VERITAS NetBackup BusinesServer™ 3.4

Getting Started Guide

UNIX

VERITAS

Contents

Preface

The purpose of this guide is to help NetBackup system administrators install, configure, and use NetBackup BusinesServer™. The NetBackup system administrator is responsible for maintaining backups and disaster recovery plans using NetBackup.

This guide assumes:

◆ A basic understanding of UNIX system administration.

◆ Experience with the Solaris or HP system on which NetBackup BusinesServer is to be installed.

◆ Your SCSI devices are properly attached and configured for the operating system.

Caution If a device is not properly configured for the operating system, backups made to that device may be difficult to restore.

Organization

◆ Chapter 1, "Introduction," provides a brief introduction to the NetBackup BusinesServer and describes some of the key features.

◆ Chapter 2, "Installation and Initial Configuration," contains detailed instructions on using the installation scripts created for Solaris and HP platforms. This section also provides details on how and when to use the wizards.

◆ Chapter 3, "Performing an Upgrade Installation," contains instructions on upgrading NetBackup.

◆ Chapter 4, "Day-to-Day Management," contains instructions on routine NetBackup procedures. This includes checking the status of NetBackup operations and managing your tapes. It also contains instructions for advanced configuration procedures which supplement the configuration wizards.

◆ Chapter 5, "Troubleshooting," provides guidelines for troubleshooting NetBackup errors.

◆ Appendix A, "Related Documents," describes the manuals pertaining to NetBackup.

◆ Appendix B, "Uninstall NetBackup BusinesServer and Clients," explains how to uninstallthe NetBackup software.

Email Notification of Product Updates

To receive NetBackup BusinesServer product news and updates, you can sign up for email notification as follows:

1. Go to www.veritas.com.

2. Select *Support*.

3. Under Technical Support Services, click on the Email Notification link.

4. Enter the information requested and select "NetBackup BusinesServer" from the available product list.

Conventions

The following explains typographical and other conventions used in this guide.

Type Style

Table 1. Typographic Conventions

Typeface	Usage
Bold fixed width	Input. For example, type **cd** to change directories.
Fixed width	Paths, commands, filenames, or output. For example: The default installation directory is /opt/VRTSxx.
Italics	Book titles, new terms, or used for emphasis. For example: *Do not* ignore cautions.
Sans serif (italics)	Placeholder text or variables. For example: Replace *filename* with the name of your file.
Sans serif (no italics)	Graphical user interface (GUI) objects, such as fields, menu choices, etc.
	For example: Enter your password in the Password field.

Notes and Cautions

Note This is a Note and is used to call attention to information that makes it easier to use the product or helps you to avoid problems.

Caution This is a Caution and is used to warn you about situations that can cause data loss.

Key Combinations

Some keyboard command sequences use two or more keys at the same time. For example, you may have to hold down the Ctrl key before you press another key. When this type of command is referenced, the keys are connected by plus signs. For example:

Press Ctrl+t

Command Usage

The following conventions are frequently used in the synopsis of command usage.

brackets [ ]

The enclosed command line component is optional.

Vertical bar or pipe (|)

Separates optional arguments from which the user can choose. For example, when a command has the following format:

command *arg1* | *arg2*

the user can use either the *arg1* or *arg2* variable.

Getting Help

For updated information about this product, including system requirements, supported platforms, supported peripherals, and a list of current patches available from Technical Support, visit our web site:

http://www.veritas.com/

For product assistance, contact VERITAS Customer Support.

US and Canadian Customers: 1-800-342-0652

International Customers: +1 (650) 335-8555

VERITAS Customer Support can also be reached through electronic mail at:

```
support@veritas.com
```

Introduction 1

NetBackup BusinesServer provides an easy-to-use, reliable solution for backing up and restoring data for a server and up to four remote computers. The following figure illustrates a typical installation.
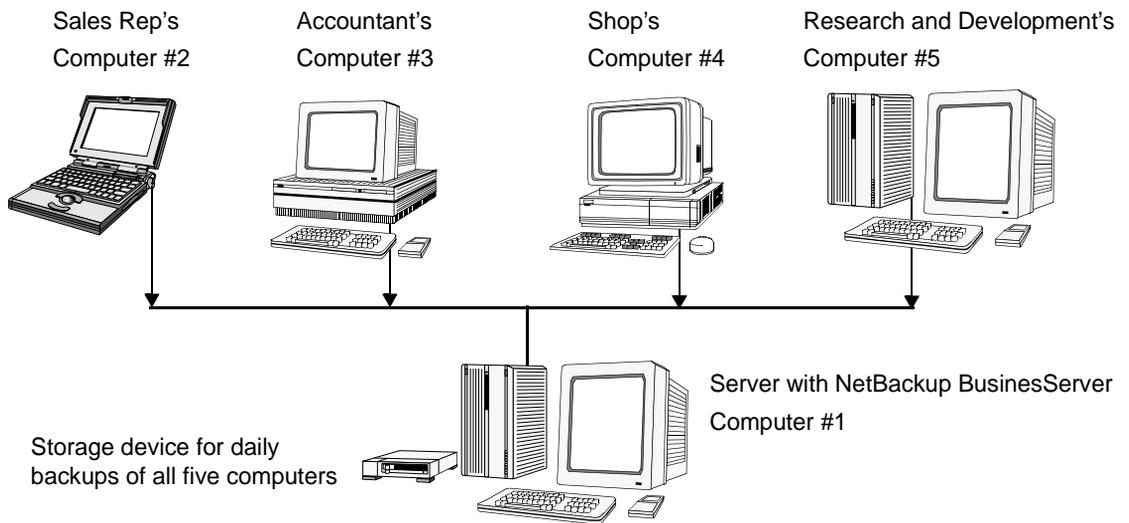
The NetBackup BusinesServer software is installed on the server (Computer #1). The remote computers (#2 through #5) contain NetBackup client software.

This chapter defines a few of the key NetBackup terms that you will need to know. It also describes the features available for NetBackup BusinesServer.

What Is NetBackup BusinesServer?

NetBackup BusinesServer is a "light" version of the NetBackup DataCenter product. The NetBackup DataCenter server supports an unlimited number of remote computers and high-end storage devices, and contains features suited to a large, complex network of

computers. NetBackup BusinesServer, on the other hand, is designed for smaller installations that require backups of only the server and up to four remote computers (up to eight with Client Expansion Pack), with a limited set of small to medium sized storage devices.

NetBackup BusinesServer retains much of the functionality of the NetBackup DataCenter. This section describes some of this functionality.

What are Backup Policies and Catalog Backups?

Backup Policies

A *backup policy* is a NetBackup configuration for running backups of your business data. Each backup policy (sometimes referred to as a *class)* specifies how and when backups are performed for a group of one to four clients that have similar backup requirements. A backup policy defines the following:

- ◆ Which computers to back up
- ◆ Which files and directories to back up
- ◆ How often and when the backup takes place
- ◆ How long the backup will be retained
- ◆ Where the backups are stored
- ◆ Other attributes for customizing the backup

Refer to "Configuring Backup Policies (Classes)" on page 63 for more details on configuring a backup policy.

Note In this guide, backups defined by a backup policy are referred to as *regular backups* when it is important to distinguish them from another kind of backup called a *catalog backup.*

Catalog Backups

NetBackup keeps vital information about regular backups in a special set of files called the *catalog.* The catalog contains information about configuration, status, errors, and the files and directories backed up by the BusinesServer. The catalog also keeps track of the location of the backed up data. This information is necessary for NetBackup operations. A *catalog backup* is a backup copy of the catalog.

If a disk failure results in the loss of your catalog files, the easiest way to recover is to restore the catalog from its backup. This allows you to restore previously backed up data and resume your regularly scheduled backups.

Refer to "Configuring Catalog Backups" on page 60 for more details on configuring a catalog backup.

What Do These Things Do?

This section has a list of NetBackup terms and features critical to your understanding of how NetBackup BusinesServer works.

For more details on these features, refer to the *NetBackup BusinesServer System Administrator's Guide - UNIX.*

Server

The server is the computer where NetBackup BusinesServer software is installed. NetBackup BusinesServer includes both a command line interface and graphical user interface. With these interfaces, you can do the following:

◆ Configure the backup operations of the server and up to four remote clients (up to eight with Client Expansion Pack).

◆ Schedule automatic, unattended backups (regular backups). For example, to prevent interference with normal daytime operations, you can schedule your automatic backups to occur only at night.

◆ Perform manual backups of any client.

◆ Allow client users to perform their own backups and restores.

◆ Control where backups are stored.

◆ Control how long backup data is retained.

◆ Restore data to any client.

◆ Run reports to verify, manage, and troubleshoot NetBackup backups and restores. These reports show status or problem information for NetBackup servers and clients.

◆ Monitor the status of backup and restore jobs.

◆ Configure and manage your tapes and storage devices.

> **Note** Unlike BusinesServer, the NetBackup DataCenter can utilize tape drives attached to a remote NetBackup server called the media server. But NetBackup BusinesServer does not support remote media servers. When you are configuring devices on a BusinesServer system, note that the following terms refer to the same NetBackup server computer:
>
> - Master Server
> - Media Server
> - Media Manager Host
> - Volume Database Host
> - Device Host
> - Robotic Control Host

Clients

NetBackup BusinesServer can back up the server and up to four remote computers (up to eight with Client Expansion Pack) that have NetBackup client software installed. In general, these computers can be any combination of the following. (For a more detailed list of the operating system versions and hardware variants supported by NetBackup, refer to the *NetBackup Release Notes.*)

AIX	HP-UX HP900-800	OS/2
Auspex	IRIX	ReliantUNIX
Compaq Tru64	Linux	SCO
DG/UX	Macintosh	Solaris
DYNIX/ptx	NCR SVR4MP-RAS	Windows NT/2000, 95, 98
HP-UX HP900-700	NetWare	UNIX

Media Manager

Media Manager, which is part of NetBackup, is for managing robots, tape drives, and their removable media, usually tapes. (The NetBackup administrative screens refer to removable media as volumes.) The main Media Manager tools are:

◆ Command line interface

◆ The Media and Device Management graphical interface, which allows you to configure the storage devices and volumes

◆ The Device Monitor graphical interface, which displays any pending requests for volumes and allows you to control and manage your devices

◆ The Device Configuration Wizard

◆ The Volume Configuration Wizard

Storage Unit

A storage unit is a collection of storage devices on which NetBackup stores backup data. A storage unit could represent one robot with up to two drives, or two standalone tape drives. (A standalone drive is a separate drive that is not in a robot.) For example, NetBackup could have two standalone tape drives (named TD1 and TD2) configured into a single storage unit called SU1. Note that for both drives to be in a single storage unit, they must use the same density.

SU1

 TD1

TD2

In this example, the storage unit SU1 is not a physical device. It is the configured grouping of two storage devices.

The alternative is to put each tape drive with a different density into a different storage unit. One advantage to configuring a storage unit is that if one storage device is busy, NetBackup BusinesServer can direct the backup job to the other storage device. A storage unit also allows you to specify which group of devices to use for each backup.

Multiple Data Streams

NetBackup BusinesServer allows you to back up more than one file or directory on a client *at the same time*, using a single backup policy. For instance, assume you have a remote computer with NetBackup client software installed and this computer has two hard drives:

◆ Drive C: has a directory containing payroll software and files.

◆ Drive D: has a directory containing tax information.

If you want to perform a fast nightly backup of these drives, you can configure NetBackup BusinesServer to back up both drives *at the same time*.

Note Multistreaming backups from different drives results in faster backups. But multistreaming backups from the *same* drive results in *slower* backups and is not recommended.

The slower backups are a result of the drive head moving back and forth between

tracks containing the data for the different streams. This movement can also cause additional wear on the drive. When the data is on different drives, the additional movement does not occur.

Multiplexing

Multiplexing allows as many as eight backups to be sent *to the same tape* at the same time. Multiplexing interleaves each block of backup data onto the tape. The following figure illustrates how data streams from four clients are stored by multiplexing.

Data Streams

Client 1

| Block 1 of backup data from client 1 | Block 10 of backup data from client 2 | Block 2 of backup data from client 1 | Block 11 of backup data from client 2 | Block 1 of backup data from client 3 | etc. |

Client 2

Client 3

Client 4
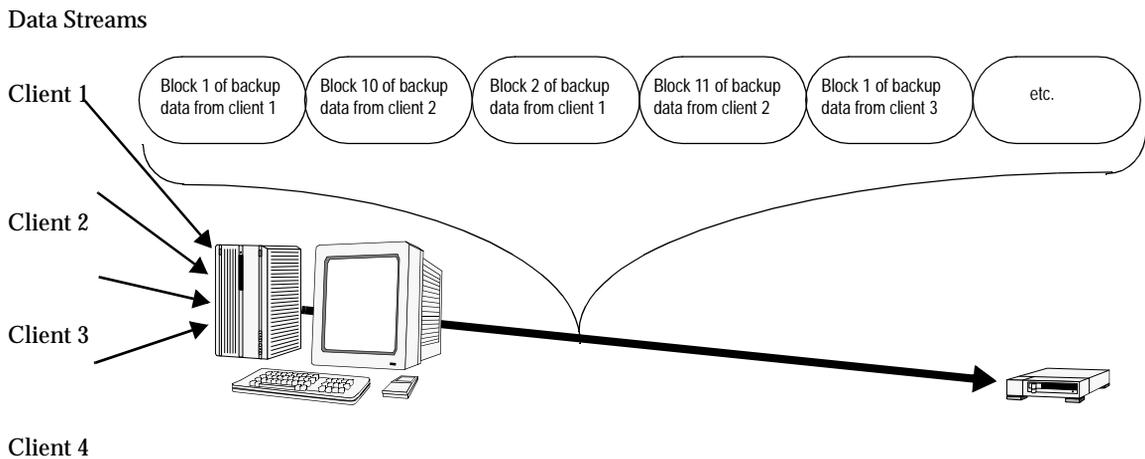
If more than eight backups are scheduled to run at the same time, some jobs will be queued until others finish.

Graphical Interfaces

NetBackup provides the following graphical (Java-based) interfaces:

◆ NetBackup administration - Java interface (jnbSA) on the server, for configuring, scheduling, monitoring, and managing NetBackup.

◆ NetBackup Java user interface (jbpSA) on the client, for starting backups, archives, or restores.

Wizards

NetBackup BusinesServer provides the following wizards.

Wizard	Description
Getting Started	Provides step-by-step help for configuring NetBackup. This wizard guides you through the following procedures for initial setup: ◆ Device Configuration wizard ◆ Volume Configuration wizard ◆ Catalog Backup wizard ◆ Backup Policy Configuration wizard ◆ A test to verify your configuration Refer to "Use the Getting Started Wizard to Configure the Server" on page 19 for details.
Device Configuration	Helps you define robots and drives. Refer to "Device Configuration Wizard" on page 46 for details.
Volume Configuration	Helps you define volumes for robots and standalone drives. Refer to "Volume Configuration Wizard" on page 52 for details.
NetBackup Catalog Backup	Helps you configure how and when the NetBackup catalog is backed up. Refer to "Using the NetBackup Catalog Backup Wizard" on page 61 for details.
Backup Policy Configuration	Helps you configure regular backups for a client or a set of clients. This configuration is called a backup policy. Refer to "Creating a Backup Policy from the Wizard" on page 63 for details.
Troubleshooter	Helps you resolve problems that result in backup or restore failures. Refer to "Troubleshooter Wizard" on page 95 for details.

All of the wizards, except the Troubleshooter, can be started from NetBackup Assistant. The Assistant always appears when the NetBackup administration interface is started unless the Always show NetBackup Assistant at startup check box is cleared in the Assistant.

Remote Administration

You can use the NetBackup administration - Java interface (jnbSA) on a NetBackup server to remotely administer another NetBackup server of an equal or earlier version. (Some restrictions may apply when versions are not the same. See the "General" section in the "Operational Notes" chapter of the *NetBackup Release Notes* for information on back-level support.) There are also two other ways to to set up NetBackup on a system in order to administer other NetBackup servers remotely:

◆ The NetBackup Administration Client

◆ The NetBackup-Java Display Console for Microsoft Windows

NetBackup Administration Client

The NetBackup Administration Client is a version of NetBackup for Windows NT/2000 which can be used to remotely administer one or more UNIX or Windows NT/2000 NetBackup servers. It includes all of the standard NetBackup BusinesServer interfaces for configuring backups, managing volumes, viewing status, monitoring tape drives, and so forth, on a remote NetBackup server.

Note The NetBackup Administration Client cannot be used as a NetBackup server itself; it is for remote administration of other NetBackup servers, either UNIX or Windows NT/2000.

NetBackup-Java Display Console for Microsoft Windows

The NetBackup-Java Display Console allows you to run the NetBackup Java interfaces on a Windows NT/2000, 98, or 95 system. You can use the Java interfaces on a PC to log on to a UNIX NetBackup server. In this way you can execute all the NetBackup capabilities of that UNIX server, including the ability to browse the server's file system to initiate a backup (using the Backup, Archive, and Restore utility).

Separately Priced Options

The following separately priced options are also available with NetBackup BusinesServer.

Database Agents

◆ NetBackup for Oracle on UNIX

◆ NetBackup for Oracle on Windows NT/2000

◆ NetBackup for Sybase on UNIX

◆ NetBackup for Informix on UNIX

◆ NetBackup for Lotus Notes for UNIX

◆ NetBackup for Lotus Notes on Windows NT/2000

◆ NetBackup for MS-SQL Server on Windows NT/2000

◆ NetBackup for MS Exchange Server on Windows NT/2000

Feature Add-Ons

◆ Intelligent Disaster Recovery (IDR) - Allows you to quickly recover Windows NT 4.0/2000 computers after a disaster.

◆ Open Transaction Manager (OTM) - Allows you to back up files that are open on (currently being used by) a Windows NT/2000 client.

◆ NetBackup Encryption (40-bit or 56-bit) - Provides file-level encryption of backups and archives.

◆ NDMP - enables NetBackup to use the Network Data Management Protocol (NDMP) to control backups and restores on an NDMP host.

◆ Client Expansion Pack - Allows you to add up to four more clients.

Global Data Manager

◆ Global Data Manager (GDM) - Allows you to manage more than one NetBackup server concurrently from a single console.

Installation and Initial Configuration 2

NetBackup BusinesServer includes wizards that make it easy to install and configure the software.

Installing and configuring NetBackup BusinesServer involves the following steps as explained in this chapter:

◆ Installing NetBackup BusinesServer

◆ Configure Storage Devices for the Operating System

◆ Use the Getting Started Wizard to Configure the Server

◆ Install the NetBackup Clients

◆ Install Alternative Administration Interfaces

◆ Install NetBackup Agents and Options (Optional)

Note If you have not yet signed up for email notification of product updates, please do so now (see "Email Notification of Product Updates" in the Preface).

Installing NetBackup BusinesServer

> **Note** If you are performing an upgrade, refer to "Performing an Upgrade Installation" on page 37.

Before running the NetBackup BusinesServer installation script, first review "What Does the Script Do?" and "What Should I Do Before I Start the Script?" below.

What Does the Script Do?

In addition to installing the NetBackup BusinesServer on the server, the install scripts do the following:

◆ Places the name of the BusinesServer host in the `/usr/openv/netbackup/bp.conf` file on the server.

◆ Adds entries to the `/etc/services` file for NetBackup and Media Manager services (for example, robotic daemons). The `/etc/services` file contains UNIX system information. The script shows the default port numbers and asks if you want to change them.

◆ 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 entries to the server's `/etc/inetd.conf` file. The `/etc/inetd.conf` file facilitates networking. Entries are added for `bpcd`, `vopied`, and `bpjava-msvc`, and then the script sends `inetd` a `SIGNAL` to cause it to read the updated file.

◆ Adds an automatic startup script to the `/etc/rc2.d` directory (Solaris) or to the `/sbin/rc2.d` directory (HP). On other systems this script may be placed in a different directory. This script will automatically initiate NetBackup and Media Manager daemons when you reboot your operating system.

What Should I Do Before I Start the Script?

Review this section before starting the installation.

Installation Requirements

◆ A server of a supported hardware type running a supported version of its operating system, with adequate disk space and supported peripherals. For details on these requirements, refer to the *NetBackup Release Notes*.

◆ For reasonable performance of the NetBackup-Java interfaces, VERITAS recommends 256 MB of RAM, of which 128 MB are available to the interface program (jnbSA or jbpSA).

◆ The NetBackup CD-ROM.

◆ The root password for the server.

◆ About 20 minutes to install the server software. Additional time is required to configure the product for your environment.

◆ For some peripherals and platforms, kernel reconfiguration is required. See the *NetBackup BusinesServer Media Manager System Administrator's Guide - UNIX* for details.

◆ Adequate disk space to install the software (see the *NetBackup Release Notes* for binary sizes).

◆ The NetBackup server must recognize and be recognized by its 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).

◆ Identify the devices you plan to use in your NetBackup configuration. Ensure that these devices appear on the list of BusinesServer supported devices (included in the Release Notes). Note that BusinesServer works with a maximum of two drives and can use only one robotic device; it will not work with a robotic device that has more than two drives or more than 22 slots.

Notes About the Installation

◆ On the NetBackup server, the install location contains the software and the NetBackup catalog and can become quite large.

  ◆ For the Solaris NetBackup installation, the default location is /opt/openv with a link to /usr/openv.

  ◆ For the HP NetBackup installation, the default location is /usr/openv.

  If space is an issue, consider installing NetBackup on an alternate file system. The installation allows you to select an alternate install location, and creates the appropriate link to /usr/openv.

◆ Because the product uses file locking, VERITAS recommends that you not install NetBackup in an NFS mounted directory. File locking in NFS mounted file systems can be unreliable.

◆ For Hewlett Packard servers, install NetBackup on a file system that supports long file names.

How to Install NetBackup BusinesServer

1. Check the license keys included with this order to make sure that you have license keys for all the NetBackup servers, clients, options, and agents that you have ordered.

When installing a NetBackup server you must enter a NetBackup base product license key. You must also enter license keys for any additional NetBackup software product options or agents used on the server or its clients. For more information on administering NetBackup licenses see the *NetBackup BusinesServer System Administrator's Guide - UNIX.*

2. Log in as the root user on the server.

3. Insert the CD-ROM in the drive.

4. HP systems only: Because the NetBackup CD-ROM is Rockridge formatted, it must be mounted by entering the following commands:

```
nohup pfs_mountd &
nohup pfsd &
pfs_mount -o xlat=unix /dev/dsk/device-ID /cdrom
```

Where *device_ID* is the ID of your CD-ROM drive.

5. Change your working directory to the CD-ROM directory:

```
cd cd_rom_directory
```

Where *cd_rom_directory* is the path to the directory where you can access the CD-ROM. On some platforms, it may be necessary to mount the directory.

6. Execute the install script:

```
./install
```

When the menu appears, choose option 1 (NetBackup). This installs both Media Manager and NetBackup software on the server.

7. Follow the prompts in the installation scripts.

Note The installation script offers you the option to load onto the server the UNIX client software for each of the UNIX client types supported by NetBackup. Later you can "push" this client software from the server to your UNIX clients (refer to "UNIX" under "Install the NetBackup Clients" on page 25).

Be certain to load onto the server the software for all the UNIX client types you intend to back up. Otherwise, you will not be able to add these UNIX client types to the NetBackup class configuration.

8. Remove Java files used by platforms for which you have no clients, as follows:

On HP700, HP800, and Solaris servers, NetBackup installation creates some large files in the `/usr/openv/java` directory, including:

◆ `Solaris_JRE_117B.tar.Z`

◆ `Solaris_X86_JRE_117B.tar.Z`

◆ `hp110_jre116.tar.Z`

These files are needed for installs on the following NetBackup clients and are used by the NetBackup Java interface applications on those platforms:

NetBackup's Java client GUI runs on the following platforms:

◆ SPARC: Solaris 2.6, 7, 8

◆ Intel x86: Solaris 2.6, 7, 8

◆ HP9000-700: HP-UX 11.0

◆ HP9000-800: HP-UX 11.0

Delete any of the tar files used by platforms for which you have no clients:

Platform/OS	Tar file
SPARC: Solaris	`Solaris_JRE_117B.tar.Z`
Intel x86: Solaris	`Solaris_X86_JRE_117B.tar.Z`
HP-UX 11.0	`hp110_jre116.tar.z`

9. On HP systems only: to unmount the CD-ROM, do the following:

◆ Execute the `pfs_umount` command

◆ Use the `kill` command to kill the following processes:

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

Set up the Window Manager for Java Interface (Solaris /HP)

Always set your window manager so windows become active only when you click inside the windows. Do not enable auto focus, which is when windows become active if you just move the mouse pointer over them. The NetBackup-Java interfaces do not run properly with auto focus enabled. The following are general instructions for correctly setting up the focus.

CDE (Common Desktop Environment)

The following explains how to set up a CDE (Common Desktop Environment) window manager, which is the preferred window manager for NetBackup-Java applications.

1. On the front panel in the CDE window, click the Style Manager control icon.

   The Style Manager toolbar appears.

2. On the Style Manager toolbar, click the Window control icon.

   The Style Manager - Window dialog box appears.

3. In the Style Manager-Window dialog box, click the Click In Window To Make Active button.

4. Click OK.

5. Click OK when asked to Restart the Workspace Manager.

Motif

When using the Motif window manager, set the `Mwm*keyboardFocusPolicy` X resource as follows:

```
Mwm*keyboardFocusPolicy:explicit
```

Configure Storage Devices for the Operating System

Reliable use of NetBackup depends on the configuration of your storage devices. To ensure reliable backups and restores, you must configure devices for your operating system according to the instructions provided by the device and operating system vendors. This should be completed *before* you configure NetBackup itself.

Note To connect a device to the operating system (OS), you should read the chapter appropriate for your OS in the *NetBackup Media Manager Device Configuration Guide*. The Device Configuration Guide is available on your installation CD in Acrobat format.

Caution An improperly configured device may lead to loss of data during a restore.

1. Run the following command to see which devices are currently connected.

   ◆ On Solaris, execute: `/usr/openv/volmgr/bin/sgscan -v`

   ◆ On HP, execute: `ioscan`

   If you are connecting a new device, analyze the output from the above command to determine what SCSI IDs (targets) are already used by existing devices. For the new device, you must use an available SCSI ID: an available ID is one that does not already appear in the list and is not used by the SCSI initiator. (The SCSI initiator usually uses SCSI ID 7 by default.)

   If the device you want to use is already connected, you should verify that the operating system can recognize it by ensuring that it appears in the output from the above command.

2. If you are connecting a new device, do the following:

   a. Consult your storage device's operating manual or front panel to learn how to set the SCSI ID (target), and then set it to an available SCSI ID.

   b. Physically attach your device to a compatible host bus adapter where that SCSI ID is available. "Compatible" means that both the device and host bus adapter are of the same type (such as single-ended, high voltage differential, low voltage differential, or fibre channel).

3. Solaris systems only:

    a. You must add an entry for your tape device in the `st.conf` file. Refer to the Solaris chapter in the *NetBackup Media Manager Device Configuration Guide* to get the appropriate string for the `st.conf` file.

    b. Execute the `reboot -rv` command.

4. HP systems only:

    ◆ You need to have the latest Hewlett Packard operating system patches that support the devices you are using. Visit the HP web site for more information.

5. Verify that the operating system can see your device(s), as follows:

    ◆ On Solaris, execute: `sgscan -v`

    ◆ On HP, execute: `ioscan`

If your device does not appear in this list, you may need to modify the operating system (for HP) or the pass-through driver configuration (Solaris), or to troubleshoot your hardware connection. For details, refer to the *NetBackup Media Manager Device Configuration Guide.*

Use the Getting Started Wizard to Configure the Server

The Getting Started wizard helps you configure NetBackup. The wizard also runs a test backup to verify that your configuration is complete and correct.

Note It is assumed that you have correctly configured your storage devices for the operating system. NetBackup cannot function reliably unless devices are correctly installed and configured (see "Configure Storage Devices for the Operating System" on page 17).

Start the NetBackup Administration Interface

Note If your server has no graphics display capabilities, or if you want to administer an HP-UX 11.0 server from a console attached to a different computer, you must install a graphical interface on a different computer. You can choose from the following three alternatives:

- On a Windows NT or Windows 2000 computer, install the Administration Client (see "NetBackup Administration Client" on page 33) or the Java Display Console (see "NetBackup-Java Display Console for Windows" on page 34).

- On a Windows 98 or Windows 95 computer, install the Java Display Console (see "NetBackup-Java Display Console for Windows" on page 34).

- Later, after you have configured your backup policies, you will be able to push the UNIX Java graphical interfaces to your Solaris or HP client to remotely administer NetBackup BusinesServer (see step 6 under "Installing NetBackup Software on Trusting UNIX Clients" on page 28).

Starting the NetBackup Administration Interface on UNIX Systems

1. Log on to the NetBackup server as root.

   (If you need to run the user interface on a computer other than the NetBackup server, log on to that computer as root for a UNIX computer, or as the Windows administrator for a Windows computer.)

2. Start the NetBackup administration by executing:

   ```
   /usr/openv/netbackup/bin/jnbSA &
   ```

   The Login dialog box appears.

For additional usage information, enter: `jnbSA -h`.
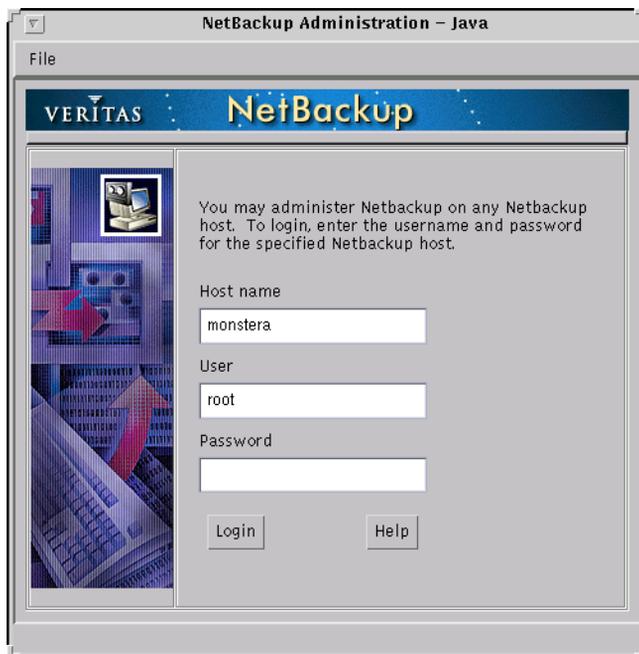
3. Enter the password for root.

4. Click Login. The Login dialog closes.

Starting the NetBackup Administration Interface on Windows Systems

1. Log on to the NetBackup server as the Windows NT/2000 Administrator.

2. Click the Start button and point to Programs. On the Programs menu, point to VERITAS NetBackup and click NetBackup Administration. The NetBackup administration window appears.
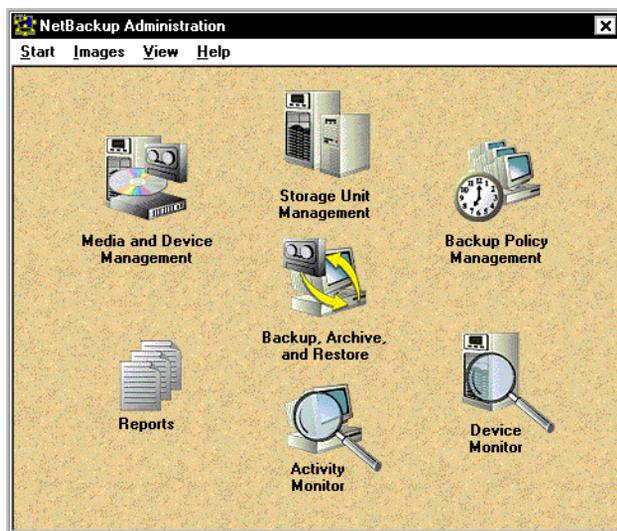
The Getting Started Wizard

The easiest way to configure NetBackup is with the Getting Started wizard. To start this wizard, go to the NetBackup Administration window, pull down the Start menu and click Assistant. From there, click Getting Started. On the welcome screen, click Next.

The Getting Started wizard will lead you through the following steps:

◆1. Configure Storage Devices

Before you can run any backups, you must define your storage devices for NetBackup. Click Next and follow the instructions. For help with this step, see "Managing Storage Devices" on page 46.

◆2. Configure Volumes

After you have configured your storage devices, the Getting Started wizard leads you into volume configuration. In this step, you initiate an inventory of each robot; NetBackup automatically updates the volume database if it finds new robotic media during the inventory. In this step you will also define new volumes for use in standalone drives. For help with this step, see "Managing Volumes" on page 52.

◆3. Configure the Catalog Backup

After you have configured your storage devices, the Getting Started wizard leads you into configuration of the catalog backup. Click Next on the Getting Started screen.

The NetBackup catalog contains information about your configuration and about the files and directories that have been backed up. In case a disk fails and your catalog is lost, a backup of your catalog makes it much easier to restore your backed up data and resume your backup schedule. Therefore, it is *imperative* that you configure a catalog backup before backing up any other data. For further details on this step, go to "Configuring Catalog Backups" on page 60.

◆4. Create a Backup Policy

After you have configured volumes, the Getting Started wizard leads you into configuration of backup policies. Click Next on the Getting Started screen.

In this step you define a backup *class* for a group of one or more clients. This means specifying when the backups will take place, the files you want to back up, the clients you want to back up, and other general attributes that define how the backup is performed. For further details on this step, go to "Configuring Backup Policies (Classes)" on page 63.

◆5. Test NetBackup Configuration Settings

The final step is to test your configuration.

If you choose to perform a test backup, after exiting the Getting Started Wizard, monitor the progress of the test backup via Device Monitor and Activity Monitor. To start these utilities, go to the NetBackup Administration window and click the Device Monitor icon and the Activity Monitor icon.

Device Monitor

Note This section applies to standalone drives.

The actions that you must perform with the Device Monitor depend on whether the drive contains a tape and whether you chose earlier to configure enough tapes for use by NetBackup catalog backups and regular backups.

◆ If you inserted a new unused tape in the drive before starting the test backup, NetBackup automatically creates a new media ID, writes this media ID in the tape header on the tape, and starts the backup. The media ID that was created appears in the RVSN column for the drive in the upper pane of the Device Monitor. Make a note of the new media ID and when the backup is done attach a label to the outside of the tape and write the media ID on that label. This will make it easy to identify the tape the next time you use it.

◆ If the drive does not contain a tape but you did configure enough tapes for both catalog and regular backups, the lower pane of the Device Monitor shows a request for one of these tapes. In this instance, perform the following:

a. Attach a label to the outside of the tape you are going to use and write the media ID that NetBackup is requesting on that label (if this is not already done).

b. Insert the tape into the drive.

c. In the lower pane of the Device Monitor, select the request.

d. In the upper pane of the Device Monitor, select the drive and click the Assign Request button.

The request disappears from the lower pane and its ID appears in the Request ID column for the drive. NetBackup then writes this media ID in the tape header on the tape and starts the backup.

◆ If the drive does not contain a tape and you did not configure enough tapes, the test backup cannot begin and fails. In this instance, you can use the Volume Configuration wizard to configure one or more tapes and then run a manual backup of a class, client, or schedule to test your configuration.

Activity Monitor

The Activity Monitor shows the NetBackup jobs that are scheduled to run. When the Activity Monitor screen refreshes, your test backup job will appear in the list so you can monitor the progress of the job while it runs and verify that it completes successfully. You can update the screen at any time by clicking the Refresh button. To see more details about the job, double-click on it. A detailed status window appears with more information than appears in the main window.

Install the NetBackup Clients

By definition, your BusinesServer computer (that is, your NetBackup server) is also a NetBackup client. When you installed the NetBackup software, both the NetBackup *server* and NetBackup *client* software were installed on your server machine. Your server does not count against the BusinesServer limit of four remote clients (eight with the Client Expansion pack).

The following are quick-start instructions for installing NetBackup client software. For further information on installing and configuring software on PC clients, see the *NetBackup Installation Guide - PC Clients*.

Windows 95/98/2000/NT 4.0

> **Note** Open Transaction Manager (OTM) is a separately-priced option for BusinesServer. If the client's server is a NetBackup BusinesServer, you must have license keys for this feature registered on the server to enable this feature.

Execute `PC_Clnt\Win32\Setup.exe` from the CD-ROM.

NetWare Target and Nontarget

> **Note** Open Transaction Manager (OTM) is a separately-priced option for BusinesServer. If the client's server is a NetBackup BusinesServer, you must have license keys for this feature registered on the server to enable this feature.

Installing OTM for NetWare

NetWare 3.x and 4.x:

1. Copy `OTMDSK.DSK` onto the server's DOS partition.

2. Modify `STARTUP.NCF` on the server's DOS partition so that `OTMDSK.DSK` is loaded before any other `.DSK` drivers.

3. Reboot the NetWare file server.

NetWare 3.x, 4.x, and 5.x:

From the `PC_Clnt\NetWare\NLM` directory on the CD-ROM, copy `OTMCDM.NLM`, `OTMLAPI.NLM`, `OTMLOAD.NLM`, AND `PMTHREAD.NLM` to the NetWare file server.

Installing NetBackup

> **Note** `tsands.nlm` must be installed in order to back up and restore NetWare Directory Services (NDS) files.
>
> Any version-dependent NLMs must be also installed. These NLMs are in the form `tsaxxx.nlm` and are supplied by Novell based on the NetWare Server release level. For example, the appropriate NLM for a Netware 5.0 server is `tsa500.nlm`.

1. From the `PC_Clnt\NetWare\NLM` directory on the CD-ROM, copy `BP.NLM`, `BPSRV.NLM`, `BPSMS.HLP`, and `BPCD.NLM` to the `SYS:system` directory on your file server.

2. Create the following directories on the `SYS:` volume:

   ◆ For NetWare Target

   ```
   Openv\netback\logs
   Openv\netback\logs\altpath
   Openv\netback\logs\bpback
   Openv\netback\logs\bprest
   Openv\netback\logs\bpcd (optional)
   Openv\netback\tgts
   ```

   ◆ For NetWare NonTarget

   ```
   Openv\netback\logs
   Openv\netback\logs\altpath
   Openv\netback\logs\bpsrv (optional)
   Openv\netback\logs\bpcd (optional)
   ```

3. For NonTarget clients, execute `PC_Clnt\NetWare\Win32\Setup.exe` file from the CD-ROM.

4. Modify the hosts file to contain the NetBackup server and its IP address.

Macintosh

For Macintosh installation instructions, refer to the *NetBackup Installation Guide - PC Clients.*

OS/2 Warp

1. Copy `PC_Clnt\OS2\nbuos2.exe` to a temporary directory on the OS/2 Warp computer.

2. Execute `nbuos2.exe` from the temporary directory to extract the installation files.

3. Execute `install.exe` from the temporary directory to install NetBackup for OS/2.

UNIX

To use a UNIX client, the software for that type of UNIX computer must first be loaded onto your UNIX server. If you did not chose to do this during the installation of your UNIX server, do so now by following the instructions provided in "Add a UNIX Client Type After Initial Server Installation" on page 32.

UNIX clients can be installed in two different ways: either locally at the client computer, or remotely, from your UNIX NetBackup server.

◆   Locally: You must install the client software locally if remote installation is not possible. Remote installation is not possible if your NetBackup server is an NT/2000 computer or if there is a firewall that prevents remote installation.

◆   Remotely: You can "push" the client software from your UNIX NetBackup server to your UNIX client computers.

Note   If you are running NetBackup on a Windows NT/2000 computer, or if there is a firewall that prevents remote installation, UNIX clients *must* be installed locally.

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

◆   On Solaris and HP clients only: the NetBackup Java interface (`jbpSA`). For instructions on starting `jbpSA`, see "How to Start the Interface" on page 90.

◆   On all UNIX clients: the `xbp` interface. For instructions on the use of `xbp`, see the *NetBackup User's Guide - UNIX.*

Install Client Software Locally

1. Insert the NetBackup CD-ROM into the drive on the client computer.

    HP systems only: Because the NetBackup CD-ROM is Rockridge formatted, it must be mounted by entering the following commands:

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

```
pfs_mount -o xlat=unix /dev/dsk/device-ID /cdrom
```

Where *device_ID* is the ID of your CD-ROM drive.

2. Change your working directory to the CD-ROM directory:

```
cd cd_rom_directory
```

Where *cd_rom_directory* is the path to the directory where you can access the CD-ROM. On some platforms, it may be necessary to mount the directory.

3. Start the install program.

```
./install
```

4. Choose option 2, NetBackup Client Software.

Note The choices provided for OS level represent the OS Level on which the binaries were compiled. Often the binaries will function perfectly on newer versions of the operating system. For example, Solaris 2.6 binaries also are used on Solaris 7 and Solaris 8 levels of the operating system. So, if you wish to install on a Solaris 8 system, choose the Solaris2.6 binaries.

5. Follow the prompts to complete the installation.

6. On HP systems only: to unmount the CD-ROM, do the following:

   ◆ Execute the `pfs_umount` command

   ◆ Use the `kill` command to kill the following processes:

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

Install Client Software Remotely

The following sections describe how to "push" the client software from your UNIX NetBackup server to your UNIX NetBackup clients. You can push the client software to either a trusting client or a secure client.

Installing NetBackup Software on Trusting UNIX Clients

A *trusting* UNIX client is one that has an entry for the server in its `/.rhosts` file. The `/.rhosts` entries enable software installation, but are not necessary for correct operation of NetBackup software.

> **Note** Add the trusting clients to a backup policy (class), if this has not already been done. See "Change the Client List" on page 75.

1. Start the NetBackup Administration interface.

   In the Login dialog box, type the name of the NetBackup server that has the class configuration with the clients.

   You can install the client software only from the NetBackup server that you specify in the Login dialog box when starting the interface. The clients must be defined in a class on this NetBackup server.

2. In the NetBackup Administration window, click the Backup Policy Management icon.

3. Select the server in the left pane.
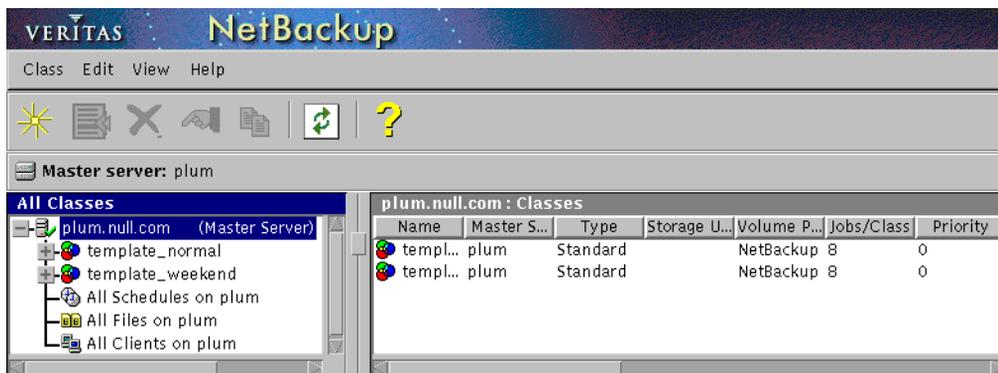
4. Choose Install UNIX Client Software on the Edit menu.

The Install UNIX Client Software dialog box appears.
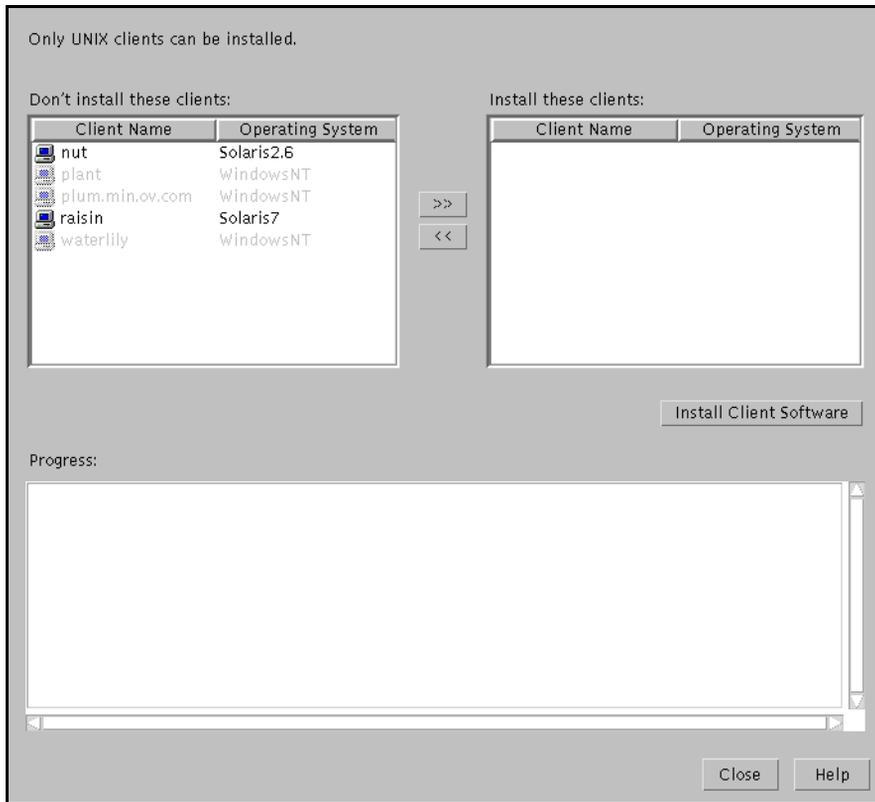
5. In the Don't install on these clients box, select the clients you want to install and click the right arrows.

The clients are moved to the Install these clients box.

6. Click the Install Client Software button to start the installation.

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 class. You cannot stop the installation once it has started.

During installation, NetBackup does the following:

◆ Copies the client software from the /usr/openv/netbackup/client directory on the server to the /usr/openv/netbackup directory on the client.

◆ Adds the required entries to the client's /etc/services and inetd.conf files.

The only way to install client software to a different location on the client is to create the directory where you want the software to reside and then create `/usr/openv/netbackup` as a link to that directory prior to installing software.

7. When the install is complete, click Close.

Installing NetBackup Software on Secure UNIX Clients

As defined here, a *secure* UNIX client is one that does not have an entry for the NetBackup server in its `/.rhosts` file.

Note Add the secure clients to a backup policy (class), if this has not already been done. See "Change the Client List" on page 75.

---

1. Move software from the server to temporary space in the `/tmp` directory on the client by executing the `install_client_files` script from the NetBackup server. To execute this script, 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, execute:

`/usr/openv/netbackup/bin/install_client_files ftp` *client user*

To move software to all clients at once, execute:

`/usr/openv/netbackup/bin/install_client_files ftp ALL` *user*

Where the options are defined as follows:

◆ *client* is the hostname of the client.

◆ *user* is the login id required by ftp on the client.

◆ `ALL` specifies that you want to install all clients which are configured in any backup policy (class) on the server.

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 is done, the root user on each of the clients must execute the `client_config` script to complete the installation:

`sh /tmp/bp/bin/client_config`

The `client_config` script installs the binaries and updates the `/etc/services` and `inetd.conf` files on the client.

Add a UNIX Client Type After Initial Server Installation

If you add a new UNIX client type to your backup environment, or forgot to select a UNIX client platform during your NetBackup installation, you must first load the NetBackup client software onto the NetBackup server as described below.

1. Insert the NetBackup CD-ROM into the drive on the server.

2. Change your working directory to the CD-ROM directory:

   `cd` *cd_rom_directory*

   Where *cd_rom_directory* is the path to the directory where you can access the CD-ROM. On some platforms, it may be necessary to mount the directory.

3. Use the install program to load the client software onto the NetBackup server.

   `./install`

4. Choose option 2, NetBackup Client Software.

5. Follow the prompts, selecting the additional client platforms you want.

6. You must now install the NetBackup client software on these additional client computers, as described earlier in this chapter.

Install Alternative Administration Interfaces

You can install a NetBackup user interface on a different computer. (This will be necessary if your server computer has no graphics display capabilities.)

System	Install this user interface
UNIX	UNIX NetBackup client. Then set up your window manager.
Windows NT/2000	Administration Client or the Java Display Console
Windows 98 or Windows 95	Java Display Console

NetBackup Administration Client

The NetBackup Administration Client is a version of the NetBackup client for Windows NT/2000 which can be used to remotely administer one or more UNIX or Windows NT/2000 NetBackup BusinesServer computers. You can skip this section if you do not want to remotely administer your NetBackup BusinesServer from a Windows NT/2000 NetBackup client.

Before you can use the NetBackup Administration Client, the host that is to run the Administration Client must be added to the server list of the remote BusinesServer computer you want to administer. We recommend that you do this before installing the Administration Client.

1. To add the Administration Client host to the server list of the remote BusinesServer computer, do the following:

   a. Go to the remote BusinesServer computer.

   b. In the `/usr/openv/netbackup/bp.conf` file, at the end of the SERVER = lines, add the following line:

      ```
      SERVER = name-of-Administration-Client-machine
      ```

2. Go to the computer on which you want to install the Administration Client.

3. Insert the CD-ROM that contains the NetBackup server software.

   ◆ On Windows NT 4.0/2000 systems with AutoPlay enabled for CD-ROM drives, the NetBackup install program starts automatically.

   ◆ On Windows NT 4.0/2000 systems that have AutoPlay disabled, run the `AutoRunI.exe` program in the `AutoRun` directory on the CD-ROM.

4. On the NetBackup - Install screen, click the Install option beneath NetBackup Server.

5. Enter the NetBackup base product license key.

For more information on administering NetBackup licenses see the *NetBackup BusinesServer System Administrator's Guide - UNIX.*

6. Click Administration Client.

7. Follow the prompts to complete the installation.

Note On the NetBackup System Names screen, the name of the Administration Client should be in the first entry field. You must enter the name of the remote NetBackup BusinesServer computer in the Master Server field.

When the software is installed, a set of NetBackup documents are also installed in the following directory:

> *install_path*\Help

By default, *install_path* is C:\Program Files\VERITAS.

By default, the Administration Client interface will automatically begin as soon as you click Finish in the installation program. (If you did not choose that default, go to the Windows Start menu on the Administration Client computer and select Programs, VERITAS NetBackup, NetBackup Administration.)

NetBackup-Java Display Console for Windows

The NetBackup-Java Display Console allows you to run the NetBackup Java (UNIX) interfaces on a Windows NT, 2000, 98, or 95 system to remotely administer your UNIX NetBackup BusinesServer machine. You can skip this section if you do not want to remotely administer your UNIX NetBackup BusinesServer using the Java interface on Windows NT, 2000, 98, or 95.

Requirements

For the computer on which you want to run the NetBackup-Java Display Console, VERITAS recommends 256 MB of physical memory.

Installation procedure

1. On the system where you are performing the install, insert the CD-ROM that contains the NetBackup server software.

   ◆ On Windows NT 4.0/2000 systems with AutoPlay enabled for CD-ROM drives, the NetBackup install program starts automatically.

   ◆ On Windows NT 4.0/2000 systems that have AutoPlay disabled, run the AutoRunI.exe program in the AutoRun directory on the CD-ROM.

2. On the NetBackup - Install screen, click on the Install option beneath NetBackup - Java Display Console for MS. A welcome dialog box appears.

3. Click Next and follow the prompts to complete the installation.

4. When the software is installed, see the following document for information on using the display console (this document is installed with the software):

   install_path\Java\Readme.txt

   Where, by default, *install_path* is C:\Program Files\VERITAS.

Install NetBackup Agents and Options

After your initial installation is complete, you can install any other NetBackup agents and options (such as NetBackup for Oracle) by following the instructions in the NetBackup guide that comes with that product.

Performing an Upgrade Installation 3

This section explains how to upgrade your UNIX server to NetBackup 3.4.

Requirements

Caution	Back up your NetBackup databases before upgrading NetBackup software on the server.

As a general rule, ensure that the NetBackup release level on each server is at least equal to that on the clients. Older versions of server software can encounter problems with newer clients. Upgrade all servers first so they are at the same level.

To Allow Reinstalling NetBackup 3.4

To allow the option of reinstalling NetBackup 3.4 after the upgrade, perform the following steps:

1. Back up all databases (media, volume, configuration, device) on the server.

2. Back up all NetBackup 3.4 patches, scripts, and `bp.conf` entries that are specific to NetBackup 3.4.

3. You do not have to upgrade your clients at this time, only the server.

If you have 3.3 clients that are unsupported at 3.4 and encounter problems with using the new features of 3.4, move those clients to a separate class.

Install Software on the Server and Clients

Before Installation

1. Stop the NetBackup/Media Manager daemons:

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

2. On Solaris and HP, stop all instances of the NetBackup Java interface applications. You can find the process IDs for the NetBackup Java applications by piping the output of `ps` into `grep`.

    On Solaris, for example:

    `ps -ef | grep jre | grep openv`

    Then, use the `kill` command to terminate the processes.

3. On Solaris, if you are upgrading to NetBackup 3.4 or reinstalling it, remove the current SUN packages.

Caution   This will remove all/any NetBackup scripts you may have modified. See step 2 of "After the Upgrade" on page 40.

`pkgrm SUNWnetbp SUNWmmgr`

When asked:

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

Answer y.

Procedure

As the root user, install the NetBackup server software on the server. The steps for each server are as follows:

1. Check the license keys included with this order to make sure that you have license keys for all the NetBackup servers, clients, options, and agents that you have ordered.

    When installing a NetBackup server you must enter a NetBackup base product license key. You must also enter license keys for any additional NetBackup software product options or agents used on the server or its clients. For more information on administering NetBackup licenses see the *NetBackup BusinesServer System Administrator's Guide - UNIX.*

2. Log in as the root user on the server.

3. Insert the CD-ROM in the drive.

4. Change your working directory to the CD-ROM directory:

    cd *cd_rom_directory*

Where *cd_rom_directory* is the path to the directory where you can access the CD-ROM. On some platforms, it may be necessary to mount the directory.

5. Execute the install script:

    ./install

6. When the menu appears, choose option 1 (NetBackup). This installs both Media Manager and NetBackup software on the server.

Option 2 (NetBackup Client Software) is for local installation on UNIX clients (see "Install Client Software Locally" on page 27) or for reinstalling client software without disturbing the NetBackup and Media Manager installation.

7. Follow the prompts in the installation script.

The installation script can push client software to up to all 4 (8 with the Client Expansion Pack) clients simultaneously.

Note: On Solaris, if you have done the `pkgrm`, you will not be prompted to update your NetBackup clients. Refer to step 8 for information on upgrading clients after the installation.

8. If you did not update the NetBackup client software on all currently configured UNIX client systems when running the installation script, do so now by performing the following steps as root user on the NetBackup server.

    a. Check whether `bprd` is running by executing:

    /usr/openv/netbackup/bin/bpps

    b. If only one `bprd` shows up in the `bpps` output, there are no active backups or restores. You can terminate the `bprd` daemon by executing:

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

    c. Update UNIX client software by executing the `update_clients` script:

    /usr/openv/netbackup/bin/update_clients

9. After the server and clients have been updated, start NetBackup and Media Manager daemons as the root user on the server by entering the commands:

    /usr/openv/volmgr/bin/ltid

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

At this point, UNIX server and UNIX client updates are complete.

After the Upgrade

1. Upgrade any separately-priced options (such as NetBackup for Oracle) on clients that have been upgraded. Separately-priced options should be at the same level as the NetBackup client.

2. If you made changes to NetBackup scripts prior to the upgrade, apply those changes to the new scripts. Installing the software overwrites the following files, after first copying them to a file or directory with the old version appended to the name:

   ◆ 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)

      ◆ `bpps`

      ◆ `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 3.3 to 3.4 would result in changing:

   ```
   /usr/openv/netbackup/bin/goodies
   ```

   to

```
/usr/openv/netbackup/bin/goodies.3.3GA
```

and changing

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

to

```
/usr/openv/netbackup/bin/initbprd.3.3GA
```

3. If this is a server upgrade installation and the site had previously allowed nonroot users to administer NetBackup, the default permissions and group on the newly installed files allow only a root user to perform NetBackup administration. Refer to Chapter 2 in the *NetBackup System Administrator's Guide - UNIX* to determine how to restore nonroot administrator capability.

4. If you are going to use the NetBackup Java interfaces, see the *NetBackup Release Notes* for configuration information. The online help provides operating instructions.

Note On HP700, HP800, and Solaris servers, NetBackup installation creates some large files in the `/usr/openv/java` directory, including: `Solaris_JRE_117B.tar.Z`, `Solaris_X86_JRE_117B.tar.Z`, and `hp110_jre116.tar.Z`. These files are needed for installs on Solaris 2.6, 7, 8, Solaris x86 2.6/7/8, and HP 11.0 NetBackup clients and used by the NetBackup Java graphical-user-interface applications on those platforms. Delete these `tar` files if you do not have NetBackup clients with these hardware and operating system combinations.

Day-to-Day Management   4

This section provides details on NetBackup BusinesServer configuration and explains how to perform routine NetBackup tasks.

◆ NetBackup Assistant

◆ Managing Storage Devices

◆ Managing Volumes

◆ Managing Media (Tapes)

◆ Configuring Catalog Backups

◆ Configuring Backup Policies (Classes)

◆ Test NetBackup Configuration Settings

◆ Configuring Automatic Email Notifications

◆ Running Reports

◆ Configuring the Server to Allow Alternate Client Restores

◆ How to Use the NetBackup Client Interface

NetBackup Assistant

The NetBackup Assistant provides quick access to the wizards. These wizards help you create your initial configuration.

Unless you clear the Always show Assistant at startup box, NetBackup Assistant appears each time you start the NetBackup Administration interface (see "Start the NetBackup Administration Interface" on page 19).
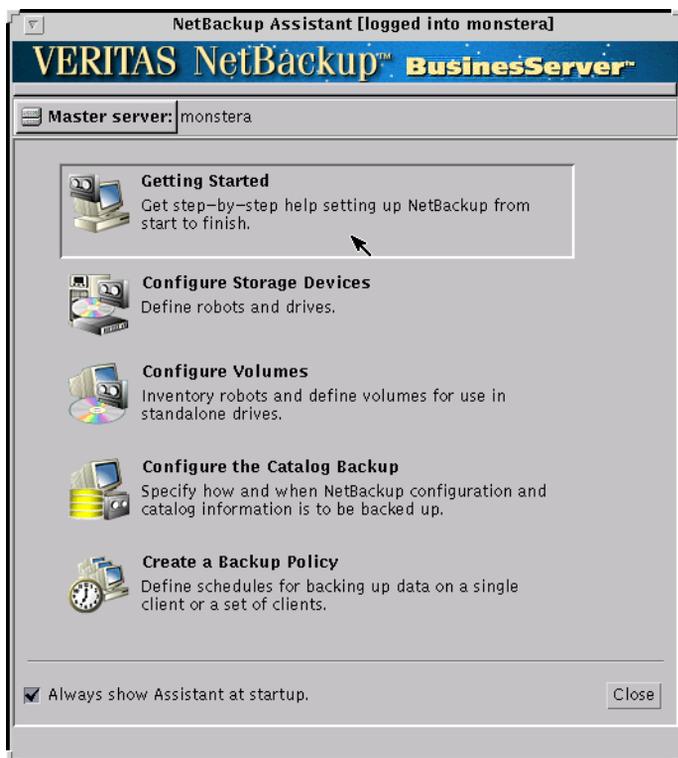
You can also start NetBackup Assistant by choosing the Assistant command on the Start menu in the NetBackup Administration window.

Managing Storage Devices

This section helps you configure storage devices for NetBackup.

Caution	It is assumed that you have already configured your storage devices for the operating system. NetBackup BusinesServer cannot function reliably unless devices are correctly installed and configured for the OS (see "Configure Storage Devices for the Operating System" on page 17).

The DataCenter version of NetBackup can utilize tape drives attached to a remote NetBackup server called the media server. But NetBackup BusinesServer does not support remote media servers. When you are configuring devices on a BusinesServer system, note that the following terms refer to the same NetBackup server computer:

◆ Master Server

◆ Media Server

◆ Media Manager Host

◆ Volume Database Host

◆ Device Host

◆ Robotic Control Host

Managing Devices

This section describes how to set up devices for NetBackup.

Device Configuration Wizard

This wizard helps you configure devices for your backups.

You can start the Device Configuration wizard from the Getting Started wizard and from the NetBackup Assistant.

The Device Configuration Wizard can also be started from the Media and Device Management window, by clicking the [icon] button, or by selecting Device Configuration Wizard from the Actions menu.

Adding a New Device

1. Verify that your device is on the list of supported devices (see the *NetBackup Release Notes*).

Note You cannot use more than two drives with BusinesServer. If you need more drives, you can upgrade to the DataCenter version of NetBackup, which supports more than two drives and high-end storage devices.

---

2. Make sure that your device is correctly configured for the operating system (see "Configure Storage Devices for the Operating System" on page 17).

3. Start the Device Configuration wizard. On the third page of the wizard, there is a list of devices detected by the software.

   Unserialized devices: Device serialization is a firmware feature that allows the wizard to identify the serial number of devices and correlate those numbers with the serial number information that may be returned by robotic libraries. If the drive's serial number cannot be identified, or if the robotic library does not return serial numbers for its drives, the wizard cannot automatically configure the device.

   For assistance with an unserialized device, click the Help button. The "Device Serialization Trouble Shooting" topic explains how to overcome this problem.

Removing a Device

1. Remove the media from the device and physically disconnect the device.

2. Using the Storage Unit Management utility, delete the storage unit for the device.

3. Run the Device Configuration wizard, which will recognize the change and remove the device from your configuration. (Or, you can use the Media and Device Management utility to delete the device manually.)

Media and Device Management Utility

You can use the Media and Device Management utility to do the following:

◆ Add, change, or remove the following: drives, robotic libraries, volumes, volume pools, and volume groups. (Note that for adding drives and libraries, it is easier to use the wizard.)

◆ Inventory the tapes in a robotic library.

◆ Define barcode rules for your robotic library.

To start this utility, click the Media and Device Management icon in the NetBackup Administration window. The Media and Device Management window appears:

For further information on this utility, see the *NetBackup BusinesServer Media Manager System Administrator's Guide - UNIX.*

Note For any storage device that you plan to use for your backups, there must be a corresponding storage unit. If you add a device manually (using the New option on the Actions menu), you will also need to manually add the corresponding storage unit. (When you use the Device Configuration wizard to add a device, the storage unit is automatically created for you.) Similarly, if you remove a device, you must delete the corresponding storage unit or decrease the number of available drives in that unit. Refer to "Managing Storage Units" for more details.

Managing Storage Units

As explained in "Storage Unit" on page 5, a storage unit is a collection of storage devices on which NetBackup stores backup data. For example, a storage unit could represent either one robot with up to two drives, or two standalone tape drives. (A standalone drive is a separate drive that is not in a robot.)

Any storage device that you plan to use for your backups must belong to a storage unit.

Storage Unit Management Utility

Use this utility when you want to:

◆   Add a storage unit for an attached storage device

◆   Add a disk storage unit

◆   Remove a storage unit

◆   Change the attributes of a storage unit, such as for setting up multiplexing, or for changing the number of drives.

To start this utility, click the Storage Unit Management icon in the NetBackup Administration window. The Storage Unit Management window appears:
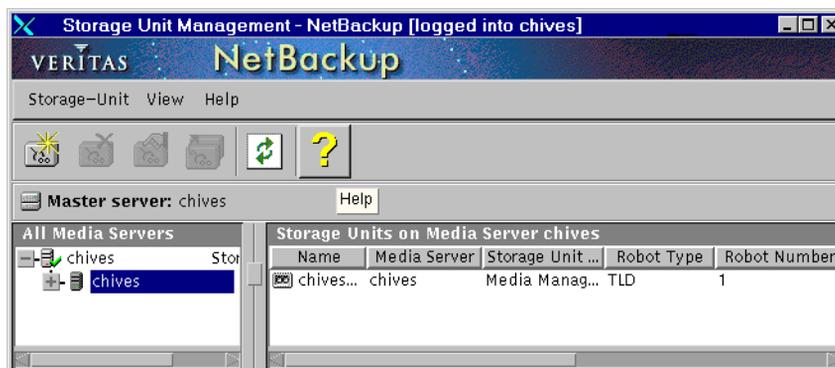
Adding a Storage Unit for an Attached Device

If you added your storage device by using the Device Configuration wizard, the wizard automatically created an appropriate storage unit for you. If you added your storage device using the Media and Device Management utility, you must manually add an appropriate storage unit for that device by using the Storage Unit Management utility.

Adding a Disk Storage Unit

You can create a disk storage unit by using the Storage Unit Management utility. You must specify a directory for the unit. This is where NetBackup will store backup data for the backups that use this storage unit.

Note Disk storage units are typically used for testing purposes only. This is because a disk can be easily filled with backups. For a disk storage unit, be careful to assign backup classes that are not likely to fill up the disk.

VERITAS recommends using the "On demand only" feature for disk storage units. This makes it easier to control which backups are sent to the storage unit, thus controlling the amount of data sent to the disk.

Storage Unit Attributes

Note the meaning of the following attributes:

◆ On demand only: makes the storage unit available only when a class or schedule explicitly demands it. Clear the box to make the unit available to any class or schedule. If you set all storage units to On demand only, remember to specify a storage unit for each class or schedule you configure.

◆ Maximum concurrent drives used for backup: specifies the number of drives in the storage unit to use for backups.

◆ Enter the number of standalone tape drives in the storage unit. All tape drives in a single storage unit must be of the same density (i.e., TL8, DLT, etc.).

or

◆ Enter the number of tape drives in the robot (installed in the robot and attached to the NetBackup server) in the storage unit.

NetBackup BusinesServer supports a maximum of two drives (for example, a robot with two drives or a standalone drive and a robot with a single drive).

Assume you have two standalone drives of the same density and you specify 1 in this box. In this instance, both drives are available to NetBackup but only one can be used for backups. This leaves the other drive available for restores and other nonbackup operations (such as importing, verifying, and duplicating backups).

◆ Maximum multiplexing per drive: specifies the maximum number of backups that NetBackup can send to any single drive in the storage unit. Specify a value from 1 through 8 for NetBackup BusinesServer. The default is 1, which disables multiplexing and allows only one backup job at a time per drive. If you specify a value greater than 1, NetBackup sends concurrent, multiple backups from one or several clients to a single drive and multiplexes (interleaves) the backups onto the media. For more information on multiplexing, see your *NetBackup BusinesServer System Administrator's Guide - UNIX*.

For more information about other storage unit attributes on the Add/Change Storage Unit dialog, refer to the online help topics.

Assigning a Storage Unit to a Backup Policy

When you first create a backup policy, it will be set to use any available storage unit that is not set for "On demand only" (see "Storage Unit Attributes" on page 49). To control which storage unit the backup policy will use for its backup data, use the Backup Policy Management utility. On the Class Attributes dialog, enter the name of the specific storage unit in the "Class storage unit" field.

You can also specify a particular storage unit for each schedule within a class. If you specify a storage unit for a schedule, that setting will override the setting in the "Class storage unit" field in the class attributes dialog. For example, you may want to send all full and incremental backups to one storage unit, and all user backups to another storage unit.

Monitoring Devices

Use the Device Monitor utility when you need to:

◆ View the status of your tape drives

◆ Make changes to tape drive status

◆ Assign a tape to a drive so that a backup or restore can begin

For example, you can use this utility to reset drives or set them to the UP or DOWN state.

To start this utility, click the Device Monitor icon in the NetBackup Administration window. The Device Monitor window appears.
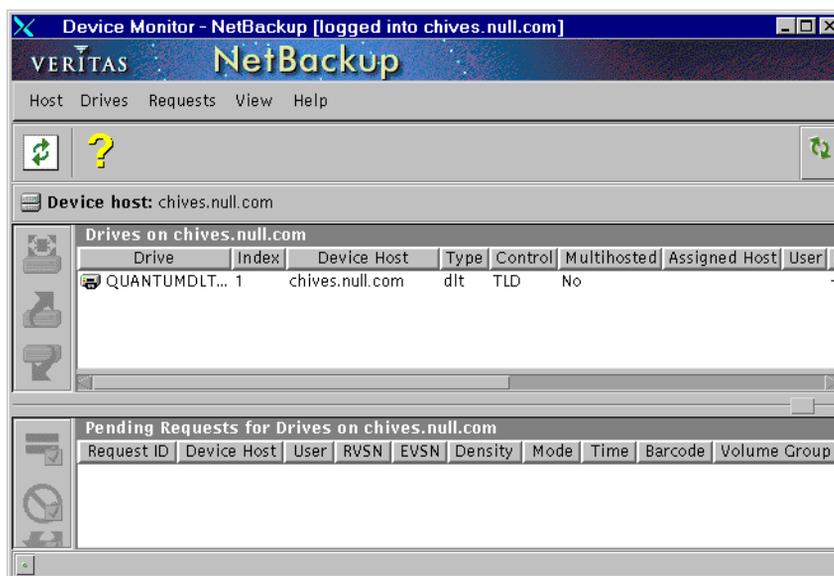
The Device Monitor window shows the current status of all drives and allows you to easily change the state of a drive. For example, you can set a drive to DOWN to prevent its use by Media Manager, or reset it to clear a hang condition. You can also manually assign requests to drives when assignment does not occur automatically.

Managing Volumes

This section describes how to manage volumes for NetBackup. Volumes are removable media that have been assigned a media ID and other attributes so Media Manager can use them.

It is recommended that you use the wizard when first installing NetBackup. Thereafter, define new volumes using the Media and Device Management utility, which provides greater flexibility and more advanced options (see "Media and Device Management Utility" on page 53).

Volume Configuration Wizard

This wizard helps you define new volumes with default attributes. With this wizard you can define new volumes for use in standalone drives and initiate an inventory of a robot. NetBackup automatically defines new volumes with default attributes if it finds new media in the robot.

You can start the Volume Configuration wizard from the Getting Started wizard or the NetBackup Assistant.

Defining New Volumes

▼ **For Use in a Standalone Drive**

1. Make sure that you have correctly configured your standalone drives as described in the previous section.

2. Start the Volume Configuration wizard.

3. On the second page, there is a tree view of the robot or types of standalone drives configured on the server. Select the appropriate standalone drive type and click Next.

4. Specify the number of new volumes to define and click Next.

▼ **Defining New Robotic Volumes**

1. Make sure that you have correctly configured your robot as described in the previous section.

2. Insert the new media into the robot.

3. Start the Volume Configuration wizard.

4. On the second page, there is a tree view of the robot or types of standalone drives configured on the server. Select the robot and click Next.

5. Carefully read and follow the instructions given on the third page. When you click Next, NetBackup will begin the robot inventory. NetBackup automatically defines new volumes with default attributes if it finds new media during the inventory.

6. The results of the inventory will be displayed on the fourth page.

Media and Device Management Utility

You can use the Media and Device Management utility to do the following:

◆ Inventory the tapes in a robotic library. You can choose from the following inventory operations:

    a. Determine the contents of the robot and report the media ID of the media in each slot.

    b. Determine if volumes have been physically moved within a robot by comparing the current robot contents with the volume configuration.

    c. Preview any changes necessary to update the volume database to agree with the current contents of the robot by comparing the robot contents with the volume configuration.

    d. Make any changes necessary to update the volume database to agree with the contents of the robot by comparing the robot contents with the volume configuration. This operation may result in new volumes being defined.

◆ Manually add volumes by specifying a media ID and other attributes.

◆ Change or delete volumes.

To start this utility, click the Media and Device Management icon in the NetBackup Administration window. The Media and Device Management window appears:
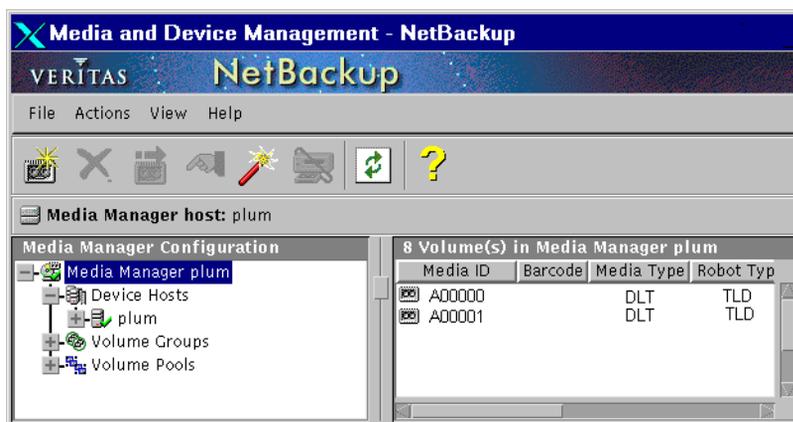
For further information on this utility, see the *NetBackup BusinesServer System Administrator's Guide - UNIX.*

Managing Media (Tapes)

This section explains special tape management issues that the NetBackup administrator may have to address.

Note Although the DataCenter version of NetBackup handles other types of removable media, BusinesServer handles only tape devices. Therefore, in BusinesServer, the terms *media*, *tape*, and *volume* always refer to tapes.

Managing Catalog Backup Media (Tapes)

To simplify disaster recovery procedures, NetBackup will not write catalog backups to a tape that is used for regular backups (those defined by a backup policy) and vice versa. Therefore, you must consider the following implications when managing your catalog backup tapes.

In general, the safest way to back up your catalog is to schedule an automatic catalog backup and to send the catalog backup to tape.

You may choose to backup your catalog to the same tape every time, or to two different, alternating tapes. If you choose to use alternating tapes, NetBackup will use one tape for the first backup, the other tape for the second backup, etc.

To ensure that your catalog backup tapes do not wear out, and to follow good data protection practices, you should rotate your catalog backup tapes on a regular basis. When you rotate new tapes in, store your most recent catalog backup tapes in a safe place, preferably in offsite storage.

Assigning a New Tape for Catalog Backups

Before you can back up your catalog to tape, you must:

1. Add the volume(s) to the Media Manager configuration.

   ❖ To add new volume(s) using the Media and Device Management utility, choose either of the following on the Actions menu:

     ◆ Inventory Robot, then choose Update Volume Configuration

     ◆ New, then choose Volumes

   ❖ To add new volume(s) using the Volume Configuration Wizard:

     ◆ In the NetBackup Administration window, choose Start and Assistant, then click Configure Volumes.

2. Assign the volume(s) to the catalog backup configuration.

The easiest way to do this is to run the Catalog Backup Configuration wizard to specify the media ID for the volume(s). For more information on this, refer to "Configuring Catalog Backups" on page 60.

3. Make a record of the media IDs you are using for catalog backups. Also attach a physical label to each tape, noting the media ID and that it is a NetBackup catalog backup tape. In the event of a problem which would necessitate that you restore your catalog, you will need to know the media ID of the most recent catalog backup tape.

Automatic Catalog Backups

◆ To a robotic library or a stacker:

If you have a robotic library or a stacker to handle your catalog backups and your regular backups, you should configure your catalog backups to run automatically after each regular backup session. Your storage device will automatically handle the swapping of your catalog backup tape(s).

◆ To a dedicated standalone tape drive:

If you have no robotic device, but have a second standalone tape drive, you may be able to minimize your tape swapping by dedicating that drive to doing only catalog backups.

◆ To a standalone tape drive:

If you have one standalone tape drive to perform both your catalog backups and your regular backups, you will need to swap tapes for your catalog backup after your regular backups complete, and vice versa, as described below.

▼ **To automatically back up the catalog using a standalone tape drive**

These instructions describe the physical steps required to support automatic catalog backups when the only device you have is a standalone drive. The following steps must be performed every day that a regular backup is scheduled to run.

1. Prepare your standalone tape drive for the *regular backups*.

❖ Insert a tape into the standalone drive.

When NetBackup attempts to do a regular scheduled backup, it first verifies that the standalone drive contains a tape that is available for a backup.

If NetBackup finds a tape available for regular backups, it continues with the backup process. If NetBackup finds an empty, unlabeled tape, it assigns a new media ID to the tape, labels the tape, and continues with the backup process.

If NetBackup does not find a tape that is available for regular backups, it issues a mount request for a specific tape. The backup pauses until the tape has been loaded into the standalone drive and the mount request has been satisfied. The mount request will appear in the Device Monitor utility. Insert the tape into the drive and assign the mount request by using the Device Monitor utility.

2. Prepare your standalone tape drive for the *catalog backup*.

   a. If the regular scheduled backup completes successfully, NetBackup will have issued a mount request for your catalog backup tape. (The request appears in the Device Monitor utility.)

      If your regular scheduled backup does not complete successfully, you should resolve the problem. After the next scheduled backup session completes successfully, NetBackup issues a mount request for your catalog backup tape.

   b. Remove the regular backup tape and store it in a safe place.

   c. Insert the tape requested for catalog backups into the standalone drive.

      In most cases, the mount request will be automatically assigned.

   d. When the mount request is satisfied, NetBackup begins your catalog backup.

3. Prepare your standalone tape drive for the regular scheduled backup.

   ❖ When the catalog backup has completed, remove the catalog backup tape from the drive and store it in a safe place.

Manual Catalog Backups (to a standalone tape drive)

Sometimes it is necessary to configure your catalog backups to run only when manually initiated. In particular, if you are using a standalone drive for both regular and catalog backups, you must insert the catalog backup tape before each catalog backup and remove it when the backup is done. If you will not be available to swap in the catalog backup tape after each regular backup session completes, then you cannot configure the catalog backup to run automatically you'll need to run your catalog backups on a manual basis.

Note If you are using a robotic library, you should *not* run your catalog backups on a manual basis only. If you forget to initiate a catalog backup, the disaster recovery procedure will be more complicated, should a disaster occur.

▼ **To manually back up the catalog**

These instructions describe how to manually back up the catalog.

1. Prepare the standalone drive for the regular scheduled backup. (This step is the same as step 1 under "Automatic Catalog Backups.")

2. Prepare for the catalog backup.

   a. Remove the regular backup tape.

   b. Insert the catalog backup tape.

3. Perform the catalog backup.

   a. From the Start menu, choose Backup "NetBackup Catalog."

   b. When the catalog backup has completed, remove the catalog backup tape from the drive and store it in a safe place.

Adding Volumes (Tapes) to the Media Manager Configuration

This section provides a brief introduction to methods for adding tapes to the Media Manager configuration. For a more detailed description, refer to the information about volumes in the *NetBackup BusinesServer Media Manager System Administrator's Guide - UNIX.*

The method you use to add tapes to the Media Manager configuration depends on how you are using the tape, as follows:

▼ **Adding volumes for tapes located in a robotic library**

1. Insert the tapes into the robotic library.

2. Run the Volume Configuration Wizard.

   or

   Perform the Update Volume Configuration procedure described in the *NetBackup BusinesServer Media Manager System Administration Guide - UNIX.*

During the update, Media Manager automatically assigns the media IDs and other attributes for the new tapes.

▼ **Adding volumes for tapes for standalone drives**

Tapes must be *manually loaded* into the standalone drive.

1. Insert an empty unlabeled tape into the drive.

2. Run the Volume Configuration Wizard.

or

The next time a tape of that type is needed for a backup, NetBackup will automatically assign a media ID to the tape, label the tape, and use it for the backup. Using this method, NetBackup will add the tape to the Media Manager configuration.

▼ **Adding volumes for tapes used for catalog backups**

Prior to using tapes for catalog backups, you must add the tapes to the Media Manager configuration and assign them for catalog backup. (The Catalog Backup wizard will help you assign the tapes.) You can also use the NetBackup `bplabel` command to label the media.

Configuring Catalog Backups

This section describes how to configure a backup of the catalog, referred to as a *catalog backup*. For more information on catalog backups, review the section titled "What are Backup Policies and Catalog Backups?" on page 2.

◆ Choose the media to use for catalog backups.

◆ Schedule the backups by using the Configure Catalog Backup wizard (see "Using the NetBackup Catalog Backup Wizard" on page 61).

Choosing the Media for Catalog Backups

Depending on the storage devices that are available, VERITAS recommends the following methods for backing up your catalog:

1. If you have a robot or a tape stacker, use this automated device to store your catalog backups. This is the easiest way to back up your catalog, because NetBackup automatically finds the volume if it is in a robot or tape stacker when the backup is started.

2. If you do not have a robot or tape stacker, but have an extra standalone storage device that you can devote to catalog backups, then use that device.

3. If you have only one standalone drive (no robot or tape stacker), the most convenient method is to send your catalog backups to a hard drive. The hard drive that you use for your catalog backup must be different from the hard drive where your catalog resides. By default, the catalogs are stored in the following locations, so if you use this method, the destination of your catalog backup must be on a different drive:

`/usr/openv/netbackup/db`

`/usr/openv/volmgr/database`

You can also back up the catalog to an NFS mounted file system or to a link to an NFS mounted file system that grants write access to the root user.

Caution The safest way to protect your data is to save all backups (including your catalog backup) to removable media and then move a full set of that media to offsite storage on a regular basis. A backup written only to disk will share risk with the computer(s) being backed up. A natural disaster (lightning, flood, fire, etc.) is more likely to destroy both your primary data and its backups if the backups are only on disk.

If the disks holding your catalog and your catalog backup are both destroyed, it will be much more difficult to recover your business data. Assuming the backups of your business data are on tape, recovering without the catalog

backup means manually importing all of your backup tapes to rebuild the catalog. This process takes time that you may not want to spend when you need to resume your business activities.

4. If you have only one standalone drive (no robot or tape stacker) and there is not enough space available on a different hard drive, you must back up your catalog to the same tape drive as the backups of your business data. This involves swapping tapes in and out of the drive each time the catalog is backed up. Swapping tapes is not convenient but is required, because NetBackup will not place catalog backups and regular backups on the same tape.

Choosing the Schedule for Catalog Backups

If you are sending your catalog backups to a robot or tape stacker, a second standalone tape drive, or to disk, choose either of the two automatic backups:

◆ After each session of scheduled, user, or manual backups.

   or

◆ After each session of scheduled backups.

If you must use a single standalone tape drive to back up both your catalog and your business data, choose one of the methods below. Both of these methods require you to swap tapes because NetBackup will not place catalog and regular backups on the same tape.

◆ If you will be running only one backup session per day or night, choose After each session of scheduled backups.

◆ If you will be running multiple backup sessions in a single day or night, choose Only when manually initiated.

Be certain to perform a manual catalog backup once a day or after every series of backups.

Caution	It is imperative that you back up your catalog often. If the catalog files are lost, you lose information about backups and configuration changes that were made between the time of the last catalog backup and the time that the disk crash occurred.

Using the NetBackup Catalog Backup Wizard

This wizard helps you to specify how NetBackup catalogs are backed up. You can start the wizard from the NetBackup Assistant.

If you are backing up to tape, note the following: *Before* using the Catalog Backup wizard, configure your storage devices and media as described in "Managing Storage Devices" on page 46. Make sure that you have one or two media IDs that have not yet been assigned for a regular backup and that belong to the NetBackup volume pool.

Tip	When you get to the wizard page labeled When to back up the catalog, make your selection based on the criteria specified in the text that appears when you press the More Information button.

How Do I Restore the Catalog Backups?

If the server crashes and you lose all of the information it contained, refer to the Disaster Recovery chapter of the *NetBackup Troubleshooting Guide - UNIX* for instructions on recovering the catalogs.

Configuring Backup Policies (Classes)

To use NetBackup for running regular backups of your data, you must configure at least one backup policy with appropriate clients, a file list, and schedules. Review the information contained in the section called "What are Backup Policies and Catalog Backups?" on page 2.

Note A backup policy (also called a class) is a set of parameters that defines how regular backups are performed for a group of one to four remote clients (eight with the Client Expansion pack) that have similar backup requirements. The server can also be specified as a client and will not count against the four remote client limit.

There are three ways to create a backup policy (class) from the graphical user interface:

◆ Using the wizard

◆ Copying and editing templates

◆ Manually, from scratch

Before creating a backup policy, configure your catalog backups as described in "Configuring Catalog Backups" on page 60.

Creating a Backup Policy from the Wizard

This wizard helps you to specify how NetBackup clients are backed up. Default settings are used to get you started as quickly and easily as possible.

If you want access to all available settings for the class, create a new class, or edit an existing class directly, as described in the following sections of this guide.

You can start the Backup Policy wizard from either of two places:

◆ From the NetBackup Assistant

   Click Create a Backup Policy.

◆ Backup Policy Management (Classes) utility

   a. Open the NetBackup Administration window (see "Start the NetBackup Administration Interface" on page 19), and click the Backup Policy Management icon. The Backup Policy Management (Classes) window appears.

   b. In the tree, select the server to which you want to add the new class.

c. From the Edit menu, select New. The following appears.

d. Type a unique class name in the box.

Use alphabetic (ASCII A-Z a-z), numeric (0-9), plus (+), minus (-), underscore(_), or period (.) characters. Do not use a minus as the first character or leave any spaces between characters.

e. Place a check mark in the Use add class wizard check box.

f. Click OK. The wizard appears.

To test the NetBackup configuration follow the instructions in "Test NetBackup Configuration Settings" on page 77.

After creating a class using the wizard, you can edit any of the class settings using the Backup Policy Management utility. This utility allows you to change all available settings for the class:

◆ Class attributes

◆ Client list

◆ File list

◆ Schedules and their attributes

Creating a Backup Policy by Copying and Editing Templates

If you installed NetBackup BusinesServer for the first time on your computer (this is not an upgrade), you were given the option of installing two sample template classes. You can use these templates as a starting point for creating your own custom classes.

1. Start the NetBackup administration interface as described in "Start the NetBackup Administration Interface" on page 19.

2. Click the Backup Policy Management icon. The Backup Policy Management (Classes) window appears.

3. Open the `template_normal` and `template_weekend` classes by clicking on them in the left pane of the window.
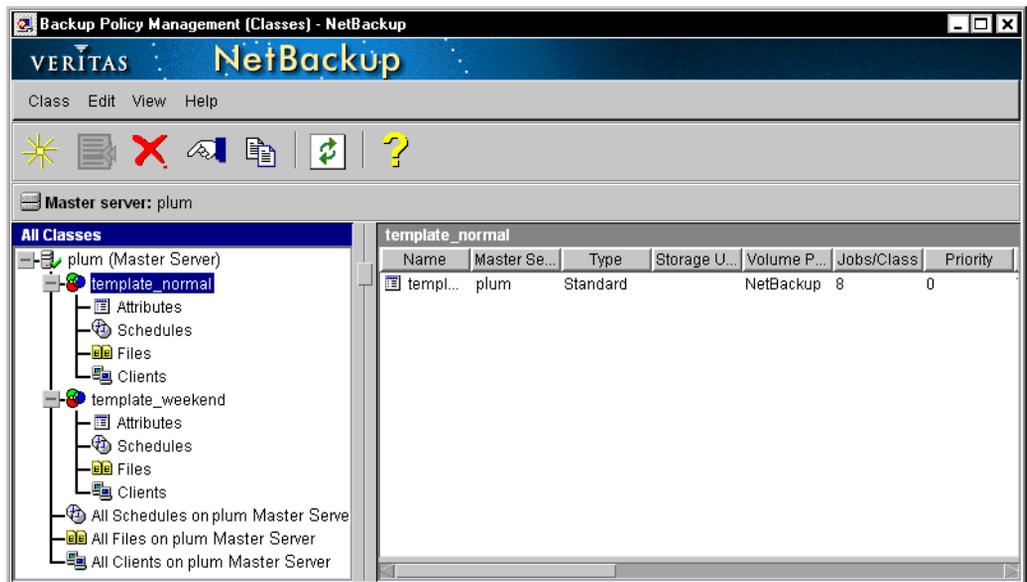
A class is the set of backup parameters for a group of one to four clients (plus the server if desired) that have similar backup requirements. As you can see in the tree view in the left pane of the window, each class consists of attributes, schedules, a list of files, and a list of clients. To configure or view the configuration for any of these items, double-click it in the tree. This opens a dialog box that shows the NetBackup settings for the selected item.

Take some time to explore the `template_normal` and `template_weekend` class templates. In particular, pay attention to the schedules provided in the templates. For most class configurations, you might be able to use modified versions of the example classes in these templates. To do this, use the Copy Class function to copy one of these template classes to a new class; then modify the class attributes, schedules, client list, and file list to meet your needs.

Creating a Backup Policy Manually, From Scratch

Although not the easiest way to create a backup policy, creating it manually gives you immediate access to all available settings for the class as you configure it for the first time. The following procedure describes how to configure a class manually.

1. Start the NetBackup administrator interface as described in "Start the NetBackup Administration Interface" on page 19.

2. Click the Backup Policy Management icon. The Backup Policy Management (Classes) - NetBackup window appears.
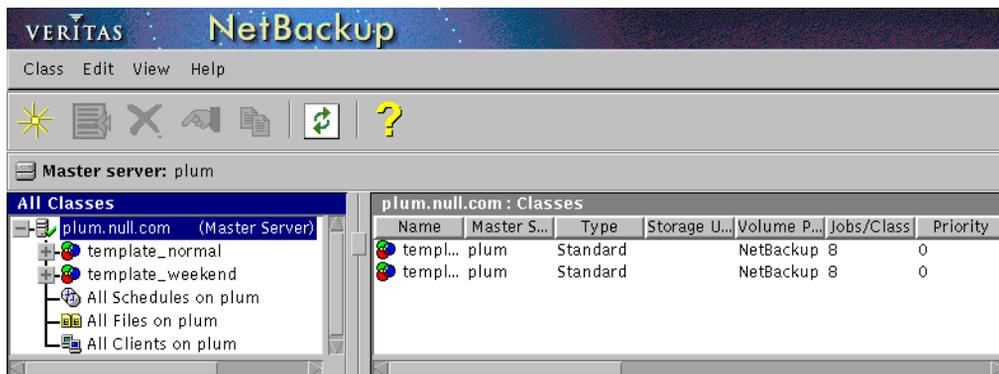
3. Select the server.

4. On the Edit menu, click New. The Add a New Class dialog box appears.
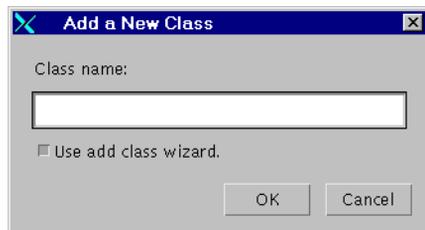
a. Type a unique name for the new class you are going to create. For this example, the class will be named **practice**.

b. Uncheck Use add class wizard.

c. Click OK.
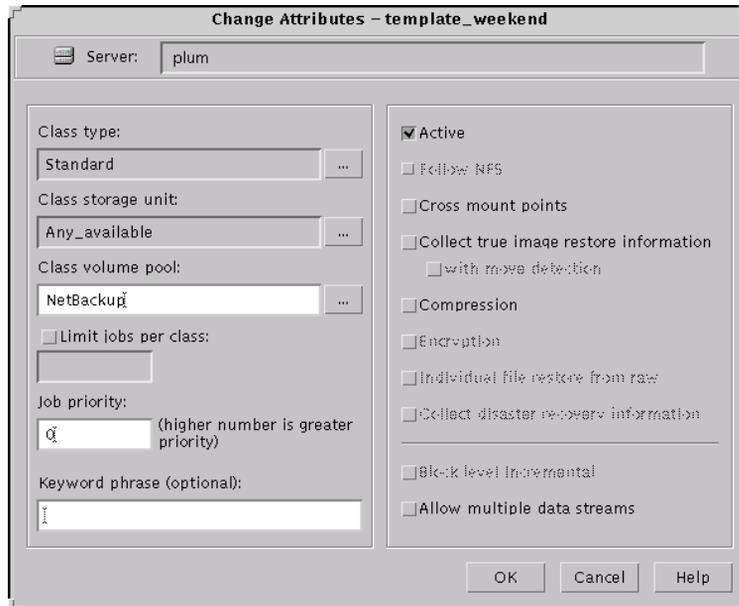
5. Enter the class type. Click on the "..." button to get the list of class types to choose from.
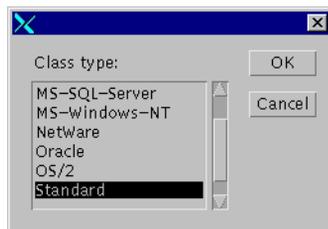
The following table explains when to use each class type.

Class	What will this class type back up?
Informix-On-BAR	Select this class type when you want to back up an Informix database on a UNIX client.
Lotus Notes	Select this class type when you want to back up clients that have the NetBackup for Lotus Notes option.Use when the class will have only NetBackup clients with the Lotus Notes option.
MS-Exchange	Select this class type when you want to back up an MS Exchange database on a Windows NT/2000 client.

Class	What will this class type back up?
MS-SQL-Server	Select this class type when you want to back up an MS-SQL Server database on a Windows NT/2000 client. Use when the class will have only NetBackup for MS-SQL Server clients.
MS-Windows-NT	Select this class type when you want to back up Windows NT/2000 client(s). Use when the class will have only NetBackup for Windows NT/2000 clients.
NetWare	Select this class type when you want to back up Novell NetWare clients that have the NonTarget version of NetBackup software.
NDMP	Select this class type when you want to back up clients that have NetBackup for NDMP option. Use when the class will have only NetBackup clients with the NDMP option.
Oracle	Select this class type when you want to back up an Oracle database on a UNIX or Windows NT/2000 client.
OS/2	Select this class type when you want to back up OS/2 Warp client(s). Use when the class will have only NetBackup for OS/2 clients.
Standard	Use when the class will have any combination of the following: ◆ Windows 98, 95, or 3.11 clients. ◆ Macintosh clients. ◆ NetBackup Novell NetWare clients that have the target version of NetBackup software. ◆ UNIX clients, except those covered by other special classes such as Oracle.
Sybase	Select this class type when you want to back up a Sybase database on a UNIX client.

6. If you want to control which storage unit to send the backups to, specify a storage unit for the class. (This setting can be overridden by each individual schedule in this class.)
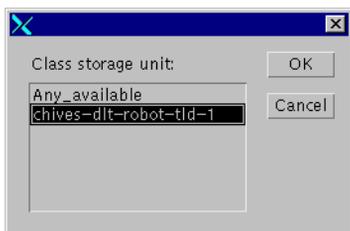
A storage unit is a group of one or more storage devices configured to back up data for NetBackup. Refer to "Storage Unit" on page 5 and "Managing Storage Units" on page 48 for more details.

7. Select the default volume pool for the class. This option is not available for Disk type storage units.
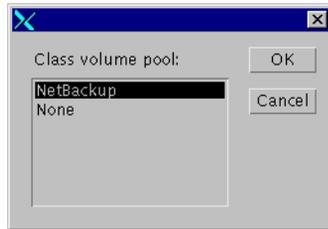
A volume pool is a set of volumes that are configured within Media Manager to be used by a single application, and that are protected from access by other applications and users.

8. If you wish to limit the number of concurrent backup jobs permitted for this class, check Limit jobs per class and type in the maximum number for this class.

9. Enter the job priority. The higher the number, the higher the priority. In other words, if you have several jobs scheduled to run at the same time, NetBackup will run the job with the highest priority first. So, if you have 10 classes and you want this class to have the highest priority, you may want to enter 10 or greater.

10. Enter a keyword phrase if you want to associate a phrase with all backups and archives for this class. (This keyword phrase can be overridden when the user initiates a backup from the Backup, Archive, and Restore utility.) The keyword phrase can make it easier for the user or the operator to identify the data needed when doing a restore.

11. Select the Active check box to activate the class.

12. Select Cross mount points if you want NetBackup to cross file system boundaries during a backup or archive on UNIX clients.

13. If you want the ability to perform true image recovery, select Collect true image restore information. This option restores the contents of a directory to what it was at the time of any scheduled full or incremental backup. Previously deleted files are ignored.

14. Select Compression to enable compression.

15. Select Allow multiple data streams to have automatic backup schedules start more than one backup stream for each client. For more information on multiple data streams, refer to the *NetBackup BusinesServer System Administrator's Guide - UNIX*.

16. Click OK to close the Change Attributes dialog box. The following message appears.
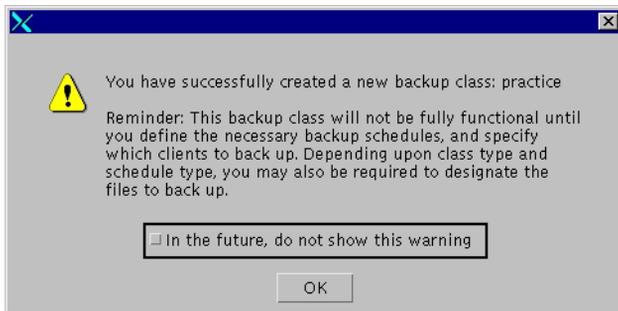
Click OK to close the Warning box.

Notice that the new class you created appears in the All Classes pane in the Backup Policy Management (Classes) - NetBackup window.
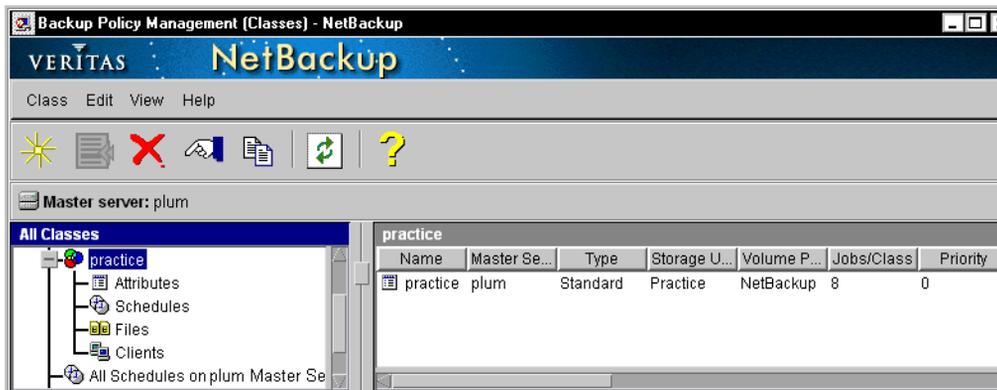
Also notice that the configuration settings you entered in the Change Attributes dialog box are displayed in the "practice" pane. Use the scroll bar at the bottom of the pane to view all settings.

Adding and Changing Schedules

Five types of backup schedules can be configured:

◆ Full Backup - NetBackup automatically backs up all user files and directories that you specify in the class file list. If you use incremental backups, you must also schedule full backups in order to perform a complete restore.

◆ Cumulative-Incremental Backup - NetBackup backs up all files that have changed since the last full backup. A complete restore in this instance requires the most recent full backup and the most recent cumulative incremental.

◆ Differential-Incremental Backup - NetBackup backs up all files that have changed since the last incremental or full backup. A complete restore in this instance requires the last full backup and all the differential incrementals that have occurred since the last full backup.

◆ User Backup - Allows users to back up their own files from the Backup, Archive, and Restore utility.

◆ User Archive - Allows users to archive their own files. An archive is different from a backup in that the backed up files are deleted from the user's disk if the backup is successful. This is useful for freeing disk space for files that must be saved but are infrequently accessed.

◆ Backup Policy - A backup type that applies to all database agent clients. For more information on configuring schedules for this type of backup, see the NetBackup guide that came with the product.

◆ Automatic Backup - An automatic backup for all database agent clients, except NetBackup for Oracle. For more information on configuring schedules for this type of backup, see the NetBackup guide that came with the product.

▼ **User Backup or User Archive schedules**

1. Double-click Schedules under your new class in the All Classes pane of the Backup Policy Management (Classes) window. The Add Schedule - Class practice dialog box opens.

2. Type a unique name for the schedule in the Name box.

Use alphabetic (ASCII A-Z a-z), numeric (0-9), plus (+), minus (-), underscore(_), or period (.) characters. Do not use a minus as the first character or leave any spaces between characters.

3. Select User Backup or User Archive from the Type of backup box.

4. For Retention, specify how long you want to keep the backups. For example, if you choose three months, you can restore the data from a backup that used this schedule for only three months after the backup. Because an archive operation deletes the original file from disk (after successfully backing it up), for User Archive schedules, it is usually best to set the Retention period to infinity.

It is important to note that, by default, NetBackup will not store backups with differing retention periods on the same tape. You can store backups with differing retention periods on the same tape by adding the ALLOW_MULTIPLE_RETENTIONS_PER_MEDIA option to your /usr/openv/netbackup/bp.conf file.

You should not do this, however, without first learning more about retention levels. Refer to the *NetBackup BusinesServer System Administrator's Guide - UNIX*.

If you would like to use a retention period that does not appear in the drop down list, you can redefine the available retention levels by using the NetBackup System Configuration option of the Configure menu on the NetBackup Administration window.

5. In the Media multiplexing box, specify the number of jobs from this schedule that NetBackup will multiplex onto any one drive.

6. To use a specific storage unit for backups done by this schedule, select Override class storage unit and select a storage unit from the list.

7. To use a specific volume pool for backups done by this schedule, select Override class volume pool and select a volume pool from the list.

8. For Schedule Start time and Duration, set the time of day during which you want to allow users to initiate backups using the Backup, Archive, and Restore utility. For example, if you set the Start time to 0800 and Duration to 12 hours, users can perform backups between 8 am and 8 pm.

9. To add more schedules, click Add and specify the next schedule. If you are done, click OK.

▼ **Full or Incremental Backup schedules**

1. Double-click Schedules under your new class in the All Classes pane of the Backup Policy Management (Classes) window. The Add Schedule - Class practice dialog box opens.

2. Type a unique name for the schedule in the Name box.

   Use alphabetic (ASCII A-Z a-z), numeric (0-9), plus (+), minus (-), underscore(_), or period (.) characters. Do not use a minus as the first character or leave any spaces between characters.

3. Select the desired backup type in the Type of backup box.

4. For the Frequency, set how often you would like this type of backup to run.

   For example, assume you choose a frequency of one week for full backups. If NetBackup successfully completes a full backup on Monday, it does not perform another one until the next Monday.

5. For the Retention, specify how long you want to keep the backups. For example, if you choose three months, you can restore the data from a backup done by this schedule for only three months after the backup.

   For full backups, *always* specify a time period that is *longer* than the frequency setting for the schedule. For example, if the frequency setting for a full backup is one week, then specify a retention period of two to four weeks. This leaves enough margin to ensure that the current full backup does not expire before the next successful full backup occurs.

   For cumulative incremental backups, always specify a time period that is longer than the frequency setting for the schedule. For example, if the frequency setting is one day, then specify a retention period of 3 - 5 days. This leaves enough margin to ensure that the current cumulative-incremental backup does not expire before the next successful one occurs. A complete restore requires the previous full backup plus the most recent cumulative-incremental backup.

For differential incremental backups, *always* specify a time period that is longer than the period between full backups. For example, if full backups occur weekly, then save the incrementals for two weeks. A complete restore requires the previous full backup plus all subsequent incrementals.

It is important to note that, by default, NetBackup will not store backups with differing retention periods on the same tape. You can store backups with differing retention periods on the same tape by adding the `ALLOW_MULTIPLE_RETENTIONS_PER_MEDIA` option to your `/usr/openv/netbackup/bp.conf` file.

You should not do this, however, without first learning more about retention levels. Refer to the *NetBackup BusinesServer System Administrator's Guide - UNIX*.

If you would like to use a retention period that does not appear in the drop down list, you can redefine the available retention levels by using the NetBackup System Configuration option of the Configure menu on the NetBackup Administration window.

6. In the Media multiplexing box, specify the number of jobs from this schedule that NetBackup can multiplex onto any one drive.

7. To use a specific storage unit for backups done according to this schedule, select Override class storage unit and select a storage unit from the list.

8. To use a specific volume pool for backups done by this schedule, select Override class volume pool and select a volume pool from the list. (For more information on volume pools, refer to the *NetBackup BusinesServer Media Manager System Administrator's Guide - UNIX*.)

9. For Schedule Start time and Duration, set the time of day during which you want to allow automatic backups to be initiated.

For example, if you know that the backup is going to take 2 hours to complete, and if you need the backup to finish by 6:00 AM, then the *start window* (the start time plus the duration) should end by 4:00 AM or sooner. Suppose that the backup was delayed due to competition for system resources. The last chance for this backup to run would be 4:00 AM. If system resources had not freed up by 4:00 AM, the backup would not be initiated until the next start window opened up (perhaps the following night).

10. To add more schedules, click Add and specify the next schedule. If you are done, click OK.

▼   **Other backup schedules**

For recommendations on settings for other types of schedules available for the Database Agents, for example, Automatic Backup and Backup Policy, refer to the appropriate manual for that Database Agent.

Change the File List

1. Double-click on Files under your new class in the All Classes pane of the Backup Policy Management (Classes) window. A dialog box appears where you can specify the files.

2. Type a file or directory name (or a directive).

    See "Rules for Backup File Paths" in the *NetBackup BusinesServer System Administrator's Guide - UNIX* for more information specifying file paths.

3. To make more additions, click Add to List and type the next filename, directory name, or directive. If this is the last file, click Add to File List.

Change the Client List

1. Double-click on Clients under your new class in the All Classes pane of the Backup Policy Management (Classes) - NetBackup window. A dialog box appears where you can specify the clients.

2. In the Client Name text box, type the name of the client that you are adding.

    Observe the following rules for assigning client names:

    ◆   If you put the client in multiple classes, use the same name in each class.

    ◆   The name must be a valid host name (one that you can use on the server to `ping` or `telnet` to the client).

    ◆   If the network configuration has multiple domains, use a more qualified name. For example, use mars.bdev.null.com or mars.bdev rather than just mars.

3. Click the Hardware and operating system list box and then select the appropriate entry in the list.

    Add only clients with hardware and operating systems that this class supports. For example, do not add a Novell NetWare client or a Windows 98 client to an MS-Windows-NT class.

    If the client's hardware and operating system is not in the list, it means that the associated client software is not installed on the server. Check the *NetBackup Release Notes* document to ensure that the hardware and operating system is a supported

client platform. Check the `/usr/openv/netbackup/client` directory for the directories and software corresponding to the client you are trying to install. If the directories or software are not there, rerun the installation script on the server and choose the option to install client software (see "How to Install NetBackup BusinesServer" on page 14).

4. If you are going to add more clients, click Add and specify the next client. If this is the last client, click OK.

Test NetBackup Configuration Settings

Caution	Configure your catalog backup before running any regular backups. If you do not do this, and if the disk on which your catalog is stored should fail, it will be much more difficult to restore your backups, and you will need to reconfigure your entire NetBackup configuration from scratch. Refer to "Configuring Catalog Backups" on page 60 for details on configuring a catalog backup.

The following procedure describes how to perform a test backup in order to test your configuration settings.

Note	If you have not yet installed NetBackup on your UNIX clients, do so now (see "Install Client Software Remotely" on page 28).

1. Prepare your media for a backup.

    ◆   If you have a robotic library which has unused tapes that are available for a regular backup, skip to step 2.

    ◆   If you have a robotic library that has no tapes available for a regular backup, add one or more tapes by following the procedure on page 58.

    ◆   If you have a standalone tape drive:

        ◆   If you have added new volumes (new media IDs) to the Media Manager configuration (you may have done this when you ran the Device Configuration wizard), and if these media IDs have never been written to a tape, then *remove all tapes from your tape drives*. This way, the Device Monitor utility will request one of the media IDs for the test backup, and when you mount the tape, it will be labelled with the appropriate media ID.

        ◆   If you have not added new volumes (new media IDs) to the Media Manager configuration, then insert a blank, unused tape or a previously used, expired NetBackup tape into a tape drive. If it is a blank unused tape, NetBackup will automatically generate a new media ID, label the tape, and proceed to use it.

2. Start the NetBackup administrator interface as described on "Start the NetBackup Administration Interface" on page 19.

3. Click the Backup Policy Management icon. The Backup Policy Management (Classes) window appears.

4. Select a class to back up. The class must:

    ◆   be active

    ◆   have a client defined

◆ have an "automatic" backup schedule—a schedule other than a user backup or archive
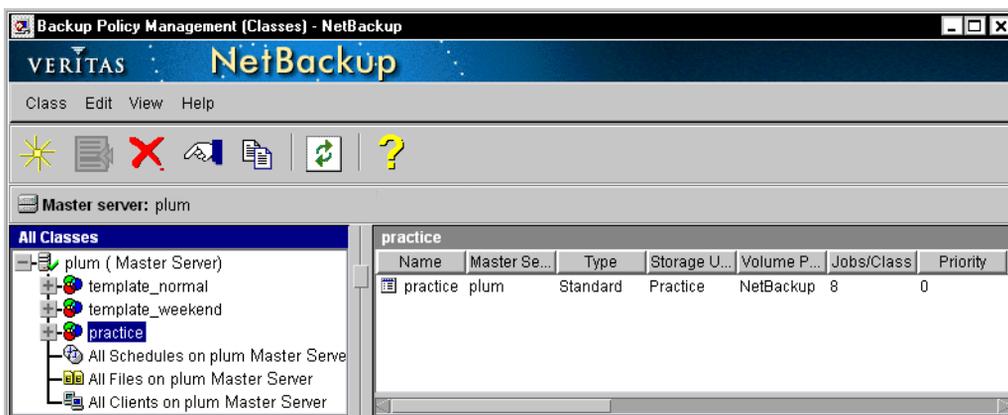
5. On the Class menu, click Manual Backup.
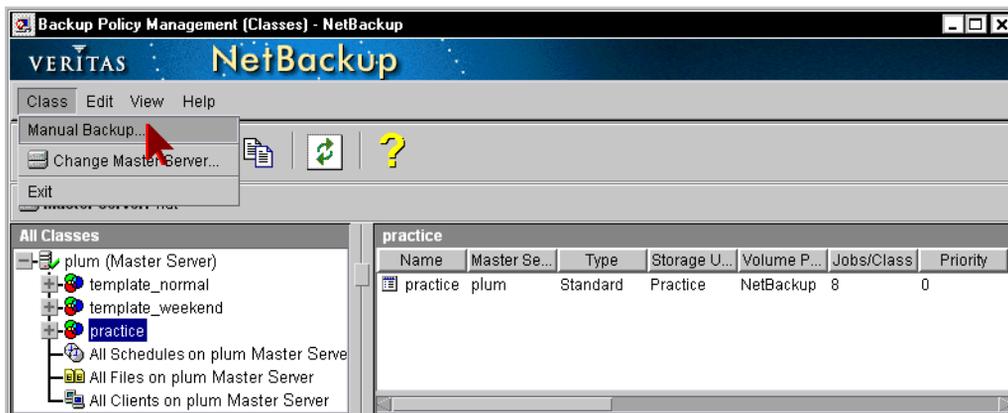
The Manual Backup dialog box appears.
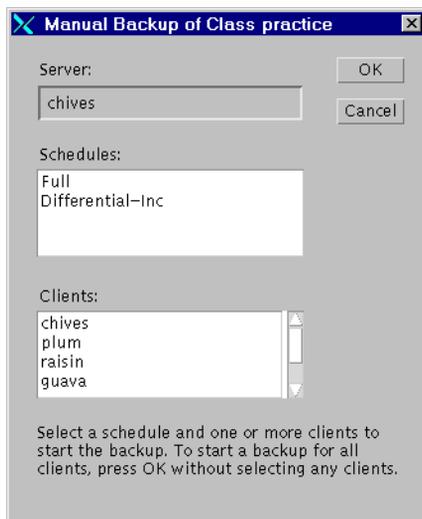
6. Follow the instructions in the dialog box.

7. Click the Activity Monitor icon in the NetBackup Administration window to open the Activity Monitor window.
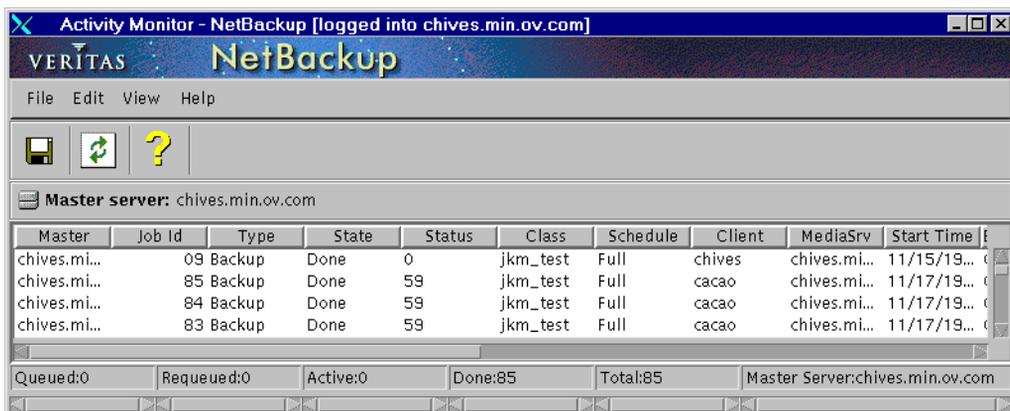
By default, this window is set to automatically refresh its contents every 60 seconds. You can either wait for the automatic refresh to display a line showing your test backup, or you can press the Refresh button on the toolbar until you see an entry in the list for your test backup.

When you see an entry in the list for your test backup, double-click on that entry to bring up the details for the backup job. Click on the Detailed Status tab to see the status output from the job. Again, you may want to click on the Refresh button to get newer information.

If you see that NetBackup is waiting for a mount request, bring up the Device Monitor utility by clicking on the Device Monitor icon in the NetBackup Administration window.

Configuring Automatic Email Notifications

For General Notification

For the administrator to receive notifications of scheduled backups, administrator-directed manual backups, and NetBackup Catalog backups, do the following. (The notification of Catalog backups includes the media ID that was used.)

1. On the server's NetBackup Administration window, select NetBackup System Configuration from the Configure menu. The following appears:
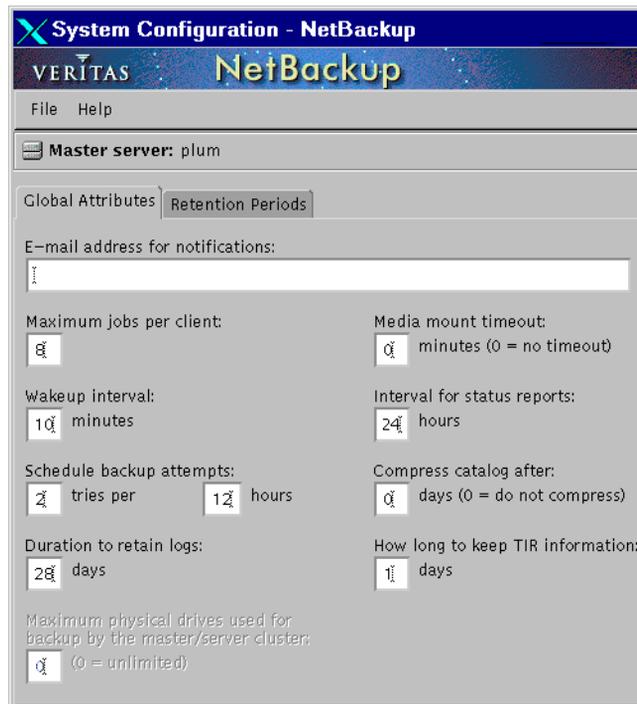
2. Type the email address for the NetBackup system administrator.

For Notification of Client/User-Directed Activity on UNIX Clients

You can configure NetBackup to send out email notification of client and user-directed activity that was performed by UNIX clients.

Do this by adding USEMAIL entries to the /usr/openv/netbackup/bp.conf file and the user's personal bp.conf files on the client.

◆ If a client's `/usr/openv/netbackup/bp.conf` file specifies an address, NetBackup sends the status of automatic and manual backups to that address.

◆ If a user's personal `bp.conf` file specifies an email address, NetBackup sends status on the success or failure of user-directed operations to that address. Each user can have a personal `bp.conf` file in their home directory.

The following is an example USEMAIL entry:

```
USEMAIL=jdoe@null.com
```

Note that there is no equivalent option for Windows NT/2000 clients.

Running Reports

NetBackup provides a comprehensive set of reports for verifying, managing, and troubleshooting backup operations. To view the reports, click the Reports icon in the NetBackup Administration window. The Reports window appears.
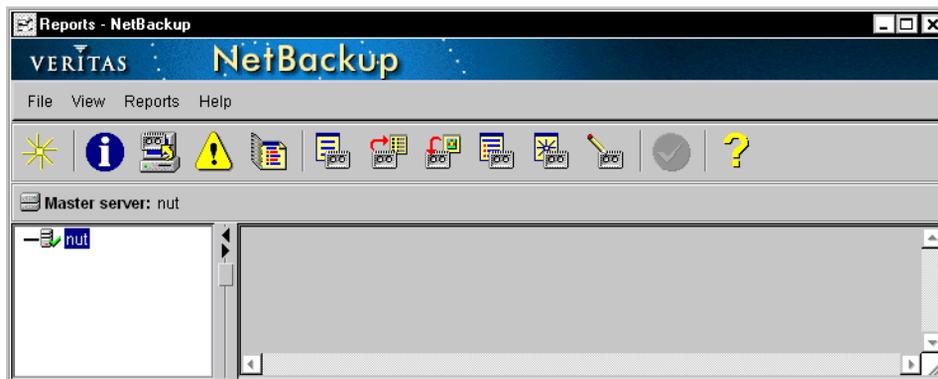
Report	Icon	Description
Status of Backups		Status and error information on backups completed within the specified time period.
Client Backups		Detailed information on backups completed within the specified time period.
Problems with Backups		Problems that the server has logged during the specified time period. This information is a subset of the information you get from the All Log Entries report.

Report	Icon	Description
All Log Entries		All log entries for the specified time period. This report includes the information from the Problems report and Media Logs report.
Media Lists		Information for either a single or all media IDs in the NetBackup media catalog. This report does not apply to disk storage units.
Media Contents		Contents of media as read directly from the media. This report lists the backup IDs that are on a single media ID (not each individual file). This report does not apply to disk storage units.
Images on Media		Contents of the media as recorded in the NetBackup file catalog. You can use this option for any type of storage unit, including disk.
Media Logs		Media errors that are recorded in the NetBackup error catalog. This information is a subset of the information in the All Log Entries report.
Media Summary		Summary of active and nonactive media, grouped according to expiration date. The report shows the expiration date for the media and the number of media at each retention level.
Media Written		Removable media that has been used for backups within the specified time period. This report shows media used for duplication only if the original backup was created prior to the specified time period.

Note If you need more detailed information than is in the reports, you can enable detailed activity logging as explained in the *NetBackup Troubleshooting Guide - UNIX*.

Configuring the Server to Allow Alternate Client Restores

It is sometimes necessary to restore files to a client other than the one that originally backed up the files. The client that did not back up the files is called the *alternate client* and the operation is called an *alternate-client restore*.

For security reasons, NetBackup normally prevents alternate-client restores. However, the user interfaces on NetBackup clients have options for performing these types of restores and can do so if the NetBackup server is configured to allow it. This configuration consists of adding files to the /usr/openv/netbackup/db/altnames directory on the server. The *NetBackup BusinesServer System Administrator's Guide - UNIX* provides detailed instructions for setting up these files.

Caution The /usr/openv/netbackup/db/altnames directory presents a potential breach of security, because it permits users to select and restore files from other clients, if those users have the permissions to locally create the files found in the backup.

The following illustrates how a NetBackup client can request a copy (restore) of files that had been backed up for a different client. In this example, the Sales Rep asks the NetBackup server to send a copy of R&D's files to the sales rep computer. The sales rep computer is called the alternate client.

Sales Rep's Computer is alternate client.

R&D Computer

2, BusinesServer sends copies of R&D's backup files to the sales computer.

1, Sales rep requests a "restore" (copy) of R&D's regular backup files.

Regular backups for R&D are stored on NetBackup BusinesServer.

NetBackup BusinesServer

Backups for R&D files are stored here.
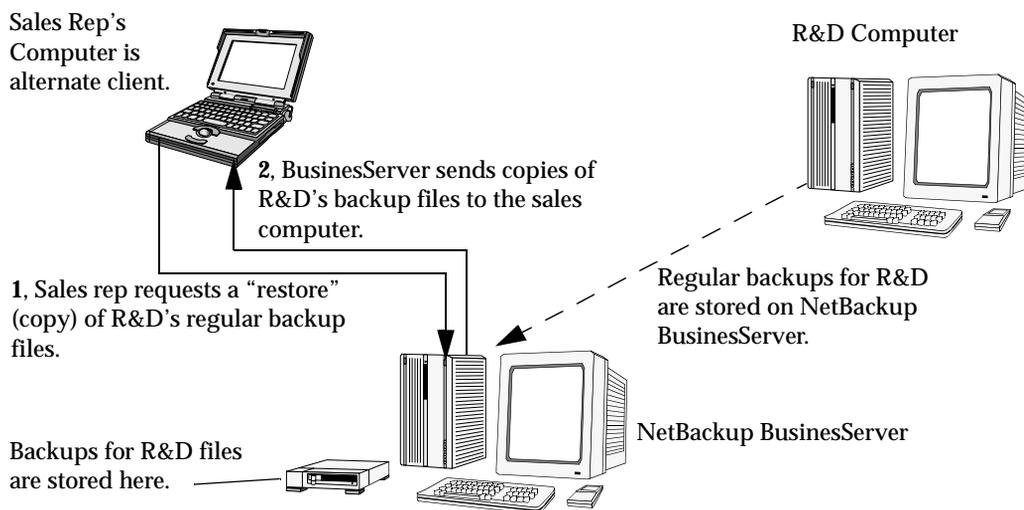
How to Use the NetBackup Client Interface

One of the more powerful features of the NetBackup BusinesServer is the ability to allow a user, working on a remote NetBackup client, to back up, archive, and restore files, folders, and the registry on their local computer.

Windows 95/98/2000/NT 4.0

This section contains quick-start instructions for the NetBackup for Windows interface. Refer to the *NetBackup User's Guide - Microsoft Windows* for further details.

How to Start the Interface

From the Windows Start menu, click Programs, VERITAS NetBackup, NetBackup Client. The NetBackup client interface appears.

How to Back Up

1. Click Select for Backup.

2. Mark a file or folder to back up, drilling down in the tree as necessary. To mark an item for backup, place a check mark in the item's check box (you can click the box when the cursor becomes a hand).
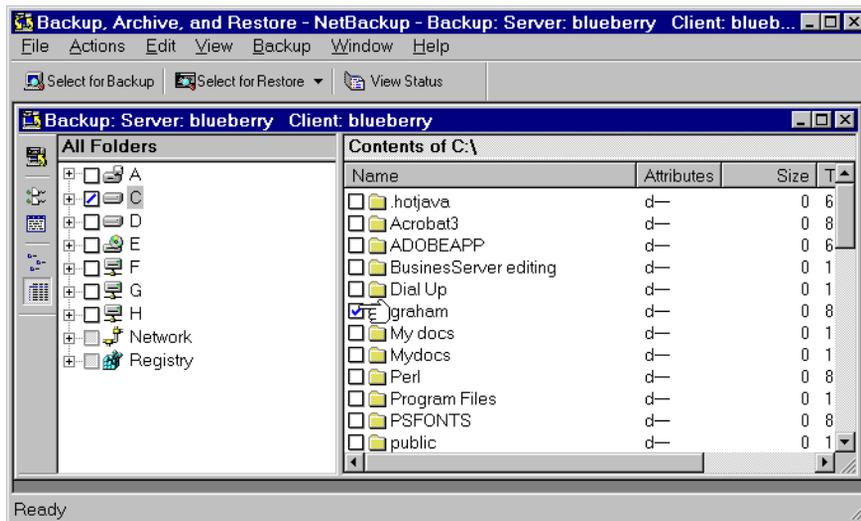
3. From the Backup menu, click Start Backup of Marked Files.

4. Click Start Backup in the Backup Marked Files dialog box.

When the backup starts, you may choose to view its progress.

How to Restore

1. Click the down arrow next to Select for Restore ⬛Select for Restore ▼ , and choose Restore from Backup.

2. Mark a file or folder to restore, drilling down in the tree as necessary. Be sure to place a check mark in the item's check box (you can click the box when the cursor becomes a hand).
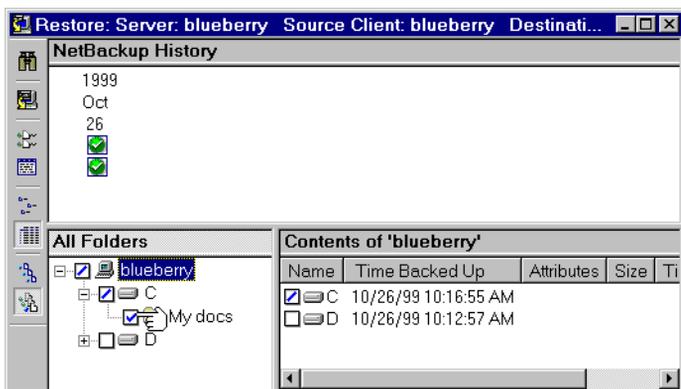
3. From the Restore menu, click Start Restore of Marked Files.

4. Select Overwrite the existing file from the Restore Options area of the Restore Marked Files dialog box.

5. Click the Start Restore button.

NetWare Target

This section contains quick-start instructions for the NetBackup for Novell Netware - Target interface. Refer to the *NetBackup User's Guide Target Version - Novell NetWare* for further details.

How to Start the Interface

From the NetWare file server console, load `bp.nlm`. The NetBackup client interface appears.

How to Back Up

1. Type **b** (User Directed Backup) at the main menu.

2. Check that the NetBackup server and target names are correct.

3. Type **b** (Initiate Backup).

4. Type **y** to initiate the backup.

How to Restore

1. Type **r** (Restore Backups) at the main menu.

2. Check that the Path, Start Date and End Date, Master Server, Browse Client, and Browse Target fields are correct.

3. Type **s** to search the backup history.

4. Select the files and directories you want to restore, then type **o** (for OK).

5. Type **r** to initiate the restore.

6. Answer the prompts.

   a. Type **y** to overwrite.

   b. Type **y** for a progress log.

   c. Type **y** to send the restore request to the server.

NetWare NonTarget

This section contains quick-start instructions for the NetBackup for Novell Netware - NonTarget interface. Refer to the *NetBackup User's Guide NonTarget Version - Novell NetWare* for more details.

How to Start the Interface

From the Start menu, click Programs, VERITAS NetBackup, NetBackup for NetWare. The NetBackup client interface appears.

How to Back Up

1. Click Backup Files and Folders on the Actions menu.

2. Double-click the SDMR.

3. Double-click the TSA.

4. Double-click the target.

5. Enter your user name and password, then press OK.

6. Mark a file or folder to back up in the NetBackup Backup window.

7. Click Backup Marked Files on the Backup menu.

8. Click Start Backup in the Backup Marked Files dialog box.

How to Restore

1. Click Restore, then Restore from Backup on the Actions menu.

2. Mark a file or folder to restore from the NetBackup Restore window.

3. Click Restore Marked Files on the Restore menu.

4. Enter your user name and password, then press OK.

5. Select Overwrite the existing file in the Restore Marked Files dialog box.

6. Click Start Restore in the Restore Marked Files dialog box.

Macintosh

This section contains quick-start instructions for the NetBackup for Macintosh interface. Refer to the *NetBackup User's Guide - Macintosh* for details.

How to Start the Interface

1. Double-click the Macintosh hard disk icon.

2. Double click the NetBackup application icon in the NetBackup Browser folder.

How to Back Up

1. Click Choose Files to Backup or Archive.

2. Mark the file or folder you want to back up from the Backup or Archive Files window.

3. Click Start Backup.

4. Select Backup the Items Marked.

5. Click Start Backup.

How to Restore

1. Click Choose Files to Restore.

2. Mark the file or folder you want to restore.

3. Click Start Restore.

4. Select Overwrite Existing files.

5. Click Start Restore.

OS/2 Warp

NetBackup for OS/2 Warp does not have a GUI or a command line interface. User level operations are not possible from the OS/2 Warp console. Start all operations from the server.

UNIX

This section contains quick-start instructions for the Java user interface. For further details, refer to the *NetBackup User's Guide - UNIX*.

Note This interface is only available on supported Solaris and HP clients. For information on other types of UNIX clients, refer to the instructions on using the xbp interface in the *NetBackup User's Guide - UNIX*.

How to Start the Interface

1. Log in on the UNIX NetBackup computer where you are going to start the Backup, Archive, and Restore interface.

2. Start the Backup, Archive, and Restore interface by executing:

   `/usr/openv/netbackup/bin/jbpSA &`

   For additional usage information enter: **jbpSA -h**.

   The Login dialog box appears.

3. Type the name of the client where you want to perform the backup, archive, or restore.

   You must have a valid user account on that client, and have access to that client.

4. Specify the user name.

   ◆ For UNIX clients, type the client name.

   ◆ For Windows clients, type the domain and client name, using the format **domain\username**, for example:

   ourcompany\gla

5. Specify the password.

6. Click Login.

   The Backup, Archive, and Restore - NetBackup window appears.

How to Back Up

1. Click on the Backup Files tab.

2. Mark the file or files to back up.

3. Start the Backup operation by clicking Backup.

4. The Backup Files dialog box will appear.

5. To associate a keyword phrase with the backup or archive, type a keyword or phrase into the Keyword phrase to associate with this backup or archive box. You can then search for that keyword or phrase if you wish to restore this specific backup or archive.

   ◆ To delete the file after it has been backed up, select Archive files.

   ◆ To remove a file from the list of files to back up, select the file and click Remove from list.

6. Click Start Backup to begin the backup operation.

7. The NetBackup operation may take a few minutes to complete. You will be prompted to view the status of the backup operation. Click Yes to open the Task Progress tab.

How to Restore

1. Click on the Restore Files tab.

2. From the Type of Backup drop-down list, select the type of restore to perform.

3. Select the folder or file to restore.

4. Click Restore.

5. Click Start Restore to begin the restore operation.

6. You will be prompted to view the status of the restore operation. Click Yes to open the Task Progress tab.

Troubleshooting 5

This section contains a troubleshooting procedure for NetBackup BusinesServer. There is also an introduction to the NetBackup Troubleshooter wizard. See the *NetBackup Troubleshooting Guide - UNIX* for a detailed description of error codes and problem resolutions.

Troubleshooting Procedure

1. If a backup or restore has failed, use the Troubleshooter wizard (or the *NetBackup Troubleshooting Guide - UNIX*) to determine where the problem is (client related, server related, network related, and so on). Refer to "Troubleshooter Wizard" on page 95 for instructions on using the wizard.

    Note that the *NetBackup Troubleshooting Guide - UNIX* contains additional information not included in the wizard.

2. Ensure that NetBackup supported configurations are used.

    Check server and client platform and OS versions. Also check the robot and drive firmware levels.

3. Ensure that the NetBackup client and server are at the current patch level. Check the VERITAS support site to see if any patches exist that describe the problem being encountered. Support information can be obtained from:

    www.veritas.com

4. If the problem still has not been resolved, refer to the VERITAS support web site and search for a TechNote that could help resolve the problem. You can find the TechNotes at:

    seer.support.veritas.com/srchengine/techsearch.asp?ddProduct=NetBackup

5. As the final step in trying to resolve the problem, call VERITAS Customer Support:

    US and Canadian Customers: 1-800-342-0652

    International Customers: +1-650-335-8555

Troubleshooter Wizard

This wizard helps you troubleshoot NetBackup BusinesServer. Refer to the *NetBackup Troubleshooting Guide - UNIX* for more details on troubleshooting NetBackup.

Accessing the Troubleshooter Wizard

You can open the Troubleshooter Wizard from the Activity Monitor window.

1. Select a job which has a non-zero value in the Status column, as shown below.

2. Open the Help menu and click Troubleshooter. The Troubleshooter Wizard opens.

Using the Troubleshooter Wizard

Use the Troubleshooter wizard to diagnose and resolve the problem that caused the job to fail. After you have attempted to resolve the problem, you can either wait until the class that invoked this job tries it again, or you can start an immediate, manual backup of the class. Refer to "Test NetBackup Configuration Settings" on page 77 for more details.

A menu on the Troubleshooter wizard (shown below) lets you select UNIX or Windows NT/2000 error code descriptions (Context of Messages). The default setting is the platform type of your NetBackup server.
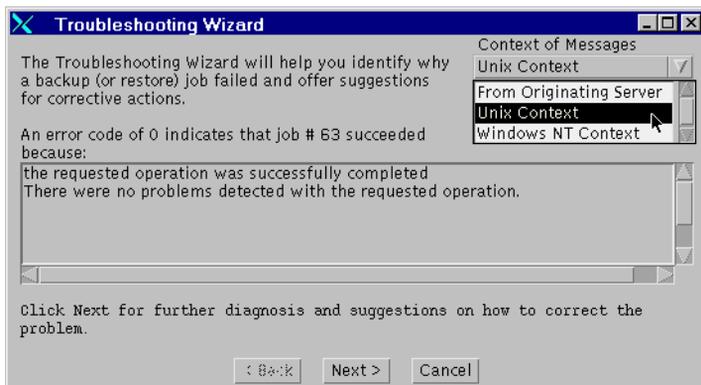
Related Documents A

This appendix lists and describes the technical manuals that pertain to NetBackup.

The CD-ROM for each NetBackup product has a copy of the related manuals in Adobe Portable Document Format (PDF). The PDF files are either in the root directory or the `Docs` directory on the CD-ROM.

To view the PDF copies of the manuals, you need an Adobe Acrobat reader, which you can download from the Adobe website at `www.adobe.com`. VERITAS assumes no responsibility for the correct installation or use of the reader.

Release Notes

NetBackup Release Notes

Provides important information about NetBackup software, such as the platforms and operating systems that are supported and operating notes that may not be in the manuals or the online help.

Getting Started Guides

NetBackup BusinesServer Getting Started Guide - UNIX

Explains how to get UNIX NetBackup BusinesServer software installed and running.

Getting Started Cards

◆ *NetBackup FastBackup - Getting Started Card*

Provides installation requirements and instructions for NetBackup FastBackup on an Auspex platform.

◆ *NetBackup BusinesServer Getting Started Card - UNIX*

Provides installation requirements and instructions for NetBackup BusinesServer on UNIX servers.

Installation Guides

◆ *NetBackup Installation Guide - PC Clients*

Explains how to install NetBackup PC client software. The PC clients are Windows 2000, Windows NT, Windows 95, Windows 98, Macintosh, OS/2 Warp, and Novell NetWare.

◆ *NetBackup DataCenter Installation Guide - UNIX*

Explains how to install NetBackup DataCenter software.

System Administrator's Guides - Basic Product

◆ *NetBackup DataCenter System Administrator's Guide - UNIX*

Explains how to configure and manage NetBackup DataCenter on a UNIX system.

◆ *NetBackup BusinesServer System Administrator's Guide - UNIX*

Explains how to configure and manage NetBackup BusinesServer on a UNIX server.

◆ *NetBackup DataCenter Media Manager System Administrator's Guide - UNIX*

Explains how to configure and manage the storage devices and media on UNIX servers running NetBackup DataCenter. Media Manager is part of NetBackup.

◆ *NetBackup BusinesServer Media Manager System Administrator's Guide - UNIX*

Explains how to configure and manage the storage devices and media on UNIX servers running NetBackup BusinesServer. Media Manager is part of NetBackup BusinesServer.

System Administrator's Guides - Agents and Options

◆ *NetBackup for DB2 on UNIX System Administrator's Guide*

Explains how to install, configure, and use NetBackup for DB2 on UNIX.

For this product, you may also need the following manuals from IBM:

IBM DB2 Universal Database Extended Enterprise Edition for AIX Quick Beginnings for DB2 Extended Enterprise Edition

API Ref IBM DB2 Universal Database API Reference Version 5

Guide IBM DB2 Universal Database Administration Guide Version 5

Cmd Ref IBM DB2 Universal Database Command Reference

◆ *NetBackup for DB2 on Windows NT System Administrator's Guide*

Explains how to install, configure, and use NetBackup for DB2 on Windows NT.

For this product, you may also need the following manuals from IBM:

IBM DB2 Universal Database Extended Enterprise Edition for AIX
Quick Beginnings for DB2 Extended Enterprise Edition

API Ref IBM DB2 Universal Database API Reference
Version 5

Guide IBM DB2 Universal Database Administration Guide
Version 5

Cmd Ref IBM DB2 Universal Database Command Reference

◆ *NetBackup for EMC System Administrator's Guide*

Explains how to install, configure, and use NetBackup for EMC.

◆ *NetBackup Encryption System Administrator's Guide*

Explains how to install, configure, and use NetBackup encryption software to provide file-level encryption of backups and archives.

◆ *NetBackup FlashBackup System Administrator's Guide*

Explains how to install, configure, and use NetBackup FlashBackup. The FlashBackup product combines the increased performance of raw-partition backups with the ability to do individual file restores.

◆ *NetBackup for Informix System Administrator's Guide*

Explains how to install, configure, and use NetBackup for Informix to back up and restore Informix databases that are on a UNIX NetBackup client.

For this product, you may also need the following manual from Informix Software Incorporated:

Informix-Online Dynamic Server Backup and Restore Guide

◆ *NetBackup for Lotus Notes on Windows NT System Administrator's Guide*

Explains how to install, configure, and use NetBackup for Lotus Notes to back up and restore Lotus Notes databases and transaction logs.

◆ *NetBackup for Lotus Notes on UNIX System Administrator's Guide*

Explains how to install, configure, and use NetBackup for Lotus Notes to back up and restore Lotus Notes databases and transaction logs.

◆ *NetBackup for Microsoft Exchange Server System Administrator's Guide*

Explains how to configure and use NetBackup for Microsoft Exchange Server to perform online backups and restores of Microsoft Exchange Server.

You may also need the following resources from Microsoft Corporation:

Microsoft Exchange Server whitepapers and FAQs (go to
`http://www.microsoft.com/exchange` and search for "Disaster Recovery")

Microsoft Exchange Administrator's Guide

Microsoft Exchange Concepts and Planning Guide

Microsoft TechNet

Microsoft BackOffice Resource Kit

`http://www.msexchange.org`

◆ *NetBackup for Microsoft SQL Server System Administrator's Guide*

Explains how to install, configure, and use NetBackup for Microsoft SQL Server to
back up and restore Microsoft SQL Server databases and transaction logs.

For this product, you may also need the following manual from Microsoft
Corporation:

Administrator's Companion - Microsoft SQL Server

◆ *NetBackup for NCR Teradata System Administrator's Guide*

Explains how to install, configure, and use NetBackup for NCR Teradata to back up
and restore NCR Teradata databases and transaction logs.

◆ *NetBackup for NDMP System Administrator's Guide*

Explains how to install, configure, and use NetBackup for NDMP to control backups
on an NDMP host.

◆ *NetBackup for Oracle on UNIX System Administrator's Guide*

Explains how to install, configure, and use NetBackup for Oracle to back up and
restore Oracle databases that are on a UNIX NetBackup client.

For this product, you may also need the following manuals from Oracle Corporation:

Oracle7 Enterprise Backup Utility Installation and Configuration Guide

Oracle7 Enterprise Backup Utility Administrator's Guide

Oracle7 Server Administrator's Guide

Oracle8 Server Backup and Recovery Guide

Oracle8 Server Administrator's Guide

◆ *NetBackup for Oracle on Windows NT System Administrator's Guide*

Explains how to install, configure, and use NetBackup for Microsoft Oracle to back up
and restore Oracle databases that are on a Windows NT/2000 NetBackup Client.

For this product, you may also need the following manuals from Oracle Corporation:

Oracle7 Enterprise Backup Utility Installation and Configuration Guide

Oracle7 Enterprise Backup Utility Administrator's Guide

Oracle7 Server Administrator's Guide

Oracle8 Server Backup and Recovery Guide

Oracle8 Server Administrator's Guide

◆ *NetBackup for Oracle - Advanced BLI Extension System Administrator's Guide*

Explains how to install, configure, and use NetBackup for Oracle Advanced BLI Agent to back up and restore Oracle databases that are on a UNIX NetBackup client.

For this product, you may also need the following manuals from Oracle Corporation:

Oracle Enterprise Manager Administrator's Guide

Oracle8 Server Backup and Recovery Guide

For this product, you may also need the following manuals from VERITAS Software:

Database Edition for Oracle Administrator's Guide

Storage Edition for Oracle Administrator's Guide

NetBackup for Oracle - Advanced BLI Agent for Backups without RMAN System Administrator's Guide

◆ *NetBackup for Oracle - Advanced BLI Agent for Backups without RMAN System Administrator's Guide*

Explains how to verify NetBackup for Oracle Advanced BLI Agent for Backups Without RMAN.

For this product, you may also need the following manuals from Oracle Corporation:

Oracle Enterprise Manager Administrator's Guide

Oracle8 Server Backup and Recovery Guide

For this product, you may also need the following manuals from VERITAS Software:

Database Edition for Oracle Administrator's Guide

Storage Edition for Oracle Administrator's Guide

NetBackup for Oracle - Advanced BLI Extension System Administrator's Guide

◆ *NetBackup Plus Module for TME 10 System Administrator's Guide*

Explains how to install, configure, and use NetBackup / Plus Module for TME 10 to manage NetBackup in the Tivoli Management Environment TM (TME) rather than through the standard NetBackup administrator interfaces.

◆ *NetBackup for SAP on UNIX System Administrator's Guide*

Explains how to install, configure, and use NetBackup for SAP on UNIX.

For this product, you may also need the following manuals from Oracle Corporation:

Oracle Enterprise Backup Utility Installation and Configuration Guide

BC SAP Database Administration : Oracle

You may also need the following manual from SAP AG:

BC-BRI BACKINT Interface R/3 System, Release 3.0

◆ *NetBackup for SAP on Windows NT System Administrator's Guide*

Explains how to install, configure, and use NetBackup for SAP on Windows NT ⁄ 2000.

For this product, you may also need the following manuals from Oracle Corporation:

Oracle Enterprise Backup Utility Installation and Configuration Guide

BC SAP Database Administration : Oracle

You may also need the following manual from SAP AG:

BC-BRI BACKINT Interface R/3 System, Release 3.0

◆ *NetBackup for SYBASE System Administrator's Guide*

Explains how to install, configure, and use NetBackup for SYBASE to back up and restore Sybase databases that are on a UNIX NetBackup client.

For this product, you may also need the following manuals from SYBASE Incorporated:

SYBASE SQL Server Utility Programs for Unix

SYBASE SQL Server Administration Guide

User's Guides

◆ *NetBackup User's Guide - Macintosh*

Explains how to use NetBackup on a Macintosh client to perform backups, archives, and restores. This guide also contains some configuration instructions for the NetBackup client software.

◆ *NetBackup User's Guide - Microsoft Windows*

Explains how to use NetBackup on a Windows 2000, Windows NT, Windows 95, or Windows 98 client to perform backups, archives, and restores. This guide also contains some configuration instructions for the NetBackup client software.

◆ *NetBackup User's Guide NonTarget Version - Novell NetWare*

Explains how to use NetBackup nontarget software on a Novell NetWare server to perform backups and restores. The nontarget version of NetBackup has a Microsoft Windows interface. This guide also contains some configuration instructions for the NetBackup client software.

◆ *NetBackup User's Guide Target Version - Novell NetWare*

Explains how to use NetBackup target software on a Novell NetWare server to perform backups and restores. The target version of NetBackup has a menu driven interface that runs under DOS. This guide also contains some configuration instructions for the NetBackup client software.

◆ *NetBackup BusinesServer User's Guide - OS/2 Warp*

Explains how to use NetBackup on an IBM OS/2 Warp client to perform backups and restores. This guide also contains some configuration instructions for the NetBackup client software.

◆ *NetBackup User's Guide - UNIX*

Explains how to use NetBackup on a UNIX client to perform backups, archives, and restores.

Device Configuration Guide - Media Manager

◆ *NetBackup Media Manager Device Configuration Guide*

Explains how to add device drivers and perform other system level configuration for storage devices that are supported by NetBackup DataCenter and NetBackup BusinesServer Media Manager on UNIX hosts.

Troubleshooting Guides

◆ *NetBackup Troubleshooting Guide - UNIX*

Provides troubleshooting information for UNIX based NetBackup products.

Uninstall NetBackup BusinesServer and Clients

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This appendix gives instructions for uninstalling NetBackup BusinesServer software.

How to Uninstall BusinesServer (Solaris)

1. Log in 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. Execute the uninstall script:

```
pkgrm SUNWnetbp SUNWmmgr
```

5. Answer **no** to the "Is this an upgrade?" prompt.

6. Answer **yes** to remove non-empty directories.

7. Replace the `/etc/services` file with `/etc/services_`*mmddyy.hh:mm:ss* file, where *mmddyy.hh:mm:ss* is the date and time of the original install.

8. Replace the `/etc/inetd.conf` file with `/etc/inetd.conf.NB_MM.`*version*, where *version* is the version of the original install.

9. Execute the following shell commands to cause `inetd` to read the updated `inetd.conf` file.

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

Run the kill command as follows. The process ID is the first number displayed in the output from the `ps` comamnd.

```
kill -1 process ID
```

The ps command options may vary from one client platform to another.

10. Remove the following files:

```
rm -f /etc/rc2.d/S77netbackup
rm -f /etc/rc0.d/K77netbackup
```

11. Execute the following command to remove the NetBackup-Java application state data for the root account:

```
/bin/rm -rf /.nbjava
```

12. Inform NetBackup-Java users that they can remove their $HOME/.nbjava directory.

The $HOME/.nbjava directory contains application state information (for example, table column order and size) that is saved when the user exits NetBackup-Java applications. The uninstall process removes this directory for the root user only.

How to Uninstall BusinesServer (HP)

1. Log in 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. Remove the /usr/openv directory:

If /usr/openv is a physical directory, execute:

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

If /usr/openv is a link, execute:

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

Caution The rm -f /usr/openv command will also de-install your VERITAS Storage Migrator product and any NetBackup Add-on products installed on this machine.

5. Remove the following file:

```
/sbin/rc2.d/S777netbackup
```

6. Replace the /etc/services file with /etc/services_*mmddyy.hh:mm:ss* file.

Where *mmddyy.hh:mm:ss* is the date and time of the original install.

7. Replace the `/etc/inetd.conf` file with `/etc/inetd.conf.NB_MM.`*version*, where *version* is the version of the original install.

8. Execute the following shell commands to cause `inetd` to read the updated `inetd.conf` file.

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

Run the kill command as follows. The process ID is the first number displayed in the output from the previous comamnd.

```
kill -1 process ID
```

The ps command options may vary from one client platform to another.

9. Execute the following command to remove the NetBackup-Java application state data for the root account:

```
/bin/rm -rf /.nbjava
```

10. Inform NetBackup-Java users that they can remove their $HOME/.nbjava directory.

The $HOME/.nbjava directory contains application state information (for example, table column order and size) that is saved when the user exits NetBackup-Java applications. The uninstall process removes this directory for the root user only.

How to Uninstall NetBackup Clients

> **Note** If you are uninstalling NetBackup from a machine on which you have installed the NetBackup-Java Display Console, the Console will be also be removed when uninstalling NetBackup. You will need to reinstall the Console in order to continue using it on the machine.

For instructions on uninstalling NetBackup client software for the following platforms, refer to the *NetBackup Installation Guide - PC Clients*.

◆ Windows 95/98, NT/2000

◆ Macintosh

◆ Novell NetWare

◆ OS/2

How to Uninstall UNIX NetBackup client software

1. Log in as the root user on your client.

2. Remove the `/usr/openv` directory.

If `/usr/openv` is a physical directory, execute:

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

If `/usr/openv` is a link, execute:

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

3. Remove NetBackup entries in the `/etc/services` file, as follows.

◆ Edit the client's `/etc/services` file.

◆ Locate the lines marked by the following and remove them:

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


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

4. Remove the NetBackup entries in the `/etc/inetd.conf` file. For NCR this file is called `inetd.local`.

◆ Edit the client's `/etc/inetd.conf` file.

◆ Delete the lines for `bpcd`, `vopied` and `bpjava-msvc`.

5. Execute the following two shell commands to cause `inetd` to read the updated `inetd.conf` (or `inetd.local`) file.

a. Enter the following.

For most UNIX clients:

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

For MacOS 10, FreeBSD, and Auspex:

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

      b. Run the kill command as follows. The process ID is the first number displayed in the output from the `ps` comamnd.

```
kill -1 process ID
```

The ps command options may vary from one client platform to another.

6. For Solaris and HP NetBackup clients running NetBackup-Java graphical interfaces, remove the NetBackup-Java state data by executing the following:

```
/bin/rm -rf /.nbjava
```

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