

# VERITAS NetBackup™ 4.5

---

## Installation Guide

for PC Clients

March 2002  
30-000478-011

  
VERITAS

---

## Disclaimer

The information contained in this publication is subject to change without notice. VERITAS Software Corporation makes no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. VERITAS Software Corporation shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance, or use of this manual.

## Copyright

Copyright © 1998-2002 VERITAS Software Corporation. All Rights Reserved. VERITAS, VERITAS SOFTWARE, the VERITAS logo, *Business Without Interruption*, VERITAS The Data Availability Company, VERITAS NetBackup, VERITAS NetBackup BusinessServer, VERITAS Remote Storage for Microsoft Exchange, VERITAS Storage Migrator, and VERITAS Storage Migrator Remote are trademarks or registered trademarks of VERITAS Software Corporation in the U.S. and/or other countries. Other product names mentioned herein may be trademarks or registered trademarks of their respective companies.

Portions of this software are derived from the RSA Data Security, Inc. MD5 Message-Digest Algorithm. Copyright 1991-92, RSA Data Security, Inc. Created 1991. All rights reserved.

VERITAS Software Corporation  
350 Ellis Street  
Mountain View, CA 94043  
USA  
Phone 650-527-8000  
Fax 650-527-8050  
[www.veritas.com](http://www.veritas.com)



# Contents

---

<b>Preface</b> .....	<b>vii</b>
Audience .....	vii
Organization .....	vii
Related Documentation .....	viii
Conventions .....	viii
Type Style .....	viii
Notes and Cautions .....	viii
Key Combinations .....	ix
Command Usage .....	ix
Terms .....	ix
Getting Help .....	x
<b>Chapter 1. NetBackup for Microsoft Windows</b> .....	<b>1</b>
Installation Overview .....	2
Open Transaction Manager .....	2
User-Directed Operations for Windows 2000 and Windows XP .....	2
Local and Remote Installations .....	3
Silent Installations .....	3
New and Upgrade Installations .....	3
New Installations .....	3
Upgrade Installations .....	4
System Requirements .....	5
Clients .....	5
Remote Installations .....	5



---

NetBackup Server .....	5
Local Installation Instructions .....	6
Remote Installation Instructions .....	7
Notes on Remote Installations .....	7
Silent Installation Instructions .....	9
NetBackup Client Configuration .....	10
Uninstalling NetBackup Client Software .....	10
<b>Chapter 2. NetBackup for Novell NetWare (NonTarget) .....</b>	<b>11</b>
Installation Overview .....	12
Open Transaction Manager .....	12
Installation Requirements .....	14
NetWare Workstation .....	14
NetWare Server .....	14
NetWare Loadable Modules (NLMs) .....	14
NetBackup Server .....	15
Installation Instructions .....	16
Installing the NetBackup Client on a NetWare File Server .....	16
Installation Notes .....	16
Copy OTM Files to the NetWare File Server .....	16
Copy NetBackup Files to the NetWare File Server .....	17
Load NLMs on the NetWare File Server .....	18
Setting Up TCP/IP Services .....	19
Setting Up AUTOEXEC.NCF .....	20
Installing/Upgrading the Backup, Archive, and Restore Interface on a NetWare Workstation .....	21
Configuration Instructions .....	22
Configuring the NetBackup Server .....	22
Configuring the NetBackup Client .....	23
Create the bp.ini File .....	23
Allowing Scheduled Access .....	23



---

Uninstalling the Backup, Archive, and Restore Interface .....	24
<b>Chapter 3. NetBackup for Novell NetWare (Target) .....</b>	<b>25</b>
Installation Requirements .....	26
NetWare Server .....	26
NetWare Loadable Modules (NLMs) .....	26
NetWare DOS Workstations .....	26
NetBackup Server .....	26
Installation Information Needed .....	27
Installing and Configuring NetBackup Client Software .....	27
Installation Notes .....	28
Copy OTM Files to the NetWare File Server .....	28
Copy NetBackup Files to the NetWare File Server .....	29
Load NLMs on the NetWare File Server .....	30
Setting Up TCP/IP Services .....	31
Setting Up AUTOEXEC.NCF .....	33
Configuring the NetBackup Server .....	34
Modifying the Client Configuration on the NetWare Server .....	35
<b>Chapter 4. NetBackup for Mac OS 8 &amp; 9 .....</b>	<b>37</b>
Installation Requirements .....	38
Mac OS Clients .....	38
Mac OS Network .....	38
Installation Information Needed .....	38
Installing NetBackup Client Software .....	39
Extracting the NetBackup Client Software .....	39
Contents of the NetBackup Client Software Folders .....	40
Editing Client Configuration Files .....	45
Configuring the mac.conf File .....	45
Configuring the bp.conf File .....	48
Configuring the exclude_list and include_list Files .....	49



---

Configuring the install.conf File .....	50
Creating an Installation Folder .....	51
Creating an Installation AppleShare Folder .....	51
Installing/Upgrading NetBackup Client Software .....	52
Uninstalling the NetBackup Client Software .....	55
Configuring the NetBackup Server .....	56
Policy Name .....	56
Policy Client List .....	56
Policy File List .....	56
Other Policy Settings .....	56
Example Policy Configuration .....	57
<b>Index .....</b>	<b>59</b>



# Preface

---

This guide explains how to install and configure VERITAS NetBackup client software on the following client platforms:

- ◆ PCs running a Microsoft Windows client
- ◆ Novell NetWare servers (NonTarget)
- ◆ Novell NetWare servers (Target)
- ◆ Apple Macintosh

## Audience

This guide is written for system administrators and users. Working knowledge of the client platforms and servers where NetBackup software is installed is assumed. In this guide, a system administrator is defined as a person with system administrator privileges and responsibilities. A user is defined as a person using the client interfaces to back up, archive, or restore files.

## Organization

This guide is organized to help you find the information you need as follows:

Chapter 1, “NetBackup for Microsoft Windows” provides information on installing, configuring, and uninstalling NetBackup client software on a Windows client.

Chapter 2, “NetBackup for Novell NetWare (NonTarget)” provides information on installing, configuring, and uninstalling NetBackup client software on a Novell NetWare (NonTarget) server.

Chapter 3, “NetBackup for Novell NetWare (Target)” provides information on installing, configuring, and uninstalling NetBackup client software on a Novell NetWare (Target) server.

Chapter 4, “NetBackup for Mac OS 8 & 9” explains how to install the NetBackup client software for Macintosh.



## Related Documentation

For more information on the client software and server software, refer to the *NetBackup User's Guide* for your client software and the *NetBackup Release Notes* and *NetBackup Administrator's Guide* for your server software. For help in troubleshooting, refer to the *NetBackup Troubleshooting Guide*.

For a complete list of NetBackup documents, see the *NetBackup Release Notes*.

## Conventions

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

### Type Style

#### Typographic Conventions

---

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

---

### Notes and Cautions

---

**Note** This is a Note. Notes are used to call attention to information that makes using the product easier or helps in avoiding problems.

---

---

**Caution** This is a Caution. Cautions are used to warn about situations that could cause data loss.

---



## Key Combinations

Some keyboard command sequences use two or more keys at the same time. For example, holding down the **Ctrl** key while pressing another key. Keyboard command sequences are indicated by connecting the keys with a plus sign. 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.

## Terms

The terms listed in the table below are used in the VERITAS NetBackup documentation to increase readability while maintaining technical accuracy.

Term	Definition
Microsoft Windows, Windows	<p>Terms used as nouns to describe a line of operating systems developed by Microsoft, Inc.</p> <p>A term used as an adjective to describe a specific product or noun. Some examples are: Windows 95, Windows 98, Windows NT, Windows 2000, Windows servers, Windows clients, Windows platforms, Windows hosts, and Windows GUI.</p> <p>Where a specific Windows product is identified, then only that particular product is valid with regards to the instance in which it is being used.</p> <p>For more information on the Windows operating systems that NetBackup supports, refer to the VERITAS support web site at <a href="http://www.support.veritas.com">http://www.support.veritas.com</a>.</p>



Term	Definition
Windows servers	A term that defines the Windows server platforms that NetBackup supports; those platforms are: Windows NT and Windows 2000.
Windows clients	A term that defines the Windows client platforms that NetBackup supports; those platforms are: Windows 95, 98, ME, NT, 2000, XP (for 32- and 64-bit versions), and LE.

## 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.support.veritas.com/`

VERITAS Customer Support has an extensive technical support structure that enables you to contact technical support teams that are trained to answer questions to specific products. You can contact Customer Support by sending an e-mail to `support@veritas.com`, or by finding a product-specific phone number from the VERITAS support web site. The following steps describe how to locate the proper phone number.

1. Open `http://www.support.veritas.com/` in your web browser.
2. Click **Contact Support**. The *Contacting Support Product List* page appears.
3. Select a product line and then a product from the lists that appear. The page will refresh with a list of technical support phone numbers that are specific to the product you just selected.



This chapter contains the following topics on installing version 4.5 of NetBackup client software for Microsoft Windows clients:

- ◆ Installation Overview
- ◆ System Requirements
- ◆ Local Installation Instructions
- ◆ Remote Installation Instructions
- ◆ Silent Installation Instructions
- ◆ NetBackup Client Configuration
- ◆ Uninstalling NetBackup Client Software



## Installation Overview

The NetBackup client setup program for Microsoft Windows allows you to select appropriate setup and installation options from a series of windows. Once the options have been selected, the NetBackup client setup program displays a summary window for you to verify before continuing with the actual install.

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

---

**Note** You cannot install NetBackup client software on PCs that currently have NetBackup server software installed. In these cases, you must first uninstall the NetBackup server software.

---

## Open Transaction Manager

If installing on a Windows client, during the installation process you have the option of installing Open Transaction Manager (OTM) from Columbia Data Products. OTM manages open files during backup operations on Windows NT, Windows 2000, or Windows XP platforms with Intel processors. When correctly configured, OTM insures that NetBackup can back up all files on the client, including those that are open during the backup operation. OTM should not be used for applications that come with an internal backup and restore function, such as MS-Exchange. In those cases, NetBackup will use the internal function to make sure the files are correctly backed up.

For information on the OTM parameters, please refer to the appendix “OTM Parameter Information” in *NetBackup User’s Guide for Windows*.

---

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

---

## User-Directed Operations for Windows 2000 and Windows XP

If users other than the administrator will be using the Backup, Archive, and Restore interface on a Windows 2000 or Windows XP system to perform backups and restores, write permission to the *install folder\Veritas\NetBackup\Logs* folder should be given to those users.



On Windows 2000 or Windows XP systems the `Program Files` folder, by default, is not writable by users other than administrator. NetBackup writes log files and progress files to the `Program Files\Veritas\NetBackup\Logs` folder, by default. Users without write permission to the `Logs` folder will receive an error message when attempting a backup or restore and the operation will be aborted.

## Local and Remote Installations

The NetBackup client setup program can be used in either of the following ways:

- ◆ Local installations - the setup program installs the client software only on the PC where the installation is started.
- ◆ Remote installations - the setup program scans your network for available clients where you can install the client software. Remote installations require system administrator privileges and is only available for Windows NT, Windows 2000, and Windows XP machines.

Local and remote installations can be either new or upgrade installations, depending on whether there is any existing NetBackup client software installed on the client PCs.

## Silent Installations

A silent installation is one where the installation process does not require interactive input. It does, however, require input in the form of editing the `silentclient.cmd` file before execution.

## New and Upgrade Installations

The NetBackup client setup program recognizes two types of installations:

- ◆ New installations - the setup program does not detect an existing version of NetBackup client software on the client PC.
- ◆ Upgrade installations - using Windows registry information, the setup program detects an existing version of NetBackup client software.

## New Installations

NetBackup setup allows you to specify one set of configuration options to be used for all new installations. These options include:

- ◆ Specifying an installation directory
- ◆ Specifying master and media server names



- ◆ Entering `bpcd` and `bprd` port numbers
- ◆ Starting the NetBackup Client Service automatically or manually
- ◆ Starting the NetBackup Client Service on the client after installation is complete
- ◆ Starting the NetBackup Client Job Tracker automatically
- ◆ Installing OTM
- ◆ Installing the NetBackup documentation

## Upgrade Installations

### Upgrade Existing Installation of NetBackup

If the installation path is not changed, it is treated as an upgrade installation.

---

**Note** When installing Windows 2000 on a system that previously had Windows 95, 98, or ME *and* NetBackup installed, VERITAS recommends that you reinstall NetBackup 4.5 using the Windows 2000 binaries to make sure you are using the correct set of binaries.

---

### Upgrade Installation as a New Installation

The setup program allows you to specify the same options as it does for new installations. These options can be applied to the upgrade installations as well as to new installations. If the installation path is changed, it is treated as a new installation. Therefore, you may end up with two installations of NetBackup client software on one PC, and have two NetBackup entries on the **Start** menu.

---

**Note** For NetBackup client software versions 3.0 or later, configuration and path information is stored in the same keys in the Windows registry. This means that only the most recently installed version of NetBackup is executed.

---

This option gives you more control over the installation. For instance, you may want to have both an old and a new installation of NetBackup on the same PC. Alternatively, you may want to specify a common installation directory on multiple PCs.

---

## System Requirements

This section describes the hardware and software that is required for successful installation of NetBackup software.

### Clients

To install NetBackup on a PC workstation, you must have the following configuration:

- ◆ Microsoft Windows NT version 4.0 or later, with NT service pack 6a installed.
- ◆ Windows 2000 should have service pack 2 installed.
- ◆ Windows 95 users must have the “Windows Socket 2 Update for Windows 95,” which can be downloaded from the Download Center of the Microsoft web site:  
[www.microsoft.com/downloads](http://www.microsoft.com/downloads).
- ◆ An Intel Pentium processor.
- ◆ Any TCP/IP transport that is Windows Socket compliant. (Use the TCP/IP transport that comes with Windows NT and Windows 2000 Server.)
- ◆ A network board supported by your TCP/IP transport.
- ◆ Microsoft Internet Explorer version 5.5.

### Remote Installations

In addition to the previous requirements:

- ◆ The source PC must have Windows NT, Windows 2000, or Windows XP installed.
- ◆ The destination PC must have Windows NT, Windows 2000, or Windows XP installed.
- ◆ The person performing the remote installation must have administrator privileges on all the client PCs.

### NetBackup Server

- ◆ NetBackup server software version 4.5 or later must be installed.



## Local Installation Instructions

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

1. If you currently have NetBackup software installed on a Windows 95 or Windows 98 PC, stop the NetBackup Client Service before continuing with this installation. Windows NT, Windows 2000, or Windows XP PCs will stop the service automatically.
2. Insert the NetBackup CD-ROM into the drive.
  - On systems with AutoPlay enabled for CD-ROM drives, the NetBackup install program starts automatically.
  - On Windows NT, Windows 2000, or Windows XP systems that have AutoPlay disabled, run the `Launch.exe` program in the root directory on the CD-ROM.
3. Click **NetBackup Installation**.
4. Click **Start NetBackup Client Installation**.
5. When prompted to choose where you want to install the NetBackup client software, select **Install to this computer only**.
6. Select either a typical or custom installation.

If you choose a typical installation, the default port numbers and default service startup settings are used.

If you choose a custom installation, you can choose the desired service startup settings, and change the port numbers, and choose whether or not to install the NetBackup Documentation and OTM.
7. Click **Next**.
8. Follow the instructions provided with the program.
9. Click **Finish**.

---

**Note** You may need to reboot your PC for the changes to take effect.

---



---

# Remote Installation Instructions

---

**Note** Review the installation requirements for remote installations on page 5 before starting this procedure.

---

Follow these instructions to install the NetBackup client software on selected Windows NT, Windows 2000, or Windows XP clients on your network (one of these clients can be your local PC). You may stop the installation process at any time by clicking **Cancel**.

## Notes on Remote Installations

- ◆ During installation, the client name is written to the registry in lower case. If the policies on the NetBackup server do not specify the client names in lower case, backups will fail because the names do not match.
- ◆ You must have administrator privileges on the remote client for the NetBackup install to complete successfully.
- ◆ The NetBackup client setup program cannot clean up an aborted install. Therefore, if you stop `Setup` while it is copying files to a client, the files that have been successfully installed are not uninstalled.

### ▼ To install the NetBackup on remote computers

1. Insert the NetBackup CD-ROM into the drive.
  - On systems with AutoPlay enabled for CD-ROM drives, the NetBackup install program starts automatically.
  - On Windows NT, Windows 2000, or Windows XP systems that have AutoPlay disabled, run the `Launch.exe` program in the root directory on the CD-ROM.
2. Click **NetBackup Installation**.
3. Click **Start NetBackup Client Installation**.
4. Choose **Select from available computers on the network**.
5. Select either a typical or custom installation.

If you choose a typical installation, the default port numbers and default service startup settings are used.

If you choose a custom installation, you can choose not to install OTM and can change the port numbers.



6. When prompted to choose where you want to install the NetBackup client software, select **Select from available computers on the network**.

---

**Note** If you choose **Select from available computers on the network**, the client will not be installed on the local machine unless it is added to the list of systems to which you are going to install.

---

7. Click **Next**.
8. Follow the instructions provided with the program.
9. Click **Finish**.

---

**Note** You may need to reboot the PCs for the changes to take effect.

---



---

## Silent Installation Instructions

A silent installation is one where the installation process does not require interactive input. It does, however, require input in the form of editing the `silentclient.cmd` file before execution.

Follow these instructions to perform a silent installation of the NetBackup client software on selected Windows clients on your network (one of these clients can be your local PC).

### ▼ To perform a silent installation

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

On systems with AutoPlay enabled for CD-ROM drives, the NetBackup install program starts automatically. Exit out of the NetBackup install program.

2. Using Microsoft Windows Explorer, navigate to the CD-ROM drive.
3. Copy the contents of the `PC_ClnT\Win32\` directory to a temp folder on your hard drive (`C:\temp`).
4. The files contained on the CD-ROM are read only. Change the permissions for these files on the hard drive in order to allow the update.
5. Edit the `silentclient.cmd` script with a text editor such as NOTEPAD so that it matches how you want to install the client.

---

**Note** Be sure to update the client, master server, and additional servers to the minimum required version level of NetBackup.

---

6. Run the script.
7. Check the logfile to make sure it successfully installed.

The default logfile (which can be changed when the `silentclient.cmd` script is edited) is `%LOGFILE%\NetBackup install.log`.

---

**Note** You may need to reboot the PCs for the changes to take effect.

---



## NetBackup Client Configuration

You can further configure the NetBackup client after installation by doing one of the following:

- ◆ To add servers or media servers, start the Backup, Archive, and Restore interface and from the **File** menu choose **Specify NetBackup Machines**.
- ◆ To display and change the client properties, start the Backup, Archive, and Restore interface and from the **File** menu, choose **NetBackup Client Properties**.
- ◆ To display and change the server properties, start the Administration Console. Expand **Host Properties** and click on **Clients**. In the right pane, right-click on the client and choose **Properties**.

All NetBackup servers that require access to your Windows PC client must be listed on the **Servers** tab in the above dialog boxes.

For more information refer to the *NetBackup User's Guide for Windows*.

## Uninstalling NetBackup Client Software

- ▼ To uninstall the NetBackup client software:
  1. Open the Windows Control Panel (select **Start**, **Settings**, and then **Control Panel**).
  2. Select **Add/Remove Programs**.
  3. Select **VERITAS NetBackup Client**.
  4. Click the **Add/Remove** button.



## NetBackup for Novell NetWare (NonTarget)

---

## 2

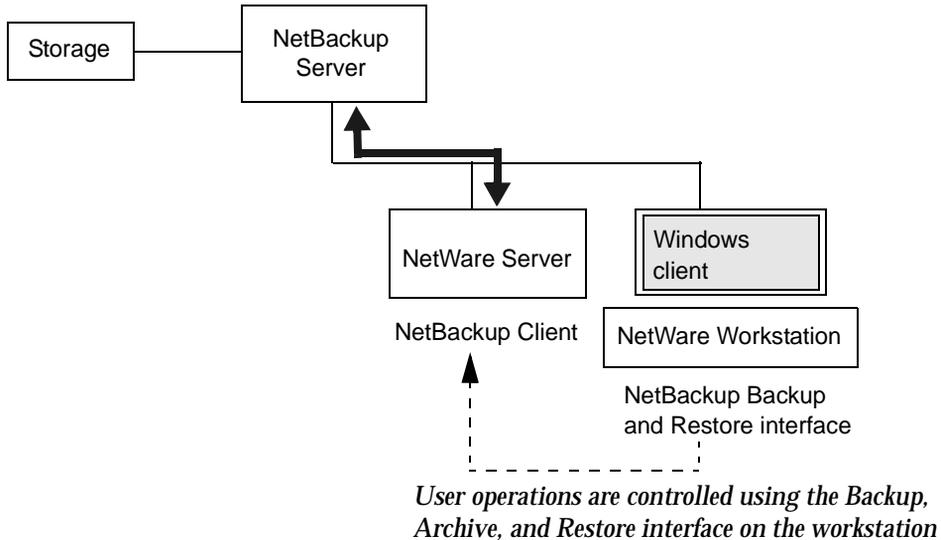
This chapter contains the following topics on installing version 4.5 of NetBackup client software for Novell NetWare (NonTarget):

- ◆ Installation Overview
- ◆ Installation Requirements
- ◆ Installation Instructions
- ◆ Configuration Instructions
- ◆ Uninstalling the Backup, Archive, and Restore Interface



## Installation Overview

The following figure shows a typical network configuration using NetBackup to manage a Novell NetWare file server:



Installing NetBackup client software for use with NetWare file servers involves:

- ◆ Installing NetBackup client software on each NetWare file server. The NetWare server is considered a client of NetBackup.
- ◆ Installing the NetBackup Backup, Archive, and Restore interface on a NetWare workstation. The Backup, Archive, and Restore interface is used to control backups and restores of the NetWare file server.
- ◆ Configuring the NetBackup server using the NetBackup Administration Console.
- ◆ Configuring the NetBackup client to allow scheduled backup access. This step is done using the NetBackup Backup, Archive, and Restore interface from the NetWare workstation.

## Open Transaction Manager

Included on the NetBackup CD-ROM are the files needed to run Open Transaction Manager (OTM) from Columbia Data Products. OTM manages open files during backup operations on NetWare servers. When correctly configured, OTM insures that NetBackup can back up all files on the client, including those that are open during the backup operation. OTM should not be used for applications that come with an internal backup and restore function.



For information on the OTM parameters, please refer to the appendix “OTM Parameter Information” in *NetBackup User’s Guide for Novell Netware NonTarget*.

---

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

---



## Installation Requirements

This section describes the hardware and software that is required for a successful installation of NetBackup software.

### NetWare Workstation

- ◆ NetWare client software. VERITAS suggests that you use the client software that accompanies the NetWare server software.
- ◆ Any TCP/IP transport that is Windows Socket compliant.
- ◆ Microsoft Windows 95, Windows 98, Windows NT, or Windows 2000 software installed.
- ◆ A network board supported by your TCP/IP transport.
- ◆ Ensure that the workstations you are going to back up through the NetWare server have `tsasms.com` installed.

### NetWare Server

- ◆ Novell NetWare 4.2, 5.1 or 6.0 installed.
- ◆ Novell NetWare's TCP/IP services installed (included with NetWare).
- ◆ Novell NetWare SPX/IPX services (included with NetWare) installed.
- ◆ There are NetWare patches that you must install in order for NetBackup to operate correctly. Check the NetBackup README file for the list of required patches. Also refer to the Novell web site, <http://www.novell.com>.
- ◆ Reverse DNS look up capabilities must be available on the NetWare server. This can be accomplished through the `SYS:etc\host` file or `SYS:etc\resolve.cfg`.

### NetWare Loadable Modules (NLMs)

- ◆ The following NLMs that are common to all versions must be installed:
  - `smdr.nlm`
  - `tsados.nlm` or `tsaproxy.nlm`
  - `tsands.nlm`

You must install `tsands.nlm` to back up and restore NetWare Directory Services (NDS) files.



- ◆ Any version-dependent NLMs must be 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 5.1 server is `tsa500.nlm`.

## NetBackup Server

- ◆ NetBackup server software version 4.5 or greater must be installed.



## Installation Instructions

This section includes instructions for installing NetBackup client and the Backup, Archive, and Restore interface.

### Installing the NetBackup Client on a NetWare File Server

#### Installation Notes

- ◆ This procedure requires system administrator privileges.
- ◆ The installation instructions assume that D is the CD-ROM drive on the workstation, E is the CD-ROM drive on the file server, and F is the drive letter mapped to the Novell SYS: volume.

#### Copy OTM Files to the NetWare File Server

---

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

---

#### ▼ To copy OTM files to the NetWare file server:

1. If installing Open Transaction Manager, copy the OTM files to the NetWare server:

##### **For NetWare 4.2:**

- a. Down the NetWare file server.
- b. Copy OTMDSK.DSK onto the server's DOS partition.  

```
COPY E:\PC_ClnT\NetWare\NLM\OTM\3.x4.x\OTMDSK.DSK
```
- c. Reboot the computer and start NetWare.
- d. Load `install.nlm` and select the NCF files option. Modify `STARTUP.NCF` on the server's DOS partition so that `OTMDSK.DSK` is loaded before any other `.DSK` drivers.
- e. Reboot the NetWare file server.

**For NetWare 4.2, 5.1, and 6.x:**

- a. Log in to the NetWare server as ADMIN or equivalent.
- b. Copy OTMCDM.NLM, OTMLAPI.NLM, OTMLOAD.NLM, and PMTHREAD.NLM to the NetWare file server:

```
COPY D:\PC_Cln\NetWare\NLM\OTM\COMMON\OTMCDM.NLM F:\SYSTEM
COPY D:\PC_Cln\NetWare\NLM\OTMLAPI.NLM F:\SYSTEM
COPY D:\PC_Cln\NetWare\NLM\OTMLOAD.NLM F:\SYSTEM
COPY D:\PC_Cln\NetWare\NLM\PMTHREAD.NLM F:\SYSTEM
```

**Copy NetBackup Files to the NetWare File Server**

After the OTM files have been copied to the Netware file server, the next step is to copy the NetBackup files to the NetWare file server.

**▼ To copy NetBackup files to the NetWare file server:**

1. Log into the NetWare file server as ADMIN or the equivalent.
2. On the workstation, copy the BPSRV.NLM, BP.NLM, and BPCD.NLM files from the NetBackup CD-ROM to the NetWare file server.

```
COPY D:\PC_Cln\NetWare\NLM\BPSRV.NLM F:\SYSTEM
COPY D:\PC_Cln\NetWare\NLM\BP.NLM F:\SYSTEM
COPY D:\PC_Cln\NetWare\NLM\BPCD.NLM F:\SYSTEM
```

3. Create a SYS:\OPENV directory on the NetWare file server.

---

**Note** You may want to make the OPENV directory and its subdirectories readable only by ADMIN or the equivalent.

---

4. Create a NETBACK subdirectory under the OPENV directory.
5. Create a LOGS subdirectory under NETBACK to collect progress and debug logs.
6. Create the following subdirectories under LOGS:
  - altpath (Alternate Path restore mappings)
  - BPSRV (to collect debug traces)
  - BPCD (to collect debug traces)



**Note** The `BPSRV` and `BPCD` directories are required only if you want the associated activity logs.

---

## Load NLMs on the NetWare File Server

The NetWare loadable modules must be loaded onto the NetWare file server.

### ▼ To load NLMs onto the NetWare file server:

1. If installing OTM, load the new version of `OTMLOAD.NLM` (must be loaded before `bpcd`).
2. Make sure the required NetWare Loadable Modules that you installed are running, by unloading any old copies and loading the new copies. See “Installation Requirements” on page 14.

The names of the files vary depending upon the version of NetWare you are running. For example, to unload and load `tsa500.nlm` and `smdr.nlm`:

```
unload tsa500
unload smdr
load tsa500
load smdr
```

3. Load `BPCD.NLM` and `BPSRV.NLM`.
4. Modify your `AUTOEXEC.NCF` start-up file:
  - Set the correct time zone
  - Load the TCP/IP services (refer to the next section “Setting Up TCP/IP Services” for further information)
  - Load the appropriate SMS (storage management services) support
  - Load the NetBackup Loadable Modules
  - VERITAS also recommends the following settings:

```
SET Maximum Packet Receive Buffers = 4000
SET Maximum Directory Cache Buffers = 4000
SET Maximum Concurrent Disk Cache Writes = 2000
SET Maximum Concurrent Directory Cache Writes = 2000
SET Maximum Physical Receive Packet Size = 1514
```



---

**Note** You must reboot your NetWare file server if you reset the time zone parameter in order for it to correctly take effect. Changing this parameter while the NetWare file server is running is not always recognized by NetWare.

---

5. If you are installing NetBackup client software on your server for the first time, you are done and can proceed to the next section: “Setting Up TCP/IP Services”.
6. If you are upgrading your NetBackup client software from an earlier version that wasn't installed in `sys:\openv\netback`, copy your existing `BP.INI` configuration file to the `SYS:\OPENV\NETBACK` directory on the NetWare server.

If you do not do this step, NetBackup creates a new `BP.INI` file in the `NETBACK` directory the first time you run the interface program (`bp`).

## Setting Up TCP/IP Services

For NetBackup to communicate between the NetWare file server and the NetBackup server, the TCP/IP services that are distributed with NetWare must be installed and set up on the NetWare file server. Refer to your NetWare manuals and “Setting Up AUTOEXEC.NCF” on page 20 for further information.

### ▼ To set up TCP/IP services:

1. Copy your TCP/IP network hosts files into the `SYS:\ETC` directory.
2. For BusinessServer, modify the hosts file to contain the NetBackup server. For DataCenter, modify the hosts file to contain the master server and media servers, and their IP addresses.

The following example hosts file contains a null entry for a host named `noworld`. An actual hosts file has legitimate IP addresses for hosts in a TCP/IP network.

```
IP ADDRESS      HOSTNAME
000.000.000.0  noworld
```

3. Load your Ethernet network card driver with `ETHERNET_II` frame type support.
4. Load `TCPIP.NLM`.
5. Bind IP to your network card driver.



## Setting Up AUTOEXEC.NCF

The following AUTOEXEC.NCF example file demonstrates the automatic start-up of the Novell NetWare system to use the NetWare TCP/IP services and to load the NetBackup client daemon.

### Example - Novell NetWare 5.1

```
# Novell NetWare 5.1 File Server Configuration
SET TIME ZONE = CST6CDT
SET DAYLIGHT SAVINGS TIME OFFSET = 1
SET START OF DAYLIGHT SAVINGS TIME = (APRIL SUNDAY FIRST 2:00:00 AM)
SET END OF DAYLIGHT SAVINGS TIME = (OCTOBER SUNDAY LAST 2:00:00 AM)
SET TIMESYNC TYPE = SINGLE
SET DEFAULT TIME SERVER TYPE = SINGLE

SET BINDERY CONTEXT = O=VERITAS

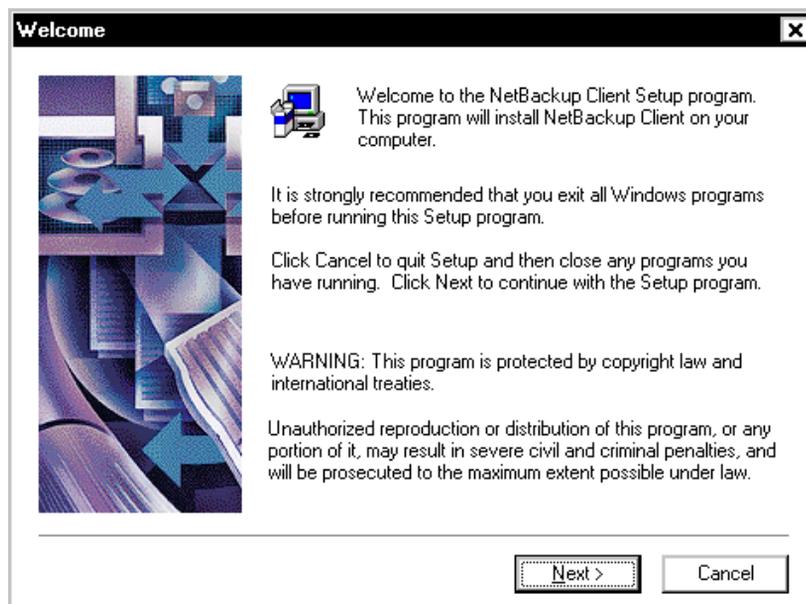
file server name KIMBLE
.
.
.
LOAD IPXRTR
LOAD 3C5X9.LAN SLOT=10002 RXEARLY=NO FRAME=ETHERNET_802.2
NAME=3C5X9_1_E82
BIND IPX 3C5X9_1_E82 NET=2738BFA1
LOAD IPXRTRNM
LOAD TCPIP
LOAD 3C5X9.LAN SLOT=10002 RXEARLY=NO FRAME=ETHERNET_II
NAME=3C5X9_1_EII
BIND IP 3C509_1_EII ADDR=198.153.194.22 MASK=255.255.255.0
MOUNT ALL
.
.
.
load tsands.nlm
load tsa500.nlm
load tsaproxy.nlm

# If OTM has been installed load OTMLOAD.NLM
load otmload
load bpcd
load bpsrv
```

## Installing/Upgrading the Backup, Archive, and Restore Interface on a NetWare Workstation

1. On the NetWare workstation, insert the NetBackup client setup media.
2. Execute the program `PC_Clnt\NetWare\Win32\Setup.exe`.

The VERITAS splash screen displays while the NetBackup client setup program initializes, then the following welcome screen appears:



3. Click **Next** to follow the prompts to finish the installation.



## Configuration Instructions

---

**Note** These procedures require system administrator privileges.

---

This section includes instructions for configuring the NetBackup server and client.

### Configuring the NetBackup Server

---

**Note** The procedures in this section require system administrator privileges.

---

To complete the addition of NetWare file servers as NetBackup clients, some modifications must be made to the NetBackup policy configuration on the NetBackup master server. This configuration is done using the NetBackup Administration Console on a NetBackup server and is essentially the same as for other NetBackup clients. Refer to the *NetBackup System Administrator's Guide* (Windows or UNIX) for complete instructions on configuring the master server.

▼ **To create a policy that includes only NetWare NonTarget clients:**

1. In the client list for the policy, set the following:

- Policy type to NetWare.
- Hardware platform to Novell.
- Operating system to NetWare.

2. Specify the file lists in the form:

/

This directs the NetBackup server to back up all NetWare resources that have been configured to allow scheduled access. Refer to the “Configuring the NetBackup Client” section on the next page.

```
Policy Name:nwbackup
Policy Type:NetWare
Follow NFS Mounts:no
Cross Mount Points:no
Client Compress:no
Max Jobs/Policy:99
Residence:          (specific storage unit not required)
HW/OS/Client:Novell NetWare mdanw1
Include:    /
```



## Configuring the NetBackup Client

The following sections provide information on completing the configuration of the NetBackup client.

### Create the bp.ini File

If `bp.ini` does not exist in `SYS:\OPENV\NETBACK\`, use the NetBackup Backup, Archive, and Restore interface to create the file.

#### ▼ To create the `bp.ini` file:

1. Start the NetBackup Backup, Archive, and Restore interface.
2. On the **Actions** menu, choose **Configure** to display the NetBackup Configuration dialog box and the **General** tab.
3. Enter the name of the NetWare file server in the **Client Name** field.
4. Change other values if needed or leave the default values.
5. Choose the **Servers** tab.
6. Enter all NetBackup servers that will backup or restore this client.
7. Modify any other settings as needed or leave the default values.
8. Click **OK**.

### Allowing Scheduled Access

Using the NetBackup Backup, Archive, and Restore interface on the NetWare workstation, configure the NetBackup client to allow scheduled access for each NetWare resource.

#### ▼ To allow scheduled access:

1. Start the NetBackup Backup, Archive, and Restore interface.
2. On the **Actions** menu, click **Backup Files and Folders**.
3. Each NetBackup server requires a valid user name and password for each NetWare resource that will be backed up.



As you expand the NetWare file server, you are prompted for a user name and password. This should be ADMIN (or an equivalent) and is associated with the selected resource.

4. Traverse the tree and select one resource at a time (a NetWare resource has a hard drive icon next to it).
5. On the **Backup** menu, click **Allow Scheduled Access**.
6. Repeat step 4 and step 5 for each NetWare resource.

## Uninstalling the Backup, Archive, and Restore Interface

---

**Note** If the NetBackup Windows client software is also installed on the NetWare workstation, you must first uninstall it (see “Uninstalling NetBackup Client Software” on page 10). The following procedure causes the NetBackup Windows client to be unusable and partially uninstalled.

---

▼ **To uninstall the NetBackup Backup, Archive, and Restore interface:**

1. Open the Control Panel and double-click on **Add/Remove Programs**.
2. Select **VERITAS NetBackup for NetWare**.
3. Click **Add/Remove**.

## NetBackup for Novell NetWare (Target)

---

3

Installing NetBackup client software on a NetWare file server involves copying the NetBackup client software files to the appropriate destination on the NetWare file server and then configuring the environment.

This chapter contains the following topics on installing version 4.5 of NetBackup client software for Novell NetWare:

- ◆ Installation Requirements
- ◆ Installing and Configuring NetBackup Client Software
- ◆ Configuring the NetBackup Server
- ◆ Modifying the Client Configuration on the NetWare Server



## Installation Requirements

This section describes the hardware and software that is required for successful installation of NetBackup software.

### NetWare Server

- ◆ Novell NetWare 4.2, 5.1 or 6.0 installed.
- ◆ Novell NetWare's TCP/IP services installed (included with NetWare).
- ◆ There are NetWare patches that you must install in order for NetBackup to operate correctly. Check the NetBackup README file for the list of required patches. Also refer to the Novell web site, <http://www.novell.com>.
- ◆ Reverse DNS look up capabilities must be available on the NetWare server. This can be accomplished through the `SYS:etc\host` file or `SYS:etc\resolve.cfg`.

### NetWare Loadable Modules (NLMs)

- ◆ The following NLMs that are common to all versions must be installed:
  - `smdr.nlm`
  - `tsados.nlm` or `tsaproxy.nlm`
  - `tsands.nlm`

You must install `tsands.nlm` to back up and restore NetWare Directory Services (NDS) files.
- ◆ Any version-dependent NLMs must be 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 5.1 server is `tsa500.nlm`.

### NetWare DOS Workstations

- ◆ Ensure that the workstations you are going to back up from the NetWare server have `tsasms.com` installed.

### NetBackup Server

- ◆ NetBackup server software version 4.5 or greater installed.



## Installation Information Needed

You need the following information about your configuration before installing NetBackup on a NetWare file server:

- ◆ The name of the NetWare file server that will be added as a client to the NetBackup server's policy configuration.

---

**Note** Client and server names are case sensitive so be certain to type them exactly as they are configured on the master server.

---

- ◆ The names of the NetBackup master server and any additional NetBackup servers you may be using.

NetBackup Master Server (for example, mdaserv1)  
Additional Servers

- ◆ The port numbers used by NetBackup for the bpcd and bprd ports.

BPCD Port (default: 13782)  
BPRD Port (default: 13720)

- ◆ The time zone to be set for your NetWare file server. (For example, EST5EDT.)
- ◆ TCP/IP service information for the NetWare file server.

IP Address (for example, 129.179.99.83)  
IP Net Mask (for example, 255.255.255.0)

- ◆ The names of all NetWare client PC workstations to be backed up from the NetWare file server that is the NetBackup client.

VERITAS recommends that the names of these PC clients be the same as the names included within the hosts file.

## Installing and Configuring NetBackup Client Software

Included on the NetBackup CD-ROM are the files needed to run Open Transaction Manager (OTM) from Columbia Data Products. OTM manages open files during backup operations on NetWare servers. When correctly configured, OTM insures that NetBackup can back up all files on the client, including those that are open during the backup operation. OTM should not be used for applications that come with an internal backup and restore function.

For information on the OTM parameters, please refer to the appendix "OTM Parameter Information" in *NetBackup User's Guide for Novell Netware Target*.



---

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

---

## Installation Notes

- ◆ This procedure requires system administrator privileges.
- ◆ The installation instructions assume that D is the CD-ROM drive on the workstation, E is the CD-ROM drive on the file server, and F is the drive letter mapped to the Novell `SYS:` volume.

## Copy OTM Files to the NetWare File Server

---

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

---

### ▼ To copy OTM files to the NetWare file server:

1. If installing Open Transaction Manager, copy the OTM files to the NetWare server:

#### For NetWare 4.2:

- a. Down the NetWare file server.
- b. Copy `OTMDSK.DSK` onto the server's DOS partition.  

```
COPY E:\PC_ClnT\NetWare\NLM\OTM\3.x4.x\OTMDSK.DSK
```
- c. Reboot the computer and start NetWare.
- d. Load `install.nlm` and select the NCF files option. Modify `STARTUP.NCF` on the server's DOS partition so that `OTMDSK.DSK` is loaded before any other `.DSK` drivers.
- e. Reboot the NetWare file server.

**For NetWare 4.2, 5.1, and 6.x:**

- a. Log in to the NetWare server as ADMIN or equivalent.
- b. Copy OTMCDM.NLM, OTMLAPI.NLM, OTMLOAD.NLM, and PMTHREAD.NLM to the NetWare file server:

```
COPY D:\PC_Cln\NetWare\NLM\OTM\COMMON\OTMCDM.NLM F:\SYSTEM
COPY D:\PC_Cln\NetWare\NLM\OTMLAPI.NLM F:\SYSTEM
COPY D:\PC_Cln\NetWare\NLM\OTMLOAD.NLM F:\SYSTEM
COPY D:\PC_Cln\NetWare\NLM\PMTHREAD.NLM F:\SYSTEM
```

**Copy NetBackup Files to the NetWare File Server**

After the OTM files have been copied to the Netware file server, the next step is to copy the NetBackup files to the NetWare file server.

**▼ To copy NetBackup files to the NetWare file server:**

1. Log into the NetWare file server as ADMIN or the equivalent.
2. On the workstation, copy the BPSRV.NLM, BP.NLM, and BPCD.NLM files from the NetBackup CD-ROM to the NetWare file server.

```
COPY D:\PC_Cln\NetWare\NLM\BPSRV.NLM F:\SYSTEM
COPY D:\PC_Cln\NetWare\NLM\BP.NLM F:\SYSTEM
COPY D:\PC_Cln\NetWare\NLM\BPCD.NLM F:\SYSTEM
```

3. Create a SYS:\OPENV directory on the NetWare file server.

---

**Note** You may want to make the OPENV directory and its subdirectories readable only by ADMIN or the equivalent.

---

4. Under the OPENV directory, create a new subdirectory, NETBACK.
5. Create a LOGS subdirectory under NETBACK to collect progress and debug logs.
6. Create the following subdirectories under LOGS:

altpath (Alternate Path restore mappings)

BPCD (to collect debug traces)

BPBACK (used for user backups)

BPREST (used for user restores)



**Note** The BPCD directory is required only if you want the associated activity logs. BPBACK and BPRESTORE are the directories where progress files for user-directed backups and restores are kept.

---

## Load NLMs on the NetWare File Server

The NetWare loadable modules must be loaded onto the NetWare file server.

### ▼ To load NLMs onto the NetWare file server:

1. If you have not already done so, install any required Novell NetWare patches.
2. If installing OTM, load the new version of OTMLOAD.NLM (must be loaded before bpcd).
3. Make sure the required NetWare Loadable Modules that you installed are running, by unloading any old copies and loading the new copies. See “Installation Requirements” on page 26.

The names of the files vary depending upon the version of NetWare you are running. For example, to unload and load tsa500.nlm and smdr.nlm:

```
unload tsa500
unload smdr
load tsa500
load smdr
```

4. Load BPCD.NLM and BPSRV.NLM.
5. Modify your AUTOEXEC.NCF start-up file:
  - Set the correct time zone
  - Load the TCP/IP services (refer to the next section “Setting Up TCP/IP Services” for further information)
  - Load the appropriate SMS (storage management services) support
  - Load the NetBackup Loadable Modules
  - VERITAS also recommends the following settings:

```
SET Maximum Packet Receive Buffers = 4000
SET Maximum Directory Cache Buffers = 4000
SET Maximum Concurrent Disk Cache Writes = 2000
SET Maximum Concurrent Directory Cache Writes = 2000
SET Maximum Physical Receive Packet Size = 1514
```



---

**Note** You must reboot your NetWare file server if you reset the time zone parameter in order for it to correctly take effect. Changing this parameter while the NetWare file server is running is not always recognized by NetWare.

---

6. If you are installing NetBackup client software on your server for the first time, you are done and can proceed to the next section: “Setting Up TCP/IP Services”.
7. If you are upgrading your NetBackup client software from an earlier version that wasn’t installed in `sys:\openv\netback`, perform the following tasks from a NetWare workstation:
  - a. Copy your existing `BP.INI` configuration file to the `SYS:\OPENV\NETBACK` directory on the NetWare server.  
If you do not do this step, NetBackup creates a new `BP.INI` file in the `NETBACK` directory the first time you run the interface program (`bp`).
  - b. Copy your existing `.TGT` files to the `SYS:\OPENV\NETBACK\TGTS` directory on the NetWare server.  
If you do not do this step, you will have to redefine your targets before using NetBackup.

## Setting Up TCP/IP Services

For NetBackup to communicate between the NetWare file server and the NetBackup server, the TCP/IP services that are distributed with NetWare must be installed and set up on the NetWare file server. Refer to your NetWare manuals and “Setting Up AUTOEXEC.NCF” on page 33 for further information.

### ▼ To set up TCP/IP services:

1. Copy your TCP/IP network hosts files into the `SYS:\ETC` directory.
2. For BusinessServer, modify the hosts file to contain the NetBackup server. For DataCenter, modify the hosts file to contain the master server and media servers, and their IP addresses.

The following example hosts file contains a null entry for a host named `noworld`. An actual hosts file has legitimate IP addresses for hosts in a TCP/IP network.

```
IP ADDRESS      HOSTNAME
000.000.000.0  noworld
```



3. Load your Ethernet network card driver with ETHERNET\_II frame type support.
4. Load TCPIP.NLM.
5. Bind IP to your network card driver.



## Setting Up AUTOEXEC.NCF

The following AUTOEXEC.NCF example file demonstrates the automatic start-up of the Novell NetWare system to use the NetWare TCP/IP services and to load the NetBackup client daemon.

### Example - Novell NetWare 5.1

```
# Novell NetWare 5.1 File Server Configuration
SET TIME ZONE = CST6CDT
SET DAYLIGHT SAVINGS TIME OFFSET = 1
SET START OF DAYLIGHT SAVINGS TIME = (APRIL SUNDAY FIRST 2:00:00 AM)
SET END OF DAYLIGHT SAVINGS TIME = (OCTOBER SUNDAY LAST 2:00:00 AM)
SET TIMESYNC TYPE = SINGLE
SET DEFAULT TIME SERVER TYPE = SINGLE

SET BINDERY CONTEXT = O=VERITAS

file server name KIMBLE
.
.
.
LOAD IPXRTR
LOAD 3C5X9.LAN SLOT=10002 RXEARLY=NO FRAME=ETHERNET_802.2
NAME=3C5X9_1_E82
BIND IPX 3C5X9_1_E82 NET=2738BFA1
LOAD IPXRTRNM
LOAD TCPIP
LOAD 3C5X9.LAN SLOT=10002 RXEARLY=NO FRAME=ETHERNET_II
NAME=3C5X9_1_EII
BIND IP 3C509_1_EII ADDR=198.153.194.22 MASK=255.255.255.0
MOUNT ALL
.
.
.
load tsands.nlm
load tsa500.nlm
load tsaproxy.nlm

# If OTM has been installed load OTMLOAD.NLM
load otmload
load bpcd
load bpsrv
```



## Configuring the NetBackup Server

---

**Note** The procedures in this section require system administrator privileges.

---

To complete the addition of NetWare file servers as NetBackup clients, some modifications must be made to the NetBackup policy configuration on the NetBackup master server. This configuration is done using the NetBackup Administration Console on a NetBackup server and is essentially the same as for other NetBackup clients. Refer to the *NetBackup System Administrator's Guide* (Windows or UNIX) for complete instructions on configuring the master server.

▼ **To create a policy that includes only NetWare Target clients:**

1. In the client list for the policy, set the following:

- Policy type to Standard.
- Hardware platform to Novell.
- Operating system to NetWare.

2. Specify the file lists in the form:

*/target*

Where *target* is the name of a target defined on the NetBackup client. The names of targets are case-sensitive. See the *NetBackup User's Guide for Novell NetWare Target* for information on defining targets.

For example, the following policy configuration backs up the targets NETWARE, SYSTEM, and NDS, on the NetWare file server mdanw1:

```
Policy Name:nwbackup
Policy Type:Standard
Follow NFS Mounts:no
Cross Mount Points:no
Client Compress:no
Max Jobs/Policy:99
Residence:          (specific storage unit not required)
HW/OS/Client:Novell NetWare mdanw1
Include:    /NETWARE
           /SYSTEM
           /NDS
```

## Modifying the Client Configuration on the NetWare Server

---

**Note** Changing the NetBackup configuration requires system administrator privileges.

---

After NetBackup has been installed, you may want to make some adjustments to the NetBackup configuration on the NetWare file server by changing the `BP.INI` file.

This file is used by the NetBackup client to control and restore operations and is created in the `SYS:\OPENV\NETBACK` directory the first time you run the NetBackup interface program, `bp`.

You can set many of the parameters in the `BP.INI` file using the commands available on the **Configuration** menu. Type `n` at the NetBackup main menu after loading `bp` from the NetWare file server console.

Other parameters can only be changed by directly modifying the file using an editor, such as Notepad. See the *NetBackup User's Guide for Novell NetWare Target* for a description of the `BP.INI` file.





---

**Note** For information on NetBackup for Mac OS X, see the *NetBackup Installation Guide for UNIX*.

---

This section contains the following topics on installing version 4.5 of NetBackup client software for Mac OS:

- ◆ Installation Requirements
- ◆ Installing NetBackup Client Software
- ◆ Configuring the NetBackup Server
- ◆ Uninstalling the NetBackup Client Software

NetBackup client software for Mac OS includes:

- ◆ The NetBackup Agent

The agent runs in the background on the Mac OS and performs scheduled backups and other communications with the NetBackup server.

- ◆ The Backup, Archive, and Restore interface

This is the user interface used to initiate user-directed operations.

In addition to installing and configuring the NetBackup client software on the Mac OS, this installation involves configuring the NetBackup server.



## Installation Requirements

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

### Mac OS Clients

- ◆ Mac OS System 8.6 or 9.x installed.
- ◆ Open Transport configured to use the Domain Name Server (DNS) on the network. Open Transport must be able to resolve the host names of the Mac OS and of the NetBackup servers.

### Mac OS Network

Ensure that all NetBackup Mac OS clients connect to a network that has:

- ◆ One or more NetBackup servers with NetBackup 4.5 or later installed.
- ◆ Domain Name Services (DNS) correctly configured.

### Installation Information Needed

- ◆ The name of your client as it is added to the NetBackup policy configuration on the master server. For example:  
`mdanet1`
- ◆ The name of the NetBackup servers you will use for backups and restores, and the name of the master server and any media servers that may be used by your computer. For example:

Master Server: shark  
Media Servers: eel, whale, yak

---

## Installing NetBackup Client Software

This section contains the following tasks:

- ◆ Extracting the NetBackup Client Software
- ◆ Editing Client Configuration Files
- ◆ Creating an Installation Folder
- ◆ Installing/Upgrading NetBackup Client Software

---

**Note** The first three tasks are typically performed by the system administrator and must be done on a Macintosh running Mac OS 8.6 or 9.x.

The last task can be done by the system administrator or a NetBackup user.

---

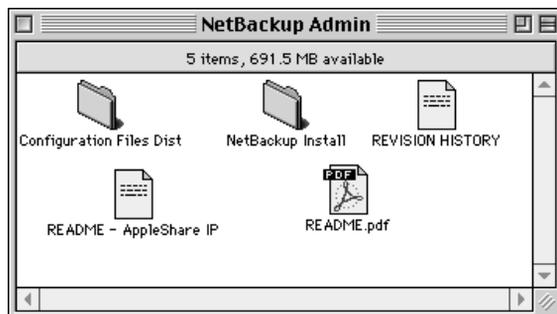
### Extracting the NetBackup Client Software

1. Open the `PC_Clnr` folder and then the `Macintosh` folder on the NetBackup CD-ROM.
2. Drag the `netbacku.sea.bin` file to your Mac OS hard disk.
3. Use StuffIt Expander or a similar utility to convert the `netbacku.sea.bin` to the `NetBackup Admin.sea` file.
4. Double-click `NetBackup Admin.sea` to create the `NetBackup Admin` folder.



## Contents of the NetBackup Client Software Folders

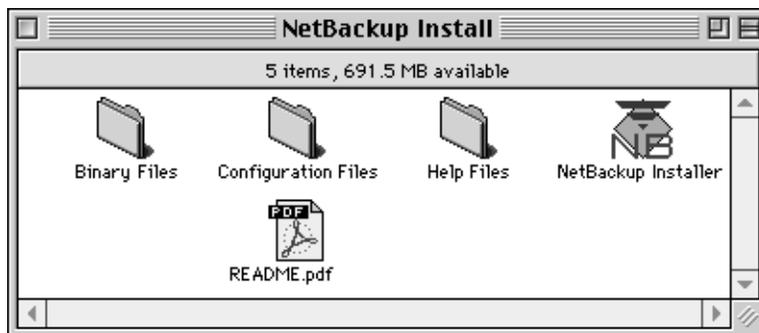
1. Double-click on your hard disk icon to open its window.
2. In the hard disk window, double-click the NetBackup Admin folder icon to open its window.



This folder contains these files and folders:

README.pdf	A PDF file with the installation information contained in this chapter.
NetBackup Install	This folder contains the applications and files needed to install NetBackup. You must modify files in this folder as part of the installation. See "Editing Client Configuration Files" on page 45.
REVISION HISTORY	A file with a list of changes in NetBackup for Mac OS since version 2.0.
Configuration Files Dist	A copy of the Configuration Files folder, found in the NetBackup Install folder.

3. Double-click the NetBackup Install folder icon to open its window.

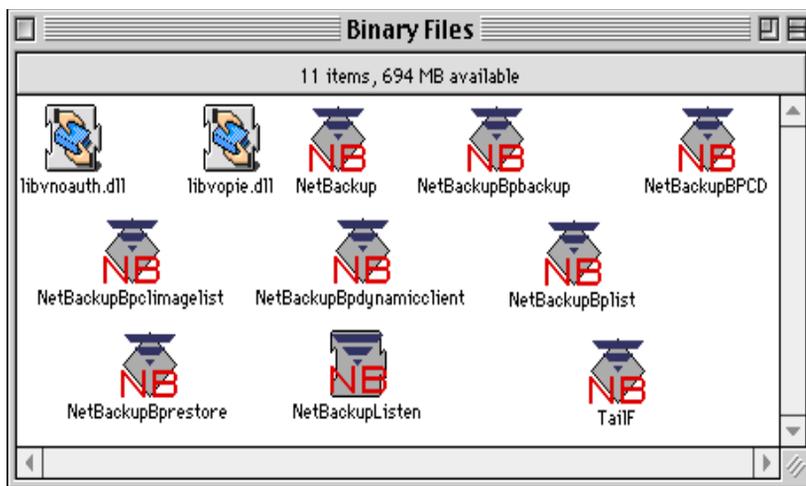


This folder contains these files and folders:

README.pdf	A PDF file that contains information on installing and uninstalling the client software. (Refer to “Installing/Upgrading NetBackup Client Software” on page 52 and “Uninstalling the NetBackup Client Software” on page 55.).
NetBackup Installer	The application used to install NetBackup client software.
Binary Files	A folder containing the NetBackup extensions and applications that are installed on Mac OS NetBackup clients.
Configuration Files	A folder containing configuration text files to be installed on Mac OS NetBackup clients. You must edit these files before running the NetBackup Installer. See “Editing Client Configuration Files” on page 45.
Help Files	A folder containing a PDF version of the <i>NetBackup User’s Guide for Mac OS</i> .



4. Double-click the `Binary Files` folder icon to open its window. This folder contains the files that are installed by the NetBackup Installer.



The following files are installed into the `Extensions` folder on the startup volume of a NetBackup client:

<code>NetBackupListen</code>	An application extension that runs in the background waiting for requests from NetBackup servers.
<code>NetBackupBPCD</code>	A Faceless Background Application (FBA) that is launched by <code>NetBackupListen</code> when a NetBackup server initiates a backup or restore on the Mac OS client.
<code>NetBackupBpdynamicclient</code>	An FBA that is launched by <code>NetBackupListen</code> periodically if the Mac OS NetBackup client uses a dynamic IP addressing protocol like DHCP.
<code>libvnoauth.dll</code>	A shared library used with Enhanced Authentication.
<code>libvopie.dll</code>	A shared library used with Enhanced Authentication.

The following file is installed into a folder that is named during the NetBackup client installation. See "Installing/Upgrading NetBackup Client Software" on page 52.

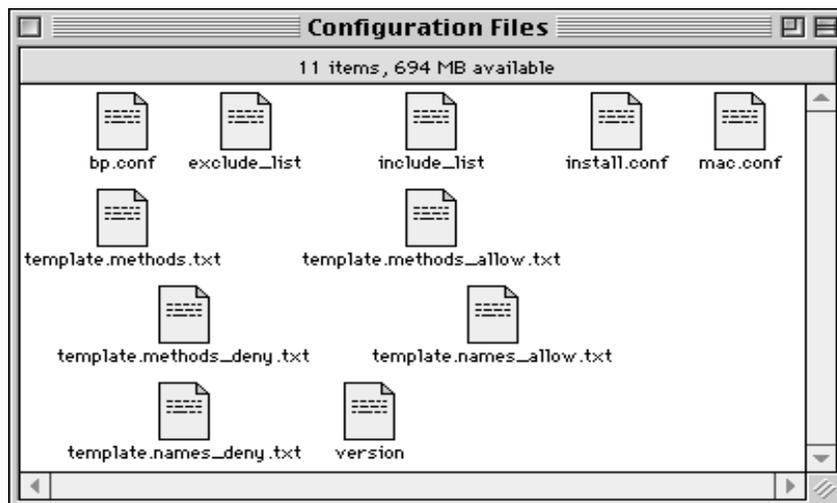
<code>NetBackup</code>	The application that provides the user interface to NetBackup to initiate user-directed backups, archives, and restores.
------------------------	--

**Note** If you do not want users to do user-directed backups, archives, and restores, you should remove this file from the `Binary Files` folder.

The following files are installed into the `Helper Applications` folder. This folder is created in the same folder that is named during the NetBackup client installation.

NetBackupBPBACKUP	A Faceless Background Application (FBA) that is launched by NetBackup to initiate a user-directed backup or archive.
NetBackupBPCLIMAGELIST	An FBA that is launched by NetBackup to get a list of backup images from the NetBackup server.
NetBackupBPLIST	An FBA that is launched by NetBackup to get a list of backed up files from the NetBackup server.
NetBackupBPRESTORE	An FBA that is launched by NetBackup to initiate a user-directed restore.
TailF	An application used by NetBackup to display log files during backups, archives, and restores.

5. Double-click the `Configuration Files` folder icon in the `NetBackup Install` folder to open its window.



See "Editing Client Configuration Files" on page 45 for instructions on modifying these files.



The following text files are installed in the `NetBackup` folder in the `Preferences` folder on the `startup` volume:

<code>mac.conf</code>	Macintosh-specific NetBackup options.
<code>bp.conf</code>	General NetBackup options.
<code>exclude_list</code>	Path name patterns of files that should normally be excluded from backups. These values can be overridden by the <code>include_list</code>
<code>include_list</code>	Path name patterns of files that should be included in backups that would otherwise be excluded.

The following text files are installed in the `auth` folder of the `var` folder in the `NetBackup` folder of the `Preferences` folder on the `startup` volume:

<code>methods.txt</code>	Used by Enhanced Authentication. Do not change this file.
<code>template.methods_allow.txt</code>	Used by Enhanced Authentication. This is a template of the <code>methods_allow.txt</code> file to be created in the same folder.
<code>template.methods_deny.txt</code>	Used by Enhanced Authentication. This is a template of the <code>methods_deny.txt</code> file to be created in the same folder.
<code>template.names_allow.txt</code>	Used by Enhanced Authentication. This is a template of the <code>names_allow.txt</code> file to be created in the same folder.
<code>template.names_deny.txt</code>	Used by Enhanced Authentication. This is a template of the <code>names_deny.txt</code> file to be created in the same folder.

The following file is installed in the `bin` folder in the `NetBackup` folder in the `Preferences` folder on the `startup` volume:

---

**Note** Do not change this file.

---

<code>version</code>	Contains the version string for this release of the the NetBackup software.
----------------------	---



The following file is installed in the `Configuration Files` folder in the `NetBackup Installation` folder in the `NetBackup Admin` folder on the startup volume:

`install.conf`      The `install.conf` file defines installation options for the NetBackup Installer. At a minimum, you have to remove the first line of this file before installing NetBackup software on the client. See “Configuring the `install.conf` File” on page 50.

## Editing Client Configuration Files

This section explains how to configure the following files:

- ◆ `mac.conf`
- ◆ `bp.conf`
- ◆ `exclude_list`
- ◆ `include_list`
- ◆ `install.conf`

These files are then moved from your system and installed on other NetBackup Mac OS clients. On the clients, use the NetBackup Installer to install these files in the `NetBackup` folder of the `Preferences` folder on the startup volume. Once the files are installed on the clients, you can further customize them if desired.

### Configuring the `mac.conf` File

This is a text file that specifies Macintosh-specific NetBackup options. As a minimum, you probably want to uncomment the SMTP host entry in this file and specify the host name of an SMTP server on your network.

Entries in this file are in this format:

`keyword = value`

Each line can be up to 1023 characters long. If a pound sign character (#) appears in a line, that character and everything following it in that line are ignored. Empty lines are also ignored.

The options that you can specify in this file are:

`portnum = number`

Where *number* is a decimal number that specifies the TCP port number that the NetBackup client software uses when waiting for requests from a NetBackup server. The default is 13782.



`bprdport = number`

Where *number* is a decimal number that specifies the TCP port number that the NetBackup client software connects to when making user requests to a NetBackup server. The default is 13720.

`loglevel = number`

Where *number* is 0, 1, 2, or 3 and sets the amount of information logged by the NetBackup client software. The higher the value, the more information that is logged. Level 3 has a negative impact on performance and should only be used when attempting to debug serious problems. The default is 2.

`logexpire = number`

Where *number* is a decimal number of days. The NetBackup client software deletes log files older than the specified number of days. The default is 7.

Log files are in folders within the `logs` folder in the NetBackup folder of the Preferences folder on the startup volume.

Log file names are in the format `log.mmddyy`, where *mm* is the month, *dd* is the day of the month, and *yy* is the year.

`smtphost = hostname`

Where *hostname* is an internet host name of an SMTP server. The NetBackup client software connects to this host when it needs to send mail. If you specify the USEMAIL entry in the `bp.conf` file, you need to specify the `smtphost` entry in the `mac.conf` file as well. There is no default for this option.

`creatorid = 'xxxx'`

Application creator ID assigned to new text files generated by NetBackup. Must be specified as an apostrophe followed by exactly four characters followed by an apostrophe. The default is SimpleText's creator ID of 'ttxx'.

`nice = number`

Where *number* is a decimal number that specifies the number of clock ticks (1/60 of a second) that NetBackup waits each time it gives up the CPU. Usually, the smaller the number, the better the performance for NetBackup and the larger the number, the better the performance for other applications. The default is 1.

`naughty = number`

Where *number* is a decimal number that specifies the maximum number of clock ticks (1/60 of a second) that NetBackup waits before giving up the CPU. A value of zero means that NetBackup always gives up the CPU whenever possible. Sometimes, a larger number will improve the performance for NetBackup. A smaller number will improve the performance for other applications. The default is 10.

`retrywait = seconds`

Number of seconds that `NetBackupListen` waits to try again after a network failure. You may want to increase this value if your Macintosh is likely to be disconnected from the network for long periods of time. The default is 60.

`dynamicnotify = seconds`

Number of seconds to wait to inform the NetBackup server of a dynamic IP address. A value of 0 means no dynamic IP addressing. For DHCP clients, a good value is half of the lease period. The default is 0.

`ignoresharing = value`

If non-zero, do not back up and restore file sharing attributes. If zero, back up and restore file sharing attributes. You may need to use a non-zero value if you are using the file server with AppleShare IP. AppleShare IP 5.0.2 and earlier levels have a bug that causes NetBackup to hang when attempting to back up user and group name information. The default is 0.

`getinfo_comments = value`

If non-zero, attempt to back up Get Info comments. If zero, do not attempt to back up Get Info comments. Versions of the Mac OS NetBackup client before version 3.2 will not be able to restore files that were backed up with Get Info comments. The default is 0.

`macbinaryiii = value`

If non-zero, backup with MacBinary III format. If zero, backup with MacBinary II format. Using MacBinary III enables you to backup new file attributes introduced with Mac OS 8. Versions of the Mac OS NetBackup client before version 3.2 will not be able to restore files that were backed up with MacBinary III format. Default value is 1.

### Sample `mac.conf` file

```
portnum = 13782
bprdport = 13720
loglevel = 2
logexpire = 7
smtphost = raistlin.null.none.com
creatorid = 'ttxt'
nice = 1
naughty = 10
retrywait = 60
dynamicnotify = 0
ignoresharing = 0
getinfo_comments = 0
macbinaryiii = 1
```



## Configuring the bp.conf File

This file on Mac OS clients specifies general NetBackup options. Refer to a *NetBackup System Administrator's Guide* (UNIX or Windows server) for a complete list of the options.

Entries in this file are in this format:

```
keyword = value
```

When creating entries in this file, you can use:

- ◆ A # symbol to comment out lines.
- ◆ Any number of spaces or tabs on either side of = signs.
- ◆ Blank lines.
- ◆ Any number of blanks or tabs at the start of the line.

The options that are of most interest for Mac OS clients are:

```
SERVER = hostname
```

Where *hostname* is an internet host name of a NetBackup master or media server. This is a required entry. Uncomment the SERVER entries and specify the host names of NetBackup master and media servers in your network.

The bp.conf file must contain the names of all servers (both master and media servers) that the client is communicating with during backups. For example:

```
SERVER = raistlin.null.none.com
SERVER = shark.null.none.com
SERVER = whale.null.none.com
```

```
USEMAIL = address
```

Where *address* is an internet e-mail address. The NetBackup client software sends mail about the success or failure of backup operations to this address. You probably want to uncomment the USEMAIL entry and specify your internet e-mail address. For example:

```
root@raistlin.null.none.com
```

If you specify the USEMAIL entry, you need to specify the `smtphost` entry in the `mac.conf` file as well. The default is not to send mail.

```
CLIENT_NAME = clientname
```

Where *clientname* is the NetBackup client name of the Macintosh. The default client name is the internet host name of the Macintosh. Usually, the CLIENT\_NAME will only be specified if the Macintosh uses a dynamic IP address protocol like DHCP.

## Configuring the `exclude_list` and `include_list` Files

You can use the `exclude_list` to specify files that NetBackup should exclude from backups, such as files that are temporary or can be easily reconstructed. You can also create an `include_list` that overrides the exclude list. The include list is useful, for example, if you want to exclude an entire directory except for one file.

The entries in the exclude and include lists are UNIX style path names with UNIX shell wildcard expansion.

---

**Note** Exclude and include lists for specific policy and schedule names (files with `.policyname` and `.policyname.schedulename` suffixes) can also be created on each client. However, the NetBackup Installer only installs the `exclude_list` and `include_list` files without suffixes.

---

## Mapping Mac OS Paths to UNIX Paths

The following section describes how to map your Mac OS file and folder names to the UNIX style names required in the exclude and include lists. Other syntax differences are also explained. With the exception of the differences explained in this section, you should apply the same rules as explained for exclude and include lists in the *NetBackup System Administrator's Guide* (UNIX or Windows server).

When creating the exclude and include lists for a Mac OS, specify the Mac OS paths as follows:

```
/Volume/Folders ... /File
```

where:

- ◆ `Volume` is the name of the Mac OS volume (disk) where the data is located. The first directory in an absolute UNIX path name is always interpreted as the volume. It is a good idea to use a wildcard (\*) in place of the volume because the hard disk name will not necessarily be the same on each client.
- ◆ `Folders` are zero or more Mac OS folder names, separated by slashes, containing the files to be backed up. The Mac OS folder names map to other directories in a UNIX path.
- ◆ `File` is the Mac OS file name. Mac OS file names map to the file name in a UNIX path.

For example, suppose you have a file named `Bldg Layout`, in a folder named `New Stuff`, that is in a folder named `Graphics`, on a hard disk named `Macintosh HD`. You would specify this in an exclude or include list as

```
/Macintosh HD/Graphics/New Stuff/Bldg Layout
```

`Macintosh HD` is the volume, `Graphics` and `New Stuff` are folders, and `Bldg Layout` is the file.



To exclude a folder named `My Stuff` on the hard disk named `Macintosh HD`, you would make the following entry in the exclude list:

```
/Macintosh HD/My Stuff
```

To add the file named `Important` back into the backup, you would make the following entry in the include list:

```
/Macintosh HD/My Stuff/Important
```

### Slashes and Colons

Any slash (/) character in a Mac OS file or folder name maps to a colon (:) character in the UNIX path on the server.

For example, suppose you have a file named `Notes 95/09/30`, in a folder named `My Stuff`, on a hard disk named `Macintosh HD`. That file must be specified in the file list as:

```
/Macintosh HD/My Stuff/Notes 95:09:30
```

### Space Characters

Mac OS file and folder names may contain spaces. The NetBackup server software allows spaces in path names.

### UNIX Shell Wildcard Expansion

UNIX shell wildcard expansion is used in the file paths. For example, the path `/*/BackMeUp` refers to the folders or files named `BackMeUp` at the top level of all the mounted volumes on the Mac OS. To specify all mounted volumes on the Mac OS, use `/*`.

## Configuring the `install.conf` File

This file contains options used by the NetBackup Installer. The NetBackup Installer will not execute until you edit this file and delete the first line of the file.

```
!!!!!! Remove this line when you finish configuration !!!!!!
```

Each line can be up to 1023 characters long. If a pound sign character (#) appears in a line, that character and everything following it in that line are ignored. Empty lines are also ignored.

Entries in `install.conf` are in this format:

```
keyword = value
```

The options that you can specify in this file are:

```
REPLACE_CONFIG_FILES = YES|NO
```



Specify **YES** if you want the existing `bp.conf`, `mac.conf`, `exclude_list`, and `include_list` files on the client Mac OS replaced by the administrator defined configuration files. (If a configuration file does not exist on the client Mac OS, the NetBackup Installer will install the administrator defined configuration file regardless of the value for this option.)

Specify **NO** if you do not want existing configuration files on the client Mac OS replaced. The default is **NO**.

`ALLOW_UNINSTALL = YES|NO`

Specify **YES** if you want the user to be able to uninstall NetBackup from the client Mac OS using the NetBackup Installer. The default is **YES**.

Specify **NO** if you do not want the user to be able to uninstall NetBackup.

`REMOVE_OBSOLETE = YES|NO`

Specify **YES** if you want obsolete NetBackup files removed from the client Mac OS. The default is **YES**.

Specify **NO** if you do not want obsolete NetBackup files removed from the client Mac OS. The obsolete files are usually from old NetBackup Beta installations.

## Creating an Installation Folder

After you modify the files in the `NetBackup Install` folder, you must decide how to distribute the NetBackup client software to Mac OS clients. You probably want to create an AppleShare folder or volume containing the NetBackup Installer. The folder is mounted on Mac OS clients through a Chooser.

### Creating an Installation AppleShare Folder

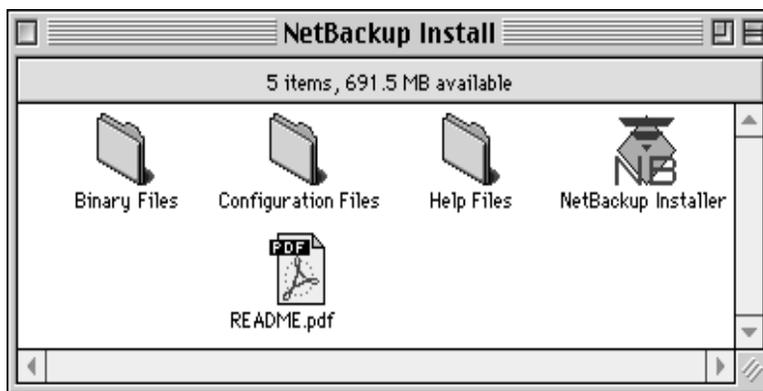
1. If the `NetBackup Install` folder is not on an AppleShare server, copy the folder onto a disk on an AppleShare server.
2. Set the AppleShare attributes on the `NetBackup Install` folder so that the appropriate Mac OS clients can access it.



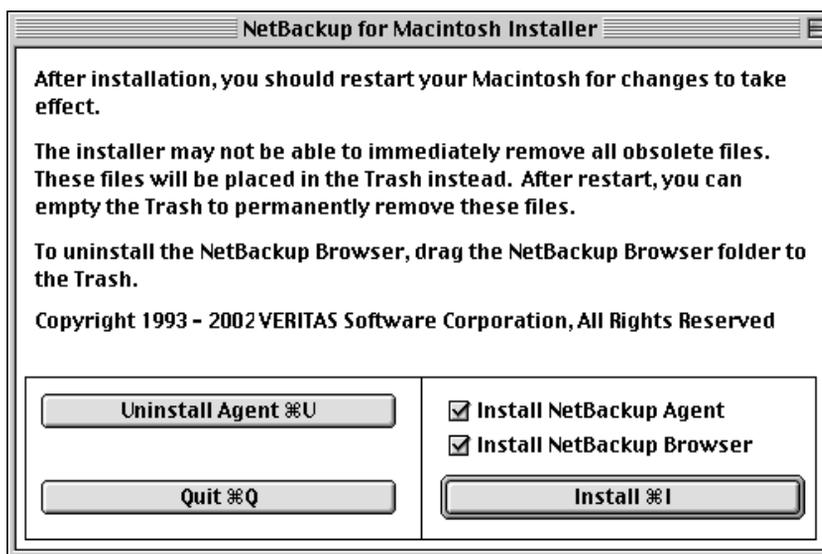
## Installing/Upgrading NetBackup Client Software

**Note** This procedure can be done by the system administrator or the NetBackup user.

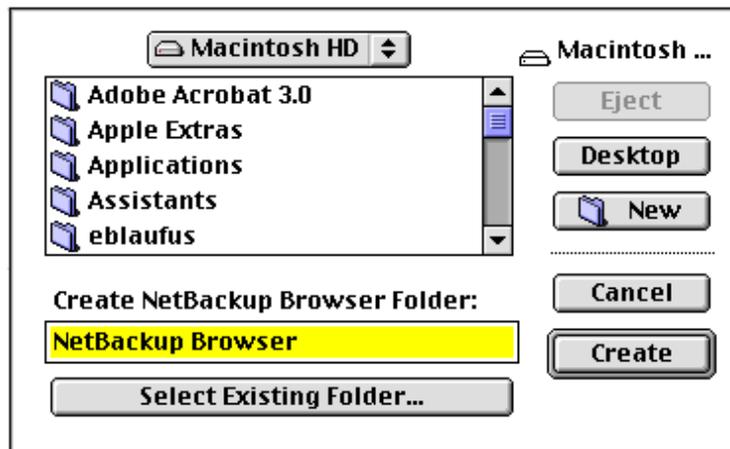
1. Mount the NetBackup Install volume through the Chooser on the Macintosh.
2. Double-click the NetBackup Install disk icon to open the following window.



3. Double-click the NetBackup Installer icon to launch it. The following window is displayed. This window allows you to uninstall and install NetBackup software.



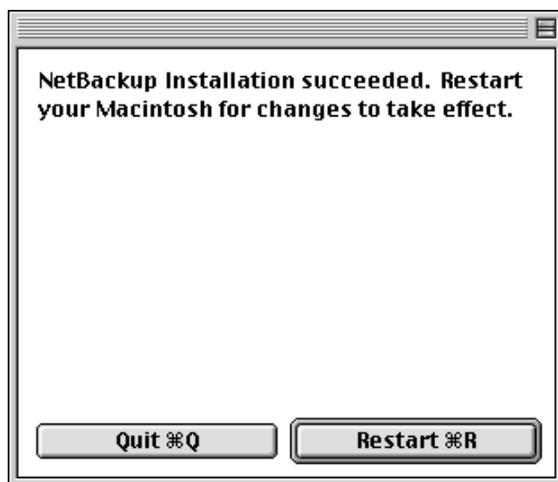
4. To install new NetBackup client software, click the **Install** button.
5. The following window is displayed, prompting you for a directory where the client software is to be installed.



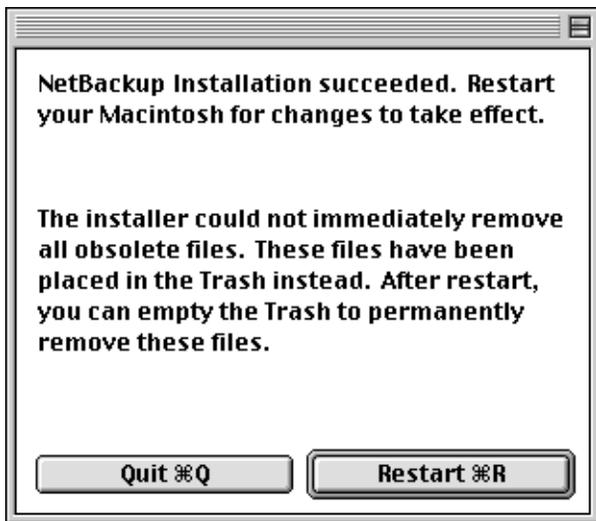
The default folder is “NetBackup Browser.”

Click the **Create** button to install the Browser in the directory.

6. You are informed when the installation succeeded.
  - a. If you are installing NetBackup for the first time, a dialog like this displays:



- b. If you had previously installed NetBackup, a dialog like displays:

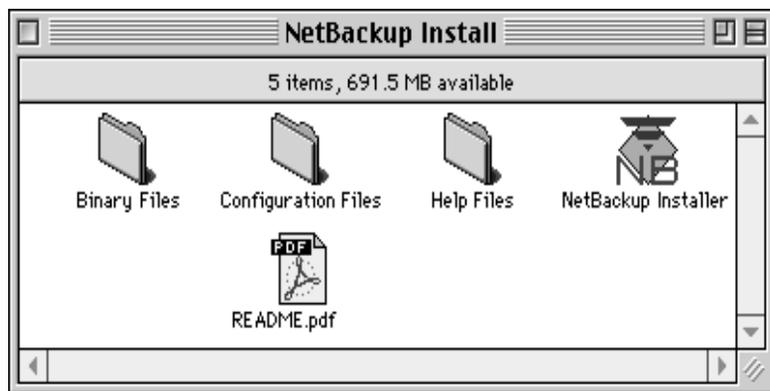


7. If the install is successful, click on the **Restart** button so that NetBackup can be used.

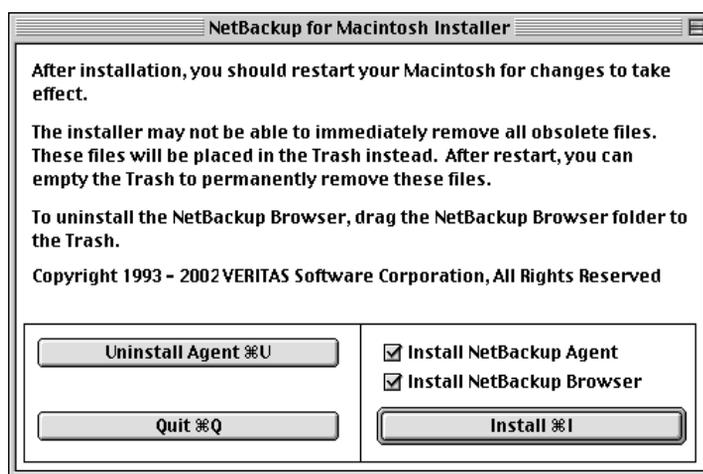
## Uninstalling the NetBackup Client Software

**Note** This procedure can be done by the system administrator or the NetBackup user.

1. Double-click the NetBackup Install disk icon to open the following window.



2. Double-click the NetBackup Installer icon to launch it. The following window is displayed. This window allows you to uninstall and install NetBackup software.



3. Click the **Uninstall Agent** button.
4. Follow the instructions.
5. Click and drag the NetBackup Browser folder to the Trash.



## Configuring the NetBackup Server

---

**Note** The procedures in this section require system administrator privileges.

---

You will need to make some modifications to the NetBackup policy configuration on the NetBackup master server. Setting up policies for Mac OS clients is done in essentially the same way as for other NetBackup clients. However, as explained in the following sections, there are some differences. (Refer to the *NetBackup System Administrator's Guide* (UNIX or Windows server) for complete instructions on configuring the master server.)

### Policy Name

Always create a separate policy for Macintoshes. This is recommended because Mac OS clients may have lower performance than other NetBackup clients. Some of the required attribute settings also make it necessary to place Macintoshes in a separate policy (see “Other Policy Settings” below).

### Policy Client List

In the client list for the Mac OS policy, set the following:

- ◆ Hardware platform to MACINTOSH.
- ◆ Operating system to Mac OS.

### Policy File List

When creating the file list for the policy, specify the Mac OS paths in the same form as used in the exclude and include lists. Refer to “Configuring the exclude\_list and include\_list Files” on page 49.

### Other Policy Settings

- ◆ Do not select `Follow NFS Mounts` or `Client Compress`, since these settings reduce performance.
- ◆ `Cross Mount Points` has no meaning for a Mac OS client.
- ◆ Set the `Max Jobs/Policy` attribute to the default value of 1 in any policy with Mac OS clients. This guards against attempts to start multiple processes on the Mac OS client.
- ◆ Do not set True Image Recovery (TIR) information for performance reasons.

## Example Policy Configuration

The following is an example policy configuration for backing up Mac OS clients:

```
Policy Name:          macbackup

Policy Type:         Standard
Active:              no
Effective date:      12/31/2001 18:00:00
Client Compress:     no
Follow NFS Mounts:  no
Cross Mount Points: no
Collect TIR info:   no
Block Incremental:  no
Mult. Data Streams: no
Frozen Image:        0
Backup Copy:         0
Client Encrypt:      no
Policy Priority:     0
Max Jobs/Policy:    Unlimited
Disaster Recovery:  0
Number of Copies:   1
Fail on Error:      0
Residence:           (specific storage unit not required)
Volume Pool:        NetBackup
Keyword:             (none specified)

HW/OS/Client:  MACINTOSH      MacOS      orion
                MACINTOSH      MacOS      sirius
                MACINTOSH      MacOS      sol

Include:  /*/Documents
          /*/Records/New
          /*/Graphics
```





# Index

---

## A

- Allowing scheduled access
  - NetWare (NonTarget) 23, 24
- AppleShare
  - attributes 51
  - folder 51
- AUTOEXEC.NCF
  - example files
    - NetWare (NonTarget) 20
    - NetWare (Target) 33
  - modifying
    - NetWare (NonTarget) 18
    - NetWare (Target) 30

## B

- bp.conf file, modifying
  - Macintosh 48
- bp.ini file
  - creating
    - NetWare (NonTarget) 19, 23
    - NetWare (Target) 31, 35
  - modifying
    - NetWare (Target) 35

## C

- Class
  - See Policy
- Class name
  - See Policy name
- Client compression
  - Macintosh 56
- Client, policy
  - NetWare (NonTarget) 22
  - NetWare (Target) 34
- Configuring
  - NetBackup client
    - Macintosh 45
    - NetWare (NonTarget) 23
    - NetWare (Target) 35

## Windows 10

- NetBackup server
  - Macintosh 56
  - NetWare (NonTarget) 22
  - NetWare (Target) 34
- Creating an installation
  - folder, Macintosh 51
- Cross Mount Points
  - Macintosh 56

## E

- exclude\_list
  - class file list, Macintosh 56
  - configuration, Macintosh 45, 49, 51

## F

- File list, for class
  - NetWare (NonTarget) 22
  - NetWare (Target) 34
- FixPacks (patches)
  - NetWare (NonTarget) 14
  - NetWare (Target) 26

## H

- Host name
  - bp.conf file 48
  - mac.conf file 46
  - SMTP server 46

## I

- include\_list
  - class file list, Macintosh 56
  - configuration, Macintosh 45, 49, 51
- install.conf file, modifying
  - Macintosh 50
- Installation
  - requirements
    - Novell NonTarget 14
- Installing
  - client software



- Macintosh 39, 52
- NetWare (NonTarget) 16, 21
- NetWare (Target) 28
- Windows 6, 7, 9
- information required
  - Macintosh 38
  - NetWare (Target) 27
- overview
  - Macintosh 37, 39
  - NetWare (NonTarget) 12
  - NetWare (Target) 25
  - Windows 2
- remotely
  - Windows 3, 5, 7
- requirements
  - NetWare (NonTarget) 14
  - NetWare (Target) 26
  - Windows 5
- IP address, dynamic 42, 47, 48

## L

- Log
  - deleting 46
  - filename format 46
- Logexpire 46, 47
- Loglevel 46, 47
- Logs, subdirectory
  - NetWare (NonTarget) 17
  - NetWare (Target) 29

## M

- mac.conf file
  - configuration, Macintosh 45
  - sample, Macintosh 47
- Macintosh
  - client requirements 38
  - uninstall 55
- Mapping Macintosh to UNIX paths 49
- Max Jobs/Client configuration parameter
  - Macintosh 56
- Microsoft Windows 1

## N

- NetBackup Client Service 4, 6
- NetBackup server, required level
  - Macintosh 38
  - NetWare (NonTarget) 15
  - NetWare (Target) 26
- NetWare (NonTarget)
  - TCP/IP, setting up 19

- NetWare (Target)
  - TCP/IP, setting up 31
- NetWare Directory Services (NDS) files 14, 26
- NetWare Loadable Module
  - BP.NLM 17, 29
  - BPCD.NLM 17, 29
  - BPSRV.NLM 17, 29
  - smdr.nlm 14, 18, 26, 30
  - tcPIP.nlm 19, 31
  - tsa410.nlm 18, 30
- NetWare server (NonTarget)
  - installing patch files 14
  - required level 14
- NetWare server (Target)
  - installing patch files 26, 30
  - required level 26
- Novell
  - NonTarget, client requirements 14
  - Novell NetWare NonTarget 11
  - Novell NetWare Target 25

## O

- Open Transaction Manager (OTM) 2, 13, 28
- OTM
  - NetWare NonTarget 12
  - Windows 2

## P

- Policy
  - configuration
    - Macintosh 56
    - NetWare (NonTarget) 22
    - NetWare (Target) 34
  - configuration example
    - Macintosh 57
    - NetWare (Target) 34
  - file list
    - Macintosh 56
  - name 56, 57
  - policy list 56
  - policy type
    - NetWare (NonTarget) 22
    - NetWare (Target) 34
- Policy name
  - exclude\_list and include\_list 49

## R

- Related documents viii



---

## S

- Schedule name
  - exclude\_list and include\_list 49
- Server, NetBackup
  - configuring
    - Macintosh 56
    - NetWare (NonTarget) 22
    - NetWare (Target) 34
- SMTP
  - host entry 45
  - server 45
  - server host name 46
- Supported platforms
  - Macintosh 38
  - NetWare (NonTarget) 14
  - NetWare (Target) 26
  - Windows 5, 14
- System administrator
  - task requires privileges 7, 9, 22, 27, 34, 35, 56
- System administrator, definition vii

## T

- Target files (.TGT)
  - NetWare (Target) 31
- TCP/IP, setting up
  - NetWare (NonTarget) 19
  - NetWare (Target) 31
- Timezone parameter
  - NetWare (NonTarget) 19
  - NetWare (Target) 31

- tsados.nlm 14, 26
- tsands.nlm 14, 26
- TSAs
  - required on DOS workstations 14, 26
  - required on NetWare server 15, 26
  - tsasms.com 14, 26

## U

- Uninstalling
  - client software
    - Macintosh 55
    - NetWare (NonTarget) 24
    - Windows 10
  - NetBackup Browser
    - NetWare (NonTarget) 24
- Unloading NLMs
  - NetWare (NonTarget) 18, 30
- Upgrading
  - client software
    - Macintosh 52
    - NetWare (NonTarget) 19, 21
    - NetWare (Target) 31
- User, definition vii

## V

- Volume
  - NetBackup installation 52

## W

- Windows
  - client requirements 5



