify that the catalog backup was successful.

Contents of the NetBackup media kit

Starting with this release, Symantec is delivering NetBackup in both CD-ROM and DVD media formats. Starting with the next major release of NetBackup, the product will only be available on DVD media.

Your NetBackup media kit includes multiple CDs or DVDs. The label on each CD and DVD provides a brief description of its contents.

NetBackup documentation is included on both CD and DVD, and accompanies each product order. The documentation is in Portable Document Format (PDF), for all NetBackup software products in a release. The documentation is organized into product groups. You can use Acrobat Reader to print the files you select.

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 CD drive to view the CD contents. From that drive, you can select documents to view or copy them to a local drive.

The following table lists the title of each NetBackup 6.5 CD along with a brief description of its contents.

Note: Beginning with NetBackup 6.5, Veritas Security Services and its associated acronym (VxSS) are replaced by Symantec Product Authentication and Authorization.

NetBackup CD	Contents
Windows 32-bit	Server/Client/Options
Windows IA-64-bit	Server/Client/Options
Windows X64-bit	Server/Client/Options
Solaris SPARC	Server/Clients
Solaris x86-64-bit	Server/Clients
HP-UX PA-RISC	Server/Clients
HP-UX IA-64-bit	Server/Client
Linux 2.4	Server/Client
Linux 2.6	Red Hat Server/Client
Linux IA-64-bit 2.6	Red Hat and SuSE Servers/Clients
Linux 2.6	SuSE Server/Client
AIX RS6000	Server/Client
Tru64 (Alpha)	Server/Client
UNIX Client1	Tru64, all HP, and AIX
UNIX Client2	Mac and all Linux
UNIX Client3	Solaris, FreeBSD, and IRIX
BMR	UNIX
UNIX Options	UNIX Options/Database Agents
NOM	NetBackup Operations Manager
Storage Migrator	UNIX
NetBackup Document Set	Complete NetBackup documentation set in PDF format

NetBackup CD	Contents (Continued)
NetBackup Infrastructure Core Services (ICS for Windows 32-bit)	Symantec Product Authentication & Authorization installers for Windows 32-bit
ICS Windows IA-64-bit	Symantec Product Authentication & Authorization installers for Windows IA-64-bit
ICS Windows X64-bit	Symantec Product Authentication & Authorization installers for Windows X64-bit
ICS Solaris SPARC	Symantec Product Authentication & Authorization, and PBX installers for Solaris SPARC
ICS Solaris x86-64-bit	Symantec Product Authentication & Authorization, and PBX installers for Solaris x86-64-bit
ICS HP-UX PA-RISC/IA-64-bit	Symantec Product Authentication & Authorization, and PBX installers for HP-UX PA-RISC/IA-64-bit
ICS Linux 2.4/2.6	Symantec Product Authentication & Authorization, and PBX installers for Linux 2.4/2.6
ICS Linux 2.6 IA-64-bit	Symantec Product Authentication & Authorization, and PBX installers for Linux 2.6 IA-64-bit
ICS AIX	Symantec Product Authentication & Authorization, and PBX installers for AIX
ICS Tru64	Symantec Product Authentication & Authorization, and PBX installers for Tru64

The following table lists the title of each NetBackup 6.5 DVD along with a brief description of its contents.

NetBackup DVD	Contents
Windows 32-/ 64-bit, ICS 32- and 64-bit, and UNIX clients	■ Windows 32-bit Server/Client/Options ■ Windows IA-64-bit Server/Client/Options ■ Windows X64-bit Server/Client/Options ■ ICS Windows 32-bit ■ ICS Windows IA-64-bit ■ ICS Windows X64-bit ■ UNIX Client1 (Tru64, all HP and AIX) ■ UNIX Client2 (Mac and all Linux) ■ UNIX Client3 (Solaris's, FreeBSD and IRIX)

NetBackup DVD	Contents (Continued)
Solaris SPARC and x86-64, Linux, and ICS	■ Solaris SPARC Server/Clients ■ Solaris x86-bit Server/Client ■ Linux 2.4 Server/Client ■ Linux 2.6 Red Hat Server/Client ■ Linux 2.6 IA-64-bit Red Hat/SuSE Servers/Clients ■ Linux 2.6 SuSE Server/Client ■ ICS Solaris SPARC ■ ICS Solaris x86-64-bit ■ ICS Linux 2.4/2.6 32-bit ■ ICS Linux 2.6 IA-64-bit
HP, AIX, Tru64, and ICS	■ HP-UX PA-RISC Server/Client ■ HP-UX IA-64 Server/Client ■ AIX RS6000 Server/Client ■ Tru64 Server/Client ■ ICS HP-UX RISC/IA-64 ■ ICS AIX ■ ICS Tru64
BMR, UNIX Options, NOM, Storage Migrator, & NetBackup Documentation Set	■ BMR for UNIX ■ UNIX options ■ NetBackup Operations Manager (UNIX and Windows) ■ Storage Migrator ■ Complete NetBackup documentation set in PDF format

Requirements for NetBackup server installation

Before you install NetBackup, ensure that the following requirements are met:

- 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.
- Ignore references to media servers if you do not plan to install any. They are not required.
- Allow about 30 minutes to install the server software. Additional time is required to configure the product for your environment.

- 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 in this type of environment should have a minimum of 512 MB of memory.
- 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 allows you to select an alternate install location, and creates the appropriate link from `/usr/openv`.
- Symantec does not support installation of NetBackup in an NFS-mounted directory. File locking in NFS-mounted file systems can be unreliable.
- For some peripherals and platforms, kernel reconfiguration is required. For more details, see the *Veritas NetBackup Device Configuration Guide*.
- For Red Hat Linux, NetBackup requires server networking.
  Ensure that you have the following hardware and software already set up:
  - All NetBackup installation CDs, 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.

Notes 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.

Refer to the *NetBackup Backup Planning and Performance Tuning Guide* on the support Web site for more information, such as parameter definitions and examples.

- *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.
- For older levels of Solaris, you may need to change one or more default System V Shared Memory settings to prevent the following job failure:
  System cannot allocate enough shared memory; NetBackup status code 89.
  If you modify any of the following settings in the `/etc/system` file, you must reboot the system with `boot -r` for the new settings to take effect. Refer to your vendor documentation for detailed instructions on how to modify these values.
  - `shmsys:shminfo_shmmax`
    For Solaris 8, the default value is 1 megabyte. For Solaris 9, the default value is 8 megabytes. To increase this setting, you can place the following line in your `/etc/system` file:

```
set shmsys:shminfo_shmmax=33554432
```

A value of 32 megabytes has been used in this example. Some systems may require a greater value, such as systems with a high value for the NetBackup multiplexing parameter. According to the Sun Microsystems documentation, setting this parameter to its maximum value has no side effects. (This parameter is not applicable to Solaris 10).

- `shmsys:shminfo_shmmni`
  For Solaris 8 or 9, the default value is 100. The default value is usually sufficient for NetBackup. However in some environments, such as installing a NetBackup media server on a large database server, this setting may need to be increased. To increase this setting, you can place the following line in your `/etc/system` file:
  ```
  set shmsys:shminfo_shmmni=220
  ```
  A value of 220 has been used in this example. (This parameter is not applicable to Solaris 10).
- `shmsys:shminfo_shmseg`
  For Solaris 8, the default value is 6. The default value is usually sufficient for NetBackup. However in some systems, such as installing a NetBackup media server on a large database server, this setting may need to be increased. To increase this setting, you can place the following line in your `/etc/system` file:
  ```
  set shmsys:shminfo_shmseg=10
  ```
  A value of 10 has been used in this example. (This parameter is not applicable to Solaris 9 or 10).
- `shmsys:shminfo_shmmin`
  For Solaris 8, if you change this setting in the `/etc/system` file, it must be 100 or less for NetBackup processes to run. (This parameter is not applicable to Solaris 9 or 10).

Notes 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, refer to the Veritas *NetBackup Backup Planning and Performance Tuning Guide, Chapter 11: OS-Related Tuning Factors*.

Notes for private branch Exchange (PBX)

NetBackup uses an Infrastructure Core Services (ICS) product that is called Private Branch Exchange (PBX).

PBX helps limit the number of TCP/IP ports that NetBackup uses. It also allows all socket communication to take place when NetBackup connects through a single port. The PBX port number is 1556.

For more information about PBX and how to configure NetBackup ports, refer to the *Veritas NetBackup Security and Encryption Guide*.

Because PBX is required for all NetBackup products, its installation is part of the NetBackup installation procedure. The only exception is when it is already present on the system.

When you install NetBackup on a server, the installation procedure determines if a version of PBX is already installed. Whether PBX is installed causes one of the following to happen:

- If an acceptable version of PBX already exists, the installation procedure uses that version of PBX and continues.
- If PBX does not exist or needs to be upgraded, you see a message similar to the following:

  ```
  The following package(s) are missing and must be installed
  before NetBackup can be installed:
  VRTSpbx
  ```

  The package(s) are located on the Infrastructure Core Services (ICS) CD, which is included in the NetBackup media kit.

  See step 6 on page 28 for details on PBX installation.

Notes for 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`). 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 agents and options. After installation and configuration is complete, it is no longer required.
- You must install, configure, and start the cluster framework before you install NetBackup. Refer to the *Veritas NetBackup High Availability*

Administrator's Guide for additional installation prerequisites and installation notes.

- 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.

Notes for NetBackup Access Control

Use the following guidelines if you want to use access control:

- To use the access control features in NetBackup 6.5, you must install the Symantec Product Authentication and Authorization components.
  - If access control is not installed in your current NetBackup environment, you must first upgrade to NetBackup 6.5. Then, you can install the access control components.
  - If access control is already installed in your current NetBackup environment, you must install the new access control components before you upgrade to NetBackup 6.5.

  For NetBackup Access Control installation and upgrade instructions, see the *Veritas NetBackup Security and Encryption Guide*.

Configuring storage devices for the operating system

Reliable use of NetBackup depends on the proper configuration of your storage devices.

To ensure reliable backups and restores, you must configure devices to work with the operating system. Use the instructions that the device vendor and operating system vendor provide. Install and configure storage devices before you install and configure NetBackup.

Warning: An improperly configured device may lead to loss of data during restores.

Locating supported robot types

You can find a list of the supported robot types in the *NetBackup Release Notes*.

Symantec periodically adds new robots to this list. For your convenience, Symantec updates the supported robots lists on the Symantec support Web site.

To find the latest devices this release supports

1. In a Web browser, open http://entsupport.symantec.com.
2. In the Product Lookup list, select either **NetBackup Enterprise Server** or **NetBackup Server**.
3. In the new Web page in the *Support for this product* section, click **Compatibility List**.
4. In the new Compatibility and Reference Web page from the appropriate drop-down menus, select **Compatibility** > **NetBackup 6.5**, and the language of your choice.
5. The lower section of the screen updates depending on what you select from the drop-down menus. From the links on this section of the screen, select the appropriate product level to check compatibility.
6. From the resulting page you can view device support information by individual vendor, all support drives, libraries, or robot types.

Configuring storage devices

Use the following guidelines to configure your storage devices:

- Configure your storage devices as described in the instructions that the device vendor and operating system vendor provide.
- For new installations, Symantec recommends that you install and configure the latest device drivers for your storage devices immediately before you install the NetBackup software.
- After you have configured your storage devices, you can install NetBackup.
- For upgrades, you can install the latest device drivers before you upgrade NetBackup.
- The Tape Device Driver Installation wizard that is included on the NetBackup installation CD steps you through how to install the latest device drivers.

  Note: Complete this wizard before you configure NetBackup.

- If you do not have a NetBackup CD, you can download the NetBackup Tape Device Driver Installation software from the technical support Web site: http://entsupport.symantec.com

To start the tape device driver installation wizard

1. Log on as administrator to the system where you installed NetBackup.

2 Insert the NetBackup CD in the drive.

3 On the installation browser, click the link **Additional Products** > **Additional Product Installations** > **NetBackup Tape Device Drivers**.

4 Complete the wizard to install the latest device drivers for your storage device.

Note: You can download the latest external device mapping files on the Updates and Patches Web page on the support Web site: http://entsupport.symantec.com

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Chapter 2

Installing NetBackup

This chapter includes the following topics:

- Mounting the software media
- Installing NetBackup servers
- "Installing client type software on a master server"

Mounting the software media

Use the following directions as a guideline when you mount NetBackup CDs and DVDs. Check with your hardware vendor to see if you may need to use other flags or options.

Note: Mounting DVDs is basically the same as mounting a CD. To make sure you mount the correct CD or DVD, refer to "Contents of the NetBackup media kit" on page 10.

The examples in this section use the following options and arguments:

- A `-v`, `-t`, or `-F` option specifies the type of file system to mount.
- A `-o` option on systems other than IRIX translates files names properly, if required. On IRIX systems, a `-o ro` option specifies that you want to mount the CD or DVD as read-only.
- A `-r` option specifies that you want to mount the CD or DVD for reading.
- The *`device_path`* specifies the name of the CD or DVD drive.
- The *`mount_point`* specifies the directory where you want to mount the CD or DVD.

AIX

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

     ```
     smitty cdrfs
     ```

     OR

     ```
     smitty mountfs
     ```

   - *Manually*:
     - Create the mount point (for example, `mkdir /cdrom`).
     - Run the `mount` command, as follows:

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

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

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

Alpha Tru64

1. Log in as root.
2. Create the mount point (for example, `mkdir /cdrom`).
3. Mount the CD or DVD, as follows:

   ```
   mount -r -t cdfs -o noversion device_path mount_point
   ```

   For example, the following command mounts the CD or DVD using `/cdrom` as the mount point and `/dev/disk/cdrom0a` as the device path:

   ```
   mount -r -t cdfs -o noversion /dev/disk/cdrom0a /cdrom
   ```

FreeBSD

1. Log in as root.
2. Create the mount point (for example, `mkdir /cdrom`).
3. Mount the CD or DVD, as follows:

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

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

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

HP-UX

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

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

1. Log in as root.
2. Mount the CD or DVD, as follows:
   `mount -F cdfs device_path mount_point`

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

3. Unmount the CD or DVD, as follows:
   `umount mount_point`
4. Remove the CD or DVD from the drive.

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

1. Unmount the CD or DVD, as follows:
   `pfs_umount mount_point`
   For example, the following command unmounts a CD or 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
   ```

IRIX

1. Log in as root.
2. You can use the `mediad` command to auto-mount the CD or DVD.
3. If `mediad` does not work, perform the following steps:
   - Create the mount point (for example, `mkdir /cdrom`).
   - Mount the CD or DVD, as follows:

   `mount -o ro -t iso9660 device_path mount_point`

   You can determine the *device_path* by running a hardware inventory with the `hinv` command.

   For example, the following command mounts the CD or DVD using `/cdrom` as the mount point and `/dev/rdsk/dks0d6vol` as the device path:

   `mount -o ro -t iso9660 /dev/rdsk/dks0d6vol /cdrom`

Linux

1. Log in as root.
2. Create the mount point (for example, `mkdir /cdrom`).
3. Mount the CD or DVD, as follows:

   `mount device_path mount_point`

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

   `mount /dev/cdrom /cdrom`

Solaris

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

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

   `/usr/sbin/vold &`

Installing NetBackup servers

This section describes the procedures for install NetBackup server software. Before you install NetBackup, check the following:

- Review "Preparing for installation" on page 9.
- Make sure you have installed the most current operating system patches and updates on your system. If you are not certain of your operating system level, contact your vendor and request the latest patches and upgrades.

- To use the access control features in NetBackup 6.5, you must install the Symantec Product Authentication and Authorization components.
  - If access control is not installed in your current NetBackup environment, you must first upgrade to NetBackup 6.5. Then, you can install the access control components.
  - If access control is already installed in your current NetBackup environment, you must install the new Symantec Product Authentication and Authorization components before you upgrade to NetBackup 6.5.

  For NetBackup access control installation and upgrade instructions, see the *Veritas NetBackup Security and Encryption Guide*.

How the installation script works

In addition to NetBackup server software installation, the installation script does the following:

- Places the name of the host 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.
- Adds the necessary entries to the `/etc/services` file for NetBackup and Media Manager services (for example, robotic daemons). The `/etc/services` file contains UNIX system information.
- Checks to see if your server is running Network Information System (NIS). NIS is the UNIX directory service utility. If it is running, you are instructed to add entries to your NIS services map.
- Adds automatic startup and shutdown scripts to the appropriate directories on the various supported platforms.

  Note: These scripts are removed in clustered environments.

- Adds the necessary entries to the following server file or directory to facilitate networking:

  `/etc/inetd.conf` file

  OR

  `/etc/xinetd.d` directory

  Entries are added for `bpcd`, `vnetd`, `vopied`, and `bpjava-msvc`. After they are added, the script signals `inetd` (or `xinetd`) to read the updated file.

- Before you install or use NetBackup on a Linux (Red Hat/SuSE) client, verify that the `inetd` (or `xinetd`) service is started on that machine. This service ensures proper communication between the NetBackup master server and the Linux client.
- *For Solaris 10*: The `inetd.conf` entries are also converted into `smf` service manifests and imported into the `smf` repository by using the `inetconv` command.

- *For 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 server.
  For example, suppose that Host B's `root`, `usr`, and `var` file systems are mounted on Host A as `/alt`, `/alt/usr`, 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 add-ons, clients, or database agents.

Installation sequence

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

- Master Server
- Media Server
- NetBackup Remote Administration Console
- Clients
- Any NetBackup add-on products

Installing NetBackup master server software

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 master server installation:

- Designate the computer you want to be the master server and install the master server software on that machine first.
- By default, the installation script installs the Enterprise Media Manager (EMM) Server software on the master server. This is the preferred configuration.

Note: Although installing the EMM on a media server is supported, Symantec recommends that you install the EMM on the master server. For instructions that describe EMM installation on a media server, please refer to TechNote 278175.

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

Note: If you add, delete, or make and save any license key updates in the NetBackup-Java Administration Console, you must restart the console.

To install NetBackup master server software

1. Log in to the server as root.
2. Insert the appropriate NetBackup CD or DVD in the drive and mount it, if necessary.
   For instructions on how to mount the CD or DVD on your operating system, refer to the appropriate section of "Mounting the software media" on page 21. For information on CD and DVD contents, refer to "Contents of the NetBackup media kit" on page 10.
3. Run the following installation script, which installs NetBackup server, Media Manager, and client software on the server:
   `cd_directory/install`
   The *cd_directory* is the path to the directory where you can access the CD or DVD.
   When the installation script starts, the following message appears:
   ```
   Installing NetBackup Server Software

   NOTE: To install only NetBackup Client software locally on this
   machine or to load additional UNIX client software on this
   server, insert the NetBackup UNIX Clients cdrom.

   Do you wish to continue? [y,n] (y)
   ```
   Press **Enter** to accept the default `(y)` and continue with the server installation.
4. NetBackup is set up to install to the running root environment by default.
   - To install to the running root environment, press **Enter**.

- To change the NetBackup installation location, type **[n]** and identify the appropriate path where you want NetBackup installed.

5 When you see the following message, type **[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]
```

6 This step applies only if you do not have Symantec Private Branch Exchange (PBX) currently installed on your system.

NetBackup 6.5 contains some features that are dependent on the Infrastructure Core Services (ICS) product, called Symantec Private Branch Exchange (PBX).

PBX helps limit the number of TCP/IP ports that many new features in NetBackup use. In addition, it allows all socket communication to take place while connecting through a single port. The PBX port number is 1556. For more information about PBX and how to configure NetBackup ports, refer to the *Veritas NetBackup Administration Guide, Volume I*.

Because PBX is required for all NetBackup products, its installation is part of the NetBackup installation procedure unless it is already present on the system. When you begin to install NetBackup on a server, the installation procedure determines if a version of PBX is already installed. Whether PBX is currently installed causes one of the following to happen:

- If an acceptable version of PBX already exists, the installation procedure uses that version of PBX and continues.
- If PBX does not exist, you see a message similar to the following:

```
The following package(s) are missing and must be
installed before NetBackup can be installed:
VRTSpbx
The listed package(s) are part of the Symantec
Infrastructure Core Services (ICS) CDs/DVDs which are
included in the corresponding NetBackup media kit.
```

To install PBX from a CD:

Use the displayed instructions as follows:

- `From a different window, unmount/eject the NetBackup cdrom and insert/mount the ICS cdrom. Make sure the ICS CD has been properly mounted and files are visible.`
- `Enter the full path name to the directory where the appropriate installics script is located`

```
followed by a <CR> to continue. This script will
then install the package(s).
```

To install PBX from a DVD:

Use the displayed instructions as follows:

- ```
  The ICS image is contained on the currently
  mounted media at:
  dvd_directory/mounted ICS location
  Do you want to install the listed package(s) now?
  [y,n] (y)
  ```
- Press **Enter** to install PBX from the mounted DVD.

7 Enter the NetBackup Server or Enterprise Server license key.

8 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.

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

10 Verify or enter the correct machine name when prompted by the following message:

```
Installing NetBackup Enterprise Server version: 6.5GA

If this machine will be using a different network interface than
the default (machine 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 domain name of your server appears to be (name.domain). You
may choose to use this domain name in your configured NetBackup
server name, or simply use (machine name) as the configured
NetBackup server name.

Would you like to use (name.domain) as the configured name of
the NetBackup server? [y, n] (y)
```

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

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

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

- Press **Enter** to accept the displayed name (which is the machine name you identified in the previous step).

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

```
Do you have any media servers? [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]**.
  - Enter the name of each media server.
    When you enter the media server names, you must enter the machine name and domain name. For example:
    alpha.min.symantec.com
    where **alpha** is the machine 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.

13 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.

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

14 Answer the following question when it appears:

```
Do you want to start the NetBackup bprd process so backups and
restores can be initiated? [y, n] (y)
```

- If you have (or want to have) a clustered NetBackup server, type **[n]**.
- Press **Enter** to start 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.

15 For a clustered NetBackup master server, perform step 1 through step 14 on every node on which you want to run NetBackup.

Note: For TruCluster, you only have to perform the installation once because `/usr/openv` is shared.

After you have installed the server software on all nodes, run the following command on the active node:

`/usr/openv/netbackup/bin/cluster/cluster_config`

When the `cluster_config` script runs, it prompts you for a cluster name. You must provide the same virtual cluster name that you provided during the installation.

The cluster name is also case-sensitive. If applicable, provide the fully qualified name. For example, if you indicate the name "clusternb.domain.com" during installation, you must use this exact name for the `cluster_config` script. Otherwise, the configuration process fails.

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:
  Proceed to "Installing NetBackup media server software" on page 31.
- If there are no media servers in your environment, you are ready to install client software on client machines.
  - To install client software on each individual client, see "Installing UNIX clients locally" on page 89.
  - 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 35.

Installing NetBackup media server software

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

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

Use the following guidelines when you install media servers:

- Designate the computers that you want to be media servers and install the media server software on those machines.
- The EMM server must be installed and running before you install media server software.
- 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 *Veritas NetBackup Administrator's Guide for UNIX and Linux, Volume I.*

Note: If you add, delete, or make and save any license key updates in the NetBackup-Java Administration Console, you must restart the console.

To install NetBackup media server software

1. Log in to the server as root.
2. Insert the appropriate NetBackup CD or DVD in the drive and mount it, if necessary.
   For instructions on how to mount the CD or DVD on your operating system, refer to the appropriate section of "Mounting the software media" on page 21. For information on CD and DVD contents, refer to "Contents of the NetBackup media kit" on page 10.
3. Run the following installation script, which installs NetBackup server, Media Manager, and client software on the server:
   `cd_directory/install`
   The *cd_directory* is the path to the directory where you can access the CD or DVD.
   When the installation script starts, the following message appears:

   ```
   Installing NetBackup Server Software

   NOTE: To install only NetBackup Client software locally on this
   machine or to load additional UNIX client software on this
   server, insert the NetBackup UNIX Clients cdrom.

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

   Press **Enter** to accept the default `(y)` to continue with the server installation.
4. 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 NetBackup installation location, type **[n]** and identify the appropriate path where you want NetBackup installed.

5 When you see the following message, type **[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]
```

6 This step applies only if you do not have Symantec Private Branch Exchange (PBX) currently installed on your system.

NetBackup 6.5 contains some features that are dependent on the Infrastructure Core Services (ICS) product, called Symantec Private Branch Exchange (PBX).

PBX helps limit the number of TCP/IP ports that many new features in NetBackup use. In addition, it allows all socket communication to take place while connecting through a single port. The PBX port number is 1556. For more information about PBX and how to configure NetBackup ports, refer to the *Veritas NetBackup Administration Guide, Volume I*.

Because PBX is required for all NetBackup products, its installation is part of the NetBackup installation procedure unless it is already present on the system. When you begin to install NetBackup on a server, the installation procedure determines if a version of PBX is already installed. Whether PBX is currently installed causes one of the following to happen:

- If an acceptable version of PBX already exists, the installation procedure uses that version of PBX and continues.
- If PBX does not exist, you see a message similar to the following:

```
The following package(s) are missing and must be
installed before NetBackup can be installed:
VRTSpbx
The listed package(s) are part of the Symantec
Infrastructure Core Services (ICS) CDs/DVDs which are
included in the corresponding NetBackup media kit.
```

To install PBX from a CD:

Use the displayed instructions as follows:

- `From a different window, unmount/eject the NetBackup cdrom and insert/mount the ICS cdrom. Make sure the ICS CD has been properly mounted and files are visible.`

- Enter the full path name to the directory where the appropriate installics script is located followed by a <CR> to continue. This script will then install the package(s).

To install PBX from a DVD:

Use the displayed instructions as follows:

- The ICS image is contained on the currently mounted media at:
  dvd_directory/mounted ICS location
  Do you want to install the listed package(s) now? [y,n] (y)
- Press **Enter** to install PBX from the mounted DVD.

7 Enter the NetBackup Server or NetBackup Enterprise Server license key.

8 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.

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

10 Verify or enter the correct machine name when prompted by the following message:

```
Installing NetBackup Enterprise Server version: 6.5GA

If this machine will be using a different network interface than
the default (machine 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 domain name of your server appears to be (name.domain). You
may choose to use this domain name in your configured NetBackup
server name, or simply use (machine name) as the configured
NetBackup server name.

Would you like to use (name.domain) as the configured name of
the NetBackup server? [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.

- For a clustered NetBackup server, type **[n]** and enter the virtual name for the NetBackup server and not the actual local host name.

11 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 name of the master server.
  If the master server is clustered, enter the virtual name of the master server.

12 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 machine name.

13 For a clustered NetBackup server, perform step 1 through step 12 on every node on which you want to run NetBackup.

Note: For TruCluster, you only have to perform the installation once because `/usr/openv` is shared.

After you have installed the server software on all nodes, run the following command on the active node:

```
/usr/openv/netbackup/bin/cluster/cluster_config
```

When the `cluster_config` script runs, it prompts you for a cluster name. You must provide the same virtual cluster name that you provided during the installation.

The cluster name is also case-sensitive. If applicable, provide the fully qualified name. For example, if you indicate the name "clusternb.domain.com" during installation, you must use this exact name for the `cluster_config` script. Otherwise, the configuration process fails.

14 Repeat step 1 through step 12 to install media server software on any remaining media servers.

Installing client type software on a master server

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

- Assign clients to NetBackup policies so that those clients can be backed up

Make sure that you install the software for all of the UNIX client types you intend to back up onto the server. Otherwise, you cannot add these client types to the NetBackup policy configuration.

- 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 "push" the client software from the master server to the clients.

To install client type software on a master server

1. Mount the appropriate client CD or DVD.
2. Select the client type that you want to install and follow the prompts to install that client type.
3. Continue to select client types as necessary until all your client types have been installed, and then unmount the client CD or DVD.

Notes on pushing client software from a master server to clients

Use the following guidelines to prepare your NetBackup environment for client software installation from the master server.

- 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 *Veritas NetBackup Administrator's Guide for UNIX and Linux, Volume I*.
- For procedures on how to push client software from the master server, see "Installing UNIX clients remotely" on page 90.

Configuring the window manager for the Java Interface (NetBackup-Java compatible platforms)

Always set your window manager so 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.

CDE (Common Desktop Environment)

The CDE (Common Desktop Environment) window manager is the preferred window manager for NetBackup-Java applications.

To set up a CDE window manager

1. On the front panel in the CDE window, click the Style Manager control icon.
2. On the Style Manager toolbar, click the Window control icon.
3. In the Style Manager - Window dialog box, select **Click In Window To Make Active**.
   Click **OK**.
4. When you see the **Restart the Workspace Manager** prompt, click **OK**.

Any NetBackup add-on products

After your initial installation is complete, you can install any other NetBackup agents and options (such as NetBackup for Oracle).

Chapter 3

Installing alternative administration interfaces

This chapter includes the following topics:

- "About the NetBackup Remote Administration Console for Windows"
- "About the NetBackup-Java Administration Console"
- "About the Java Windows Administration Console"

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 Windows and UNIX environments.

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 machine.

The following describes which interface to install, based on the operating system:

Windows	NetBackup Remote Administration Console for Windows or NetBackup-Java Administration Console for Windows

UNIX	NetBackup-Java Administration Console
	Multiple versions of the NetBackup-Java Administration Console

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 2000/XP/2003 Server. For additional information about the supported platforms for this NetBackup release, refer to the Supported Platforms and Peripherals chapter in the *NetBackup Release Notes*.

Installation is a two step process as follows:

- Install the NetBackup Remote Administration Console
- Add the NetBackup Remote Administration Console host to server lists

To install the NetBackup Remote Administration Console

1. On the computer on which you want to install the NetBackup Remote Administration Console, insert the CD that contains the NetBackup server software for Windows.
   - On Windows systems with Autorun enabled, the installation browser starts automatically.
   - On Windows systems that have Autorun disabled, navigate to the CD drive and run `Launch.exe`.
2. On the initial screen, click **NetBackup Installation**.
3. On the Installation screen, click **Install Server Software**.
4. On the Welcome screen, 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** and **Typical**.
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 machine where you are installing the remote console. (The name should appear by default.)
Master Server	Enter the name of the NetBackup master server. (The name should appear by default.)
Additional Servers	Enter the names of any additional machines (servers) that are allowed to access this server. If you enter more than one name, separate each name with a comma.
Install LiveUpdate Agent	Leave this box checked so that the agent is installed. LiveUpdate lets you download and install patches for NetBackup. Even if you choose not to use LiveUpdate, agent installation does not affect NetBackup installation, configuration, or operation. For complete information on LiveUpdate, refer to "About NetBackup LiveUpdate" on page 111.

9 On the Ready to Install the Program screen, click **Install**.

10 After the installation completes, you can either add license keys (click **Add Keys**) or click **Finish**.
If you left the check box next to **Launch NetBackup Administration Console now** checked, the Remote Administration Console appears. If you removed the check, start the console by choosing **Start > Programs > Veritas NetBackup > NetBackup Administration Console**.

Adding the NetBackup Remote Administration Console host to server lists

The following methods are available to add the NetBackup Remote Administration Console host to the server list on a master or a media server:

- Use the NetBackup Administration Console for UNIX (if your system is Java-compatible)
- Edit the `bp.conf` file

To add the NetBackup Remote Administration Console host to the UNIX server list of the remote server by using the NetBackup Administration Console

1. In the left pane of the NetBackup Administration Console for UNIX, select **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 add the NetBackup Remote Administration Console host to the UNIX server list of the remote server by editing the bp.conf file

1. Log in to the UNIX master server as root.
2. Edit `/usr/openv/netbackup/bp.conf`.
   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 machine where you installed the NetBackup Remote Administration Console.

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, perform the following steps.

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

1. Log on to the server 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 you enter the name of the host that is to run the NetBackup Remote Administration Console.

6 Click the **+** button (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 on a remote NetBackup server to create backup policies, manage volumes, view status, monitor tape drives, and other operations.

On Java-capable hosts (servers and clients), the administration console is installed when you install NetBackup on the host. For remote administration of any NetBackup server, specify the server name in the login dialog box.

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

A NetBackup environment may contain servers of various NetBackup versions. This section describes how install and uninstall multiple versions.

Installing multiple versions of the NetBackup Administration Console on Windows

A number of methods can be used to administer servers in a mixed-version environment.

One method is to install a relevant version of the NetBackup-Java Administration Console on a Windows desktop. Then you can use that console to administer all servers of the same version.

Note the following points before you install multiple versions of this NetBackup interface:

- Only the most recently installed version of the NetBackup-Java Administration Console can be patched.
- Only the most-recently-installed version can be removed (uninstalled) with the standard Windows Add/Remove Programs utility.

- The NetBackup-Java Capabilities Authorization configuration file (`auth.conf`), must always be located in *`install_path`*`\java`. For example, in `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 relevant for administering NetBackup on this Windows host, and default settings exist if the file is not present. The defaults are discussed in the *Veritas NetBackup Administrator's Guide for Windows, Volume I,* in the section on how to authorize NetBackup-Java users.

When you install multiple versions of the NetBackup-Java Administration Console in a mixed environment, you must do the following:

- Provide a unique string for the host name when asked (pre-6.0 versions).
- Install each Java console version to a different folder.

Note: The NetBackup-Java Administration Console for the Windows platform is not installed automatically.

To install earlier versions of the NetBackup-Java Administration Console

1. Insert the NetBackup Windows installation CD with the version of the NetBackup-Java Administration Console you want to install.
2. Select one of the following consoles, based on the NetBackup version:
   - For NetBackup 5.0 installations, select **NetBackup Installation** and click **Install Java Administration Console**.
   - For NetBackup 5.1 installations, select **NetBackup Installation** and click **Java Windows Display Console**. Select whether you want to install the 32-bit or the 64-bit console.
   - For NetBackup 6.0 installations, select **NetBackup Installation** and click **Install Java Administration Console**. Select whether you want to install the 32-bit or the 64-bit console.
3. If a different version of the Java console has already been installed, specify a different folder location to prevent overwriting the earlier installation.
   For example, specify `C:\Program Files\Veritas\nbjava50` for version 5.0 Java consoles.
4. The wizard asks you to enter the name of the host you want to manage. For ease of use, instead of entering a host name, enter a name that reflects the version of the console being installed. For example, **`5.0GA`**.
   After the installation, the host name you entered appears in the following locations:

- As the default host name in the login screen of the NetBackup-Java Administration Console dialog box.

  The descriptive host name appears here only the first time the console is opened. After you change the name to an actual host name in the login dialog box:

  - Log in to the console.
  - Exit from the console.

  The actual host name becomes the default and appears the next time the console is started.
- On the Veritas NetBackup menu (**Start** > **Programs** > **Veritas NetBackup > NetBackup-Java Version 6.5** *host_name*).
- As a desktop shortcut icon.

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

If you want to remove earlier versions of the NetBackup-Java Administration Console, you do not run Add/Remove Programs.

To uninstall 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** > **Veritas NetBackup** menu.
3. Remove any relevant desktop shortcuts.
4.

About the Java Windows Administration Console

Skip this section if you do not want to administer your UNIX NetBackup servers remotely, with the Java Windows Administration Console on a Windows platform.

The Java Windows Administration Console lets you run the NetBackup Java Administration Console for UNIX interfaces on supported Windows platforms. This interface provides the same capabilities as the NetBackup Administration Console for Windows or UNIX.

Installing the Java Windows Administration Console

Use the following guidelines when you install the Java Windows Administration Console:

- You can install the Java Windows Administration Console from the NetBackup CD for Windows.
- If you use NetBackup Access Control, the Symantec Product Authentication and Authorization client components must be installed on the Windows host before the Java Windows Administration Console. This order of installation ensures that the Java Windows Administration Console uses the Symantec Product Authentication and Authorization components correctly.
- For the computer on which you want to run the Java Windows Administration Console, you should have at least 512 MB of physical memory.

To install the NetBackup Java Windows Administration Console

1. On the machine where you perform the installation, insert the CD that contains NetBackup server software for Windows.
   On Windows systems with Autorun enabled, the installation starts automatically.
   On Windows systems with Autorun disabled, navigate to the CD directory and run `Launch.exe`.
2. On the initial screen, select **NetBackup Installation**.
3. On the Installation screen, select **Install Java Windows Administration Console**.
4. On the Welcome screen, 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**.
7. On the Ready to Install the Program screen, click **Install**.
8. On the System Validation Complete screen, click **Finish**.
9. You can open the NetBackup-Java Windows Display Console by choosing **Start > Programs > Veritas NetBackup > NetBackup Java version 6.5**.

Administering multiple versions of NetBackup servers

You can use one of the following methods to administer earlier versions of NetBackup. The order of the listed methods does not imply any preference.

Earlier versions of the NetBackup-Java Administration Console on UNIX platforms

Use the earlier versions of the NetBackup-Java Administration Console installed on the supported UNIX platform(s). 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 6.5 release, the 6.0, the 5.0MP4 (or later), and the 5.1 console versions are available.

Earlier versions of the NetBackup-Java Administration Console on Windows platforms

Use the earlier versions of the NetBackup-Java Administration Console installed on the supported Windows platforms.

To install multiple versions of the NetBackup-Java console, see “Installing multiple versions of the NetBackup Administration Console on Windows” on page 43.

Remote display-back from UNIX servers

Use the UNIX remote display-back capabilities for UNIX servers that can run NetBackup-Java, possibly with tools such as Exceed or VNC.

Remote display-back from Windows servers

Use the NetBackup Administration Console for Windows with the remote display-back capabilities on Windows NetBackup servers with tools like Windows Terminal Services or Remote Desktop.

At the console of the server with an earlier version of NetBackup

Use the relevant NetBackup-Java Administration Console from the console of the server with the earlier version of NetBackup.

Chapter 4

Upgrading NetBackup

This chapter includes the following topics:

- "Requirements for upgrades to NetBackup 6.5"
- "Upgrading NetBackup on UNIX servers and clients"
- "Completing your system update after an upgrade"

Requirements for upgrades to NetBackup 6.5

NetBackup version 6.5 includes many new features. Some new upgrade requirements have been put in place to make your transition to this version of NetBackup easier.

The following describes the requirements for NetBackup server upgrades:

- Always back up your NetBackup databases before upgrading NetBackup software on the master server.
- You can upgrade to NetBackup 6.5 only if you have one of the following versions currently installed:
  - Version 6.0
    The procedure for upgrading from 6.0 to 6.5 is included in this installation guide.
    - Notes about logging changes when upgrading to NetBackup 6.5
      An upgrade to NetBackup 6.5 overwrites the `nblog.conf` file with a new file and resets two logging settings.
      The Logging Level feature was introduced in NetBackup 6.0 GA. Upgrading to 6.5 resets this feature to 1. To change the Logging Level to the desired setting after upgrading, refer to the *Veritas NetBackup Administrator's Guide, Volume I*.
      The LogRecycle feature was introduced in NetBackup 6.0 MP4. Upgrading to 6.5 resets this feature to OFF. To change LogRecycle

to the desired setting after upgrading, refer to the *Veritas NetBackup Troubleshooting Guide*. You should also refer to the information at the following Website:
http://entsupport.symantec.com/docs/279590

- Version 5.0MP4 (or later) or version 5.1
  The procedures for upgrading from 5.0MP4 (or later) or version 5.1 are not included in this guide.
  Before you can upgrade from 5.0MP4 (or later) or version 5.1, you must first prepare your current NetBackup environment for an upgrade to version 6.5. The upgrade instructions can be found as follows:
  - Go to the following Symantec Website:
    http://entsupport.symantec.com
  - In the Product Lookup dialog box, enter NetBackup Enterprise Server and click on the arrow to the right.
    The next page that displays includes a Hot Topics section that provides a link to an upgrade portal.
    Following the procedures described in the linked documents at this Website help ensure a successful upgrade.

Note: If you have a version earlier than 5.0MP4 installed (such as 4.5), you cannot upgrade directly to NetBackup 6.5. You must first upgrade to NetBackup 5.x and then upgrade to NetBackup 6.5.

- Review the "Requirements for NetBackup server installation" on page 13 before upgrading NetBackup. Many of these requirements apply to NetBackup upgrades.
- A master server cannot be changed to a media server when you perform an upgrade. To make this change, you must first uninstall the earlier version of NetBackup, then perform an installation of the new version.
- For NetBackup Enterprise upgrades:
  - You cannot convert an existing non-failover server to a highly available failover NetBackup server.
- Make sure that the NetBackup version on each server is at least equal to the version installed on any clients. Earlier server software versions can encounter problems with later client software versions.
- Add-ons must be at the same version as the NetBackup server or client where the add-on is installed.
- To use the access control features in NetBackup 6.5, you must install the Symantec Product Authentication and Authorization components.

If access control is already installed in your current NetBackup environment, you must install the new Symantec Product Authentication and Authorization components before you upgrade to NetBackup 6.5.
For NetBackup access control installation and upgrade instructions, see the *Veritas NetBackup Security and Encryption Guide*.

- If you have NetBackup 5.0 and earlier clients that are unsupported for NetBackup 6.5, you may encounter problems with new features in this release. Move those earlier version clients to a separate policy.
- 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.

NetBackup Operations Manager (NOM) considerations

- NOM is not an incremental update to any existing Symantec products. Any NetBackup Global Data Manager (GDM) and NetBackup Advanced Reporter (NBAR) installations cannot be upgraded to NOM installations. There are substantial differences and enhancements in the architecture, design, implementation, data model, and historical data from GDM or NBAR in previous NetBackup versions.
- If you have installed any NetBackup versions earlier than 6.5 that have NBAR or GDM, you must uninstall NBAR and GDM from your server completely. Only then can you upgrade to NetBackup 6.5.

Upgrade requirements for 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 server.
  For example, assume that Host B's `root`, `usr`, and `var` file systems are mounted on Host A as `/alt`, `/alt/usr`, and `/alt/var`. When logged in to Host A, you can specify `/alt` as the alternate root environment and install NetBackup on Host B. This feature applies only to NetBackup Server, and not to optional products or agents.

Upgrade requirements for clustered environments

- Refer to the *Veritas NetBackup High Availability 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 you enter during the upgrade for the NetBackup server is 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`). As the root user you must be able to perform a remote login to each node in the cluster without entering a password. Remote login without a password is only necessary for installation and configuration of the NetBackup server, and any NetBackup agents and options. After installation and configuration are complete, it is no longer required.
- The virtual server name must be defined 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 nodes in the cluster.

Upgrading NetBackup on UNIX servers and clients

This section describes how to upgrade NetBackup from previous versions, or from NetBackup Server to NetBackup Enterprise Server. It also describes how this version can handle the media servers that use different versions of NetBackup.

After you insert the appropriate NetBackup CD or DVD into your computer, the installation process searches to determine if an earlier NetBackup version exists on your system. The presence of an existing version of NetBackup dictates that you are about to perform an upgrade.

When you upgrade from NetBackup 6.0 to 6.5, Symantec recommends the following order:

- Master server
- Media server
- NetBackup Remote Administration Consoles
- NetBackup clients

- Any NetBackup add-on products

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 remote media servers.
2. Back up all NetBackup patches, scripts, and `bp.conf` entries that are specific to the earlier version of NetBackup.

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

Upgrading server software from version 6.0

Use the following procedure to upgrade NetBackup server software from 6.0 to 6.5.

To upgrade server software from version 6.0 to 6.5

Note: If you currently have NetBackup access control 6.0 installed, you must upgrade that product before you upgrade to NetBackup 6.5. For access control upgrade instructions, see the *Veritas NetBackup Security and Encryption Guide*.

---

1. Log on as the root user on the server.
2. Deactivate all policies.
   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 policies that appear.
   - Right-click the polices, then select **Deactivate**.

   For command-line users, enter the following command:

   ```
   /usr/openv/netbackup/bin/admincmd/bpplinfo \
   policy_name -modify -inactive
   ```

3 Deactivate disk staging storage units.

For NetBackup Administration Console users:

- Open the NetBackup Administration Console on the master server.
- 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 window appears, select **Staging Schedule**.
- When the Disk Staging Schedule window appears, click on the **Exclude Dates** tab.
- Select the date in the calendar that matches the date of the system upgrade.
- Repeat these tasks for each disk staging storage unit.

For command-line users, enter the following command:

```
/usr/openv/netbackup/bin/admincmd/bpschedulerep \
schedulename -excl mm/dd/yyyy
```

4 Deactivate all media servers.

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 > Hosts**.
- In the right pane, select all of the media servers that appear.
- Right-click the media servers and select **Deactivate**.

For command-line users, enter the following command:

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

5 *For clustered environments:*

- 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.

6 *For Solaris systems:*

Warning: All of the NetBackup scripts that you may have modified are removed when you complete this step. You may want to save any files that you have modified and want to keep, before you perform this step.

- If it exists, remove the following file:

```
rm -f /usr/openv/netbackup/bin/driver/snapctl10_x
```

- Remove the current NetBackup server package as follows:
  `pkgrm VRTSnetbp`
  You see the following prompt:
  `Are you doing this pkgrm as a step in an upgrade process?`
- Answer **y** (yes).

7 *For AIX systems:*

Note: This step deletes any robotic control paths. For more information about the robotic control paths, see the *Veritas NetBackup Device Configuration Guide*.

Uninstall the `ovpass` driver, as follows:
`/usr/openv/volmgr/bin/driver/remove_ovpass`

Note: In an AIX clustered environment, you must run this step on all nodes in the cluster.

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

Note: *NetBackup Enterprise only*: When you install a 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 *Veritas NetBackup Administrator's Guide, Volume I*.

9 Insert the appropriate NetBackup Server CD or DVD in the drive.
For instructions on how to mount the CD or DVD on your operating system, refer to the appropriate section of "Mounting the software media" on page 21. For information on CD and DVD contents, refer to "Contents of the NetBackup media kit" on page 10.

10 Run the installation script, as follows:
`cd_directory/install`
The *cd_directory* is the path to the directory where you can access the CD or DVD. On some platforms, it may be necessary to mount the directory.

11 When the following message appears, update PBX.

```
The following package(s) need to be updated before
NetBackup can be installed:
VRTSpbx
The listed package(s) are part of the Symantec
Infrastructure Core Services (ICS) CDs/DVDs which are
included in the corresponding NetBackup media kit.
```

To upgrade PBX from a CD:

Use the displayed instructions as follows:

- `From a different window, unmount/eject the NetBackup cdrom and insert/mount the ICS cdrom. Make sure the ICS CD has been properly mounted and files are visible.`
- `Enter the full path name to the directory where the appropriate installics script is located followed by a <CR> to continue. This script will then install the package(s).`

To upgrade PBX from a DVD:

Use the displayed instructions as follows:

- `The ICS image is contained on the currently mounted media at:`
  `dvd_directory/mounted ICS location`
  `Do you want to install the listed package(s) now? [y,n] (y)`
- Press **Enter** to upgrade PBX from the mounted DVD.

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

For clustered environments:

- Upgrade the inactive nodes first, then upgrade the active node.

Note: During the upgrade, you see the following prompt:

```
Do you want to start the NetBackup bprd process so
backups and restores can be initiated? [y,n] (y)
```

If you accept the default (type **y** or press Return), backups and restores can be initiated after the upgrade is completed. However, any active policies from the earlier NetBackup version may be used by the new version of NetBackup. A backup or restore operation may start while you try to configure NetBackup.

You should schedule your upgrade and reconfiguration for a time when backups do not run. You can also temporarily modify policies so that jobs do not run while you reconfigure NetBackup.

If you type **n** in response, the daemons are not started and you must start `bprd` and `ltid` before you can run NetBackup.

---

13 *Optional step to upgrade clients:*
During the upgrade, the correct NetBackup client software is automatically installed on the server. To install additional client software on your current server, you can mount the appropriate client CD or DVD and run that installation script.
Each client CD or DVD installation script lets you load the client software on the server for each of the UNIX client types that NetBackup supports. You can then "push" this client software from the server to your UNIX clients. For information on how to upgrade clients, refer to "Upgrading clients after servers are upgraded" on page 57.

14 *For clustered environments only.*
Unfreeze the NetBackup group.

15 After you have finished the upgrade of NetBackup, you can install and configure NetBackup access control. For detailed information, see the *Veritas NetBackup Security and Encryption Guide*.

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.

As of NetBackup 6.0, you can run `update_clients` on 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.

To upgrade clients after you have upgraded servers

Note: *For clustered environments*: You can push client software only from the active node.

---

1. Mount the appropriate client CD.
2. Change your working directory to the CD directory if you have a CD or to the directory that contains the downloaded files:
   `cd /cd_mount_point`
   The *cd_mount_point* is the path to the directory where you can access the CD.
3. Enter the following command to run the installation script:
   `./install`

   Note: The binaries provided for the client operating system levels represent the operating system levels on which the binaries were compiled. The binaries typically function perfectly on later versions of the operating system. For example, Solaris 9 binaries also are used on the Solaris 10 level of the operating system. The installation script attempts to load the appropriate binaries for your system. If the script does not recognize the local operating system, it presents choices.

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

   Note: Make sure you load the software for all the UNIX client types you intend to back up onto the server. Otherwise, you cannot add these client types to the NetBackup policy configuration.

5. After the installation is complete, unmount the client CD.
6. 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, terminate it with the following command:
   `/usr/openv/netbackup/bin/admincmd/bprdreq -terminate`
7. Enter the following command to make sure that backups or restores are not in progress:
   `/usr/openv/netbackup/bin/admincmd/bpdbjobs`
8. Update UNIX client software by running the `update_clients` script with one of the following commands:

Note: Specify the host names of the individual nodes (not virtual names) in the list of clients.

Note: The `update_clients` script does not let you push client software to remote media or master servers.

- If you do not use a `-ClientList` file, run the following command:
  `/usr/openv/netbackup/bin/update_clients`
- If you use a `-ClientList` file run the following command:
  `/usr/openv/netbackup/bin/update_clients -ClientList` *`filename`*

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

Note: 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`(1M) 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, run the following command:
    `./bpplclients -allunique -noheader >` *`file`*
  - If you push from a media server, run the following command:
    `./bpplclients -allunique -noheader -M \`
    `m_server_name` **`>`** *`file`*

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, *`file`* is empty. Create *`file`* using the same format as that generated by `bpplclients`.

The `bpplclients` command writes output to *file* in the following format:
hardware os client

hardware The hardware name. For examples, run the `ls`(1) command in directory `/usr/openv/netbackup/client`.

os The operating system name. For examples, run the `ls`(1) 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 Solaris8 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 correct value for the individual node names is returned by the `hostname`(1) and the `domainname`(1) commands. The format can be either *hostname* or *hostname*.*domainname*.

9 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]
```

Answer either **y** or **n**.

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

Press Enter (or Return).

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

Answer either **y** or **n**.

10 After all servers and clients are updated, enter the following command as the root user on the master server to start the bprd daemon:

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

11 After you have upgraded the NetBackup software, proceed to."Completing your system update after an upgrade" on page 61.

Upgrading a NetBackup server to a NetBackup Enterprise Server

When you install NetBackup Enterprise master or media servers, you must enter a NetBackup Enterprise server product license key. On the master server, you must also enter license keys for any additional NetBackup software. For example, any options or agents that are used on the server or its clients.

Note: A NetBackup Server cannot be upgraded to a clustered NetBackup Enterprise Server. You must perform a new cluster installation of NetBackup Enterprise Server.

To upgrade a NetBackup server to a NetBackup Enterprise server

1. Ensure that you have license keys for all the NetBackup servers, clients, options, and agents that you ordered.
   For more information on how to administer NetBackup licenses, see the *NetBackup Administrator's Guide, Volume I.*

Note: Anytime you add, delete, or make any other license key updates in the NetBackup Administration Console, you must restart the console.

---

2. Reinstall NetBackup, using the instructions from "Upgrading NetBackup on UNIX servers and clients" on page 52.
3. When prompted, enter the license key.
   NetBackup Enterprise software installs.

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.

Required changes after an upgrade

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

- If you upgraded a master server that previously allowed nonroot users to administer NetBackup, you must reconfigure the permissions and group. The default permissions and group on the newly installed files allow only a root user to perform NetBackup administration.
- Upgrade any separately-priced options (such as NetBackup for Oracle) on all upgraded clients. Separately-priced options should be at the same level as the NetBackup client.
- 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 files and scripts are overwritten. Before NetBackup overwrites any file, it appends the version to the file name and copies the renamed files or scripts to a file or directory.

The following describes the files and scripts that are overwritten when you upgrade from an earlier version of NetBackup:

- All files in the `/usr/openv/netbackup/bin/goodies` directory and the `/usr/openv/netbackup/help` directory.
- Some files and directories in `/usr/openv/volmgr`.
- The following scripts from the `/usr/openv/netbackup/bin` directory:
  `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`
  For example, an upgrade from NetBackup 5.1GA to NetBackup 6.5 would result in the following directory name change:
  `/usr/openv/netbackup/bin/goodies`
  The new directory name might be like the following:
  `/usr/openv/netbackup/bin/goodies.5.1GA`
- The following scripts from the `/usr/openv/volmgr/bin/goodies` directory:
  `drive_mount_notify` (present only if used)
  `drive_unmount_notify` (present only if used)
- The following scripts from the `/usr/openv/volmgr/bin` directory:
  `shared_drive_notify`

Installing NetBackup Agents and Options After an Upgrade

After your upgrade is complete, you can install any other NetBackup agents and options (such as NetBackup for Oracle). Follow the instructions that are included with that product.

Chapter 5

Uninstalling NetBackup Server Software

This chapter includes the following topics:

- "Overview of uninstallation"
- "Uninstalling NetBackup on Solaris servers"
- "Uninstalling NetBackup on all other UNIX servers"

Overview of uninstallation

This chapter describes how to uninstall NetBackup 6.5 software from your server system.

During each procedure, you have the opportunity to save any data that you want and uninstall add-on products before you uninstall NetBackup.

Note: The procedures in this chapter remove NetBackup, any add-on products, and any databases for those products, including Veritas Storage Migrator. Symantec recommends that you save the data that you require and uninstall any add-on products before you uninstall NetBackup.

Uninstalling NetBackup on Solaris servers

This procedure outlines the basic steps that you must perform to remove NetBackup from a Solaris server. You may also need to reference other documents for procedures of specific tasks to uninstall NetBackup successfully.

Use the following guidelines when you uninstall NetBackup on Solaris servers:

- The NetBackup package name for versions 6.5 and later is `SYMCnetbp`. The NetBackup package name for versions 6.0 and earlier is `VRTSnetbp`.
- If you moved the catalog database files in `/usr/openv/db/data` to another location, the uninstall procedure does not remove these files. Refer to the *Veritas NetBackup Administrator's Guide, Volume I* for procedures on how to remove those files.
- *For clustered environments*: Before you begin to uninstall 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 uninstall NetBackup.
  You must uninstall NetBackup from each node in the cluster.
- If you identified an alternate root path in your NetBackup 6.5 installation or upgrade, the process prompts you with the alternate root path. You can use the `pkgrm -R` command from the alternate root location.
  The `pkgrm -R` command was implemented starting with the NetBackup 5.0 `VRTSnetbp` (NetBackup server) package. You cannot use `pkgrm -R` with `VRTSnetbp` packages that were released before NetBackup 5.0. This feature applies to NetBackup server only, and not add-ons, clients, or database agents.
- When you uninstall NetBackup, PBX is *not* removed. If you would like to clean your system permanently, refer to the PBX documentation on your platform-specific ICS CD.

Warning: Do not uninstall PBX if your server uses other Symantec software products that require PBX to run.

To uninstall NetBackup from a Solaris server

1. Log on as the root user on the server.
2. Perform a catalog backup.
3. Identify any installed add-on products and ICS Native packages by using the following command:
   `pkginfo`
4. **Important** - Save all important data from any add-on products you have installed.
   For instructions on how to migrate files to a secondary storage device, refer to the *Veritas Storage Migrator Administrator's Guide*.
5. Uninstall each add-on product and agent.

Refer to the following sources for the specific procedure that is related to each add-on product:

Add-on product	Uninstallation source
Veritas Storage Migrator	Veritas Storage Migrator Installation Guide
NetWare Media Server	Veritas NetBackup Media Server Option Administrator's Guide
NetBackup Encryption	Veritas NetBackup Security and Encryption Guide
NetBackup LiveUpdate	Refer to "Uninstalling NetBackup LiveUpdate" on page 127.

6 Stop the NetBackup/Media Manager daemons:
`/usr/openv/netbackup/bin/goodies/bp.kill_all`

7 If it exists, remove the following file:
`rm -f /usr/openv/bin/driver/snapctl10_x`

8 To remove the ICS Native packages, use the `pkgrm` command. Remove the packages in the order in which they appear in the following list. You must follow this order to help prevent a failed package removal.
If any package does not appear on your `pkginfo` list, skip to the next package.

Command	Description
`pkgrm VRTSaz`	Symantec Product Authorization Service
`pkgrm VRTSat`	Symantec Product Authentication Service
`pkgrm VRTSpbx`	Symantec Private Branch Exchange **Caution:** Do not remove VRTSpbx if there are other Symantec software products installed that require it.
`pkgrm VRTSicsco`	Symantec Infrastructure Core Services Components

9 To remove the NetBackup package, run the following command:
`pkgrm SYMCnetbp`

10 When asked if you want to remove the installed package `SYMCnetbp`, enter **y** and press **enter**.

11 When asked if you want to continue with the package removal using super-user permission, enter **y** and press **enter**.

12 When asked if you want to stop NetBackup and Media Manager processes, enter **y** and press **enter**.

13 When asked if the package removal is a step in an upgrade process, enter **n** and press **enter**.

14 When asked if you want to remove any directory in the `/opt/openv` directory path that is not empty, enter **y** and press **enter**.

15 When asked if you want to remove references to NetBackup and Media Manager from services and `inetd` configuration files, enter **y** and press **enter**.

After a few minutes, you should see the following message:

```
Removal of <SYMCnetbp> was successful.
```

16 Remove the startup scripts, as follows:

```
rm -f /etc/rc2.d/S77netbackup
rm -f /etc/rc2.d/S95nbclient
rm -f /etc/rc1.d/K01netbackup
rm -f /etc/rc1.d/K01nbclient
rm -f /etc/rc0.d/K01netbackup
rm -f /etc/rc0.d/K01nbclient
rm -f /etc/init.d/netbackup
rm -f /etc/init.d/nbclient
```

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

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

17 To remove the NetBackup-Java application state data for the root account, run the following commands:

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

```
/bin/rm -rf /.nbjava
/bin/rm -rf /.java/.userPrefs/vrts
```

18 Inform NetBackup-Java users, that they can remove their `$HOME/.nbjava` and portions of `$HOME/.java` directories.

The `$HOME/.nbjava` and `$HOME/.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/.java/.userPrefs/vrts` can be removed.

19 If you enabled NetBackup access control, NetBackup placed several files on clients and servers. These files can be divided into two categories:

- NetBackup application temporary files
  These files are removed with NetBackup.
- Individual user (cache) files
  Users' cache files exist in the `$HOME/.vxss` directory. Inform all users that they can remove the `$HOME/.vxss` directory.

Note: 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 shut down, 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 machine 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 machine 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, please see the *Veritas NetBackup Security and Encryption Guide*.

Note: For more information on NetBackup access control, including how to uninstall it, see the *Veritas NetBackup Security and Encryption Guide*.

Uninstalling NetBackup on all other UNIX servers

Use the following guidelines when you uninstall NetBackup from UNIX servers other than Solaris:

- If you moved the catalog database files in `/usr/openv/db/data` to another location, the uninstall procedure does not remove these files. Refer to the *Veritas NetBackup Administrator's Guide, Volume I* for procedures on how to remove those files.
- *For clustered environments*: Before you begin to uninstall 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 uninstall NetBackup.
- *For HP-UX Service Guard Cluster environments:* If NetBackup has been configured to run as a clustered package, you must also delete the `/etc/cmcluster/netbackup` directory.
- When you uninstall NetBackup, PBX is *not* removed. If you would like to clean your system permanently, refer to the PBX documentation on your platform-specific ICS CD.

Warning: Do not uninstall PBX if your server uses other Symantec software products that require PBX to run.

To uninstall NetBackup from a UNIX server other than Solaris

1. Log on as the root user on the server.
2. Perform a catalog backup.
3. Stop the NetBackup/Media Manager daemons:
   `/usr/openv/netbackup/bin/goodies/bp.kill_all`
4. Run the following command to unregister NetBackup from the VxUL master configuration that is stored in the `/etc/vx/vrtslog.conf` file:
   `/usr/openv/netbackup/bin/vxlogcfg -r -p 51216`
   The `-p` option specifies the product ID, which is `51216` for NetBackup.
5. **Important** - Save all important data from any add-on products you have installed.
   For instructions on how to migrate files to a secondary storage device, refer to the *Veritas Storage Migrator Administrator's Guide*.
6. Uninstall each add-on product.

Refer to the following sources for the specific procedure that is related to each add-on product:

Add-on product	Where to find uninstallation details
Veritas Storage Migrator	Veritas Storage Migrator Installation Guide
NetWare Media Server	Veritas NetBackup Media Server Option Administrator's Guide
NetBackup Encryption	Veritas NetBackup Security and Encryption Guide
NetBackup LiveUpdate	Refer to "Uninstalling NetBackup LiveUpdate" on page 127.

7 Remove the NetBackup databases by running the following command:
`/usr/openv/db/bin/create_nbdb -drop_only`
This command removes the databases even if they have been moved from their default locations.

8 Remove the ICS Native packages. For complete details, refer to the *Veritas Infrastructure Core Services Installation Guide for UNIX*; "Uninstalling the ICS".

9 To remove references to NetBackup/Media Manager from `/etc/services` and the `[x]inetd` configuration files, run the `edit_services` script:
`/usr/openv/netbackup/bin/goodies/edit_services`

10 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 machine where you perform this command.

- If `/usr/openv` is a physical directory, run the following command:
  `rm -rf /usr/openv`
- If `/usr/openv` is a link, run the following commands:
  `cd /usr/openv`
  `pwd`
  `ls`

Warning: Before you continue, make sure you are at the correct location and verify that the subdirectories are what you would 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
```

11 *For Linux systems only*:
If you modified the startup and the shutdown scripts as described in "Configuring NetBackup Startup and Shutdown" on page 99, run the following command:

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

12 Remove the following links and files:

System	Path
AIX	/etc/rc.netbackup.aix /etc/rc.client.netbackup
Alpha Tru64	/sbin/rc3.d/S77netbackup /sbin/rc0.d/K01netbackup /sbin/init.d/netbackup
HP-UX	/sbin/rc2.d/S777netbackup (note three 7s) /sbin/rc1.d/K001netbackup /sbin/init.d/netbackup /sbin/rc1.d/K001nbclient /sbin/rc2.d/S951nbclient /sbin/init.d/nbclient

System	Path
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 /etc/rc.d/init.d/nbclient /etc/rc.d/rc0.d/K01nbclient /etc/rc.d/rc1.d/K01nbclient /etc/rc.d/rc2.d/S95nbclient /etc/rc.d/rc3.d/S95nbclient /etc/rc.d/rc5.d/S95nbclient /etc/rc.d/rc6.d/K01nbclient The following startup scripts appear only if NetBackup Fiber Transport was enabled on the server: /etc/rc.d/init.d/nbftserver /etc/rc.d/rc2.d/S21nbftserver /etc/rc.d/rc3.d/S21nbftserver /etc/rc.d/rc5.d/S21nbftserver /etc/rc.d/rc0.d/K03nbftserver /etc/rc.d/rc1.d/K03nbftserver /etc/rc.d/rc6.d/K03nbftserver
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 /etc/init.d/nbclient /etc/init.d/rc0.d/K01nbclient /etc/init.d/rc2.d/S95nbclient /etc/init.d/rc3.d/S95nbclient /etc/init.d/rc5.d/S95nbclient /etc/init.d/rc6.d/K01nbclient

System	Path
Other servers	/etc/rc2.d/S77netbackup /etc/rc1.d/K01netbackup /etc/rc0.d/K01netbackup /etc/init.d/netbackup /etc/rc2.d/S95nbclient /etc/rc1.d/K01nbclient /etc/rc0.d/K01nbclient /etc/init.d/nbclient The following startup scripts appear only if NetBackup Fiber Transport was enabled on the server: /etc/rc0.d/K03nbftserver /etc/rc2.d/S21nbftserver /etc/rc1.d/K03nbftserver /etc/init.d/nbftserver

13 *For AIX systems only*:
Remove the NetBackup `/etc/rc.netbackup.aix` entry from the `/etc/inittab` file.
Remove the line `/etc/rc.netbackup.aix stop` in the `/etc/rc.shutdown` file.

14 Run the following commands to remove the NetBackup-Java application state data for the root account:

```
/bin/rm -rf /.nbjava
/bin/rm -rf /.java/.userPrefs/vrts
```

15 Inform NetBackup-Java users, that they can remove their `$HOME/.nbjava` directory.
The `$HOME/.nbjava and $HOME/.java` directories contain application state information, that is saved when the user exits NetBackup-Java applications. The saved information includes table column order and size. The process removes this directory for the root user only.
The `common` subdirectory in `$HOME/.java/.userPrefs/vrts` can be removed.

Chapter 6

NetBackup licenses

This chapter includes the following topics:

- "NetBackup license compatibility"
- "Entering license keys"
- "Frequently asked questions"

NetBackup license compatibility

To use your current NetBackup license keys to upgrade your servers, add-on products, and database agents to NetBackup 6.5, you must have the following:

- NetBackup 5.*x* or 6.0 currently installed
- A valid maintenance contract for all licensed NetBackup products

---

Note: You cannot upgrade to NetBackup 6.5 if your current installed version is NetBackup 4.5. You must first upgrade to NetBackup 5.*x*, and then you can upgrade to NetBackup 6.5.

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*.

Entering license keys

The easiest method for entering license keys is to enter all of them when you install NetBackup on a master server.

After you install NetBackup, you can 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`

Note: All product license keys must be entered on the master server.

For some features and products, license keys must also be installed on the media server. The following features require license key installation on media servers and master servers:

- NetBackup SharedDisk
- Library-based Tape Drives Feature
- NDMP

Note: You can log in to a NetBackup server from almost any server in a system to view, enter, and administer license keys. When you administer license keys remotely, ensure 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

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/doc kit?

No. The media/doc 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/doc kit, so you should never find yourself with a media/doc 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 media servers, enter the master server name as the host name on the login screen.

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*.

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 media servers, enter the *master* server name as the host name on the login screen.

On UNIX servers, you can also run the following command:

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

Many options and agents require that you have your original NetBackup CDs, because additional binaries must be installed. You should always keep your NetBackup CDs 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:
Tel: 650.318.4265 FAX: 650.335.8428

For Europe, Middle East and Africa:
Tel: 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.

Note: You still need a unique license key for each type of NetBackup component that you purchase. Separate license keys are required for a NetBackup server, a Lotus Notes agent, an NDMP option, a UNIX client, and so on.

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/doc 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.

Note: 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 media servers, enter the *master* server name as the host name on the login screen.

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 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 media servers, enter the master server name as the host name on the login screen.

On UNIX servers, you can also run the following command:

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

Chapter 7

Installing clients

This chapter includes the following topics:

- Installing Microsoft Windows clients
- Installing UNIX clients

Installing Microsoft Windows clients

By definition, your NetBackup server is also a NetBackup client. When you install the NetBackup server software, you install both the NetBackup server and the NetBackup client software on the server.

Client installation overview

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

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

Note: You cannot install NetBackup client software on PCs that currently have NetBackup server software. In these cases, you must first uninstall the NetBackup server software. See the *NetBackup Installation Guide for Windows*.

Veritas volume snapshot provider on Windows

If you install the client software on a Windows client, during the installation process you have the option to install Veritas Volume Snapshot Provider (VSP).

VSP establishes a point-in-time view, or snapshot, of the data that is selected for backup on the volumes (or drives). NetBackup then backs up the selected files as they exist at the time of the snapshot, regardless of file system activity. VSP uses a file system cache to store the changes that occur during the backup. Each volume for which a snapshot is created has a corresponding VSP cache file.

For information on the VSP parameters, please refer to the *NetBackup Administrator's Guide*.

User-directed operations for Windows systems

By default on Windows 2000/XP/2003 Server systems, the `Program Files` folder is not writable by users other than the administrator.

NetBackup writes log files and progress files to the folder `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 users other than the administrator have write permission.

Local and remote installations for Windows systems

You can use the NetBackup client installation program in the following ways:

- Local installations
  The installation program installs the client software only on the machine where you start the installation.
- Remote installations
  The installation program scans the network for available clients where you can install the client software. The source machine (the primary node in cluster environments) must run Windows 2000/XP/2003 Server. In addition, a remote installation requires system administrator privileges and is only available for Windows 2000/32-bit XP/32-bit 2003 Server.

  Note: You cannot install remotely from UNIX systems to Windows 2000/XP/2003 machines.

Silent installations for Windows systems

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

New and upgrade installations for Windows clients

The NetBackup Client Setup Wizard recognizes the following types of installation:

- New installations
  The wizard does not detect that any NetBackup client software is currently installed. You can specify where you want the client software installed.
- Upgrade installations
  The wizard detects that a version of NetBackup client software already exists. You cannot change the installation location of the client software.

For new or upgrade installations, you can select one of the following types:

- Typical installation
  The wizard uses default settings that should work for most installations. You must provide the client, master, and additional server names.
- Custom installation
  The wizard lets you change the custom configuration options as needed for your specific environment. These options are then used for all new client installations.
  You must also provide the client, master, and additional server names.

The custom configuration options are divided among three wizard windows: NetBackup Client Features, NetBackup Options, and NetBackup Services.

The following table describes the custom configuration options that you can select for new or upgrade installations.

NetBackup Client Features window	NetBackup Options window	NetBackup Services window
NetBackup Documentation	Start the NetBackup Client Service automatically (at system startup)	Use the built-in system account or specify custom user name, password, and domain.
Veritas Snapshot Provider (VSP)	Start the NetBackup Client Job Tracker automatically (at system startup)	Terminate NetBackup processes (at system startup)
NetBackup Debugger Symbols	Start the NetBackup Client Service on the client after installation is complete	Terminate Windows processes (at system startup)
	Change the `bpcd`, `bprd`, `vnetd`, and `vopied` port numbers	Abort install if reboot is required

Windows client system requirements

This section describes the hardware and the software requirements for successful installation of NetBackup client software.

Local installation requirements

To install NetBackup client software locally, the system must meet the following configuration requirements.

- Microsoft Windows 2000/XP (32- and 64-bit/2003 Server (32- and 64-bit)
- An Intel Pentium or Itanium processor
- Internet Explorer 5.5 or later
- 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 requirements

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 2000/2003 Server.
- The destination system must run Windows 2000/32-bit XP/32-bit 2003 Server.
- Administrator privileges are required for the person that performs remote installations.

NetBackup server requirements for Windows clients

The version of the NetBackup server software must be the same or newer than the version you install on the client.

Installing 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 reboot the system for the changes to take effect.

To install NetBackup client software locally on Windows systems

1. Log in as administrator on the host or system server.
2. Insert the NetBackup installation CD in the drive.
   On systems with Autorun enabled, the installation starts automatically.
   If Autorun is not enabled, navigate to the CD drive and double-click `Launch.exe`.
3. On the initial screen, select **NetBackup Installation**.
4. On the installation screen, select **Install Client Software.**
5. On the Welcome screen, click **Next**.
6. On the License Agreement screen, accept the terms of the agreement.
7. On the Installation Type screen, select the following:
   - **Install to this computer only**
   - Either **Typical** or **Custom** installation.
     - For typical installations, NetBackup uses the default port numbers and default service startup settings.
     - For custom installations, NetBackup lets you set service startup settings, change port numbers, and specify the installation location. You can also choose whether to install NetBackup documentation, debug symbols, and VSP.

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

Client Name	Enter the name of the client machine on which you are logged in.
Master Server Name	Enter the master server name here.
Additional Servers	Enter all the server names that you want this client to access.

LiveUpdate

- **Install LiveUpdate Agent**
  To install the LiveUpdate agent, leave the check box checked. Otherwise, click the check box to remove the check to prevent agent installation.
- **Location of LiveUpdate Server**
  Enter the network path for the NetBackup LiveUpdate server here.
- **Server Type**
  Select the type of server (LAN, HTTP, or HTTPS) used for the NetBackup LiveUpdate server.

9 On the Ready to Install screen, click **Install**.

10 On the System Validation Complete screen, click **Finish**.

Installing Windows clients remotely

Use the following procedures to install NetBackup clients on your network (one of these clients can be your local system). You can stop the installation process at any time by clicking **Cancel**.

Note: Review the installation "Windows client system requirements" on page 82 for remote installations before you start this procedure.

Notes on Windows client remote installations

- 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.
- You must have administrator privileges on the remote client for the NetBackup install to complete successfully.
- The NetBackup client installation program cannot clean up after a canceled installation. If you interrupt the installation, any files that were successfully installed remain installed on the clients.
- You may need to reboot your PC or the remote systems for the changes to take effect.

To install the Windows NetBackup client software on remote computers

1 Log in as administrator on the Windows system.
Insert the NetBackup installation CD in the drive.On systems with Autorun enabled, the installation starts automatically.

If Autorun is not enabled, navigate to the CD drive and double-click `Launch.exe`.

2 On the initial screen, select **NetBackup Installation**.

3 On the installation screen, select **Install Client Software.**

4 On the Welcome screen, click **Next**.

5 On the License Agreement screen, accept the terms of the agreement.

6 On the Installation Type screen, select the following:

- **Select from available computers on the network**
  The procedure does not install the client on the local machine unless you add it to the list of systems that you want to install.
- Either **Typical** or **Custom** installation.
  - For typical installations, NetBackup uses the default port numbers and default service startup settings.
  - For custom installations, NetBackup lets you set service startup settings, change port numbers, and specify the installation location. You can also choose whether to install NetBackup documentation, debug symbols, and VSP.

Click **Next**.

7 On the NetBackup System Names screen, provide the following information:

Master Server Name	Enter the master server name here.
Additional Servers	Enter all the server names that you want the clients to access.
LiveUpdate	■ **Install LiveUpdate Agent** To install the LiveUpdate agent, leave the check box checked. Otherwise, click the check box to remove the check to prevent agent installation. ■ **Location of LiveUpdate Server** Enter the network path for the NetBackup LiveUpdate server here. ■ **Server Type** Select the type of server (LAN, HTTP, or HTTPS) used for the NetBackup LiveUpdate server.

8 On the Ready to Install screen, click **Install**.
The client software is installed on the specified machines.
If you click **Cancel** after you click **Install**, the installation does *not* stop immediately. The installation continues until it is finished on the remote system. At that point, no remote installations begin. NetBackup considers

any remote installations that were complete when you clicked **Cancel** to be successful.

9 On the System Validation Complete screen, click **Finish**.

Installing 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 the script.

The following procedure performs a silent installation of NetBackup clients. One of the clients can be the system that runs the `silentclient.cmd` script.

Note: Silent installations of NetBackup clients are not supported if you want to run the NetBackup services as a user rather than as a local administrator. To install NetBackup as a user, see "To install NetBackup client software locally on Windows systems" on page 83. Also see "To install the Windows NetBackup client software on remote computers" on page 84.

To perform a silent installation on Windows

1 Insert the NetBackup installation CD in the drive.

2 In a Microsoft Windows Explorer window, navigate to the CD drive.

3 Copy the contents of the `PC_Clnt\` directory to a temporary folder on your hard drive. For example, `C:\temp`.

4 Since the files on the CD are read-only, change the permissions for these 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.
Be sure to update the client, the master server, and additional servers to the minimum required version of NetBackup.

6 Run the following script:
`silentclient.cmd`

7 Check the NetBackup installation log file in the following directory to verify that the installation was successful:
`C:\Documents and Settings\`*`userid`*`\Local Settings\temp`

Configuring 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 and from the **File** menu, select **Specify NetBackup Machines**.
- To display and change the client properties, start the Backup, Archive, and Restore interface.
  From the **File** menu, select **NetBackup Client Properties**.
- To display and change the server properties, start the NetBackup Administration Console.
  Expand **Host Properties** and click on **Clients**.
  In the right pane, right-click on the client, and choose **Properties**.
  All NetBackup servers that require access to your Windows client must be listed on the **Servers** tab in the resulting dialog box.

For more information, refer to the *NetBackup Backup, Archive, and Restore Getting Started Guide*.

Note: *For NetBackup Novell NetWare Clients*: The *NetBackup Novell NetWare Client Administrator's Guide* describes how to use that client to back up and restore the data on NetWare servers.

Removing Windows clients

To remove (uninstall) the NetBackup client on Microsoft Windows clients

1. Open the Windows Control Panel (select **Start** > **Settings** > **Control Panel**).
2. Select **Add/Remove Programs**.
3. Select **Veritas NetBackup Client**.
4. Click **Remove**.

Installing UNIX clients

By definition, your NetBackup server is also a NetBackup client. When you install the NetBackup server software, you install both the NetBackup server and the NetBackup client software on the server.

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

Note: Macintosh OS X10.3.x and OS X10.4.x clients are UNIX-based clients. Follow the same UNIX client installation procedures in this section.

Use the following guidelines when you install UNIX clients:

- 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.
- For local installations:
  - You must install the client software locally if remote installation is not possible. Remote installation is not possible if your NetBackup server runs Windows 2000/2003 Server. Firewalls can also prevent remote installation.
  - To install clients to a location other than the default, you must create and link the directory before you install the client software. First create the directory where you want the software to reside, and then create `/usr/openv` as a link to that directory.
  - On IBM zSeries Linux clients, you must transfer the NetBackup CD image contents to a location that is readable by the virtual Linux environment. You can transfer the image with FTP or NFS mounting commands.
- For remote installations:
  - You can "push" the client software from your UNIX NetBackup server to your UNIX client computers. 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 master server and create a policy that includes the client name. The UNIX client must be a true client and not a media or a master server. See "Adding a UNIX client after initial server installation" on page 95.
  - Clients such as the IBM zSeries Linux may not have a locally mounted CD device, which makes it impossible to perform a standard local installation. To install NetBackup to clients with no local CD drive, you must push the NetBackup installation from a UNIX master or media server. See any of the following:
    "Installing client software with the `ftp` method" on page 92.
    "Installing client software with the `rsh` method" on page 90.
    "Installing client software with the `ssh` method" on page 93
    "Installing client software with the `sftp` method" on page 94

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 6.5 UNIX server's NetBackup client console with the `jbpSA` command. Clients that are not compatible with NetBackup-Java are Macintosh OS X 10.3.x and OS X10.4.x, IBM zseries Linux, IRIX, and FreeBSD.

Installing UNIX clients locally

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

To install client software locally on a UNIX client

1. Insert the NetBackup client CD into the drive on the client computer and mount it.
   For instructions on how to mount the CD on your operating system, refer to the appropriate section of "Mounting the software media" on page 21. For information on CD contents and exact names, refer to "Contents of the NetBackup media kit" on page 10.
2. Change your working directory to the CD directory if you have a CD, or to the directory that contains the downloaded files:
   ```
   cd /cd_mount_point
   ```
   The *cd_mount_point* is the path to the directory where you can access the CD.
   For Macintosh OS X 10.3.x systems only: You can access the CD from the following location:
   ```
   cd /volumes/cd name
   ```
3. Enter the following command to execute the installation script:
   ```
   ./install
   ```
   The client binaries represent the operating system versions where the binaries were compiled. Often, the binaries function perfectly on later versions of the operating system. For example, Solaris 9 binaries also are used on the Solaris 10 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.
4. Follow the prompts to complete the installation.

5 After the installation is complete, unmount the client CD.

Installing UNIX clients remotely

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

- `rsh`
- `ftp`
- `ssh`
- `sftp`

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

Read the following statements before you proceed with this procedure:

- To use the `rsh` 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.
- 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.
- Make sure the clients are assigned to a backup policy.
- *For Macintosh OS X 10.3.x and OS X 10.4.x users*:
  By default, these operating system versions do not enable the remote shell daemon (`rshd`). Run the following command to enable the daemon:

  ```
  /sbin/service shell start
  ```

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

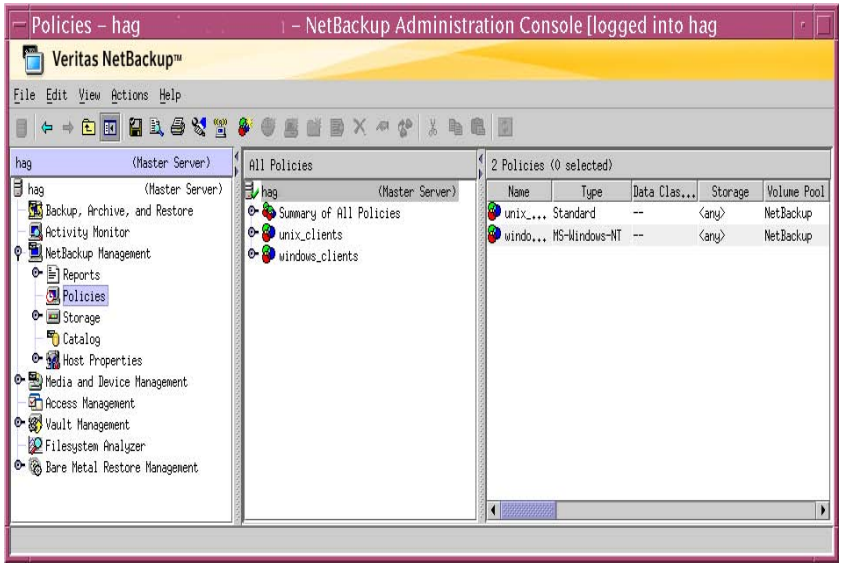
1 Start the NetBackup Administration Console.

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.

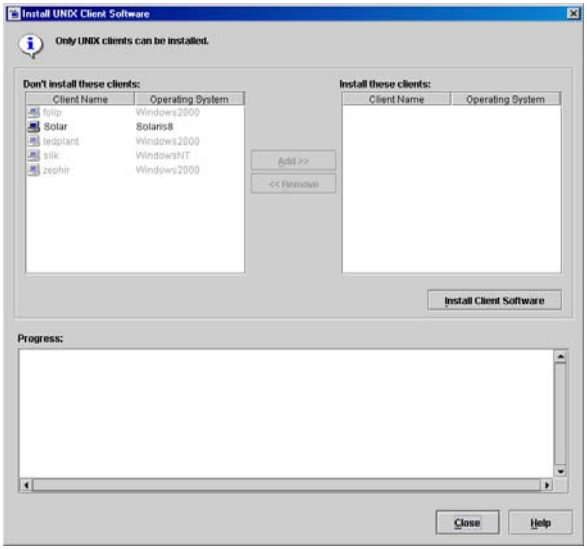
3 In the NetBackup Administration Console window, click on the **NetBackup Management** icon to show the available options.

4 In the left pane, click **Policies**.

5 In the **All Policies** pane, select the master server.



6 Select **Actions > Install UNIX Client Software**.



7 In the **Don't install these clients** list, select the clients you want to install and click **Add >>**.
The clients are moved to the **Install these clients** list.

8 To start the installation, click **Install Client Software**.
Client software installation can take a minute or more per client. NetBackup writes messages in the **Progress** box as the installation proceeds.
If the installation fails on a client, NetBackup notifies you but keeps the client in the policy.
You cannot stop the installation after it has started.
During installation, NetBackup does the following:

- Copies client software from `/usr/openv/netbackup/client` on the server to `/usr/openv/netbackup` on the client.
- Adds the appropriate entries to the client's `/etc/services` and `inetd.conf` files or `xinetd.d` directory.

9 After the installation is complete, click **Close**.

Installing client software with the `ftp` method

Read the following statements before you proceed with this procedure:

- 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.
- Make sure the clients are assigned to a backup policy.
- *For Macintosh OS X 10.3.x and OS X 10.4.x users*:
  - By default, these operating system versions do not enable the FTP daemon (`ftpd`), which is required. In the sharing pane of the **System Preferences** application, check **Allow FTP access** to enable `ftpd`.
  - If you have a firewall that is enabled, you must enable FTP access.
    In the **System Preferences** sharing pane under **Firewall**, check **FTP Access** to allow FTP connections.

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

1 Run the `install_client_files` script on the NetBackup server to move the client software from the server to the `/tmp` directory on the client.
You must have a login ID and password that you can use to access the clients through FTP.

- To move software to only one client at a time, run 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, run the following command:

```
/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.

The install_client_files script prompts you for a password for each client if you do not have a .netrc file set up.

2 After the install_client_files script runs, the root user on each client machine must run the following client_config script:

```
sh /tmp/bp.pid/client_config
```

The *pid* is the process ID. The client_config script installs the binaries and updates the /etc/services and inetd.conf files or the xinetd.d directory, as appropriate.

Installing client software with the ssh method

Read the following statements before you proceed with this procedure:

- To use the ssh method, the UNIX client must have the SSH daemon (sshd) enabled and configured to allow root user logins.
- 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.
- Make sure the clients are assigned to a backup policy.
- *For Macintosh OS X 10.3.x and OS X 10.4.x users*:
  - By default, these operating system versions do not enable the SSH daemon (sshd). You must first enable this daemon in order to perform the following procedure successfully.
    In the **System Preferences** sharing pane, check **Remote Login** to enable sshd.
  - If you have a firewall that is enabled, you must enable ssh connections. In the **System Preferences** sharing pane under **Firewall**, check **Remote Login - SSH** to allow SSH connections.

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

- Run the install_client_files script on the NetBackup server.

- To move software to only one client at a time, run the following command:

```
/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, run the following command:

```
/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

Read the following statements before you proceed with this procedure:

- To use the sftp method, the UNIX client must have the SSH daemon (sshd) enabled and configured to allow root or non-root user logins.
- 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.
- Make sure the clients are assigned to a backup policy.
- *For Macintosh OS X 10.3.x and OS X 10.4.x users*:
  - By default, these operating system versions do not enable the ssh daemon (sshd). You must first enable this daemon in order to perform the following procedure successfully.
    In the **System Preferences** sharing pane, check **Remote Login** to enable sshd.
  - If you have a firewall that is enabled, you must enable SSH connections.
    In the **System Preferences** sharing pane under **Firewall**, check **Remote Login - SSH** to allow SSH connections.

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

1 Run the install_client_files script on the NetBackup server to move the client software from the server to the /tmp directory on the client.

- To move software to only one client at a time, run the following command:

```
/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, run the following command:

```
/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.

2 After the install_client_files script runs, the root user on each client machine must run the client_config script:

```
sh /tmp/bp.pid/client_config
```

The *pid* is the process ID. The client_config script installs the binaries and updates the /etc/services and inetd.conf files or the xinetd.d directory, as appropriate.

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.

The client CD's installation script lets you install the client software on the server for each of the UNIX client types that NetBackup supports. You can then "push" this client software from the server to your UNIX clients.

To add UNIX client types to servers after initial installation

1 Mount the client CD to open a menu that displays the available client types.
For instructions on how to mount the CD on your operating system, refer to the appropriate section of "Mounting the software media" on page 21. For information on CD contents and exact names, refer to "Contents of the NetBackup media kit" on page 10.

2 Change your working directory to the CD directory if you have a CD or to the directory that contains the downloaded files:

```
cd /cd_mount_point
```

The *cd_mount_point* is the path to the directory where you can access the CD.

3 Enter the following command to execute the installation script:

```
./install
```

The client binaries represent the operating system versions on which the binaries were compiled. Often the binaries function perfectly on later versions of the operating system. For example, Solaris 9 binaries also are used on the Solaris 10 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.

4 Select the client type that you want to load and follow the prompts to install that client type. Repeat as necessary until all the client types you want are loaded.

Make sure you load the software for all the UNIX client types you intend to back up onto the server. Otherwise, you cannot add these client types to the NetBackup policy configuration.

5 After the installation is complete, unmount the client CD.

6 Install the NetBackup client software on the clients you specified, as described in "Installing UNIX clients remotely" on page 90.

Removing UNIX NetBackup client software

If you remove NetBackup from a machine with the NetBackup-Java Display Console installed, the console is also removed.

To remove UNIX NetBackup client software

1 Log in to the client system as the root user.

2 Navigate to the `/usr/openv` directory.

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

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

- If `/usr/openv` is a link, run the following commands:

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

Caution: Make sure you are at the proper location and verify that the subdirectories are what you would expect them to be before continuing. You do not want to remove the wrong directories. For this reason, the first commands verify your current location and the files in that directory, before removing files.

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

Warning: The `rm -f /usr/openv` command also removes any add-on products that are installed on this machine.

3 Remove NetBackup entries in the client's `/etc/services` file. Locate the lines, marked by the following strings and delete them:

```
# NetBackup services#
.....
# End NetBackup services #
```

```
# Media Manager services #
.....
# End Media Manager services #
```

If you do not see these strings, it may be because you upgraded from an earlier release of NetBackup. You can also remove `bpcd`, `bpjava-msvc`, `bprd`, `vnetd`, and `vopied` without searching for the `#End...#` strings. You are not required to remove the strings from `/etc/services`. Any operations that access the file can function with or without the services being listed.

Note: *For Macintosh OS X 10.3.x systems*: The NetBackup installation updates the `/etc/services` file with these entries. However, earlier NetBackup releases may have updated the `/services` directory of the NetInfo database. To remove NetBackup and its services, use the NetManager utility to delete the following files from the `/services` directory: `bpcd`, `bpjava-msvc`, `bprd`, `vnetd`, and `vopied`.

---

4 Remove the NetBackup entries in the `/etc/inetd.conf` file by deleting the lines for `bpcd`, `vnetd`, `vopied`, and `bpjava-msvc`.

5 Ensure that the `inetd` daemon reads the updated `inetd.conf` (or `inetd.local`) file.

- Determine the process ID of `inetd`. The `ps` command options vary from one UNIX operating system to another. Following are two examples.

  For most UNIX clients, run the following command:

  ```
  ps -ea | grep inetd
  ```

  For MacOS X 10.3.x and FreeBSD, run the following command:

  ```
  ps -ax | grep inetd
  ```

  The process ID is the first number displayed in the `ps` command output.

- HUP the `inetd` daemon, as follows.

  `kill -1` *process_ID*

  The `kill` command option may vary from one client platform to another.

6 For the NetBackup-Java capable clients that run the NetBackup Administration Console for UNIX, remove the NetBackup-Java state data, as follows:

```
/bin/rm -rf /.nbjava
/bin/rm -rf /.java/.userPrefs/vrts
```

Warning: There should be no space between the slash "/" and the period "." of "`/.nbjava`". If you add a space between these characters, all files on this machine are removed.

7 Inform users of NetBackup-Java that they can remove the `$HOME/.nbjava` and portions of the `$HOME/.java` directories.

The `$HOME/.nbjava` and `$HOME/.java` directories contain application state information (such as table column order and size). This information is saved when the user exits NetBackup-Java applications. When you remove NetBackup, the process removes this directory for the root user only.

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

8 If you enabled NetBackup access control, NetBackup created new files on clients and servers that can be divided into two 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.

For more information on NetBackup access control, please see the *NetBackup Administrator's Guide, Volume II*.

For more information on Veritas Security Services and how to remove the software, see the *NetBackup Security and Encryption Guide*.

Chapter 8

Initial Configuration

This chapter includes the following topics:

- "Configuring NetBackup Startup and Shutdown"
- "Configuring Storage Devices for the Operating System"
- "Configuring NetBackup Server Software"

Configuring NetBackup Startup and Shutdown

Startup scripts allow the Media Manager and NetBackup daemons to start automatically when the system boots. Shutdown scripts automatically terminate the startup scripts at system shutdown.

Note: *For non-cluster upgrades*: Any pre-existing NetBackup related startup and shutdown scripts are saved, and the newly released versions of that script are installed.

The installation process copies the appropriate startup or shutdown script from the `/usr/openv/netbackup/bin/goodies` directory to the `init.d` directory. A new link is then created to it from the appropriate `rc` directory.

Note: *For clustered environments*: All of the startup and the shutdown scripts are removed from the `rc` directories. Clustered NetBackup environments do not use these scripts.

The installation process installs the links to the startup and the shutdown scripts on the various platforms as shown in the following table.

Platform	Links
AIX	`/etc/rc.netbackup.aix` ■ You must edit `/etc/inittab` and add 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 `/etc/rc.shutdown`: `/etc/rc.netbackup.aix stop`
ALPHA Tru64	`/sbin/rc3.d/S77netbackup ->/sbin/init.d/netbackup` `/sbin/rc0.d/K01netbackup ->/sbin/init.d/netbackup`

HP-UX	`/sbin/rc2.d/S777netbackup ->/sbin/init.d/netbackup`
	`/sbin/rc1.d/K001netbackup ->/sbin/init.d/netbackup`
	`/sbin/rc1.d/K001nbclient ->/sbin/init.d/nbclient`
	`/sbin/rc2.d/S951nbclient ->/sbin/init.d/nbclient`

Linux Red Hat	`/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`
	`/etc/rc.d/rc1.d/K01netbackup ->/etc/rc.d/init.d/netbackup`
	`/etc/rc.d/rc0.d/K01netbackup ->/etc/rc.d/init.d/netbackup`
	`/etc/rc.d/rc0.d/K01nbclient ->/etc/rc.d/init.d/nbclient`
	`/etc/rc.d/rc1.d/K01nbclient ->/etc/rc.d/init.d/nbclient`
	`/etc/rc.d/rc2.d/S95nbclient ->/etc/rc.d/init.d/nbclient`
	`/etc/rc.d/rc3.d/S95nbclient ->/etc/rc.d/init.d/nbclient`
	`/etc/rc.d/rc5.d/S95nbclient ->/etc/rc.d/init.d/nbclient`
	`/etc/rc.d/rc6.d/K01nbclient ->/etc/rc.d/init.d/nbclient`

Linux SuSe	`/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`
	`/etc/init.d/rc0.d/K01netbackup ->/etc/init.d/netbackup`
	`/etc/init.d/rc0.d/K01nbclient ->/etc/init.d/nbclient`
	`/etc/init.d/rc2.d/S95nbclient ->/etc/init.d/nbclient`
	`/etc/init.d/rc3.d/S95nbclient ->/etc/init.d/nbclient`
	`/etc/init.d/rc5.d/S95nbclient ->/etc/init.d/nbclient`
	`/etc/init.d/rc6.d/K01nbclient ->/etc/init.d/nbclient`

Platform	Links
Default (all other UNIX systems)	/etc/rc2.d/S77netbackup ->/etc/init.d/netbackup /etc/rc1.d/K01netbackup ->/etc/init.d/netbackup /etc/rc0.d/K01netbackup ->/etc/init.d/netbackup /etc/rc2.d/S95nbclient ->/etc/init.d/nbclient /etc/rc1.d/K01nbclient ->/etc/init.d/nbclient /etc/rc0.d/K01nbclient ->/etc/init.d/nbclient

Configuring Storage Devices for the Operating System

Reliable use of NetBackup depends on the configuration of your storage devices. Before you configure your NetBackup environment, you must first complete the configuration of all storage devices. Follow the instructions as provided by the device and operating system vendors.

Caution: An improperly configured device may lead to backup failures, data loss, or both.

For clustered environments:

- Begin configuring all storage devices from the active node. Refer to "Configuring NetBackup Server Software" on page 102 for guidelines on how to configure storage devices to 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.

Note: To connect a device to the operating system, refer to the *Veritas NetBackup Device Configuration Guide* on the NetBackup Documentation CD. See the chapter appropriate for your operating system.

To prepare a newly connected storage device

1. Consult your storage device's operating manual or front panel to learn how to set the SCSI ID (target). Ensure it is set it to an available SCSI ID.
2. 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.

3 *For clustered environments*:
Robotic devices and NetBackup add-on products can be configured to failover NetBackup if the robot or add-on product fails. Before you configure this failover, you must configure the robots as described in this section.
Refer to the *Veritas NetBackup High Availability Administrator's Guide* for instructions on how to configure devices or add-on products to fail over NetBackup.

Note: Robots must be configured before you perform the following steps.

- Configure NetBackup to fail over if a robotic daemon fails.
  - Configure your robots on each node in the cluster.
  - Run the following script:
    `/usr/openv/netbackup/bin/cluster/cluster_config -r`
  - Add the daemon by choosing **a** (Add).
  - Specify the name of the robotic daemon you want to monitor. (Multiple robots can be added.)
- To remove a robotic daemon from monitoring, do the following:
  - Run the following script:
    `/usr/openv/netbackup/bin/cluster/cluster_config -r`
  - Remove the daemon by choosing **d** (Delete).
  - Specify the robot daemon type that you would like to remove.

Configuring NetBackup Server Software

After the server software and storage devices have been installed, use the Getting Started wizard on the NetBackup Administration Console to configure your product.

For more information on how to configure NetBackup, refer to the *Veritas NetBackup Administrator's Guide for UNIX and Linux, Volume I*.

Note: Before you configure NetBackup, you must have the storage devices attached to the server. You must also perform all configuration steps specified by the device and the operating system vendor. You must also install any required device drivers.

Note: *For clustered environments*: Configure devices on *every* node in the cluster.

The *Veritas NetBackup Administrator's Guide for UNIX and Linux, Volume I* describes the group of NetBackup configuration wizards.

This section steps you through the procedures that allow you to configure a test system.

Note: For initial NetBackup configuration, Symantec recommends that you click the **Getting Started** icon and use the wizards to guide you through the process. If you have already configured NetBackup, and you want to make a change to particular area, you can click any of the remaining options.

Before Configuring Media Servers

Use the following guidelines when configuring NetBackup media servers:

- NetBackup Enterprise servers
  The procedures for configuring master and media servers are very similar. However, Symantec recommends that you install all master server and media server software before you configure any servers. Then 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.
- Clustered environments
  Unless otherwise noted, configure NetBackup to use the virtual host names of master servers and media servers in the cluster. Refer to the *Veritas NetBackup High Availability Administrator's Guide* for information on how to configure an add-on product to fail over.

  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, you should run the configuration wizards from the master server.

Starting the NetBackup Administration Console

You use the NetBackup Administration Console to configure NetBackup.

To start the NetBackup Administration Console on UNIX

1 Log in to the NetBackup server machine as root.

For clustered environments: Log on 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.
On UNIX systems, log on as root.
For Windows systems log on as the Administrator.

2 On UNIX systems, run the following command:
`/usr/openv/netbackup/bin/jnbSA &`
The login box appears.

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** text box.

4 Click **Login**.

5 To begin configuring your product, on the Administrator's Console, click **Getting Started**. The Welcome to NetBackup screen appears as the beginning of the configuration wizards.
Click **Next**.
The Device Configuration screen appears and prompts you to begin the Device Configuration wizard.

Note: Two wizards are available from the initial NetBackup Administration Console window that are not part of the Getting Started wizard. They can help create a snapshot backup and recover the NetBackup catalog should you need to do so for disaster recovery. See the *NetBackup Administrator's Guide for UNIX and Linux, Volume I* for information about those wizards.

Configuring Storage Devices

Before you can run backups, you must define your storage devices for NetBackup. The Device Configuration wizard steps you through this process. However, you must be certain that you have correctly configured your storage devices for your UNIX system. NetBackup cannot function reliably unless devices are correctly installed and configured.

Note: *For clustered environments*: Begin configuring all storage devices from the active node. You must refer to the *Veritas NetBackup High Availability Administrator's Guide* for instructions. For a NetBackup failover server, Symantec recommends that you attach all of the devices to every node on which NetBackup is installed.

The Device Configuration wizard takes you through the following processes:

- Scanning hosts for backup devices
- Verifying the devices that were automatically detected
- Verifying and correcting the drive configuration
- Updating the device configuration

Device Configuration Tips

- You must specify the hosts on which to auto-discover and configure devices.
- From the Backup Devices screen, confirm that the displayed list of devices is complete and accurate. If a known backup device does not appear in this list, you can do the following:
  - Verify that the backup device is physically attached to the host.
  - Verify that all installation procedures that specified by the device and 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.
- Device configuration updates can take a few minutes to complete.

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 (.)

Configuring Volumes

After you have configured your storage devices, the Getting Started wizard begins the Volume Configuration wizard.

Note: *For clustered environments*: Configure volumes from the active node.

Note: If you only have disk storage capability, NetBackup skips this wizard.

The Volume Configuration wizard lets you do the following:

- Select a device for volume configuration
- Perform an inventory of the robot
- Create new volumes
- Create new volume groups

Tips for the Inventory of a Standalone Drive

- The Volume Configuration wizard does not enable you to configure cleaning tapes for stand-alone drives.
- You can select the number of volumes for your device.

Tips for the Inventory of a Robot

- NetBackup conducts an inventory of the robot or device that you selected. Check the **Results:** field after the inventory completes to view what the inventory discovered.
- After the inventory process of your device completes, the wizard prompts you to identify which slots in it contain cleaning media.
  If you upgraded NetBackup and have pre-existing barcode rules, the barcode reader automatically detects slots designated for cleaning media. If you do not designate cleaning slots, NetBackup considers all media (including cleaning media) as typical media and tries to overwrite it.
- If you identified one or more tapes as cleaning tapes in the Identify Cleaning Media screen, you see the Robot Inventory (Cleaning Media) screen. It displays the results after the software updates the EMM database.

Configuring the Catalog Backup

The NetBackup Catalog contains information about your configuration and about the files and directories that have been backed up. If a disk fails and your catalog is lost, a catalog backup makes it easy to restore your data and resume your backup schedule.

Make sure that you configure a catalog backup before backing up any other data.

Note: *For clustered environments*: Instructions on how to configure a catalog backup are provided in the *NetBackup High Availability System Administrator's Guide*.

The Catalog Backup wizard lets you do the following:

- Create a policy for catalog backup, if one does not exist.
- Specify destinations for the catalog backup. A backup destination can be either removable media or a location on a hard drive.
- Specify when a backup of the NetBackup Catalog occurs.
- *For NetBackup Enterprise Server environments:* You can specify a media server to perform the backup.

Basic Tips for Configuring a Catalog Backup

Use the following information to configure a catalog backup.

- Symantec recommends that you back up the catalog to tape, if possible.
- The Catalog Backup wizard allows you to configure either an online, hot catalog backup or an offline, cold catalog backup.
  The online, hot catalog backup was introduced with NetBackup 6.0. The online, hot catalog backup is designed for use in very active NetBackup environments with large catalogs. Online, hot catalog backups can back up the catalog while continual client backups are in progress.
  The offline, cold catalog backup works well for less active environments with smaller catalogs. This type of backup cannot span tapes. It also requires that NetBackup be quiesced before backups can be run: it cannot back up the catalog while any job or any catalog operation is running.
  For details on the best catalog for your environment, see the *Veritas NetBackup Administrator's Guide for UNIX and Linux, Volume I*. Refer to the chapter on NetBackup catalogs.

Tips for Configuring a Catalog Backup if You Have Media Servers

For systems with media servers, the master servers or the media servers can perform backups. Use the following information to configure a catalog backup.

- First, select a media server.
  To back up the catalog to removable media, select the media server with the drive(s) where you want the backup to reside.
  To back up the catalog to a hard drive (which is not the recommended method), specify the computer that contains the hard drive.

- From the NetBackup Catalog Files screen, you verify that the master server's and each media server's catalogs are included in the list.
  Verify that the absolute path names are correct and are in the correct format. Follow the instructions on the screen for specifying the entire list. The catalog path names on the master server are added automatically during installation. Generally, no action on your part is required other than to verify that path names are listed. However, if you have moved the location of your catalog on your master server, the new location must be specified. Path names to the NetBackup catalog on the media servers are not automatically added during installation. You must add them to the file list. For more information on how to specify the path names, see *Veritas NetBackup Administrator's Guide for UNIX and Linux, Volume I*.

Creating a Backup Policy

The Backup Policy wizard lets you define a backup policy for a group of one or more clients. 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

Note: *For clustered environments*: Configure the policy from the active node.

Types of Backups

The Backup Policy wizard prompts you to choose the type of backup that you want a policy to perform. The following list summarizes your choices:

- A Full Backup backs up all files that are specified in the file list.
- An Incremental Backup backs up all the changed files that are specified in the file list.
  - A Differential Backup is often called a differential incremental backup. It 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.

    - A Cumulative Backup is often called a cumulative incremental backup. Only the files that changed since the last successful full backup are backed up. All files are backed up if no previous backup has been done.
- A User Backup is initiated by an end-user to back up specific files.

Tips on Creating 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 this list by selecting a name. Then click on the appropriate button.
- 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.

Appendix A

NetBackup LiveUpdate

This appendix includes the following topics:

- "About NetBackup LiveUpdate"
- "Setting up your NetBackup LiveUpdate server"
- "Changing the NetBackup LiveUpdate configuration"
- "About LiveUpdate policies"
- "Uninstalling NetBackup LiveUpdate"

About NetBackup LiveUpdate

NetBackup 6.5 includes a new NetBackup LiveUpdate feature. NetBackup LiveUpdate provides a cross-platform, policy-driven method to distribute NetBackup Release Updates to NetBackup 6.5 clients.

Note: This document describes LiveUpdate as it pertains to NetBackup. NetBackup LiveUpdate should not be confused with Symantec LiveUpdate. If you would like more information about Symantec LiveUpdate, go to the following Website: http://www.symantec.com

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The NetBackup LiveUpdate feature includes the following versions of Symantec LiveUpdate agents:

- For Windows:
  Windows LiveUpdate Agent version 3.2
- For UNIX:
  Java LiveUpdate Agent version 3.5

With the agent installed, you can download updates from a designated NetBackup LiveUpdate server where the NetBackup updates reside.

You can download and install NetBackup Release Updates, NetBackup add-on products, and PBX. Only NetBackup versions 6.5 and later can be used with NetBackup LiveUpdate.

NetBackup LiveUpdate features include the following:

- Downloaded updates can be installed remotely to NetBackup servers and clients.
- Cross-platform installation of updates is supported for both Windows and UNIX.
- Updates can be downloaded and installed on Windows and UNIX clustered systems.
- Using LiveUpdate for update installation does not require local administrator privileges on NetBackup installations, except on Windows clustered systems. However, you must have privileges to run NetBackup policies from the NetBackup master server.

NetBackup LiveUpdate is an additional method to obtain updates quickly and more conveniently. The current program for customers to obtain updates remains in place.

Note: NetBackup LiveUpdate only allows release update downloads. Major and minor NetBackup releases cannot be downloaded.

How NetBackup LiveUpdate works

The LiveUpdate process is managed manually to help you control which machines are updated and when the updates occur.

The following describes how updates are downloaded and installed:

- First, manually download NetBackup Release Update packages from a Symantec support site to your designated NetBackup LiveUpdate server. Update packages include two zipped files; one for Windows and one for UNIX.
- Secondly, create and run a LiveUpdate policy on your NetBackup master server. The policy starts a LiveUpdate session with the clients in the policy. If you have media servers, the LiveUpdate process uses them to pass information between the master server and the clients.
- Finally, the LiveUpdate agent on each client checks with the LiveUpdate server for any available updates. The agent then launches the NetBackup update installation scripts and installs the updates silently.

Setting up your NetBackup LiveUpdate server

Use the following guidelines to set up your NetBackup LiveUpdate server:

- Setting up your NetBackup LiveUpdate server does not require installation of any special software.
- A NetBackup LiveUpdate server can be any Windows or UNIX host. It is not necessary to have NetBackup software installed on your NetBackup LiveUpdate server.
- If you have a local LiveUpdate server that is dedicated for other Symantec products like Norton Anti-Virus, avoid conflicts by using one of the following guidelines:
  - Download the NetBackup Release Updates to a different directory on your local Symantec LiveUpdate server.
  - Designate a different machine as your NetBackup LiveUpdate server.
- Your NetBackup LiveUpdate server requires any one of the following:
  - A shared disk or partition that can be accessed by any NetBackup LiveUpdate host (server or client)
  - HTTP or HTTPS server configuration

  Note: HTTPS servers must use the certificate signed by a certificate authority.

Installing on Windows systems

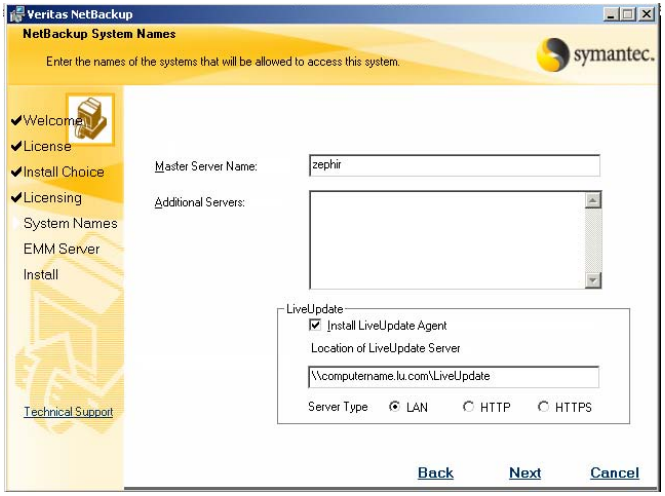
You can install and configure NetBackup LiveUpdate agent on Windows systems with one of the following methods:

- Use the NetBackup installation wizard
  When you install or upgrade NetBackup 6.5 server or client software, the LiveUpdate agent software is installed by default. On the NetBackup System Names window in the installation wizard, a LiveUpdate section lets you set up the installation.
- Modify the `LU_Install.bat` file and run it

Note: At a minimum, you must have the NetBackup client installed to use NetBackup LiveUpdate.

To install and configure NetBackup LiveUpdate with the NetBackup installation wizard

1. Start the NetBackup installation wizard.
   Refer to Chapter 2, “Installing or upgrading NetBackup server software” or Chapter 5, “Installing clients”.
2. Select the installation type, either local or remote.
3. Follow the installation wizard instructions.
4. On the NetBackup System Names screen, provide the following information:



Master Server Name — Enter the name of the master server.

Additional Servers — Enter the names of any additional machines (servers) that are allowed to access this server. If you enter more than one name, separate each name with a comma.

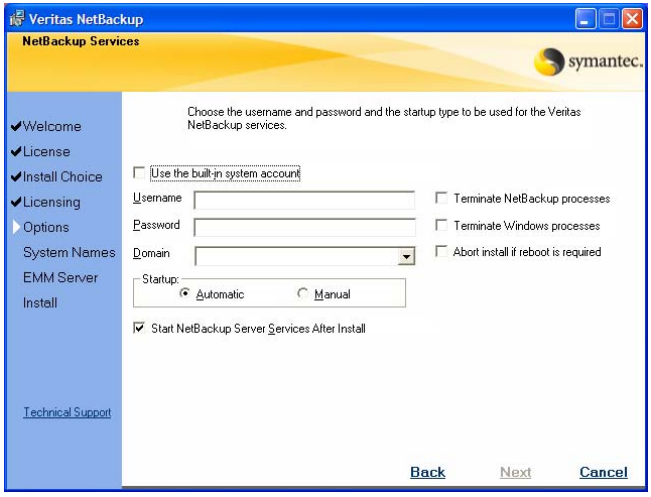
If you plan to install the EMM server on a media server instead of the master server, you must include that server name here.

Install LiveUpdate Agent — The LiveUpdate agent allows installation of NetBackup release updates from a LiveUpdate server.

Even if you choose not to use LiveUpdate, agent installation does not affect NetBackup installation, configuration, or operation.

Location of LiveUpdate Server	The LiveUpdate server is the machine where you store NetBackup release updates. The default server location is your NetBackup master server. If you want to designate a different machine as your NetBackup LiveUpdate server, type the appropriate pathname for that server here.
Server Type	Select the protocol that is used by your LiveUpdate server (LAN, HTTP, or HTTPS).
For NetBackup Enterprise media server installations only	When you install media server software, this screen has an additional line with the media server name shown as the local server. You must change the name to the master server name to which the media server is configured.

5 For cluster systems, the NetBackup Client service must be set up to run as an administrator and not as a regular user. Change the privileges to administrator on the NetBackup Services screen. Provide the following startup account and startup type information for NetBackup services:



Use the built-in system account	Clear this box and fill in the three fields below it.
User name, Password, Domain	Enter the necessary information that allows administrator privileges. Be sure to leave the **Use the built-in system account** check box unchecked.
Startup	Select either **Automatic** or **Manual** start up.

Start NetBackup Server Services After Install	Check this box if you want to start the services after installation. You can leave the box unchecked to prevent services from starting after installation.
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. **Caution:** *For Oracle users:* If you select **Terminate NetBackup processes**, you must take down your database before you continue the installation.
Terminate Windows processes	Check this box to prevent a reboot while you perform a remote installation. When you check this box, processes that use the Microsoft run-time DLLs are stopped. *For upgrades*: You do not need this option because the Microsoft run-time DLL is already at the correct level. **Caution:** If you select **Terminate Windows processes**, it may cause instability with other Windows applications, particularly those applications that use run-time DLLs.
Abort install if a reboot is required	Check this box so that NetBackup can detect if the remote system requires a restart. If a restart is required, this option ends the installation and rolls the remote system back to its state at the beginning of the installation.

6 Click next on the wizard screens that follow until you get to the Ready to Install Program screen, then click on **Install**.

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

To install and configure NetBackup LiveUpdate by modifying the LU_Install.bat file

1 Open the `LU_Install.bat` file in a text editor. The file is located on your NetBackup CD-ROM in the `Addons\LiveUpdate` directory.

2 At the `SET LU_SERVER=` line, edit the line by entering the name of your LiveUpdate server.

3 Make sure that the `LuCheck.exe`, `LU_Registration.exe`, and `LUSetup.exe` files are in the same directory.

4 Save the changes and close the file.

5 Run the `LU_Install.bat` file.

Installing on UNIX systems

The NetBackup LiveUpdate agent software is located on the NetBackup Options CD and must be installed separately.

The following describes the UNIX installation guidelines:

- Server installation requires that you load Java LiveUpdate software from the NetBackup Options CD first, then run an installation script.
- Client installation can be done individually on each NetBackup client, or the server can push the LiveUpdate agent software to all clients at once.
- NetBackup does not deliver Java JRE for the following UNIX platforms: FreeBSD, IBMpSeries, IBMzSeries, MacIntosh, and SGI.
  Before you install and use NetBackup LiveUpdate on these platforms, you must do the following:
  - A minimum Java Runtime of 1.4.2 must be used to install Java LiveUpdate. The JRE used should be enabled with JCE Unlimited strength jurisdiction policy files. You can download the necessary files from the Sun Microsystems Website.
  - Have the appropriate version of Java JRE installed.
  - Create the following directory:
    `mkdir –p /usr/openv/java/jre/bin`
  - Run the following command to create a link to the directory you just created:
    `ln –s <system java path> /usr/openv/java/jre/bin/java`

Installing the agent on UNIX servers

Use these steps to load and install LiveUpdate agent software on a UNIX server.

To load and install the NetBackup LiveUpdate agent software on a UNIX server

1. Log in to the server as root.
2. Insert the NetBackup Options CD and mount it.
3. Run the following script, which launches the NetBackup add-on product software installation script:
   `cd_directory/install`
   The *cd_directory* is the path to the directory where you can access the CD.
4. At the `Installation Options` prompt, select **`NetBackup Add-On Product Software`**.

5 Select **NetBackup LiveUpdate Agent**.

6 Select **Done Selecting Products**.

7 At the `Is this list correct?` prompt, select **y**.

8 To load NetBackup LiveUpdate agents for platform other than the server platform, press `enter` to accept the default (**y**) or select **n**.
If you selected (**y**) to load other platforms on the server, enter the LiveUpdate agent client platforms.

9 Select **q** to quit from the script.

10 Run the following script, which installs and configures the NetBackup LiveUpdate agent on the server:

```
/usr/openv/netbackup/bin/install_nblu
```

11 When you are asked for the protocol and location to use for the NetBackup LiveUpdate server, enter the appropriate protocol and pathname.

Note: Remember, the NetBackup LiveUpdate server is where the NetBackup release updates reside. You must download the updates to this server manually from a support Web site. When you run the NetBackup LiveUpdate policy, the NetBackup clients in the policy access this server for the update files.

Installing the agent on UNIX clients

Use one of the following procedures to install NetBackup LiveUpdate agent software on a UNIX client. Choose either local UNIX client installation or push to all clients from the server.

To install LiveUpdate agent software locally on a UNIX client

1 Log in to the client as root.

2 Insert the NetBackup Options CD and mount it.

3 Run the following script, which launches the NetBackup add-on product software installation script that installs the agent:

```
cd_directory/install
```

The *cd_directory* is the path to the directory where you can access the add-on products.

4 When you are asked for the protocol and location to use for the NetBackup LiveUpdate server, enter the appropriate protocol and pathname.

Note: Remember, the NetBackup LiveUpdate server is where the NetBackup release updates reside. You must download the updates to this server manually from a support Web site. When you run the NetBackup LiveUpdate policy, the NetBackup clients in the policy access this server for the update files.

To install the LiveUpdate agent software remotely on all clients

1. Log in to the server as root.
   You must log in to the server where you loaded the LiveUpdate agent software for the selected platforms.
2. Use the `bpplclients` command to create a file that contains a list of clients currently configured in the NetBackup database.
   Choose the correct command based on whether you push from a master server or from a media server, as follows:
   - To push from the master server, run the following command:

     ```
     ./bpplclients -allunique -noheader > file
     ```

   - To push from a media server, run the following command:

     ```
     ./bpplclients -allunique -noheader -M \
         m_server_name > file
     ```

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, *file* is empty. Create *file* using the same format as that generated by `bpplclients`.

   The `bpplclients` command writes output to *file* in the following format:
   hardware os client

hardware	The hardware name. For examples, run the `ls` command in directory `/usr/openv/netbackup/client`.
os	The operating system name. For examples, 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 Solaris8 machinename
   ```

   - (Optional) Edit *file*.

Perform this step to change the contents of *file*. Edit *file* to contain only those NetBackup clients you want to update with LiveUpdate agent software.

The host names of the clients must be the clients' individual node names. They cannot be virtual names. The correct value for the individual node names is returned by the `hostname` and the `domainname` commands. The format can be either *hostname* or *hostname*.*domainname*.

3 Run the following command:

```
/usr/openv/netbackup/bin/update_luagent -ClientList file
```

The script requests the following information:

```
There are N clients to upgrade.
Enter the number of simultaneous updates you wish to take place.
[N - NN] (default: NN):
```

Press **Enter**.

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

Answer **y** or **n**.

```
What is the protocol and location to use for the
LiveUpdate server?
```

Enter the appropriate protocol and pathname.

```
You have specified this value for the question:
Is this value correct? (y/n) [y]
```

Answer either **y** or **n**.

The progress and results are shown.

Changing the NetBackup LiveUpdate configuration

This section describes how to update and change the LiveUpdate configuration settings after the initial installation and configuration.

These changes are necessary if any of the following occur:

- A new version of the LiveUpdate agent is available on the NetBackup server
- A different machine is designated as the NetBackup LiveUpdate server
- A NetBackup LiveUpdate agent installed on a NetBackup server or client has a problem

Keep your NetBackup LiveUpdate agent configuration current to ensure that LiveUpdate policies run successfully.

Changing the LiveUpdate configuration on Windows

To make any changes after the initial installation, do one of the following:

- Launch the NetBackup installation wizard and repeat the steps in the section "Installing on Windows systems".
- Modify the `LU_Install.bat` file as described in the section "Installing on Windows systems".

Changing the LiveUpdate configuration on UNIX

The following commands let you update and reconfigure your NetBackup LiveUpdate agent software remotely:

- `update_luagent -ForceInstall`
  Use this command to force installation of the LiveUpdate agent to specified clients. The command only pushes the agent software to the specified clients. Configuration is not changed.
  If the NetBackup LiveUpdate version being pushed from the server is the same version on a specified client, you can continue or stop the forced installation.
- `update_luagent -ForceReconfig`
  Use this command to force installation and reconfiguration of the LiveUpdate agent on specified clients. The command pushes the agent software to the clients and reconfigures the protocol and NetBackup LiveUpdate server designation on the clients.

Downloading NetBackup release updates

Before you can run a LiveUpdate policy successfully, you must download the release updates to your NetBackup LiveUpdate server.

NetBackup release updates include a Windows .gzip file and a UNIX .gzip file. The files are available for manual download only from the customer support site.

Unlike Symantec LiveUpdate, NetBackup packages are not downloaded automatically. Manual downloads respect customer sites that maintain strict change and update control policies.

Use the following steps to download NetBackup release updates to your NetBackup LiveUpdate server.

To download NetBackup release updates to your NetBackup LiveUpdate server

1. Log in to your NetBackup LiveUpdate server as the administrator.
2. Open your internet browser and enter the following address: http:\\entsupport.symantec.com
3. Select the release update to download.
4. Verify the directory on your NetBackup LiveUpdate server where you want the package downloaded.
5. Click **Download**.
6. Extract the contents of one or both release updates to your NetBackup LiveUpdate server.
7. Unzip the files.

About LiveUpdate policies

A LiveUpdate policy lets you control which NetBackup servers and clients are updated. The manual activation required to run the policy lets you control when the updates occur.

Use the following guidelines when you create LiveUpdate policies:

- LiveUpdate policies cannot include any clients that use NetBackup versions earlier than 6.5. LiveUpdate is only supported in NetBackup versions 6.5 and later.
- Create separate LiveUpdate policies for servers and clients.
- Always run the servers policy before you run the clients policy. Clients cannot run a later version of NetBackup than the servers.

Important!

- Since NetBackup services and daemons are shut down during release update installation, do not add the following servers to a LiveUpdate policy:
  - The NetBackup master server that runs the LiveUpdate policy
  - Any media server involved with running the LiveUpdate policy

  These servers must be updated through the command line interface. See the section "Updating master servers and media servers that run LiveUpdate policies" on page 124" for complete details.
- For UNIX systems, any media server name that you specify in a LiveUpdate policy must appear in the `bp.conf` file on the client.

- All nodes of a cluster must be updated, so make sure to include all actual host names in a LiveUpdate policy. The best practice is to have a separate policy for each clustered server and include all node hostnames in the policy for that cluster.
  In addition, the **Limit jobs per policy** attribute of the LU policy should be set (at a minimum) to the number of nodes in the cluster. This helps ensure that the nodes are updated simultaneously (or as close as possible), which lowers the chance of failover in between updating the nodes. If a failover were to occur before all nodes were updated, the NetBackup database and the binaries on the active node could be mismatched.

Creating a LiveUpdate policy

Use the following steps to create a LiveUpdate policy.

To create a NetBackup LiveUpdate policy

1. Launch the NetBackup Administration Console.
2. On the File menu, select LiveUpdate.
3. In the LiveUpdate policy window, click New.
4. Enter the name you want for the policy, then click OK.
5. On the Attributes tab of the new LiveUpdate Policy window, select the media server that you want to run the policy.
   - For environments with no media server, select the master server that you want to run the policy.
   - **Limit jobs per policy** lets you select the number of LiveUpdate jobs that are active simultaneously, when you run the policy.

   Note: If a firewall prevents communication between the master server and clients, the LiveUpdate policy must specify the media server that can communicate with the clients.

6. Click on the Clients tab.
7. Click New and enter the name of the first client, then press <enter>.

   Note: You must enter only the names of client machines that have NetBackup 6.5 installed with the NetBackup LiveUpdate agent installed and configured.

8. Repeat step 7 until all client names are entered.
9. After all client names are entered, click OK.

Updating servers and clients with NetBackup LiveUpdate

After you have created LiveUpdate policies and downloaded release updates to your NetBackup LiveUpdate server, you are ready to update your NetBackup environment.

Before updating your NetBackup environment, there are three important tasks you should perform as follows:

Before updating your NetBackup environment:

1. Make sure that there are no NetBackup jobs running or queued to run on any NetBackup servers and clients.
2. Deactivate all backup policies on all NetBackup master servers.
3. Log in as a database user on the NetBackup hosts that run third-party database software and shut down all database instances.

When you are ready to update your NetBackup environment, update servers and clients in the following order:

- Master servers and media servers that run LiveUpdate policies
- Master servers and media servers not involved in running LiveUpdate policies
- Clients

Updating master servers and media servers that run LiveUpdate policies

Use the `nbliveup` command to update NetBackup master servers and media servers that run LiveUpdate policies. Do not use a LiveUpdate policy to update these servers.

- There is a known issue when using `nbliveup` on Windows IA64 and AMD64 systems. Use `nbliveup` on these systems with one of the following methods:
  - Method A—Local update
    You must log in as the console user to the desired machine locally or through a remote desktop session, by using the following command:
    `mstsc -v:your.machine.name.com /F -console`
    For complete details, go to the following link:
    `http://support.microsoft.com/kb/278845`
  - Method B—Remote update

Initiate the LiveUpdate session from a different NetBackup master server.

To update master servers and media servers that run LiveUpdate policies

1. Make sure there are no active backup or restore jobs on the master server that runs LiveUpdate policies.
2. On the master servers or media servers that run NetBackup LiveUpdate policies, run the following command:
   - On Windows systems:
     `NetBackup\bin\nbliveup`
   - On UNIX systems:
     `/usr/openv/netbackup/bin/nbliveup`
3. If any master servers or media servers that run LiveUpdate policies are themselves clustered servers, run the `nbliveup` sequence as follows:
   - On Windows systems:
     - On the active node, run the following command:
       `\NetBackup\bin\bpclusterutil –offline`
     - On each inactive node in the cluster, run the following command:
       `\NetBackup\bin\nbliveup`
     - On the active node, run the following command:
       `\NetBackup\bin\nbliveup`
   - On UNIX systems:
     - On the active node, run the following command:
       `/usr/openv/netbackup/bin/bpclusterutil –freeze`
     - On each node in the cluster, run the following command:
       `/usr/openv/netbackup/bin/nbliveup –c`
     - On the active node, run the following command:
       `/usr/openv/netbackup/bin/bpclusterutil –unfreeze`

Updating master severs and media servers that do not run LiveUpdate policies

To update these servers, use the servers LiveUpdate policy that you created.

To update master servers and media servers that do not run LiveUpdate policies

1. Launch the NetBackup Administration Console.
2. On the File menu, select **LiveUpdate**.

3 In the LiveUpdate policy window, select the servers LiveUpdate policy that you created.

4 Click **Run LiveUpdate Policy**.

5 Check the Activity Monitor to verify that all LiveUpdate jobs complete.

Updating clients

To update clients, use the clients LiveUpdate policy that you created.

To update clients

1 Launch the NetBackup Administration Console.

2 On the File menu, select **LiveUpdate**.

3 In the LiveUpdate policy window, select the clients LiveUpdate policy that you created.

4 Click **Run LiveUpdate Policy**.

5 Check the Activity Monitor to verify that all LiveUpdate jobs complete.

LiveUpdate logs

The following procedures describe how to use LiveUpdate logging on Windows and UNIX NetBackup systems.

On Windows servers and clients, the log directories are created when you install NetBackup LiveUpdate.

On UNIX clients, you must first create the necessary directories to enable logging.

To view LiveUpdate logs on Windows NetBackup servers and clients

1 To view NetBackup LiveUpdate logs, go to the following directory:
`NetBackup\logs\liveupdate`

2 To view `nbliveup` command logs, go to the following directory:
`NetBackup\logs\nbliveup`

3 To view NetBackup release update logs, go to the following directory:
`NetBackup\logs\patch`

To enable LiveUpdate logging on UNIX NetBackup servers

- Run the following command:
`/usr/openv/netbackup/logs/mklogdir`

To enable LiveUpdate logging on UNIX NetBackup clients

1. Create the following directories:
   `/usr/openv/netbackup/logs/liveupdate`
   `/usr/openv/netbackup/logs/nbliveup`
   `/usr/openv/netbackup/logs/patch`
2. To view NetBackup LiveUpdate logs, go to the following directory:
   `/usr/openv/netbackup/logs/liveupdate`
3. To view `nbliveup` command logs, go to the following directory:
   `/usr/openv/netbackup/logs/nbliveup`
4. To view NetBackup patch logs, go to the following directory:
   `/usr/openv/netbackup/logs/patch`

Retrieving logs remotely

You can retrieve LiveUpdate logs remotely from a master server by using the `bpgetdebuglog` command.

The `remote_program` argument described in the command refers to the `liveupdate`, `nbliveup`, or `patch` directory.

For complete details about the `bpgetdebuglog` command arguments, see the *Veritas NetBackup Commands for UNIX and Linux* or *Veritas NetBackup Commands for Windows* documents.

To retrieve logs remotely

- For Windows systems, enter the following:
  `install_path\NetBackup\bin\admincmd\bpgetdebuglogremote_machine remote_program mmddyy`
- For UNIX systems, enter the following:
  `/usr/openv/netbackup/bin/admincmd/bpgetdebuglog remote_machine remote_program mmddyy`

Uninstalling NetBackup LiveUpdate

This section describes how to remove the NetBackup LiveUpdate agent and associated files. In some cases, you may need to remove directories and files manually.

Uninstalling on Windows systems

Use the following procedures to remove LiveUpdate files on Windows systems.

To remove NetBackup LiveUpdate on Windows systems:

1. Select **Start** > **Control Panel**.
2. Select **Add or Remove Programs**.
3. Click on LiveUpdate and select **Remove**.

Uninstalling on UNIX systems

Use the following procedures to remove LiveUpdate files on UNIX systems.

To remove NetBackup LiveUpdate components from NetBackup servers that run on the Solaris platform

1. You must first de-register all NetBackup products with LiveUpdate by using the following command:
   ```
   /usr/openv/netbackup/bin/nblu_registration -r
   ```
2. To remove the NetBackup LiveUpdate agent, run the following command:
   ```
   pkgrm SYMCnblua
   ```
3. To remove the associated LiveUpdate files, run the following commands:
   ```
   rm -rf /usr/openv/netbackup/logs/liveupdate
   rm -rf /usr/openv/netbackup/logs/nbliveup
   rm -rf /usr/openv/netbackup/logs/patch
   ```

To remove NetBackup LiveUpdate components from NetBackup servers and clients that run on non-Solaris platforms

1. You must first de-register all NetBackup products with LiveUpdate by using the following command:
   ```
   /usr/openv/netbackup/bin/nblu_registration -r
   ```
2. To remove the associated LiveUpdate files, run the following commands:
   ```
   rm -f /usr/openv/netbackup/bin/install_nblu
   rm -f /usr/openv/netbackup/bin/nbliveup
   rm -f /usr/openv/netbackup/.luagent.conf
   rm -f /usr/openv/netbackup/nblu.conf
   rm -f /usr/openv/netbackup/nblu.conf.template
   rm -f /usr/openv/share/version_luagent
   ```
3. To remove the LiveUpdate agent software from the NetBackup server that was used to push agent software to clients, run the following command:
   ```
   rm -rf /usr/openv/netbackup/luagent
   ```

To remove Symantec LiveUpdate components from UNIX systems that run NetBackup

- 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 `/opt/Symantec`, remove the following files:

  ```
  rm -f /etc/Symantec.conf
  ```

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