

Veritas NetBackup™ Upgrade Guide

Release 8.1

VERITAS™

Veritas NetBackup™ Upgrade Guide

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Veritas Services and Operations Readiness Tools (SORT)

Veritas Services and Operations Readiness Tools (SORT) is a website that provides information and tools to automate and simplify certain time-consuming administrative tasks. Depending on the product, SORT helps you prepare for installations and upgrades, identify risks in your datacenters, and improve operational efficiency. To see what services and tools SORT provides for your product, see the data sheet:

https://sort.veritas.com/data/support/SORT_Data_Sheet.pdf

Contents

Chapter 1	Introduction	7
	About the NetBackup 8.1 Upgrade Guide	7
	About changes in NetBackup 8.1	8
	About MSDP changes	8
	About certificate requirements for NetBackup 8.1	8
	NetBackup Bare Metal Restore functionality not supported for restoring NetBackup 8.1 clients	9
	SCCM and Chef deployment tools and documentation now available	9
	Potential required changes for NetApp clusters	9
	About automatic file changes from an upgrade	9
	Errors when Bare Metal Restore information is replicated using Auto Image Replication	11
	Known catalog backup limitation	12
	About Veritas Services and Operations Readiness Tools	12
	Recommended SORT procedures for new installations	13
	Recommended SORT procedures for upgrades	17
	About the NetBackup preinstall checker	19
Chapter 2	Planning for an upgrade	20
	About planning a NetBackup 8.1 upgrade	20
	How to plan for an upgrade to NetBackup 8.1	21
	Creating the user account to support the NetBackup web server	22
	Special guidelines for AIX master servers	24
	MSDP changes in NetBackup 8.1	25
	About security certificates for NetBackup hosts	26
Chapter 3	Master server upgrade	27
	About master server upgrades	27
	Preinstall procedure for upgrading to NetBackup 8.1	28
	Performing local, remote, or clustered server upgrades on Windows systems	31
	Performing silent upgrades on Windows systems	39
	Upgrading UNIX/Linux server software to NetBackup 8.1	41

	Post-install procedure for upgrading to NetBackup 8.1	43
	About mounting the NetBackup software media	46
	Mounting NetBackup software media on UNIX or Linux systems	47
	About NetBackup startup and shutdown scripts	48
	Completing your system update after an upgrade	50
Chapter 4	Media server upgrade	52
	Upgrading NetBackup media servers to NetBackup 8.1	52
Chapter 5	MSDP upgrade for NetBackup	56
	MSDP upgrade considerations for NetBackup 8.1	56
	About MSDP rolling data conversion	57
	About MSDP fingerprinting algorithm changes	58
Appendix A	Reference	59
	NetBackup master server web server user and group creation	60
	Generate a certificate on the inactive nodes of a clustered master server	62
	About the NetBackup Java Runtime Environment	63
	About the NetBackup answer file	65
	Update cloud configuration file on the master server immediately after install or upgrade to NetBackup 8.1	67
	About NetBackup software availability	67
	About the NetBackup media kit	68
	About the NetBackup Electronic Software Distribution (ESD) images	69
	Additional post-upgrade steps for NetApp clusters	69
	Using NetApp disk arrays with Replication Director	72
	About compatibility between NetBackup versions	76
	Installation and upgrade requirements for UNIX and Linux	77
	Installation and upgrade requirements for Windows and Windows clusters	80
	Requirements for Windows cluster installations and upgrades	87
	Upgrading clients after servers are upgraded	88
	Install and upgrade of the UNIX and Linux client binaries with native installers	93
	Removing a clustered media server by migrating all data to a new media server	104
	Disabling the connection between your NetBackup OpsCenter server and your NetBackup Master Server	104

Post upgrade procedures for Amazon cloud storage servers	105
Index	107

Introduction

This chapter includes the following topics:

- [About the NetBackup 8.1 Upgrade Guide](#)
- [About changes in NetBackup 8.1](#)
- [Potential required changes for NetApp clusters](#)
- [About automatic file changes from an upgrade](#)
- [Errors when Bare Metal Restore information is replicated using Auto Image Replication](#)
- [Known catalog backup limitation](#)
- [About Veritas Services and Operations Readiness Tools](#)
- [Recommended SORT procedures for new installations](#)
- [Recommended SORT procedures for upgrades](#)
- [About the NetBackup preinstall checker](#)

About the NetBackup 8.1 Upgrade Guide

The NetBackup 8.1 Upgrade Guide is provided to help assist you plan and accomplish your upgrade to NetBackup 8.1. This guide is updated periodically to provide you with the most up-to-date information. You can obtain the latest version of this guide on the NetBackup 8.1 Upgrade portal, at the following link:

<http://www.veritas.com/docs/000115678>

The Veritas Services and Operations Readiness Tools (SORT) is also a valuable resource for upgrade preparation. More information about SORT is available.

See [“About Veritas Services and Operations Readiness Tools”](#) on page 12.

Caution: The NetBackup 8.1 upgrade guide provides an upgrade path from NetBackup version 7.7.x through 8.0. If you want to upgrade from NetBackup versions older than 7.7.x, you must first upgrade to NetBackup 8.0. Please refer to the *NetBackup 8.0 Release Notes* and the *NetBackup 8.0 Upgrade Guide* for details. These documents provide additional information about upgrade steps and requirements that are necessary for a successful upgrade.

<http://www.veritas.com/docs/DOC5332>

About changes in NetBackup 8.1

The following describes some important changes to NetBackup version 8.1. For complete details, see the *NetBackup Release Notes* for version 8.1.

About MSDP changes

Veritas introduced a new encryption algorithm for the Media Server Deduplication Pool (MSDP) in NetBackup 8.0. The Advanced Encryption Standard 256 bits, CTR (AES) replaces the existing Blowfish encryption algorithm. With NetBackup 8.1, Veritas begins use of the SHA-2 fingerprint algorithm as well. With the introduction of the new fingerprint algorithm, NetBackup 8.1 includes a rolling data conversion. This background process converts all existing data containers to the AES encryption and the SHA-2 fingerprint algorithm. More information about the MSDP changes is available. Refer to the *Veritas NetBackup Deduplication Guide*.

See “MSDP upgrade considerations for NetBackup 8.1” on page 56.

See “About MSDP rolling data conversion” on page 57.

About certificate requirements for NetBackup 8.1

Starting with NetBackup 8.1, Veritas requires all communications among 8.1 systems be secure. A certificate is required for communication among 8.1 systems. By default, insecure communication with back-level media servers, Auto Image Replication master servers, and clients is enabled. Once all computers in your environment are upgraded to 8.1, Veritas suggests you disable further insecure communication. See the section on enabling insecure communication in the *Veritas NetBackup Security and Encryption Guide*.

<http://www.veritas.com/docs/DOC5332>

NetBackup Bare Metal Restore functionality not supported for restoring NetBackup 8.1 clients

NetBackup Bare Metal Restore (BMR) functionality is not supported for restoring the clients that have NetBackup 8.1 installed. You can, however, still use Bare Metal Restore for restoring the clients that have NetBackup version 8.0 and earlier installed. While restoring 8.0 and earlier clients, Veritas recommends that you use Shared Resource Tree (SRT) having 8.0 and earlier client version.

SCCM and Chef deployment tools and documentation now available

With the NetBackup 8.1 release, Veritas now supports the use of System Center Configuration Manager (SCCM) and Chef for NetBackup deployment. Veritas has tested and validated several different deployment paths. Documentation and templates for both SCCM and Chef are available. See [SORT](#) for additional details around the support and use of SCCM and Chef.

Potential required changes for NetApp clusters

As part of the 8.1 upgrade, review the settings of any NetApp clusters. If the cluster mode is set to Node scope mode, both Veritas and NetApp recommend that you change to Vserver aware mode. If you plan to move to Vserver aware mode as part of the upgrade, create a detailed image report for each of your filers. Use the `bpimagelist` command to generate this list. Depending on the size of your environment, this activity can take some time. More information is available.

See “[Additional post-upgrade steps for NetApp clusters](#)” on page 69.

About automatic file changes from an upgrade

When you upgrade from an earlier NetBackup version, certain customizable scripts are overwritten. Before NetBackup overwrites these scripts, it saves copies of them so that any modifications are preserved.

For UNIX and Linux

Table 1-1

Path or paths	Protected files and directories	Action
/usr/opensv/netbackup/ bin	backup_notify backup_exit_notify bpend_notify (Optional) bpend_notify_busy (Optional) bpstart_notify (Optional) dbbackup_notify diskfull_notify initbpdbm initbprd restore_notify session_notify session_start_notify userreq_notify	The current NetBackup version number is appended to the file name. Example: backup_notify.version
/usr/opensv/msg/C /usr/opensv/netbackup/ bin/goodies /usr/opensv/netbackup/ bin/help /usr/opensv/volmgr/help	The entire directory.	The entire directory is moved to the directory name plus the current version number. Example: /usr/opensv/netbackup/ bin/goodies.version
/usr/opensv/volmgr/bin	drive_mount_notify (Optional) drive_unmount_notify (Optional) shared_drive_notify	The current NetBackup version number is appended to the file name. Example: shared_drive_notify.version

For Windows

Table 1-2

Path or paths	Protected files and directories	Action
<i>install_path</i> \ NetBackup\bin	nblog.conf backup_exit_notify.cmd backup_notify.cmd dbbackup_notify.cmd diskfull_notify.cmd restore_notify.cmd session_notify.cmd session_start_notify.cmd userreq_notify.cmd	The files are copied to the <i>install_path</i> \ NetBackup\bin. <i>release</i> directory. The release value is the current version of NetBackup. Example <i>install_path</i> \ NetBackup\bin. <i>version</i>
<i>install_path</i> \ NetBackup\bin\goodies	netbackup.adm help_script.cmd available_media.cmd check_coverage.cmd cleanstats.cmd duplicate_images.cmd verify_images.cmd bpstart_notify bpend_notify	The files are copied to the <i>install_path</i> \ NetBackup\bin\ goodies. <i>release</i> directory. The release value is the current version of NetBackup. Example <i>install_path</i> \ NetBackup\bin. <i>version</i>

Errors when Bare Metal Restore information is replicated using Auto Image Replication

Successful Auto Image Replication (AIR) of Bare Metal Restore (BMR) information requires two things. First, the master server in the target domain must have BMR enabled. Second, the master server in the target domain must be at the same or higher version of NetBackup than any clients that send BMR information. For example, if the master server in the target domain is NetBackup 8.1 and the client in the originating domain is 7.7.3, AIR works correctly.

If the client in the originating domain is NetBackup 8.1 and the master in the target domain is 7.7.3, the BMR information fails to replicate. All other information is

successfully sent, only the BMR information is not replicated. You can restore the contents of the client, but you cannot use BMR.

More information about this topic is available.

<http://www.veritas.com/docs/TECH211267>

Known catalog backup limitation

Veritas supports mixed versions of NetBackup in the backup environment. Limitations exist, however, when you back up the NetBackup catalog.

If the master server performs catalog backups to a separate media server, the media server must use the same version of NetBackup as the master server. Failure to use the same version of NetBackup on the media server results in improperly protected catalog data.

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

More information on mixed version support is available.

See “[About compatibility between NetBackup versions](#)” on page 76.

About Veritas Services and Operations Readiness Tools

Veritas Services and Operations Readiness Tools (SORT) is a robust set of standalone and web-based tools that support Veritas enterprise products. For NetBackup, SORT provides the ability to collect, analyze, and report on host configurations across UNIX/Linux or Windows environments. This data is invaluable when you want to assess if your systems are ready for an initial NetBackup installation or for an upgrade.

Access SORT from the following webpage:

<https://sort.veritas.com/netbackup>

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

- **Installation and Upgrade Checklist**

Use this tool to create a checklist to see if your system is ready for a NetBackup installation or an upgrade. This report contains all the software and the hardware compatibility information specific to the information provided. The report also

includes product installation or upgrade instructions, as well as links to other references.

- **Hot fix and EEB Release Auditor**
 Use this tool to find out whether a release that you plan to install contains the hot fixes that you need.
- **Custom Reports**
 Use this tool to get recommendations for your system and Veritas enterprise products.
- **NetBackup Future Platform and Feature Plans**
 Use this tool to get information about what items Veritas intends to replace with newer and improved functionality. The tool also provides insight about what items Veritas intends to discontinue without replacement. Some of these items include certain NetBackup features, functionality, 3rd-party product integration, Veritas product integration, applications, databases, and the OS platforms.

Help for the SORT tools is available. Click **Help** in the upper right corner of the SORT home page. You have the option to:

- Page through the contents of the help similar to a book
- Look for topics in the index
- Search the help with the search option

Recommended SORT procedures for new installations

Veritas recommends new NetBackup users perform the three procedures that are listed for an initial introduction to SORT. The tool has many other features and functions, but these serve as a good introduction to SORT. In addition, the procedures provide a helpful base of knowledge for other SORT functionality.

Table 1-3

Procedure	Details
Create a Veritas Account on the SORT webpage	See "To create a Veritas Account on the SORT page" on page 14.
Create generic installation reports	See "To create a generic installation checklist" on page 14.

Table 1-3 (continued)

Procedure	Details
Create system-specific installation reports	<p>See “To create a system-specific installation report for Windows” on page 15.</p> <p>See “To create a system-specific installation report for UNIX or Linux” on page 16.</p>

To create a Veritas Account on the SORT page

- 1 In your web browser, navigate to:
<https://sort.veritas.com/netbackup>
- 2 In the upper right corner, click **Login**, then click **Register now**.
- 3 Enter the requested login and contact information:

Email address	Enter and verify your email address
Password	Enter and verify your password
First name	Enter your first name
Last name	Enter your last name
Company name	Enter your company name
Country	Enter your country
Preferred language	Select your preferred language
CAPTCHA text	Enter the displayed CAPTCHA text. If necessary, refresh the image.

- 4 Click **Submit**.
- 5 When you receive your login information, you can log into SORT and begin uploading your customized information.

To create a generic installation checklist

- 1 In your web browser, navigate to:
<https://sort.veritas.com/netbackup>
- 2 Find and select the **Installation and Upgrade Checklist** widget.

3 Specify the requested information

Product	Select the appropriate product from the drop-down menu. For NetBackup select NetBackup Enterprise Server or NetBackup Server .
Product version you are installing or upgraded to	Select the correct version of NetBackup. The most current version is always shown at the top of the list.
Platform	Select the operating system that corresponds to the checklist you want generated.
Processor	Select the correct processor type for your checklist.
Product version you are upgrading from (optional)	For new installations, do not make any selections. For upgrades, you can select the currently installed version of NetBackup.

4 Click **Generate Checklist**.

- 5 A checklist corresponding to your choices is created. You can modify your selections from this screen, and click **Generate Checklist** to create a new checklist.

You can save the resulting information as a PDF. Numerous options are available for NetBackup and many of them are covered in the generated checklist. Please spend time reviewing each section to determine if it applies to your environment.

To create a system-specific installation report for Windows

- 1 Go to the SORT website:
<https://sort.veritas.com/netbackup>
- 2 In the **Installation and Upgrade** section, select **Installation and Upgrade custom reports by SORT data collectors**.
- 3 Select the **Data Collectors** tab
- 4 Select the radio button for **Graphical user interface** and download the correct data collector for your platform.

The data collector is OS-specific. To collect information about Windows computers, you need the Windows data collector. To collect information about UNIX computers, you need the UNIX data collector.
- 5 Launch the data collector after it finishes downloading.

- 6 On the **Welcome** screen, select **NetBackup** from the product family section and click **Next**.
- 7 On the **System Selection** screen, add all computers you want analyzed. Click **Browse** to see a list of computers you can add to the analysis. Veritas recommends starting the tool with an administrator or a root account.
- 8 When all systems are selected, review the **System names** section and click **Next**.
- 9 In the **Validation Options** screen, under **Validation options**, select the version to which you plan to upgrade.
- 10 Click **Next** to continue
- 11 The utility performs the requested checks and displays the results. You can upload the report to My SORT, print the results, or save them. Veritas recommends that you upload the results to the My SORT website for ease of centralized analysis. Click **Upload** and enter your My SORT login information to upload the data to My SORT.
- 12 When you are finished, click **Finish** to close the utility.

To create a system-specific installation report for UNIX or Linux

- 1 Go to the SORT website:
<https://sort.veritas.com/netbackup>
- 2 In the **Installation and Upgrade** section, select **Installation and Upgrade custom reports by SORT data collectors**.
- 3 Select the **Data Collector** tab.
- 4 Download the appropriate data collector for your platform.

The data collector is OS-specific. To collect information about Windows computers, you need the Windows data collector. To collect information about UNIX computers, you need the UNIX data collector.
- 5 Change to directory that contains downloaded utility.
- 6 Run `./sortdc`

The utility performs checks to confirm the latest version of the utility is installed. In addition, the utility checks to see it has the latest data. The utility then lists the location of the log file for this session.
- 7 If requested, press **Enter** to continue.
- 8 Select the **NetBackup Family** at the **Main Menu**.

- 9** Select **Installation/Upgrade report** when prompted **What task do you want to accomplish?**

You can select multiple options by separating your response with commas.
- 10** Specify the system or systems you want included in the report.

If you previously ran a report on the specified system, you may be prompted to run the report again. Select **Yes** to re-run the report.

The utility again lists the location of the log files for the session.

The progress of the utility is displayed to the screen.
- 11** Specify **NetBackup** when prompted for the product you want installation or upgrade reports.
- 12** Enter the number that corresponds to the version of NetBackup you want to install.

The utility again lists the location of the log files for the session.

The progress of the utility is displayed to the screen.
- 13** The utility prompts you to upload the report to the SORT website if you want to review the report online. The online report provides more detailed information than the text-based on-system report.
- 14** When your tasks are finished, you can exit the utility. You have the option to provide feedback on the tool, which Veritas uses to make improvements to the tool.

Recommended SORT procedures for upgrades

Veritas recommends current NetBackup users perform the three procedures that are listed for an initial introduction to SORT. The tool has many other features and functions, but these serve as a good introduction to SORT for users who already use NetBackup. In addition, the procedures provide a helpful base of knowledge for other SORT functionality.

Table 1-4

Procedure	Details
Create a Veritas Account on the SORT webpage	See "To create a Veritas Account on the SORT page" on page 14.

Table 1-4 (continued)

Procedure	Details
Create a system-specific upgrade report	See "To create a system-specific installation report for Windows" on page 15. See "To create a system-specific installation report for UNIX or Linux" on page 16.
Review the future platform and feature plans. Review the hot fix and emergency engineering binary release auditor information.	See "To review future platform changes and feature plans" on page 18. See "To review hot fix and emergency engineering binary information" on page 18.

To review future platform changes and feature plans

- 1** In your web browser, navigate to:
<https://sort.veritas.com/netbackup>
- 2** Find and select the **NetBackup Future Platform and Feature Plans** widget.
- 3** Select **Display Information**.
- 4** Review the information provided
- 5** Optional - sign in to create notification - Click **Sign in and create notification**.

To review hot fix and emergency engineering binary information

- 1** In your web browser, navigate to:
<https://sort.veritas.com/netbackup>
- 2** Find and select the **NetBackup Hot Fix and EEB Release Auditor** widget.
- 3** Enter the hot fix or emergency engineering binary (EEB) information.
- 4** Click **Search**.
- 5** The new page shows a table with the following columns:

Hot fix of EEB Identifier	Shows the hot fix or EEB number that was entered on the previous screen.
Description	Displays a description of the problem that is associated with the hot fix or EEB.
Resolved in Versions	Provides the version of NetBackup where this issue is resolved.

About the NetBackup preinstall checker

The server installer for both the UNIX/Linux and the Windows platforms includes a preinstall checker. This feature helps to determine if your server is ready for a successful installation or upgrade.

The check runs automatically when you start an installation on a master or a media server. The results of the check are shown at the following point:

- UNIX/Linux upgrade script
After you answer the question “Is this host the master server”.
- Windows installation wizard
On the **Ready to Install the Program** screen, where the **Installation Summary** appears.

One of the tests that is performed is a comparison of the locally installed Emergency Engineering Binary (EEB) updates with the fixes included with the version of NetBackup being installed. If any of the preinstall tests fail, a message appears to indicate what type of action is required.

Some test failures are considered minor and let you continue with the installation or the upgrade. Critical test failures prevent the installation or the upgrade from happening. The output informs you that other action must be taken before you can proceed safely with the installation or the upgrade.

The preinstall check results are stored in the following locations:

- UNIX
In the installation trace file in the following path:
`/usr/opensv/tmp`
- Windows
In the following directory:
`%ALLUSERSPROFILE%\Symantec\NetBackup\InstallSummary\`

See [“About Veritas Services and Operations Readiness Tools”](#) on page 12.

Planning for an upgrade

This chapter includes the following topics:

- [About planning a NetBackup 8.1 upgrade](#)
- [How to plan for an upgrade to NetBackup 8.1](#)
- [Creating the user account to support the NetBackup web server](#)
- [Special guidelines for AIX master servers](#)
- [MSDP changes in NetBackup 8.1](#)
- [About security certificates for NetBackup hosts](#)

About planning a NetBackup 8.1 upgrade

The currently installed version of NetBackup affects the upgrade process for the NetBackup 8.1 upgrade. Upgrades from any version of NetBackup must plan for the NBDB database rebuild and the MSDP rolling conversion. [Table 2-1](#) has additional information about what tasks you must perform for the upgrade.

Table 2-1 Required upgrade tasks based on currently installed version

Upgrade task	Versions that must perform the task
NBDB database rebuild	All versions must perform the NBDB database rebuild.
MSDP conversion	All versions that use MSDP must perform the MSDP rolling conversion. See “MSDP upgrade considerations for NetBackup 8.1” on page 56.

Before you begin an upgrade, Veritas recommends that you review the *NetBackup Release Notes* document that is included with your media kit or the electronic product image files. This document describes important changes in NetBackup 8.1 that you should be familiar with before you upgrade.

Caution: To help ensure a successful upgrade to NetBackup 8.1, you should visit the SORT page and the NetBackup Upgrade Portal and for complete upgrade details:

SORT page:

See “[About Veritas Services and Operations Readiness Tools](#)” on page 12.

<https://sort.veritas.com/netbackup>

NetBackup Upgrade Portal:

<http://www.veritas.com/docs/000115678>

See “[How to plan for an upgrade to NetBackup 8.1](#)” on page 21.

How to plan for an upgrade to NetBackup 8.1

Several factors must be considered when you prepare for an upgrade to NetBackup 8.1.

Media Server Deduplication Pool rolling conversion

The NetBackup 8.1 upgrade includes a rolling conversion of the Media Server Deduplication Pool (MSDP).

By default, the rolling conversion is performed when the system is not busy. In other words, the conversion runs when backups, restores, CRQP, CRC checks, compaction, etc. are not active. This conversion is not expected to affect normal system operations. After the rolling conversion is finished, there is no difference between the converted system and a new installation. More information about the rolling conversion is available.

See “[MSDP upgrade considerations for NetBackup 8.1](#)” on page 56.

See “[About MSDP rolling data conversion](#)” on page 57.

Addition of web service account for NetBackup installation and upgrade

Beginning with NetBackup 8.0, the NetBackup master server includes a configured Tomcat web server to support critical backup operations. This web server operates under user account elements with limited privileges. These user account elements

must be available on each master server (or each node of a clustered master server). More information is available:

See [“NetBackup master server web server user and group creation”](#) on page 60.

Note: Veritas recommends that you save the details of the user account that you use for the NetBackup Web Services. A master server recovery requires the same NetBackup Web Services user account and credentials that were used when the NetBackup catalog was backed up.

Caution: If the NetBackup PBX is running in secure mode, please add the web service user as authorized user in PBX. More information about determining PBX mode and how to correctly add users is available.

<http://www.veritas.com/docs/000115774>

[Table 2-2](#) shows the overview of the upgrade procedure.

Table 2-2 Overview of the upgrade process

Step	Details	More information
1	Review operating system requirements and confirm the computer meets all requirements.	See “Installation and upgrade requirements for UNIX and Linux” on page 77. See “Installation and upgrade requirements for Windows and Windows clusters” on page 80. See “Requirements for Windows cluster installations and upgrades” on page 87.
2	Confirm that the web server user account and group account are created and enabled.	More information is available: See “NetBackup master server web server user and group creation” on page 60.
3	Begin the upgrade process	See “About master server upgrades” on page 27.

Creating the user account to support the NetBackup web server

Beginning with NetBackup 8.0, the NetBackup master server includes a configured web server to support critical backup operations. This web server operates under user account elements with limited privileges. These user account elements must be available on each master server (or each node of a clustered master server).

You can use numerous procedures to create users and groups in operating systems. Some specific approaches are shown but other methods may accomplish the same goal. The home directory path, user name, and group names are not hard-coded, and can be changed. The default local user name is **nbwebsvc**, and the default local group name is **nbwebgrp**.

Note: For UNIX and Linux platforms, the UID must be the same for each local account in a clustered environment. Be sure that the local accounts are defined consistently on all cluster nodes.

To create the user account and the user group on non-AIX UNIX or Linux

- 1 Create the local group with the command shown:

Command: `/usr/opensv/netbackup/bin # groupadd group_name`

Example: `/usr/opensv/netbackup/bin # groupadd nbwebgrp`

- 2 Create the local user account with the command shown:

Command: `/usr/opensv/netbackup/bin # useradd -g group_name -c comment -d /usr/opensv/wmc user_name`

Example: `/usr/opensv/netbackup/bin # useradd -g nbwebgrp -c 'NetBackup Web Services application account' -d /usr/opensv/wmc nbwebsvc`

To create the user account and the user group on AIX

- 1 Create the local group with the command shown:

Command: `# mkgroup group_name`

Example: `# mkgroup nbwebgrp`

- 2 Create the local user account with the command shown:

Command: `# mkuser home='home_directory_path' groups='group_name' user_name`

Example: `# mkuser home='/usr/opensv/wmc' groups='nbwebgrp' nbwebsvc`

To create the user account and the user group on Windows

Note: You must use domain accounts in clustered environments on Windows.

Note: Web service user account names are limited to 20 characters.

- 1 Create the local user account with the command shown:

Command: `C:\>net user user_name StrongPassword /add` (where *StrongPassword* is a strong password to associate with the account)

Example: `C:\>net user nbwebsvc 1U*s7lQ# /add`

- 2 Create the local group with the command shown:

Command: `C:\>net localgroup group_name /add`

Example: `C:\>net localgroup nbwebgrp /add`

- 3 Make the new user a member of the new group with the command shown:

Command: `C:\>net localgroup group_name user_name /add`

Example: `C:\>net localgroup nbwebgrp nbwebsvc /add`

- 4 Grant the **Log On As a Service** right to the new user as follows:

- Go to **Control Panel > Administrative Tools > Local Security Policy**.
- Under **Security Settings**, click **Local Policies** and then **User Rights Assignment**.
- Right-click on **Log on as a service** and select **Properties**.
- Add the local user.
- Save your changes and close the **Log on as a service** properties dialog.

Installation of the NetBackup master server fails if any of these requirements are not met. On Windows, you are asked to provide the password for the user account as part of the installation process.

Special guidelines for AIX master servers

Because of known memory problems, Veritas recommends you reset memory values for AIX master servers. Veritas recommends that you run the commands shown:

- `ulimit -s unlimited`
- `ulimit -d unlimited`
- `ulimit -m unlimited`

These changes set the physical memory size, the data area size, and the stack size to unlimited. These changes resolve known memory problems for AIX. Be sure to stop and restart the NetBackup daemons after you change the `ulimit` value.

MSDP changes in NetBackup 8.1

The NetBackup 7.7.x or 8.0 to 8.1 upgrade includes a rolling Media Server Deduplication Pool (MSDP) data conversion. This conversion works in the background to convert all existing data containers to the AES encryption and the SHA-2 fingerprint algorithm. You can manage and monitor the rolling data conversion with the `crcontrol` command. More information about the use of the `crcontrol` command is available. See the rolling data conversion sections in the *Veritas NetBackup Deduplication Guide*. Additionally, refer to the `crcontrol` command in the *Veritas NetBackup Commands Reference Guide*.

The rolling conversion is performed when the system is not busy. In other words, the conversion runs when backups, restores, CRQP, CRC checks, compaction, etc. are not active. This conversion is not expected to affect normal system operations. After the rolling conversion is finished, there is no difference between the converted system and a new installation.

No explicit steps are required for conversion process during the upgrade of NetBackup. After upgrade, the rolling conversion begins to work in the background. Once the rolling conversion is started, is not possible return to the original NetBackup version. More information about the rolling conversion is available. See the rolling data conversion sections in the *Veritas NetBackup Deduplication Guide*.

Table 2-3 MSDP upgrade details

Activity	Details
Original NetBackup version	7.7.x and 8.0
Final upgraded NetBackup version	8.1
Conversion required	A rolling conversion to the AES encryption and the SHA-2 fingerprint algorithm. The rolling conversion starts automatically after NetBackup upgrade installation completion.
Monitor, control, and time calculations for the conversion	More information about the rolling conversion is available. See the rolling data conversion sections in the <i>Veritas NetBackup Deduplication Guide</i> .
Required downtime?	No downtime is required. The rolling conversion is performed when the system is not busy. In other words, the conversion runs when backups, restores, CRQP, CRC checks, compaction, etc. are not active.

About security certificates for NetBackup hosts

NetBackup uses security certificates for authentication of NetBackup hosts. The NetBackup security certificates conform to the X.509 Public Key Infrastructure (PKI) standard. A master server acts as the Certificate Authority (CA) and issues security certificates to hosts.

NetBackup provides two types of NetBackup host security certificates: Host ID-based certificates and host name-based certificates. Host ID-based certificates are based on Universally Unique Identifiers (UUID) that are assigned to each NetBackup host. The NetBackup master server assigns these identifiers to the hosts.

Any security certificates that were generated before NetBackup 8.0 are now referred to as host name-based certificates. NetBackup is in the process of replacing these older certificates with newer host ID-based certificates. The transition will be completed in future releases and the use of host name-based certificates will be eliminated. However, the transition is ongoing and NetBackup 8.1 continues to require the older host name-based certificates for certain operations.

Master server upgrade

This chapter includes the following topics:

- [About master server upgrades](#)
- [Preinstall procedure for upgrading to NetBackup 8.1](#)
- [Performing local, remote, or clustered server upgrades on Windows systems](#)
- [Performing silent upgrades on Windows systems](#)
- [Upgrading UNIX/Linux server software to NetBackup 8.1](#)
- [Post-install procedure for upgrading to NetBackup 8.1](#)
- [About mounting the NetBackup software media](#)
- [About NetBackup startup and shutdown scripts](#)
- [Completing your system update after an upgrade](#)

About master server upgrades

Upgrade NetBackup on the master server before you upgrade NetBackup on any other computers in your environment. Once the master server upgrade is finished, you can upgrade media servers, and then clients. NetBackup supports a mixed version environment. More information about this topic is available.

See [“About compatibility between NetBackup versions”](#) on page 76.

NetBackup includes an administration console for all the supported versions of NetBackup. More information about supported versions of NetBackup is available.

<https://sort.veritas.com/eosl>

Note: Veritas recommends that after you install or upgrade NetBackup server software, you should uninstall older versions of the Remote Administration Console (Windows and Java) present on the host. If the native NetBackup Administration Console for Windows is present, it is automatically uninstalled when you install or upgrade the NetBackup server software.

See “[About compatibility between NetBackup versions](#)” on page 76.

Proceed with the upgrade.

See “[Preinstall procedure for upgrading to NetBackup 8.1](#)” on page 28.

Preinstall procedure for upgrading to NetBackup 8.1

Use the following procedure to upgrade your environment to NetBackup 8.1.

Veritas has developed tools to help you perform the extra step that is required for the guided method. For more details, contact your Business Critical Services (BCS) representative.

Note: Remember to update NetBackup OpsCenter to version 8.1 before you update your NetBackup master servers to version 8.1. You must also disable OpsCenter data collection. See the *NetBackup OpsCenter Administrator's Guide* for complete information.

<http://www.veritas.com/docs/DOC5332>

Be aware there is a known issue for OpsCenter upgrades on 64-bit Windows platforms. If language packs or Maintenance Packs are installed, the upgrade can fail. More information about this issue is available.

<http://www.veritas.com/docs/TECH211070>

You can disable the OpsCenter data collection for a specific master server. If you disable data collection, you can upgrade your master server before your OpsCenter server. Disabling data collection results in known issues. More information about disabling data collection and the risks is available.

Note: For NetBackup installations that include globally clustered master servers using the Global Cluster Option (GCO), follow the upgrade planning guidelines in this guide. Then, refer to the following document for the specific steps to upgrade these servers: <http://www.veritas.com/docs/HOWTO73064>

Preinstall steps to upgrade to NetBackup 8.1 and complete the image metadata migration

- 1 Perform environment checks with the SORT tool.
See [“Recommended SORT procedures for upgrades”](#) on page 17.
- 2 Perform any pre-upgrade tasks that you would normally do in regard to your NetBackup environment. For example:
 - Stop all customized or third-party scripts.
 - Perform any cluster-specific tasks.
 - Run a hot catalog backup.
 - Disable OpsCenter data collection for this master server.
 - Disable all storage lifecycle policies (SLPs).
 - Deactivate all NetBackup policies.
 - Deactivate all disk staging storage units for all pre-NetBackup 7.5.x environments.
 - For clustered systems only, take the following NetBackup resources offline:
 - Windows Server Failover Clusters (WSFC): Take all of the NetBackup group resources offline except for the disk, the virtual name, and the virtual IP address. Refer to the Microsoft Cluster Administration documentation to determine how to take the NetBackup group resources offline through the cluster administrator interface.
 - Cluster Server (VCS) clusters: Take the NetBackup resource offline. Freeze the NetBackup group with the `-persist` option using the command shown:

```
hagrp -freeze NetBackup_service_group -persistent
```

Refer to the *Veritas NetBackup Clustered Master Server Administrator's Guide* for the commands to take these resources offline.
- 3 (Conditional) If you plan to change your NetApp cluster to Vserver mode from node scope mode, create a detailed image report for each filer. You can generate this report with the `bpimagelist` command. The example that is shown is one possible option. Use whatever options are necessary for your environment.

```
bpimagelist -client ndmp_host_name
```

- 4 Beginning with NetBackup 8.0, the NetBackup master server includes a configured Tomcat web server to support critical backup operations. This web server operates under user account elements with limited privileges. These user account elements must be available on each master server (or each node of a clustered master server). More information is available:

See “[NetBackup master server web server user and group creation](#)” on page 60.

Note: Veritas recommends that you save the details of the user account that you use for the NetBackup Web Services. A master server recovery requires the same NetBackup Web Services user account and credentials that were used when the NetBackup catalog was backed up.

Note: If the NetBackup PBX is running in secure mode, please add the web service user as authorized user in PBX. More information about determining PBX mode and how to correctly add users is available.

<http://www.veritas.com/docs/000115774>

- 5 Stop any applications on the system that interact with NetBackup. This step includes any databases or system components being backed up. Failure to stop these applications may result in unexpected behavior. Observed behavior includes aborted upgrades and application failures.

For Oracle users, you must take down your database and your listener processes before you upgrade.

If you cannot stop your Oracle database, a procedure is available that may let you install NetBackup with the Oracle database active. More information on this topic is available.

<http://www.veritas.com/docs/TECH158276>

- 6 Stop all NetBackup services.
- On UNIX systems: `/usr/opensv/netbackup/bin/bp.kill_all`
 - On Windows systems: `install_path\NetBackup\bin\bpdown -f`

The preinstall procedure is completed. Proceed to upgrade the NetBackup binaries, based on your platform. More information is available about this topic.

- See “[Performing local, remote, or clustered server upgrades on Windows systems](#)” on page 31.
- See “[Performing silent upgrades on Windows systems](#)” on page 39.
- See “[Upgrading UNIX/Linux server software to NetBackup 8.1](#)” on page 41.

Performing local, remote, or clustered server upgrades on Windows systems

Use the following procedure to upgrade to NetBackup 8.1 on a local, a remote, or a clustered computer.

To upgrade the NetBackup binaries for a local, remote, or clustered server on Windows

- 1 Log on to the system where you want to initiate the NetBackup upgrade. Be sure to log on with administrator privileges.
 - To upgrade local Windows systems, log on to the computer directly at the console.
 - To upgrade remote Windows systems, log on to a system with network access to all of the hosts where you want to install NetBackup.
 - To upgrade clustered Windows systems, log on to the active node (the node with the shared disk).
- 2 Start the NetBackup Installation Wizard with one of the following methods:
 - DVD media
Insert the NetBackup for Windows DVD in the drive. If Autorun is disabled, navigate to the DVD drive and run `Browser.exe`.
 - ESD images (downloaded files)
Navigate to the directory where the images reside and run `Browser.exe`.
- 3 On the initial browser screen (**Home**), click **Installation**.
- 4 On the **Installation** screen, click **Server Software Installation**.
- 5 On the **Welcome** screen, review the content and click **Next**.
- 6 (Conditional) If you previously installed NetBackup 8.1 on this host, you see the **Program Maintenance** dialog.
 - Select **Modify** to change installation settings for the local host, or to use the local host as a platform to perform push installation to remote hosts.
 - Select **Repair** to restore NetBackup 8.1 to its original state on the local host.
 - Select **Remove** to remove NetBackup 8.1 from the local host.
- 7 On the **License Agreement** screen, do the following:
 - **I agree to and accept the terms of the license agreement.**
You must select this item to upgrade the software.

- Click **Next**.

8 On the **Veritas NetBackup Installation Type** screen, provide the following information:

Where to install	<p>For a local upgrade, select Install to this computer only.</p> <p>For a remote upgrade, select Install to multiple computers on your network.</p> <p>For a clustered upgrade, the only option is Install a clustered master server.</p>
Typical	Select this option to upgrade NetBackup with the default settings.
Custom	Select this option to override the default NetBackup settings.

Click **Next**.

9 On the **NetBackup License and Server Type** screen, provide the following information:

- **License**
For upgrades, the license for the existing installation type determines which components you can select.

Note: For remote upgrades, the license that you enter here gets pushed to the other nodes. Your license may enable add-on products. If you push NetBackup to nodes that have an add-on product already installed, your license works for the add-on product(s).

For remote or for clustered upgrades, the following occurs during the upgrade process to verify that you have the proper credentials to perform the upgrade:

- When you select a clustered system for upgrade, NetBackup determines if you have proper administrator credentials on all nodes in the cluster. If you do not have the proper credentials, the system is not added to the list.
- If you have the proper credentials, NetBackup performs a second check to determine if a license is needed. If a license is needed and one was not entered, the system cannot be added to the list. You must enter a valid license to upgrade on that node. If you enter an invalid license, this screen remains visible until a valid license is entered.

Performing local, remote, or clustered server upgrades on Windows systems

- Click **NetBackup Master Server** to proceed to upgrade the master server software.
- Click **NetBackup Media Server** to proceed to upgrade the media server software.

10 On the **NetBackup Web Services** screen, enter the **Web Services Password**.

This password is the password for the NetBackup web services user account. You must create this account before you install the master server. More information is available.

On the **NetBackup Web Services** screen, specify the account type and the account details.

What types of accounts should we use?

Select either **Local** or **Domain (Active Directory)**.

Select **Local** if you want to associate the web server with a user and a group account that exist on the local host.

Select **Domain (Active Directory)** if you want to associate the web server with a user and a group account that exist on a trusted Windows domain.

What are the existing account details

Specify the information as shown:

- **Domain** - If you chose the **Domain (Active Directory)** account type, specify the name of the domain to which the user and the group accounts belong.
- **Group** - Specify the name of the group account to associate with the web server.
- **User** - Specify the name of the user account to associate with the web server. For security reasons, do not specify a user account that has administrative privileges on the host.
- **Password** - Specify the password of the user account in the **User** field.

More information is available.

See [“Installation and upgrade requirements for Windows and Windows clusters”](#) on page 80.

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

This step describes how to select and configure the **NetBackup Features**, **NetBackup Port Numbers**, and the **NetBackup Services**.

Performing local, remote, or clustered server upgrades on Windows systems

- **NetBackup Port Numbers**

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

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

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

Click **Next**.

- **NetBackup Services**

On this screen, provide the following startup account and startup type information for NetBackup services:

Log On

Specify either **Local System account** or **This account**.

By default, the **Local System account** is selected, so that NetBackup uses the built-in system account. When this option is selected, the fields below it are disabled.

To specify a different system account:

- Select **This account**.
- Enter the account information in the following fields:
 - Domain**
 - Username**
 - Password**

Startup Type

This option determines whether NetBackup services start automatically if you need to restart the NetBackup host. The default is **Automatic**.

To start NetBackup services manually after a restart, select **Manual**.

Start job-related NetBackup services following installation

By default, job-related services are set to start automatically after the upgrade has completed.

To prevent job-related services from starting automatically, click on the box to clear the check mark.

Safe Abort Option

This option determines how the upgrade proceeds if a restart is required as part of the upgrade.

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

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

Click **Next**.

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

- Master Server Name** For master server installations, enter the name of the local computer.
 For media server installations, you must change the name to the master server name to which the media server is configured.
Note: For clustered servers, this field is **NetBackup Virtual Host Name**. Veritas strongly recommends that you not change this value.
- Additional Servers** Enter the names of any additional NetBackup master servers and media servers that you want to communicate with this server. Include the names of computers where you plan to install NetBackup later.
 To enter more than one name, separate each name with a comma or press **Enter** after each name.
- Media Server Name** This field appears only for NetBackup Enterprise media server installations.
 When you install media server software, this field defaults to the local server name.
- OpsCenter Server Name (Optional)** OpsCenter is a web-based administration and management tool for NetBackup.
 If you have an OpsCenter server or plan to install one, enter the server name or the IP address for that server here.
 For a clustered server, do not use the virtual name. Instead, use the actual host name of the cluster node.

Click **Next**.

- 13** For remote upgrades only, on the **Veritas NetBackup Remote Hosts** screen, specify the hosts where you want NetBackup installed.
- **Windows Destination Systems**
 Right-click **Windows Destination Computers** and select from the drop-down menu, or use the following methods:

Performing local, remote, or clustered server upgrades on Windows systems**Browse**

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

- On the **Available Systems** dialog box, select the computer to add and click **Next**.
- On the **Remote Computer Login Credentials** dialog box, enter the user name, the password, and the domain of the account for NetBackup to use on the remote computers.
- If you plan to upgrade multiple remote computers, click the box next to **Remember User Name and Password**. Selecting this option prevents the need to enter this information for each remote computer.

When you provide credentials, you select host nodes and add them to the **Windows Destination Systems** list. These are the nodes on which you remotely upgrade NetBackup. Make sure that you select your local host when you select systems to install.

Each time you choose a system, NetBackup performs system and license checks. For example, it verifies the system for a server upgrade that matches the type that you selected, as follows:

- NetBackup not installed: Considers the remote to be verified.
- NetBackup already installed: Compares the upgrade type on that system to the upgrade type that you request.
- Invalid combination: Notifies you of the problem and disallows the choice. One example of an invalid combination is to try to install a Remote Administration Console on a remote system that is already a master server.
- Remote system not a supported platform or level: Notifies you of the problem and disallows the choice.

The upgrade procedure also verifies that you have proper administrator credentials on the remote system. If you do not have administrator credentials, the **Enter Network Password** screen appears, and prompts you to enter the administrator's user name and password.

Click **OK** and continue selecting destination systems.

This process repeats for each node that you select. You can elect to retain the user name and password. In that case, you are prompted only when the user name or password is not valid.

Note the following about the push-install process in a clustered environment:

- You can upgrade NetBackup on any number of nodes. However, the clustering service sets the limit for the number of nodes in a cluster, not NetBackup.
- Language packages and other NetBackup add-on products cannot be upgraded with the push method. Add-on products must be upgraded on each individual node in the cluster group. For instructions on how to upgrade these products, refer to the NetBackup documentation that supports each product.

Browse (cont.)

(continued)

- NetBackup pushes to the other nodes only the license you enter at the beginning of the upgrade. Your license may enable add-on products. If you push NetBackup to nodes that have an add-on product already installed, your license works for that product.
- Click **OK**.

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

Domain\ComputerName

Add Click here to add a host manually.

- On the **Manual Remote Computer Selection** dialog box appears, enter the **Domain** and the **Computer Name**, then click **OK**.
- On the **Remote Computer Login Credentials** dialog box, enter the **User Name** and the **Password** of the account to be used to perform the upgrade on the remote computers.
If you plan to add and upgrade multiple remote computers, click the box next to **Remember User Name and Password**. Selecting this option prevents the need to enter this information for each remote computer.
- Click **OK**.

Remove To remove a host from the **Destination Systems** list, select the host and click here.

Change Click here to change the destination for NetBackup file installation on the selected remote host.

- Click **Next**.

- 14** For cluster upgrades only, on the **Cluster Settings** screen, review the information displayed. All information except the **Public Network** is displayed for informational purposes and cannot be changed. If you need to change the public network, select the correct public network from the drop-down.

Warning: You must not select a private network that is assigned to this cluster.

Click **Cluster Configuration**. When the successful cluster configuration message appears, click **Next**.

- 15** On the **Ready to Install the Program** screen, review the **Installation Summary** that shows your selections from the previous steps.

Then select one of the following options:

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

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

Performing local, remote, or clustered server upgrades on Windows systems

For remote or for cluster upgrades only, right-click on a system in the dialog box to see the upgrade status. Up to five upgrades occur simultaneously. When an upgrade is completed, another one begins so that a maximum of five upgrades are in progress.

- 16 For remote upgrades only, when all remote upgrades have completed, click **Finish**.
- 17 On the **Installation Complete** screen, select from the following options:

View installation log file

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

Examine the upgrade log at the following location:

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

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

Search the upgrade log for the following error indications:

- Strings that include `Return Value 3`.
- Important log messages that are color coded as follows:
Yellow = warning.
Red = error.

Finish

Select one of the following to complete the upgrade:

- If you are done upgrading software on all servers, click the box next to **Launch NetBackup Administration Console now** and click **Finish**.
The NetBackup Administration Console starts a Configuration Wizard so that you can configure your NetBackup environment.
- If you have more server software to upgrade, click **Finish**.
You can move on to the next computer and upgrade the necessary server software.

- 18 If any NetBackup cluster configuration is modified manually or by any external script, make sure that the change is reflected correctly in NetBackup cluster registry. Contact Veritas Enterprise technical support if you have questions.
- 19 The binaries are successfully installed. Proceed to the post-installation procedure.

More information is available.

See [“Post-install procedure for upgrading to NetBackup 8.1”](#) on page 43.

Performing silent upgrades on Windows systems

A silent upgrade avoids the need for interactive input in the same manner as performing a remote upgrade. Silent NetBackup installations are not supported if you want to run the NetBackup services as a specific user rather than the local system.

To perform a silent upgrade, you must first modify the appropriate NetBackup script. After script modification, you can run the script to initiate the silent upgrade.

The script shuts down all NetBackup services so that the upgrade can be initiated. If the script detects that other system processes still maintain a handle on any NetBackup files, the upgrade fails. To identify which NetBackup processes are still running, check the `NetBackup Install` log file at the following location:

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

After you have manually stopped each of the identified processes, you can run the upgrade script again.

Note: For Windows 2008/2012/2012 R2/2016 Server Core systems, you can only upgrade NetBackup with this procedure.

To upgrade NetBackup server software silently

- 1 Log on as administrator to the system where you want to upgrade NetBackup.
- 2 Insert the NetBackup installation DVD or navigate to the location where the ESD images (downloaded files) reside.
- 3 Open Windows Explorer and copy the contents of the X86 or the X64 directory to a temporary directory on your hard drive. Choose the directory that is associated with the platform type that you want to install.
- 4 Since the source files are read-only, you must change the permissions for the copied files to allow the installation or the update.
- 5 In the temporary directory where the copied files reside, select the appropriate script to modify:
 - To upgrade a master server, edit `silentmaster.cmd`
 - To upgrade a media server, edit `silentmedia.cmd`
 - To upgrade a NetBackup Remote Administration Console, edit `silentadmin.cmd`
- 6 Edit the following lines as needed for your installation:
 - `SET ADDITIONALSERVERS=media1,media2,media3`

Enter the names of any additional NetBackup master servers and media servers that you want to communicate with this host. Include the names of servers where you plan to install NetBackup later.

If no other servers are to communicate with this host, remove this line from the script.

- SET ABORT_REBOOT_INSTALL=0

This line lets you determine how you want the upgrade to continue if a restart is required. Select from the following settings:

0 (default)

By default, a silent upgrade does not abort if it is determined that a restart is required. If you leave this setting at 0, select one of the following tasks:

- After the upgrade is complete, check the installation log to see if a restart is required.
If the string **in use** appears anywhere in the log, you must restart the system manually.
- Force an automatic restart after the upgrade is complete.
To force an automatic restart, before you run the script, remove the following option from the silent installation command script (`silent*.cmd`):

```
REBOOT="ReallySuppress"
```

Warning: A forced restart occurs with no warning to the user. It does not cancel the upgrade or roll back the system to its original state.

1

Select this setting to abort the upgrade if it is determined that a restart is required.

If a restart is needed, this setting cancels the upgrade and the system is rolled back to its original state.

7 Save the script and run it.

8 Examine the installation log at the following location:

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

Search the installation log for the following error indications:

- Strings that include `Return Value 3`.
- Important log messages are color coded as follows:
Yellow = warning.

Red = error.

- 9 The binaries are successfully installed. Proceed to the post-installation procedure. More information is available.

See “[Post-install procedure for upgrading to NetBackup 8.1](#)” on page 43.

Upgrading UNIX/Linux server software to NetBackup 8.1

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

To upgrade UNIX/Linux server software to 8.1

- 1 Log on as the root user on the server.
- 2 If the NetBackup Administration Console is open, you must close it now.
- 3 (Conditional) For clustered environments, perform the following tasks:
 - If necessary, edit the `bp.conf` and the `vm.conf` files as follows:
If a `REQUIRED_INTERFACE` entry exists, replace it with a `CLUSTER_NAME` entry. Otherwise, add a new `CLUSTER_NAME` entry. This entry should be defined as the virtual server name.
For a master server, make sure that the first `SERVER` entry matches the `CLUSTER_NAME` entry for the `bp.conf` file.
 - Take the NetBackup Group offline. Use the command shown:

```
/opt/VRTSvcs/bin/hares -offline
```
 - Freeze the NetBackup Group so that migrations do not occur while the inactive nodes are upgraded. Use the command shown:

```
/opt/VRTSvcs/bin/hagrp -freeze group -persistent
```
 - If you have a VCS cluster configured, you can freeze the NetBackup Group by using the Cluster Manager interface or the command line.
 - Before you proceed with a cluster upgrade, refer to the *NetBackup Clustered Master Server Administrator's Guide* for other cluster upgrade requirements.
<http://www.veritas.com/docs/DOC5332>

- 4** For Solaris systems, all of the NetBackup scripts that you may have modified are removed when you run the upgrade script.

For non-Solaris systems, NetBackup scripts that are not covered in Chapter 1 that you modified are removed when you run the upgrade script. More information about this topic is available.

See “[About automatic file changes from an upgrade](#)” on page 9.

Save any files that you have modified and want to keep.

- 5** (Conditional) For AIX systems, this step deletes any robotic control paths. In an AIX clustered environment, you must perform this step on all nodes in the cluster.

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

<http://www.veritas.com/docs/DOC5332>

- Remove the `ovpass` driver, as follows:

```
/usr/opensv/volmgr/bin/driver/remove_ovpass
```

- 6** Use one of the following methods to start the upgrade script:

DVD

- Insert the NetBackup Server DVD for the appropriate platform in the drive.
Check the DVD label to identify its contents.
See “[About the NetBackup media kit](#)” on page 68.
- If necessary, mount the DVD.
See “[About mounting the NetBackup software media](#)” on page 46.
- Enter the following command:

```
dvd_directory/install
```

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

ESD images (downloaded files)

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

```
./install
```

- 7 Follow the prompts in the installation script to install the NetBackup server binaries.
- 8 When the script finishes, the binaries are successfully installed.
Proceed to the post-installation procedure.
More information is available.
See “[Post-install procedure for upgrading to NetBackup 8.1](#)” on page 43.

Post-install procedure for upgrading to NetBackup 8.1

[Post-installation steps to upgrade to NetBackup 8.1](#) describes the post-installation steps to upgrade NetBackup and complete the image metadata migration.

Post-installation steps to upgrade to NetBackup 8.1

- 1 Check for an available NetBackup 8.1 maintenance release. Maintenance releases include very important fixes that are released after NetBackup 8.1. Veritas encourages you to install the latest available maintenance release during upgrade activities.
To access the latest NetBackup 8.1 maintenance release:
 - Go to the NetBackup SORT website.
<https://sort.veritas.com/netbackup>
 - In the **Installation and Upgrade Checklist** section:
 - Under **Product**, select the correct product (NetBackup Enterprise Server or NetBackup Server)
 - Under **Product version you are installing or upgrading to** specify the latest version of NetBackup
 - Under **Platform** select the platform of the server you want to upgrade.
 - Under **Processor** specify the processor of your server.
 - Under **Product version you are upgrading from (Optional)** select the current version of NetBackup on the server you want to upgrade.
 - Click **Generate Checklist**.
 - Under **Upgrade Information**, there is a **version_number Download Links** hyperlink. Click that hyperlink for the latest maintenance release.
 - If no maintenance release is available, restart `bprd` if you terminated it as part of step 12. Once `bprd` is restarted, proceed to step 21.

UNIX/Linux: `/usr/opensv/netbackup/bin/bprd`

Windows: `install_path\NetBackup\bin\bprd`

- If you find a maintenance release is available, download it now.
- Prepare for the install by stopping all NetBackup processes and services. Use the command shown:

UNIX/Linux: `/usr/opensv/netbackup/bin/bp.kill_all`

Windows: `install_path\NetBackup\bin\bpdown -f`

- Install the maintenance release.
- Restart NetBackup with the commands shown:
 UNIX/Linux systems: `/usr/opensv/netbackup/bin/bp.start_all`
 Windows systems: `install_path\NetBackup\bin\bpup -f`

- 2 Set a passphrase for the disaster recovery package. If you do not set a passphrase, the catalog backups fail. More information is available. Please see the information about passphrases in the *Veritas NetBackup Troubleshooting Guide*.
- 3 Start any applications on the system that interact with NetBackup. This step includes any databases or system components being backed up.
- 4 If you have a clustered master server, generate a certificate on the inactive nodes for secure communications. More information is available.

 See [“Generate a certificate on the inactive nodes of a clustered master server”](#) on page 62.
- 5 (Conditional) This step applies only to cluster installations. If this computer is not a clustered master server upgrade, proceed to the next step.

Update the other nodes in the cluster. You can update the other master servers nodes in the cluster to NetBackup 8.1 by following standard cluster upgrade process. For complete details, see the *Veritas NetBackup Clustered Master Server Administrator’s Guide*.

If the NetBackup resource is not online, bring that resource online.

<http://www.veritas.com/docs/DOC5332>

- 6 If you have any media servers that you intend to upgrade to NetBackup 8.1, you may upgrade them now. If you start any media server upgrades, do not continue with this procedure until the media server upgrades are complete.

Note: NetBackup requires that media servers have a security certificate to function correctly in certain use cases. More information about this topic is available.

See [“About security certificates for NetBackup hosts”](#) on page 26.

More information about this topic is available.

See [“Upgrading NetBackup media servers to NetBackup 8.1”](#) on page 52.

- 7 Reactivate the following in the order as shown:
 - All disk staging storage units.
 - All NetBackup policies.
 - All storage lifecycle policies (SLPs).
 - OpsCenter data collection for this master server.
- 8 (Conditional) If your environment uses cloud storage, you need to update the read and write buffer sizes. More information is available.

See [“Post upgrade procedures for Amazon cloud storage servers”](#) on page 105.
- 9 (Conditional) If you have a NetApp cluster, additional steps may be required. More information is available.

See [“Additional post-upgrade steps for NetApp clusters”](#) on page 69.
- 10 (Conditional) If you use cloud storage in your NetBackup environment, you must update your cloud configuration file. More information is available.

See [“Update cloud configuration file on the master server immediately after install or upgrade to NetBackup 8.1”](#) on page 67.
- 11 Monitor your backup environment to verify that normal NetBackup operation has resumed.

- 12** Upgrade any media servers and clients not already upgraded as time and backup windows permit. Be sure to upgrade the media servers before you upgrade the clients. You cannot back up or restore a NetBackup 8.1 client to a pre-8.1 media server.

See [“Upgrading NetBackup media servers to NetBackup 8.1”](#) on page 52.

A client upgrade is the same as a client installation. See the *NetBackup Installation Guide - UNIX and Windows* manual for help with the installation.

<http://www.veritas.com/docs/DOC5332>

Note: All scripts must be stored and run locally. One recommendation is that scripts should not be world-writable. Scripts are not allowed to be run from network or remote locations. Any script that is created and saved in the NetBackup `db_ext` (UNIX) or `dbext` (Windows) location needs to be protected during a NetBackup uninstall.

For more information about registering authorized locations and scripts, review the knowledge base article:

<http://www.veritas.com/docs/000126002>

For more information about your specific database agent, review the documentation for that agent:

<http://www.veritas.com/docs/DOC5332>

- 13** Perform any additional upgrade steps. More information about this topic is available.

See [“Completing your system update after an upgrade”](#) on page 50.

About mounting the NetBackup software media

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

Table 3-1 Flags and options for mounting NetBackup DVDs

Flags or options	Defined
<code>-v, -t, -F</code>	Specifies the type of file system to mount.
<code>-o</code>	Translates the file names properly if required.

Table 3-1 Flags and options for mounting NetBackup DVDs (*continued*)

Flags or options	Defined
<code>-r</code>	Specifies that you want to mount the DVD for reading.
<code>device_path</code>	Specifies the name of the DVD drive.
<code>mount_point</code>	Specifies the directory where you want to mount the DVD.

See [“Mounting NetBackup software media on UNIX or Linux systems”](#) on page 47.

Mounting NetBackup software media on UNIX or Linux systems

The following procedure describes how to mount the NetBackup DVD on UNIX or Linux systems.

To mount the NetBackup DVD on UNIX or Linux systems

- 1 Log in as `root`.
- 2 Create a mount point (all except Solaris).

```
mkdir /dvd
```

3 (Conditional) on HP-UX systems earlier than 11.23, start PFS daemons.

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

4 Issue the appropriate mount command for your operating system.

AIX	<code>mount -v cdrfs -r <i>device_path</i> <i>mount_point</i></code>
-----	--

AIX	<code>smitty cdrfs</code>
	or
	<code>smitty mountfs</code>

HP-UX earlier than 11.23	<code>pfs_mount -o xlat=unix <i>device_path</i> <i>mount_point</i></code>
--------------------------	---

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

HP-UX later than 11.23	<code>mount -F cdrfs <i>device_path</i> <i>mount_point</i></code>
------------------------	---

Linux	<code>mount <i>device_path</i> <i>mount_point</i></code>
-------	--

Solaris	If Volume Manager (<code>vold</code>) is running, the DVD mounts automatically.
---------	---

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

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

About NetBackup startup and shutdown scripts

When you install NetBackup, the installation script also performs configuration of startup and shutdown scripts. Startup scripts allow the NetBackup daemons to start automatically when the system boots. Shutdown scripts automatically terminate the startup scripts at system shutdown.

The installation process copies the NetBackup startup and shutdown scripts to the appropriate operating system location.

For non-cluster upgrades, any existing NetBackup related startup and shutdown scripts are saved, and the newly released versions of those scripts are installed.

[Table 3-2](#) lists the links for the startup and the shutdown scripts for the various platforms that are installed during NetBackup installation.

Table 3-2 NetBackup startup and shutdown script links by platform

Platform	Links
AIX	<pre>/etc/rc.netbackup.aix</pre> <ul style="list-style-type: none"> ■ The NetBackup installation script edited the <code>/etc/inittab</code> file and added the following entry to ensure that the script is called during a level-two boot: <pre>netbackup:2:wait:/etc/rc.netbackup.aix</pre> ■ To shut down, add the following line to the <code>/etc/rc.shutdown</code> file: <pre>/etc/rc.netbackup.aix stop</pre>
HP-UX	<pre>/sbin/rc1.d/K001netbackup ->/sbin/init.d/netbackup</pre> <pre>/sbin/rc2.d/S777netbackup ->/sbin/init.d/netbackup</pre>
Linux Debian	<pre>/etc/rc0.d/K01netbackup ->/etc/init.d/netbackup</pre> <pre>/etc/rc1.d/K01netbackup ->/etc/init.d/netbackup</pre> <pre>/etc/rc2.d/S95netbackup ->/etc/init.d/netbackup</pre>
Linux Red Hat	<pre>/etc/rc.d/rc0.d/K01netbackup</pre> <pre>->/etc/rc.d/init.d/netbackup</pre> <pre>/etc/rc.d/rc1.d/K01netbackup</pre> <pre>->/etc/rc.d/init.d/netbackup</pre> <pre>/etc/rc.d/rc2.d/S77netbackup</pre> <pre>->/etc/rc.d/init.d/netbackup</pre> <pre>/etc/rc.d/rc3.d/S77netbackup</pre> <pre>->/etc/rc.d/init.d/netbackup</pre> <pre>/etc/rc.d/rc5.d/S77netbackup</pre> <pre>->/etc/rc.d/init.d/netbackup</pre> <pre>/etc/rc.d/rc6.d/K01netbackup</pre> <pre>->/etc/rc.d/init.d/netbackup</pre>

Table 3-2 NetBackup startup and shutdown script links by platform
(continued)

Platform	Links
Linux SUSE	<pre> /etc/init.d/rc0.d/K01netbackup ->/etc/init.d/netbackup /etc/init.d/rc2.d/S77netbackup ->/etc/init.d/netbackup /etc/init.d/rc3.d/S77netbackup ->/etc/init.d/netbackup /etc/init.d/rc5.d/S77netbackup ->/etc/init.d/netbackup /etc/init.d/rc6.d/K01netbackup ->/etc/init.d/netbackup </pre>
Solaris	<pre> /etc/rc0.d/K01netbackup ->/etc/init.d/netbackup /etc/rc1.d/K01netbackup ->/etc/init.d/netbackup /etc/rc2.d/S77netbackup ->/etc/init.d/netbackup </pre>

Completing your system update after an upgrade

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

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

Master server privileges If you upgraded a master server that allowed nonroot users to administer NetBackup, you must reconfigure the permissions and the group. The default permissions and group on the newly installed files allow only a root user to perform NetBackup administration.

Update the trust relationship between remote master servers for targeted auto image replication (AIR) After you upgrade both your source and your target master server, you must update the trust relationship. Run the command that is shown on both the source and the target master servers:

```
nbseccmd -setuptrustedmaster -update
```

More information is available. See the *Veritas NetBackup Commands Reference Guide*.

Add-on products

Upgrade any add-on products (such as NetBackup language packages) on all upgraded clients. All add-on products should be at the same version as the NetBackup client.

NetBackup scripts

If you made changes to NetBackup scripts before the upgrade, apply those changes to the new, upgraded versions of the scripts.

Media server upgrade

This chapter includes the following topics:

- [Upgrading NetBackup media servers to NetBackup 8.1](#)

Upgrading NetBackup media servers to NetBackup 8.1

Upgrades of media servers with MSDP include a rolling data conversion. The rolling conversion is performed when the system is not busy. In other words, the conversion runs when backups, restores, CRQP, CRC checks, compaction, etc. are not active. This conversion is not expected to affect normal system operations. After the rolling conversion is finished, there is no difference between the converted system and a new installation.

NetBackup also requires that media servers have a security certificate so that they function correctly. More information about this topic is available.

See [“About security certificates for NetBackup hosts”](#) on page 26.

NetBackup includes an administration console for all the supported versions of NetBackup. More information about supported versions of NetBackup is available.

<https://sort.veritas.com/eosl>

Table 4-1 Media server migration procedure

Step	Task	Completed
1	If your media server upgrade is part of the master server upgrade, you can proceed to the next step. If not, deactivate the media server.	

Table 4-1 Media server migration procedure (*continued*)

Step	Task	Completed
2	<p>Stop all NetBackup services.</p> <ul style="list-style-type: none"> ■ On UNIX systems: <code>/usr/openv/netbackup/bin/bp.kill_all</code> ■ On Windows systems: <code>install_path\NetBackup\bin\bpdown -f</code> 	
3	<p>Upgrade the NetBackup binaries. More information is available about this topic.</p> <ul style="list-style-type: none"> ■ See “Performing local, remote, or clustered server upgrades on Windows systems” on page 31. ■ See “Performing silent upgrades on Windows systems” on page 39. ■ See “Upgrading UNIX/Linux server software to NetBackup 8.1” on page 41. 	
4	<p>If you did not get a security certificate, generate the certificate. More information about this topic is available.</p> <p>See “About security certificates for NetBackup hosts” on page 26.</p>	

Table 4-1 Media server migration procedure (*continued*)

Step	Task	Completed
5	<p>Check for an available NetBackup 8.1 maintenance release. Maintenance releases include very important fixes that are released after NetBackup 8.1. Veritas encourages you to install the latest available maintenance release during upgrade activities.</p> <p>To access the latest NetBackup 8.1 maintenance release:</p> <ol style="list-style-type: none"> 1 Go to the NetBackup SORT website. https://sort.veritas.com/netbackup 2 In the Installation and Upgrade Checklist section: <ul style="list-style-type: none"> ■ Under Product, select the correct product (NetBackup Enterprise Server or NetBackup Server) ■ Under Product version you are installing or upgrading to specify the latest version of NetBackup ■ Under Platform select the platform of the server you want to upgrade. ■ Under Processor specify the processor of your server. ■ Under Product version you are upgrading from (Optional) select the current version of NetBackup on the server you want to upgrade. ■ Click Generate Checklist. 3 Under Upgrade Information, there is a version_number Download Links hyperlink. Click that hyperlink for the latest maintenance release. 4 If no maintenance release is available, proceed to step 6. 5 If you find a maintenance release is available, download it now. 6 Prepare for the install by stopping all NetBackup processes and services. Use the command shown: UNIX/Linux: <code>/usr/opensv/netbackup/bin/bp.kill_all</code> Windows: <code>install_path\NetBackup\bin\bpdown -f</code> 7 Install the maintenance release. 8 Restart NetBackup with the commands shown: UNIX/Linux systems: <code>/usr/opensv/netbackup/bin/bp.start_all</code> Windows systems: <code>install_path\NetBackup\bin\bpup -f</code> 	
6	<p>(Conditional) If the media server upgrade is part of a master server upgrade, skip this step.</p> <p>Reactivate the media server.</p>	
7	<p>(Conditional) If the media server upgrade is part of a master server upgrade, resume the master server upgrade procedure.</p>	

After successful conversion and when you are comfortable with the new storage format, clean up storage artifacts from the conversion process, as follows:

- **UNIX:** `/usr/opensv/pdde/pdcr/bin/stconv --cleanup`
- **Windows:** `install_path\Veritas\pdde\stconv.exe --cleanup`

MSDP upgrade for NetBackup

This chapter includes the following topics:

- [MSDP upgrade considerations for NetBackup 8.1](#)
- [About MSDP rolling data conversion](#)
- [About MSDP fingerprinting algorithm changes](#)

MSDP upgrade considerations for NetBackup 8.1

Because of the changes in the fingerprint algorithm for MSDP in NetBackup 8.1, consider your MSDP environment as you plan your upgrade path. Any NetBackup 8.0 and older host cannot access the NetBackup 8.1 MSDP because of the new fingerprint algorithm. Failed NetBackup jobs can result from a failure to plan for this condition.

If the media servers list for an 8.1 MSDP storage server contains 8.0 or older servers, you can experience failures because of the new algorithm. If the common media server between an 8.1 server and an 8.0 server is the 8.0 server, jobs can fail. If you use client direct, the client must be upgraded to 8.1 or you can experience client direct restore errors. These failures are because the 8.0 and older hosts cannot access the 8.1 server.

As you plan your upgrade, if you have multiple media servers as part of an MSDP environment, consider the options shown:

- Upgrade all MSDP media servers that share access rights to each other together. Upgrade all clients that use client direct to these MSDP disk pools. This option insures there are no interruptions in your environment.

- Upgrade MSDP media servers and clients using client direct as your environment allows and make no configuration changes.
If the selected common media server is not a NetBackup 8.1 server, the risk is restores, verifies, imports, and optimized duplication may fail. If client direct is used on older clients, you can experience client direct restore errors. This failure is because of the algorithm change.
- Upgrade MSDP media servers and clients using client direct as your environment allows. Modify your list of credentialed media servers for the upgraded storage servers to only include NetBackup 8.1 servers.
This action effectively revokes access rights for the non-upgraded servers to the upgraded servers. The risk is previously configured operations may stop working because of the access change. If you choose this option, you should make detailed notes about the configuration changes so you can revert those changes once all media servers are upgraded.
If duplication jobs copy from an 8.1 MSDP to an 8.0 or older MSDP, then create a storage unit for the older MSDP. Restrict the **Media Servers** list on that new storage unit to the 8.1 host. You must change any storage lifecycle policy (SLP) controlled duplication jobs if they copy from an 8.0 or older MSDP host to an 8.1 MSDP host. Set the **Alternate Read Server** on the duplication stage to the 8.1 media server.

About MSDP rolling data conversion

NetBackup 8.0 introduced the AES encryption algorithm to replace the existing Blowfish algorithm. NetBackup 8.1 introduces the SHA-2 fingerprint algorithm to replace the existing MD5-like algorithm. The upgrades to both the encryption and the fingerprint algorithms are designed to enhance data security.

The environments that are upgraded to NetBackup 8.1 may include Blowfish encrypted data and the MD5-like fingerprints that need to be converted to the new format. To handle the conversion and secure the data, a new internal task converts the current data container to the AES encryption and the SHA-2 fingerprint algorithm. This new task is referred to as the rolling data conversion.

Rolling data conversion traverses all existing data containers. If the data is encrypted with the Blowfish algorithm, the data is re-encrypted with the AES algorithm. Then a new SHA-2 fingerprint is generated. After the conversion, the data container has a new file with a `.map` extension, in addition to the `.bhd` and `.bin` files. The `.map` file contains the mapping between the SHA-2 and the MD5-like fingerprints. The `.bhd` file includes the SHA-2 fingerprints.

In a new installation of NetBackup 8.1, the rolling data conversion is marked as **Finished** and doesn't start in the future. For an upgrade to NetBackup 8.1, the

rolling data conversion is enabled by default and works in the background after the MSDP conversion completes. Only the data that existed before upgrade is converted. All new data uses the new SHA-2 fingerprint and does not need conversion.

You can manage and monitor the rolling data conversion using the `crcontrol` command. More information about its use is available.

See the *NetBackup Deduplication Guide* and the *NetBackup Commands Reference Guide*.

<http://www.veritas.com/docs/DOC5332>

About MSDP fingerprinting algorithm changes

With NetBackup 8.1, Media Server Deduplication Pool (MSDP) introduces a more secure fingerprint algorithm. The SHA-2 algorithm replaces the existing MD5-like algorithm. NetBackup 8.1 can handle both fingerprint types, and the new server is compatible with old clients and old servers. Conversion happens during the interaction between old clients and old servers and the new server. The fingerprint conversion requires additional computation time. The interaction between old clients and old servers and new server is slower than if both the client and the server are new.

If you have a mixed media server environment that uses both the MD5-like algorithm and the SHA-2 algorithm, the initial backup may lose deduplication ratio. Veritas recommends that you split the media servers by algorithm and create different storage units for each of them.

More information is available.

Veritas NetBackup Deduplication Guide

Reference

This appendix includes the following topics:

- [NetBackup master server web server user and group creation](#)
- [Generate a certificate on the inactive nodes of a clustered master server](#)
- [About the NetBackup Java Runtime Environment](#)
- [About the NetBackup answer file](#)
- [Update cloud configuration file on the master server immediately after install or upgrade to NetBackup 8.1](#)
- [About NetBackup software availability](#)
- [About the NetBackup media kit](#)
- [About the NetBackup Electronic Software Distribution \(ESD\) images](#)
- [Additional post-upgrade steps for NetApp clusters](#)
- [Using NetApp disk arrays with Replication Director](#)
- [About compatibility between NetBackup versions](#)
- [Installation and upgrade requirements for UNIX and Linux](#)
- [Installation and upgrade requirements for Windows and Windows clusters](#)
- [Requirements for Windows cluster installations and upgrades](#)
- [Upgrading clients after servers are upgraded](#)
- [Install and upgrade of the UNIX and Linux client binaries with native installers](#)
- [Removing a clustered media server by migrating all data to a new media server](#)

- [Disabling the connection between your NetBackup OpsCenter server and your NetBackup Master Server](#)
- [Post upgrade procedures for Amazon cloud storage servers](#)

NetBackup master server web server user and group creation

Beginning with NetBackup 8.0, the NetBackup master server includes a configured web server to support critical backup operations. This web server operates under user account elements with limited privileges. These user account elements must be available on each master server (or each node of a clustered master server).

Note: For security purposes, do not create web server users or groups with administrator or superuser privileges.

You can use numerous procedures to create users and groups in operating systems. Some specific approaches are shown, but other methods may accomplish the same goal. The home directory path, user name, and group names are not hard-coded, and can be changed. The default local user name is `nbwebsvc`, and the default local group name is `nbwebgrp`. The user and group must have sufficient permissions to run daemons.

More information about this topic is available.

See [“Installation and upgrade requirements for UNIX and Linux”](#) on page 77.

Please be aware of the operating system-specific account and group requirements:

- In UNIX and Linux clustered environments, make sure that the local accounts are defined consistently on all cluster nodes. The UID must be the same for each local account. You can use LDAP accounts on UNIX.
- For Windows clustered master servers, you must use a domain account. You can use a domain account for non-clustered environments, but it is not required.
- For Windows clustered master servers, you must use a domain group.

The NetBackup Master Server installation fails if any of these requirements are not met. On Windows, you are asked to provide the password for the user account as part of the installation process.

Note: If the password associated with the web server account expires after initial configuration, NetBackup provides no notification the password has expired. This behavior is normal and expected, as the operating system manages the account and the password.

As long as the web server remains active, the account and the web server continue to operate normally.

When the web server is restarted, or if you attempt to restart the `nbwmc` service, the service fails to start, due to the expired password. Navigate to the appropriate area in the operating system, supply the correct password, and restart the service.

More information about the web services account and group is available. See the *Veritas NetBackup Security and Encryption Guide* and the section on the web services account.

To create the local user account and the local group:

1 Create a local group.

- **Linux and non-AIX UNIX:** # `groupadd nbwebgrp`
- **AIX:** # `mkgroup nbwebgrp`
- **Windows:** `C:\>net localgroup nbwebgrp /add`

2 Create a local user.

- **Linux and non-AIX UNIX:** # `useradd -g nbwebgrp -c 'NetBackup Web Services account' -d /usr/opensv/wmc nbwebsvc`
- **AIX:** # `mkuser home='/usr/opensv/wmc' groups='nbwebgrp' nbwebsvc`
- **Windows:** `C:\>net user nbwebsvc strong_password /add`

3 (Conditional) For Windows only, make the user a member of the group:

```
C:\>net localgroup nbwebgrp nbwebsvc /add
```

4 (Conditional) For Windows only, grant the **Log on as a service** right to the user:

- Go to **Control Panel > Administrative Tools > Local Security Policy**.
- Under **Security Settings**, click **Local Policies > User Rights Assignment**.
- Right-click on **Log on as a service** and select **Properties**
- Add the local user. The default local user name is `nbwebsvc`.
- Save your changes and close the **Properties** dialog for **Log on as a service**.

Generate a certificate on the inactive nodes of a clustered master server

After finishing a clustered master server installation or upgrade, you must generate a certificate on all inactive nodes. This procedure is required for backups and restores of the inactive node of the cluster to succeed.

Generating the certificate on the inactive nodes in a clustered master server

Note: Unless otherwise indicated, all commands are issued from the inactive node

- 1 (Conditional) Add all inactive nodes to the cluster.

If all the nodes of the cluster are not currently part of the cluster, start by adding them to the cluster. Please consult with your operating system cluster instructions for assistance with this process.

- 2 Run the `nbcertcmd` command to store the Certificate Authority certificate on the inactive node.

UNIX: `/usr/opensv/netbackup/bin/nbcertcmd -getCACertificate`

Windows: `install_path\NetBackup\bin\nbcertcmd -getCACertificate`

- 3 Run the `nbcertcmd` command to generate the host certificate on the inactive node.

`nbcertcmd -getCertificate`

- 4 (Conditional) If the `nbcertcmd -getCertificate` command fails with an error message indicating that a token is needed, you need a token from the Certificate Authority. Use the steps that are shown to get and correctly use the token.

- On the active node, use the `bpnbat` command as shown to authorize the necessary changes. When you are prompted for the authentication broker, enter the virtual server name, not the local node name.

`bpnbat -login -loginType WEB`

- On the active node, use the `nbcertcmd` command to create a token.

`nbcertcmd -createToken -name token_name`

The token name is not important to this procedure. When the command runs, it displays the token string value. Note this value as it is necessary for the next command.

- On the inactive node, use the authorization token with the `nbcertcmd` command to store the host certificate.

`nbcertcmd -getCertificate -token`

This command prompts you for the token string value. Enter the token string from the `nbcertcmd -createToken` command.

Additional information about certificates is available. Please see the section on deploying certificates on master server nodes in the *Veritas NetBackup Security and Encryption Guide*.

About the NetBackup Java Runtime Environment

Veritas installs a customized version of the Java Runtime Environment (JRE) when you install any of these products:

- NetBackup master server, media server, or client software
- NetBackup Remote Administration Console
- OpsCenter Server, Agent, or View Builder

The customized version of JRE does not include all the directories that a standard JRE installation includes, such as `man` and `plugin`.

Previously, the JRE package that is installed with NetBackup or OpsCenter were only updated when you upgraded to a later release of either software. You can use the `nbcomponentupdate` utility to update the JRE to a supported version for the products shown:

- NetBackup master server, media server, or client software
- NetBackup Remote Administration Console
- OpsCenter Server, Agent, or View Builder

Note: You cannot use this utility to update the JRE for the NetBackup Plug-in for VMware vCenter.

If your system is running NetBackup 8.0 or later, use [Table A-1](#) to determine the location of the `nbcomponentupdate` utility.

Table A-1 Location of JRE update utility

Product	Operating system	Path
NetBackup	Windows	<code>install_path\netbackup\java\nbcomponentupdate.exe</code>
	UNIX or Linux	<code>/usr/opensv/java/nbcomponentupdate</code>

Table A-1 Location of JRE update utility (*continued*)

Product	Operating system	Path
OpsCenter Server	Windows	<code>install_path\server\bin\nbcomponentupdate.exe</code>
	UNIX or Linux	<code>SYMCOpsCenterServer/bin/nbcomponentupdate</code>
OpsCenter Agent	Windows	<code>install_path\agent\bin\nbcomponentupdate.exe</code>
OpsCenter View Builder	Windows	<code>install_path\viewbuilder\bin\nbcomponentupdate.exe</code>
Remote Administration Console	Windows	<code>install_path\java\nbcomponentupdate.exe</code>

If you have a NetBackup 7.7.x or earlier, download the `nbcomponentupdate` utility from the location shown:

https://www.veritas.com/support/en_US/article.000115043

More information about the `nbcomponentupdate` command and its parameters is available.

NetBackup Commands Reference Guide

The NetBackup installed version of the JRE is the supported major version for that NetBackup release. Use this utility to update to a minor version of the supported major JRE version. For example, if NetBackup 8.0 installed JRE 1.8.0.31, the supported major version is 1.8. Use this utility to update to JRE 1.8.0.92.

Veritas recommends that you update to another major JRE version only if the JRE vendor declares an end-of-life for the installed JRE version. If the JRE vendor declares an end-of-life for JRE 1.8, which is also the installed JRE version in your environment, update to JRE 1.9.

Close the product, such as NetBackup, before you attempt to update the JRE. If the product is active when you attempt the update, the utility exits with an error message that requests you to close the product.

Caution: Do not stop the utility while the JRE update is in progress. This action can cause the product that uses the JRE, such as NetBackup, to become unstable.

If there are additional versions of the JRE installed on your system for other applications, the NetBackup JRE does not interfere with them. The NetBackup JRE

does not provide integration with web browsers and does not allow Java Applets or Web Start to run. For that reason, the NetBackup JRE cannot be used in a browser-based attack that uses Java Applet or Web Start vulnerabilities.

More information about NetBackup JRE alerts is available.

<http://www.veritas.com/docs/TECH50711>

About the NetBackup answer file

The NetBackup answer file (`/tmp/NBInstallAnswer.conf`) is used during UNIX and Linux installs and upgrades to:

- Override some default values.
- Avoid answering some questions during interactive installation.
- Perform unattended or silent UNIX and Linux client installs and upgrades on most supported operating systems.

Populate the NetBackup answer file on the target host before you run the installation script. Create the file if it does not exist. The supported entries are shown along with any relevant information.

- `AUTHORIZATION_TOKEN=ABCDEFGHIJKLMNOP | SKIP`
This option tells NetBackup to automatically use an authorization or a reissue token to retrieve the host certificate. The `AUTHORIZATION_TOKEN` is 16 upper case letters. Some environments require an authorization token for backups and restores to work correctly. If this information is required and is not provided in the answer file, the installation fails. If you specify `SKIP`, the installer proceeds without a required authorization token. This results in additional manual steps following the installation. This entry is optional and is used only on client and media server deployments.
- `CA_CERTIFICATE_FINGERPRINT=fingerprint | SKIP`
This entry allows the installation or upgrade to automatically validate the Certificate Authority (CA) Certificate Fingerprint. The Certificate Fingerprint is retrieved from the CA during installation or upgrade. The fingerprint format is 59 characters and is a combination of the digits 0-9, the letters A-F, and colons (that is `01:23:45:67:89:AB:CD:EF:01:23:45:67:89:AB:CD:EF:01:23:45:67`). The fingerprint value must be the fingerprint for the server that is specified in the `SERVER=master_server_name`. To continue the installation or upgrade without configuring security, specify `CA_CERTIFICATE_FINGERPRINT=SKIP`. This entry is required for client and media server installation and upgrade.
- `CLIENT_NAME=client name | XLOCALHOSTX`

This entry tells NetBackup the name of the client. The `XLOCALHOSTX` value allows the local host to provide the client name. If you specify this option, you can use the same answer file on all clients within a single master server domain. These entries are also added to the `bp.conf` file. This entry is required for client installation.

- `MEDIA_SERVER=media_server_name`

This option tells NetBackup to use the named host to tunnel secure web requests for this client. A tunnel is required when communication between the client and the NetBackup Web Service on the master server is blocked. This communication is required to obtain a host certificate during the NetBackup installation or upgrade. Multiple `MEDIA_SERVER` entries may exist in the answer file. Each one is used as candidate to tunnel `https` requests. These entries are added to the `bp.conf` file. This entry is optional for client installation and upgrade.
- `SERVER=master_server_name`

This entry tells NetBackup to use the named host as the master server name. If there are multiple server entries in the answer, the first one is used as the master server. These entries are added to the `bp.conf` file. This entry is required for client installation and upgrade.
- `SERVICES=no`

This option tells NetBackup not to start the NetBackup services after the installation or upgrade. This option lets you perform additional configuration steps after the install or upgrade complete but before you start the services on the NetBackup client. This entry is optional for client installation and upgrade.
- `WEBSVC_GROUP=custom_group_account_name`

This option tells NetBackup to override the default web server group account name (`nbwebgrp`). This group must already exist on the system. This option is only used on the master server.
- `WEBSVC_USER=custom_user_account_name`

This option tells NetBackup to override the default web server user account name (`nbwebsvc`). This account must already exist on the system. This option is only used on the master server.

Update cloud configuration file on the master server immediately after install or upgrade to NetBackup 8.1

Note: If you use cloud storage in your NetBackup environment, you should update your cloud configuration file on the NetBackup master server immediately after you install or upgrade to NetBackup 8.1.

Veritas continuously adds new cloud support to the cloud configuration files between releases. In fact, new cloud support has been added since the NetBackup 8.1 final build. If you have updated your cloud configuration file since installing NetBackup 8.0, you must update your cloud configuration file because some recently-added cloud providers and enhancements may not be included in the cloud configuration file in the NetBackup 8.1 build. If a cloud provider or related enhancement is not available in the cloud configuration file after upgrading to NetBackup 8.1, related operations will fail.

Immediately after you upgrade to NetBackup 8.1, update to the latest cloud configuration package to take advantage of the most recent cloud provider additions and enhancements. See the following tech notes for more information:

<https://www.veritas.com/docs/000125094>

https://www.veritas.com/support/en_US/article.000126560

Refer to the following tech note for details of cloud providers and related enhancements that were available in NetBackup 8.0 (deployed using the cloud configuration packages) and are not available in the cloud configuration file that is shipped with NetBackup 8.1:

https://www.veritas.com/support/en_US/article.000127978

About NetBackup software availability

NetBackup 8.1 is available in the following formats:

- DVD media kit
All necessary software and documentation files are provided on several DVDs. See “[About the NetBackup media kit](#)” on page 68.
- Electronic Software Distribution (ESD) images
The DVD image files are posted and available for download on the **MyVeritas** website.

See [“About the NetBackup Electronic Software Distribution \(ESD\) images”](#) on page 69.

About the NetBackup media kit

The media kit includes a DVD for each supported UNIX platform or operating system and one DVD for Windows. The label on each DVD provides a brief description of its contents. Printed materials in the kit include a copy of the *NetBackup Getting Started Guide*.

[Table A-2](#) describes the contents of each DVD.

Table A-2 NetBackup 8.1 DVD contents

Platform OS	Contents
AIX 64-bit	Server and supported options
HP-UX IA64	Server and supported options
Linux RedHat x86_64	Server and supported options
Linux SUSE x86_64	Server and supported options
Solaris SPARC64	Server and supported options
Solaris x86-64	Server and supported options
Windows	<ul style="list-style-type: none"> ■ Server and supported options ■ All x64 clients
Linux zSeries RedHat x64	Media server and supported options
Linux zSeries SUSE x64	Media server and supported options
UNIX clients 1	<ul style="list-style-type: none"> ■ AIX ■ HP PA-RISC and IA64 ■ Solaris SPARC and X86
UNIX clients 2	All Linux platforms
Clients in LiveUpdate format 1	<ul style="list-style-type: none"> ■ AIX ■ HP IA64 ■ All Linux platforms ■ Solaris SPARC and X86
Clients in LiveUpdate format 2	<ul style="list-style-type: none"> ■ HP PA-RISC ■ All Windows platforms

Table A-2 NetBackup 8.1 DVD contents (*continued*)

Platform OS	Contents
OpsCenter for Windows	All Windows platforms
OpsCenter for UNIX/Linux	All UNIX/Linux platforms
OpenVMS (CD format)	NetBackup Client for OpenVMS

Note: The NetBackup vCenter plug-in for ESX is available electronically from the **MyVeritas** download site. It is free to customers under maintenance contract. An e-mail with access information to the **MyVeritas** download site was sent when NetBackup 7.6.1 became generally available. More information is available.

See [“About the NetBackup Electronic Software Distribution \(ESD\) images”](#) on page 69.

About the NetBackup Electronic Software Distribution (ESD) images

The ESD images for NetBackup 8.1 are available for download from the **MyVeritas** webpage. The images adhere to a 1.8G size limitation.

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

See [“About NetBackup software availability”](#) on page 67.

See [“About the NetBackup media kit”](#) on page 68.

Additional post-upgrade steps for NetApp clusters

After a NetBackup upgrade, review your NetApp cluster configuration as additional steps may be required to insure everything continues to work as expected. [Table A-3](#) lists the various configurations and how to proceed.

Caution: If at any time after the upgrade the mode changes from Node scope to Vserver aware, you must perform the additional steps. Failure to perform the additional steps places your data at risk.

Table A-3 Additional required NetApp cluster changes

NetApp cluster mode at time of upgrade	Changes to NetApp cluster mode after upgrade	More information
Node scope mode	No changes	Veritas and NetApp both recommend that you change to Vserver aware mode at your earliest convenience.
Node scope mode	Change to Vserver aware mode	Additional steps required. See “Additional changes for Node scope mode to Vserver aware mode” on page 70.
Vserver aware mode	Not applicable	Additional steps required. See “Additional changes required for NetApp clusters in Vserver aware mode” on page 72.

Note: Once a media server detects Vserver aware mode, no further backup activities are performed on any other media server running any earlier releases of NetBackup.

If you change from Node scope mode to Vserver aware mode, you must do the following:

Additional changes for Node scope mode to Vserver aware mode

- 1** Enable the Vserver aware mode on the cluster by disabling node-scope-mode.
- 2** If there are tape devices attached to the cluster nodes, you must reconfigure them. Configure the tape devices to use the cluster-management logical interface (LIF) as the NDMP host for the device configuration. NetBackup does not support use of node name for device configuration.

See the *Veritas NetBackup for NDMP Administrator's Guide* for additional information.

- 3** Credential all the LIF that are used for backups.

This activity includes the Cluster Management LIF as well as any Vserver Data LIFs that are used for backup policies.

See the *Veritas NetBackup for NDMP Administrator's Guide* for additional information.

- 4 Update the database for all existing NDMP hosts in your environment. Use the command that is shown to update the database.

```
tpautoconf -verify NDMP_host_name
```

- 5 Update or replace any storage units that use the node names of the cluster to use the cluster LIF.

- 6 Update or replace any existing policies that back up the cluster.

You must use either the Data LIF or the Cluster-management LIF as the client name. NetBackup does not support the use of the node name for the client name. The backup selections may also need to be modified.

- 7 Add an intercluster management LIF for each node that does not host a cluster management LIF.

The NetApp cluster requires this activity to perform NDMP 3 way or NDMP Remote backups. Without these LIFs, all 3 way or remote backups from the volumes that are not hosted on the same node as the cluster management LIF fail.

- 8 To restore, verify, or duplicate the old images, you may have to use alternate read host.

Additional changes required for NetApp clusters in Vserver aware mode

- 1 Run `tpautoconf` command on each Vserver. This command must be run from the media servers that have credentials to the Vserver.

```
tpautoconf -verify ndmp_host
```

Once the command runs successfully, the output of the `nbemmcmd` should look similar to the following:

```
servername1@/>nbemmcmd -listsettings -machinename machinename123 -
machinetype ndmp
NBEMMCMD, Version: 7.7
The following configuration settings were found:
NAS_OS_VERSION="NetApp Release 8.2P3 Cluster-Mode"
NAS_CDOT_BACKUP="1"
Command completed successfully.
```

`NAS_OS_VERSION` displays the NetApp Version.

`NAS_CDOT_BACKUP` tells us if NetBackup uses the new cDOT capabilities.

The `tpautoconf -verify ndmp_host` command is not required when a new Vserver is added.

- 2 Add devices to the NDMP cluster as necessary and access them using the cluster management LIF. As you add devices, you must discover the devices.
- 3 Add storage units for the newly discovered devices.
- 4 Update any existing policies that back up the cluster.

You must use either the Data LIF or the Cluster-management LIF as the client name. NetBackup does not support the use of the node name for the client name. The backup selections may also need to be modified.

Using NetApp disk arrays with Replication Director

Replication Director can replicate snapshots on a NetApp disk array in two different situations:

- In non-cluster mode: 7-mode is used to replicate snapshots on NAS and SAN. The plug-in must be installed on the OnCommand Unified Manager (OCUM) server ([Figure A-1](#)).
- In cluster-mode: Clustered Data ONTAP (cDOT) is used to replicate snapshots between storage virtual machines (SVMs or vServers). Support is for NAS only.

The plug-in must be installed on either a Windows or a Linux computer other than the OCUM server, the master server, or any media servers (Figure A-2).

Both modes support the same topologies.

Table A-4 describes the association between NetBackup versions and the NetApp plug-ins.

Table A-4 Version compatibility

NetBackup version	NetApp plug-in version	Description	Ratio of master server to OCUM server	Supported policy types
7.7 and later	1.1	Provides 7-mode support for all NetBackup 7.7 Replication Director features.	One master server supports many OCUM servers. The plug-in must be installed on the OnCommand Unified Manager (OCUM) server.	MS-Windows, Standard, NDMP, VMware, Oracle
	1.1 P1	Provides 7-mode support for all NetBackup 7.7 Replication Director features.	One master server supports many OCUM servers.	MS-Windows, Standard, NDMP, VMware, Oracle
	2.0	Provides cDOT support.	One master server supports many OCUM servers. The plug-in must be installed on either a Windows or a Linux computer other than the OCUM server, the master server, or any media servers.	MS-Windows, Standard, NDMP, VMware, Oracle

Note: You must upgrade the entire NetBackup environment before upgrading the plug-in. Upgrade all master servers, media servers, clients, and any hosts which communicate with the plug-in.

Figure A-1 Communication between NetBackup and the NBUPlugin for 7-mode

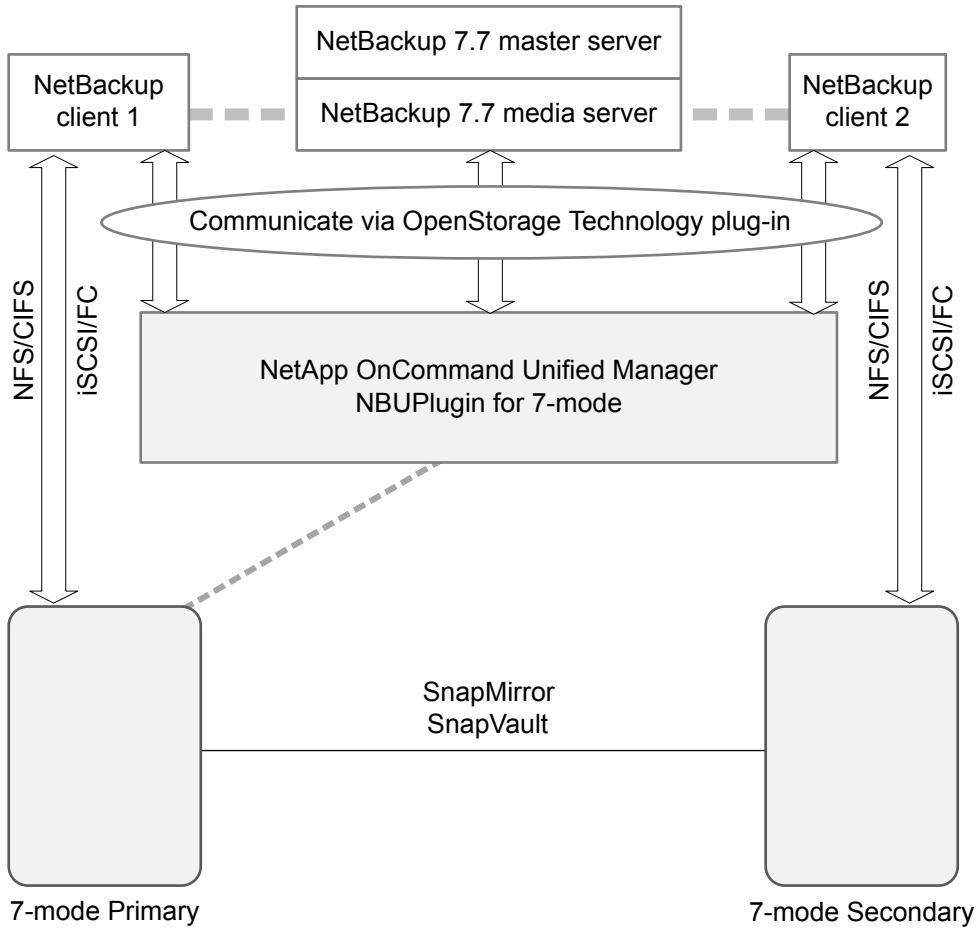
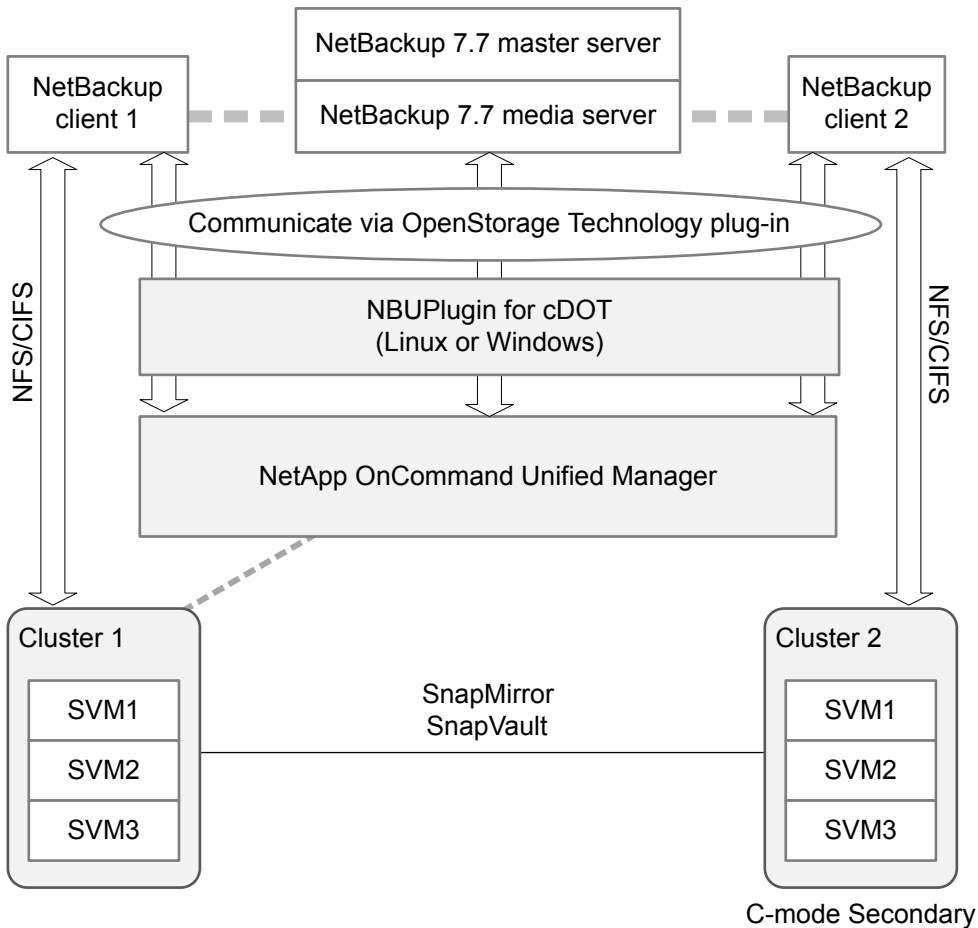


Figure A-2 Communication between NetBackup and the NBUPugin for Clustered Data ONTAP



Determining the version of the plug-in

To determine the NBUPugin version, look for the following version file on the system where the NBUPugin is installed:

On Windows: `Install_path\Program Files\Netapp\NBUPugin\version.txt`

On UNIX: `/usr/NetApp/NBUPugin/version.txt`

The contents of the file lists the product name, the build date, and the NBUPugin version. If more than one plug-in is installed, both are listed.

Upgrading the plug-in

If upgrading the NetApp Plug-in for Veritas NetBackup, make sure that all storage lifecycle policy jobs that use the old plug-in are complete before upgrading.

To determine whether all of the jobs that are associated with a storage lifecycle policy are complete, in process, or not started, use the following command:

On Windows: `install_path\NetBackup\bin\admincmd>nbstlutil.exe stlilist -U`

On UNIX: `/usr/openv/netbackup/bin/admincmd/nbstlutil stlilist -U`

About compatibility between NetBackup versions

You can run mixed versions of NetBackup between master servers, media servers, and clients. This back-level support lets you upgrade NetBackup one server at a time, which minimizes the effect on overall system performance. Veritas supports only certain combinations of servers and clients. The NetBackup catalog resides on the master server. Therefore, the master server is considered to be the client for a catalog backup. If your NetBackup configuration includes a media server, it must use the same NetBackup version as the master server to perform a catalog backup.

At NetBackup 8.1, it is critical to follow the longstanding requirement that the master server is upgraded first. Then upgrade all media servers that are required to support any 8.1 clients. Veritas recommends that you upgrade all your media servers before upgrading any clients. After all master and all media servers are at NetBackup 8.1, begin to upgrade your clients to 8.1. Pre-8.1 media servers are not able to backup or restore NetBackup 8.1 clients.

For complete information about compatibility between NetBackup versions, refer to the Veritas SORT website.

<https://sort.veritas.com/>

Veritas recommends that you review the End of Support Life information available online.

<https://sort.veritas.com/eosl>

See “[About NetBackup software availability](#)” on page 67.

Installation and upgrade requirements for UNIX and Linux

Table A-5 describes the requirements to prepare your UNIX and Linux systems for NetBackup installation. Use this table as a checklist to address each item.

For the most up-to-date information about installation requirements, Veritas recommends use of the SORT website. More information about SORT is available.

See “About Veritas Services and Operations Readiness Tools” on page 12.

Table A-5 NetBackup installation and upgrade requirements for UNIX and Linux

Check	Requirement	Details
	Operating System	<ul style="list-style-type: none"> ■ For a complete list of compatible UNIX and Linux operating systems, refer to the <i>Software Compatibility List (SCL)</i> at the following website: http://www.netbackup.com/compatibility https://sort.veritas.com/netbackup
	Memory	<ul style="list-style-type: none"> ■ Master servers in a production environment with several database agents enabled should have a minimum of 16 GB of memory and four cores each. ■ Media servers in a production environment with several database agents enabled should have a minimum of 4 GB of memory each. ■ Any client in a production environment should have a minimum of 512 MB of memory. ■ For reasonable performance of the NetBackup interfaces, you need 512 MB of RAM. Of that space, 256 MB must be available to the interface program (<code>jnbSA</code> or <code>jbpSA</code>). <p>For additional information about memory requirements, refer to the <i>NetBackup Backup Planning and Performance Tuning Guide</i>. http://www.veritas.com/docs/DOC5332</p>

Table A-5 NetBackup installation and upgrade requirements for UNIX and Linux (*continued*)

Check	Requirement	Details
	Disk space	<ul style="list-style-type: none"> ■ The exact amount of space that is required depends on the hardware platform. More information about this topic is available. <i>NetBackup Release Notes for 8.1</i> http://www.veritas.com/docs/DOC5332 ■ NetBackup catalogs contain information about your backups that become larger as you use the product. The disk space that the catalogs require depends primarily on the following aspects of your backup configuration: <ul style="list-style-type: none"> ■ The number of files that are backed up. ■ The frequency of your backups. ■ The amount of time that you set to retain your backup data. <p>If space is an issue, you can install NetBackup on an alternate file system. The installation lets you select an alternate install location, and creates the appropriate link from <code>/usr/opensv</code>.</p> <p>Note: The value for disk space is for initial installation only. The NetBackup catalog requires considerably more space once the master server is placed in a production environment. For additional information on sizing requirements for the NetBackup catalog, refer to the <i>NetBackup Backup Planning and Performance Tuning Guide</i>. http://www.veritas.com/docs/DOC5332</p>
	General requirements	<ul style="list-style-type: none"> ■ Ensure that the <code>gzip</code> and the <code>gunzip</code> commands are installed on the local system. The directories where these commands are installed must be part of the root user's path environment variable setting. ■ All NetBackup installation DVDs or ESD images, appropriate licenses, and the root password for all servers. ■ A server of a supported hardware type that runs a supported version of its operating system (with applicable patches), adequate disk space, and supported peripherals. For details on these requirements, refer to the <i>NetBackup Release Notes</i>. http://www.veritas.com/docs/DOC5332 ■ All NetBackup servers must recognize and be recognizable by their client systems. In some environments, this means that each must be defined in the other's <code>/etc/hosts</code> file. Other environments may use the Network Information Service (NIS) or Domain Name Service (DNS). ■ The minimum screen resolution configuration is 1024x768, 256 colors.

Table A-5 NetBackup installation and upgrade requirements for UNIX and Linux *(continued)*

Check	Requirement	Details
	Clustered systems	<ul style="list-style-type: none"> ■ Ensure that each node in the NetBackup cluster can run the <code>ssh</code> command or its equivalent. The root user must be able to perform a remote logon to each node in the cluster without entering a password. This remote logon is necessary for installation and configuration of the NetBackup server and any NetBackup agents and options. After installation and configuration are complete, it is no longer required. ■ You must install, configure, and start the cluster framework before you install NetBackup. ■ You must have defined a virtual name using DNS, NIS, or the <code>/etc/hosts</code> file. The IP address is defined at the same time. (The virtual name is a label for the IP address.) ■ Begin the upgrade from the active node, and then upgrade the inactive nodes. <p>More information about cluster requirements is available.</p> <p><i>Veritas NetBackup Clustered Master Server Administrator's Guide</i></p> <p>http://www.veritas.com/docs/DOC5332</p>
	NFS compatibility	Veritas does not support installation of NetBackup in an NFS-mounted directory. File locking in NFS-mounted file systems can be unreliable.
	Kernel reconfiguration	<p>For some peripherals and platforms, kernel reconfiguration is required.</p> <p>For more details, see the <i>NetBackup Device Configuration Guide</i>.</p> <p>http://www.veritas.com/docs/DOC5332</p>
	Red Hat Linux	For Red Hat Linux, NetBackup requires server networking.
	Other backup software	Veritas recommends that you remove any other vendor backup software currently configured on your system before you install this product. Other vendor backup software can negatively affect how NetBackup installs and functions.

Table A-5 NetBackup installation and upgrade requirements for UNIX and Linux (*continued*)

Check	Requirement	Details
	Web Services	<p>Beginning with NetBackup 8.0, the NetBackup master server includes a configured Tomcat web server to support critical backup operations. This web server operates under user account elements with limited privileges. These user account elements must be available on each master server (or each node of a clustered master server). You must create these required account elements before installation. More information is available: See “NetBackup master server web server user and group creation” on page 60.</p> <p>Note: Veritas recommends that you save the details of the user account that you use for the NetBackup Web Services. A master server recovery requires the same NetBackup Web Services user account and credentials that were used when the NetBackup catalog was backed up.</p> <p>Note: If the NetBackup PBX is running in secure mode, please add the web service user as authorized user in PBX. More information about determining PBX mode and how to correctly add users is available.</p> <p>http://www.veritas.com/docs/000115774</p> <p>By default, the UNIX installation script attempts to associate the web server with user account <code>nbwebsvc</code> and group account <code>nbwebgrp</code>. You can override these default values with the NetBackup installation answer file. You must populate the NetBackup installation answer file on the target host before you start the UNIX installation script. Populate the NetBackup installation answer file with custom web server account names as shown.</p> <ol style="list-style-type: none"> 1 Log in to the server as root. 2 Open the file <code>/tmp/NBInstallAnswer.conf</code> with your preferred text editor. Create the file if it does not exist. 3 Override the default web server user account name by adding the line shown: <code>WEBSVC_USER=custom_user_account_name</code> 4 Override the default web server group account name by adding the line shown: <code>WEBSVC_GROUP=custom_group_account_name</code> 5 Save and close the file.

Installation and upgrade requirements for Windows and Windows clusters

[Table A-6](#) describes the requirements to prepare your Windows systems for NetBackup installation. Use this table as a checklist to address each item.

For the most up-to-date information about installation requirements, Veritas recommends use of the SORT website. More information about SORT is available. See “[About Veritas Services and Operations Readiness Tools](#)” on page 12.

Caution: Veritas supports moving the NetBackup catalog to a non-default location on a Windows cluster after installation or upgrade. Before any upgrades, however, you must move the NetBackup catalog back to the default location for the upgrade to succeed. Do not attempt a NetBackup upgrade if the catalog is not in the default location. Your master server is rendered unusable if you fail to move the database back to the default location before upgrade. More information is available.

https://www.veritas.com/support/en_US/article.000118358

Table A-6 NetBackup installation and upgrade requirements for Windows and Windows clusters

Check	Requirement	Details
	Operating system	<ul style="list-style-type: none"> ■ Make sure that you have applied the most current operating system patches and updates. If you are not certain that your operating system is current, contact your operating system vendor and request the latest patches and upgrades. ■ For a complete list of compatible Windows operating systems, refer to the <i>Software Compatibility List (SCL)</i> at the following website: http://www.netbackup.com/compatibility
	Memory	<ul style="list-style-type: none"> ■ Master servers in a production environment with several database agents enabled should have a minimum of 16 GB of memory and four cores each. ■ Media servers in a production environment with several database agents enabled should have a minimum of 4 GB of memory each. <p>For additional information about memory requirements, refer to the <i>NetBackup Backup Planning and Performance Tuning Guide</i>. http://www.veritas.com/docs/DOC5332</p>

Table A-6 NetBackup installation and upgrade requirements for Windows and Windows clusters (*continued*)

Check	Requirement	Details
	Disk space	<ul style="list-style-type: none"> ■ An NTFS partition. ■ The exact amount of space that is required to accommodate the server software and the NetBackup catalogs depends on the hardware platform. More information about this topic is available. <i>NetBackup Release Notes for 8.1</i> http://www.veritas.com/docs/DOC5332 ■ For upgrades, you must have an additional 500 MB of disk space on the drive where Windows is installed. After the upgrade is complete, this additional space is not needed. ■ NetBackup catalogs contain information about your backups that become larger as you use the product. The disk space that the catalogs require depends primarily on the following aspects of your backup configuration: <ul style="list-style-type: none"> ■ The number of files that are backed up. ■ The frequency of your backups. ■ The amount of time that you set to retain your backup data. ■ Veritas recommends that you have a minimum available disk space of 5% in any Disk Storage Unit volume or file system. <p>Note: The value for disk space is for initial installation only. The NetBackup catalog requires considerably more space once the master server is placed in a production environment. For additional information on sizing requirements for the NetBackup catalog, refer to the <i>NetBackup Backup Planning and Performance Tuning Guide</i>. http://www.veritas.com/docs/DOC5332</p>
	General requirements	<p>Make sure that you have all of the following items:</p> <ul style="list-style-type: none"> ■ NetBackup installation DVDs or ESD images ■ Appropriate license keys ■ Administrator account and password for all servers ■ Screen resolution configured for at least 1024x768, 256 colors.

Table A-6 NetBackup installation and upgrade requirements for Windows and Windows clusters (*continued*)

Check	Requirement	Details
	Remote and cluster installations	

Table A-6 NetBackup installation and upgrade requirements for Windows and Windows clusters (*continued*)

Check	Requirement	Details
		<p>In addition to all previously stated installation requirements, the following guidelines apply to remote installations and cluster installations:</p> <ul style="list-style-type: none"> ■ All nodes in the cluster must run the same operating system version, service pack level, and NetBackup version. You cannot mix versions of server operating systems. ■ The installation account must have administrator privileges on all remote systems or on all nodes in the cluster. ■ The source system (or primary node) must run Windows 2008/2008 R2 Server/Windows 2012/2012 R2/Windows 2016. For Windows 2008 R2, clusters are only supported on Enterprise and Data Center editions and not Standard edition. ■ The destination PC (or clustered nodes) must have Windows 2008/2008 R2/Windows 2012/2012 R2/Windows 2016. ■ The Remote Registry service must be started on the remote system. The NetBackup installer can enable and start the Remote Registry service on the remote system. If the Remote Registry service is not started, the installation receives the following error message: <code>Attempting to connect to server server_name failed with the following error: Unable to connect to the remote system. One possible cause for this is the absence of the Remote Registry service. Please ensure this service is started on the remote host and try again.</code> ■ NetBackup virtual name and IP address Have the virtual name and IP address for NetBackup available. You must provide this information during installation. ■ Cluster support changes for media servers You cannot perform a new installation of a clustered media server. ■ Windows Server Failover Clusters (WSFC) <ul style="list-style-type: none"> ■ The shared disk that the NetBackup Group uses must already be configured in the cluster and online on the active node. ■ Install NetBackup from the node with the shared disk (that is, the active node). ■ Computer or host names cannot be longer than 15 characters. ■ Cluster server (VCS) clusters: All NetBackup disk resources must be configured in Veritas Enterprise Administrator (VEA) before you install NetBackup. ■ Cluster node device configuration and upgrades When you upgrade clusters, the <code>ltid</code> and the robotic daemons retrieve the device configuration for a particular cluster node from the EMM database. The cluster node name (provided by <code>gethostname</code>) stores or retrieves the device configuration in the EMM database. The cluster node name is used when any updates are made to the

Table A-6 NetBackup installation and upgrade requirements for Windows and Windows clusters (*continued*)

Check	Requirement	Details
		<p>device configuration, including when <code>ltid</code> updates the drive status. The cluster node name is only used to indicate where a device is connected. The NetBackup virtual name is employed for other uses, such as the robot control host.</p> <p>More information about cluster requirements is available.</p> <p><i>Veritas NetBackup Clustered Master Server Administrator's Guide</i></p> <p>http://www.veritas.com/docs/DOC5332</p>
	Remote Administration Console host names	You must provide the names of the Remote Administration Console hosts during master server installation.
	NetBackup communication	<p>Make sure that your network configuration allows all servers and clients to recognize and communicate with one another.</p> <p>Generally, if you can reach the clients from a server by using the ping command, the setup works with NetBackup.</p> <ul style="list-style-type: none"> ■ NetBackup services and port numbers must be the same across the network. ■ Veritas suggests that you use the default port settings for NetBackup services and Internet service ports. If you modify the port numbers, they must be the same for all master servers, media servers, and clients. The port entries are in the following file: <code>%SYSTEMROOT%\system32\drivers\etc\services</code>. To change the default settings, you must perform a custom installation of NetBackup or manually edit the <code>services</code> file.
	CIFS-mounted file systems	Veritas does not support installation of NetBackup in a CIFS-mounted directory. File locking in CIFS-mounted file systems can be unreliable.
	Storage devices	Devices such as robots and standalone tape drives must be installed according to the manufacturers' instructions and recognized by the Windows software.
	Server names	When you are prompted for server names, always enter the appropriate host names. Do not enter IP addresses.
	Mixed versions	<p>Make sure to install NetBackup servers with a release level that is at least equal to the latest client version that you plan to use. Earlier versions of server software can encounter problems with later versions of client software.</p> <p>See "About compatibility between NetBackup versions" on page 76.</p>

Table A-6 NetBackup installation and upgrade requirements for Windows and Windows clusters (*continued*)

Check	Requirement	Details
	Installations on Windows 2008/2008 R2 Server Core, 2012/2012 R2 Server Core/Windows 2016	You can only install NetBackup on these computers with the silent installation method. See “Performing silent upgrades on Windows systems” on page 39.
	Other backup software	Remove any other vendor’s backup software currently configured on your system. The backup software of another vendor can negatively affect how NetBackup installs and functions.
	Web Services	Beginning with NetBackup 8.0, the NetBackup master server includes a configured Tomcat web server to support critical backup operations. This web server operates under user account elements with limited privileges. These user account elements must be available on each master server (or each node of a clustered master server). More information is available: See “NetBackup master server web server user and group creation” on page 60. Note: Veritas recommends that you save the details of the user account that you use for the NetBackup Web Services. A master server recovery requires the same NetBackup Web Services user account and credentials that were used when the NetBackup catalog was backed up. Note: If the NetBackup PBX is running in secure mode, please add the web service user as authorized user in PBX. More information about determining PBX mode and how to correctly add users is available. http://www.veritas.com/docs/000115774
	CA Certificate fingerprint	(Conditional) For media servers and clients only: You must know the CA Certificate fingerprint of the master server at time of installation. More information is available about the details on the CA Certificate fingerprint and its role in generation of security certificates. https://www.veritas.com/support/en_US/article.000127129
	Authorization Token	(Conditional) For media servers and clients only: In some cases, the installer requires an authorization token to successfully deploy security certificates. More information is available about the details on authorization tokens and their role in generation of security certificates. https://www.veritas.com/support/en_US/article.000127129

See [“Installation and upgrade requirements for UNIX and Linux”](#) on page 77.

Requirements for Windows cluster installations and upgrades

In addition to the normal server requirements, NetBackup cluster installations require special considerations.

The following describes the guidelines for NetBackup cluster installations and upgrades on Windows systems:

Table A-7 Windows cluster requirements for installation and upgrade

Item	Requirement
Server operating system	The source and the destination systems must run Windows 2008, 2008 R2, 2012, 2012 R2, or 2016 Server.
Privileges	To perform clustered installations, you must have administrator privileges on all of the remote nodes in the cluster. Veritas recommends that you keep a record of all nodes in the cluster and what software exists on each node.
NetBackup virtual name and IP address	Have the virtual name and IP address for NetBackup available. You must provide this information during installation.
Operating system on nodes	All clustered nodes must use the same operating system version, service pack level, and NetBackup version. You cannot run mixed server versions in a clustered environment.
Cluster support changes for media servers	Clustered media servers are not supported.
Windows Server Failover Clusters (WSFC)	<ul style="list-style-type: none"> ■ Before you begin the install or the upgrade, take all NetBackup resources offline except for the shared disk resource, the virtual IP, and the virtual name. ■ Install or upgrade NetBackup from the active node (the node with the shared disk resource, virtual IP, and virtual name). ■ The computer or the host names cannot be longer than 15 characters.

Table A-7 Windows cluster requirements for installation and upgrade
(continued)

Item	Requirement
Cluster Server (VCS) clusters	<ul style="list-style-type: none"> ■ All NetBackup disk resources must be configured in Veritas Enterprise Administrator (VEA) before you install NetBackup. ■ You must take the VCS NetBackup resource offline before you begin the install or the upgrade. <p>Note: Make sure that shared disk and IP resources are online during the install or the upgrade on active node.</p>
Cluster node device configuration and upgrades	<p>When you upgrade clusters, the <code>ltid</code> and the robotic daemons retrieve the device configuration for a particular cluster node from the EMM database. The cluster node name (provided by <code>gethostname</code>) stores or retrieves the device configuration in the EMM database. The cluster node name is used when any updates are made to the device configuration, including when <code>ltid</code> updates the drive status. The cluster node name is only used to indicate where a device is connected. The NetBackup virtual name is employed for other uses, such as the robot control host.</p>

Upgrading clients after servers are upgraded

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

The `update_clients` installation script can determine the full client list that is configured on the server. When it is run without any parameters, it attempts to update all clients (as determined by `/usr/opensv/netbackup/bin/admincmd/bpplclients`). If you do not want to upgrade all clients, you can specify a subset of clients. Use the hardware type and operating system parameters or use the `-ClientList` parameter.

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

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

Note: Additional steps are required to deploy clients in a secure environment where the clients do not have direct connectivity to the master server. More information on this topic is available. See the topic on deploying certificates on clients without connectivity to the master server in the *Veritas NetBackup Security and Encryption Guide*.

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

To upgrade clients after you have upgraded servers

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

DVD

- Insert the NetBackup UNIX Clients DVD into the drive.
See [“About the NetBackup media kit”](#) on page 68.
- If necessary, mount the DVD.
See [“Mounting NetBackup software media on UNIX or Linux systems”](#) on page 47.
- Enter the following command:

```
cd_directory/install
```

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

- ESD images (downloaded files)
- Navigate to the location where the installation images reside.
 - Enter the following command:

```
./install
```

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

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

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

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

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

4 After the installation is complete, unmount the DVD.

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

```
/usr/opensv/netbackup/bin/bpps
```

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

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

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

```
/usr/opensv/netbackup/bin/admincmd/bpobjobs
```

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

Use one of the following commands:

If you do not use a `-ClientList` file:

```
/usr/opensv/netbackup/bin/update_clients
```

If you use a `-ClientList` file:

```
/usr/opensv/netbackup/bin/update_clients  
-ClientList filename
```

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

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

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

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

```
cd /usr/opensv/netbackup/bin/admincmd
```

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

If you push from the master server: `./bpplclients -allunique -noheader > file`

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

The option descriptions are as follows:

`m_server_name` Name of the NetBackup master server in this environment.

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

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

```
hardware os client
```

`hardware` The hardware name. For example, run the `ls` command in directory `/usr/opensv/netbackup/client`.

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

`client` The name of the client.

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

```
Solaris Solaris9 curry
```

- (Optional) Edit `file`.

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

8 The `update_clients` script requests master server information from you.

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

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

Press **Enter**.

9 Enter the number of updates you want to occur simultaneously.

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

10 The installer attempts to retrieve the certificate authority certificate details.

```
Getting CA certificate details.
Depending on the network, this action may take a few minutes. To
continue without setting up secure communication, press Ctrl+C.
```

Be aware if you press `Ctrl+C`, this action requires you to rerun the installation or continue with the installation without the required security components. If these security components are absent, backups and restores fail.

If a certificate authority certificate is found, you receive the message shown:

```
Using CA Certificate fingerprint from master server:
01:23:45:67:89:AB:CD:EF:01:23:45:67:89:AB:CD:EF:01:23:45:67
If clients need an authorization token for installation, please specify o
Token (leave blank for no authorization token):
```

If you leave the authorization token blank, you receive the message shown:

```
WARNING: Authorization Token was not specified.
Manual steps may be required before backups and restores can occur.
```

- 11** Type either `y` or `n` in response to the question.

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

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

```
/usr/opensv/netbackup/bin/initbprd
```

Install and upgrade of the UNIX and Linux client binaries with native installers

You can now install and upgrade NetBackup UNIX and Linux clients with native installers. You can use either the NetBackup install script or your preferred installer method. This change does not include those clients that use the Debian package. Those clients must be installed or upgraded with the NetBackup install script.

- For AIX: `lslpp`, `installp`
- For HP-UX: `swlist`, `swinstall`
- For Linux: `rpm`, `yum`, etc.
- For Solaris: `pkginfo`, `pkgadd`

A successful installation or upgrade is recorded in the `/usr/opensv/pack/install.history` file.

Converting from Symantec RPM packages to Veritas RPM packages

Because of package name changes, `rpm -U` does not work to upgrade Linux clients from NetBackup 7.7.2 and earlier to NetBackup 7.7.3 and later. You have two options to correctly upgrade your client and convert to the Veritas RPM packages.

- Remove the old `SYMC*` RPM packages with the command shown. This process preserves your NetBackup client configuration.

```
rpm -e SYMCnbjava
rpm -e SYMCpddea
rpm -e SYMCnbclt
rpm -e SYMCnbjre
```

Then upgrade to the new Veritas RPM packages using the RPM installer of your choice. More information is available.

Install and upgrade of the UNIX and Linux client binaries with native installers

See [“To install or upgrade the UNIX or Linux client binaries using native installers:”](#) on page 94.

- Alternatively, you can use the NetBackup installer to upgrade the client to the new Veritas RPM packages.

Both of these upgrade options result in the same outcome. Once you have successfully upgraded to the Veritas RPM packages, you can perform future upgrades with `rpm -U` or the RPM installer of your choice.

To install or upgrade the UNIX or Linux client binaries using native installers:

- 1 Please create the NetBackup installation answer file (`NBInstallAnswer.conf`) in the client `/tmp` directory. More information about the answer file and its contents is available.

See [“About the NetBackup answer file”](#) on page 65.

- 2 Populate `NBInstallAnswer.conf` with the following information:

```
SERVER=master_server_name
CLIENT_NAME=client_name
CA_CERTIFICATE_FINGERPRINT=fingerprint
```

Example (the fingerprint value is wrapped for readability):

```
SERVER=master_01
CLIENT_NAME=client_101
CA_CERTIFICATE_FINGERPRINT=01:23:45:67:89:AB:CD:EF:01:23:45:67:
89:AB:CD:EF:01:23:45:67
```

Depending on the security configuration in your NetBackup environment, you may need to add the `AUTHORIZATION_TOKEN` option to the answer file. Additional information about the `AUTHORIZATION_TOKEN` option is available.

See [“About the NetBackup answer file”](#) on page 65.

Additionally, you can add either of the options shown to the `NBInstallAnswer.conf` file. More information about each option is available.

See [“About the NetBackup answer file”](#) on page 65.

- `CLIENT_NAME=XLOCALHOSTX`
 - `SERVICES=no`
- 3 Extract the required client files from the appropriate client package and copy them to the client computer.
 - Download the `CLIENTS1` package for UNIX clients to a system with sufficient space.

Install and upgrade of the UNIX and Linux client binaries with native installers

- Download the `CLIENTS2` package for Linux clients to a system with sufficient space.
- Extract the contents of the `CLIENTS1` or the `CLIENTS2` file.

Example:

```
AIX      gunzip NetBackup_8.1_CLIENTS1.tar.gz; tar -xvf NetBackup_8.1_CLIENTS1.tar
HP-UX   gunzip -dc NetBackup_8.1_CLIENTS1.tar.gz | tar -xvf
Linux   tar -xzvf NetBackup_8.1_CLIENTS2.tar.gz
Solaris tar -xzvf NetBackup_8.1_CLIENTS1.tar.gz
```

- Change to the directory for your desired operating system.

Example:

```
AIX      CLIENTS1/NBClients/anb/Clients/usr/opensv/netbackup/client/RS6000/AIX6/
HP-UX   CLIENTS1/NBClients/anb/Clients/usr/opensv/netbackup/client/HP-UX-IA64/HP-UX11.31/
Linux   For Linux RedHat:
        CLIENTS2/NBClients/anb/Clients/usr/opensv/netbackup/client/Linux/RedHat2.6.18/
        For Linux SuSE:
        CLIENTS2/NBClients/anb/Clients/usr/opensv/netbackup/client/Linux/SuSE3.0.76

Linux - For Linux-s390x RedHat:
s390x   CLIENTS2/NBClients/anb/Clients/usr/opensv/netbackup/client/
        Linux-s390x/IBMzSeriesRedHat2.6.18/
        For Linux-s390x SuSE:
        CLIENTS2/NBClients/anb/Clients/usr/opensv/netbackup/client/
        Linux-s390x/IBMzSeriesSuSE3.0.76

Solaris For Solaris SPARC:
        CLIENTS1/NBClients/anb/Clients/usr/opensv/netbackup/client/Solaris/Solaris10/
        For Solaris x86
        CLIENTS1/NBClients/anb/Clients/usr/opensv/netbackup/client/Solaris/Solaris_x86_10_64/
```

- Copy the files that are shown to the client computer.

Install and upgrade of the UNIX and Linux client binaries with native installers

AIX	VRTSnbpck.image VRTSspbx.image.gz VRTSnbclt.image.gz VRTSnbjre.image.gz VRTSnbjava.image.gz VRTSpddea.image.gz VRTSnbcfg.image.gz
HP-UX	VRTSnbpck.depot VRTSspbx.depot.gz VRTSnbclt.depot.gz VRTSnbjre.depot.gz VRTSnbjava.depot.gz VRTSpddea.depot.gz VRTSnbcfg.depot.gz
Linux	VRTSnbpck.rpm VRTSspbx.rpm VRTSnbclt.rpm VRTSnbjre.rpm VRTSnbjava.rpm VRTSpddea.rpm VRTSnbcfg.rpm
Solaris	.pkg_defaults VRTSnbpck.pkg.gz VRTSspbx.pkg.gz VRTSnbclt.pkg.gz VRTSnbjre.pkg.gz VRTSnbjava.pkg.gz VRTSpddea.pkg.gz VRTSnbcfg.pkg.gz

Note: The Solaris client binaries include a hidden administration file called `.pkg_defaults`. This administration file contains default installation actions.

Note: The NetBackup Java Console RPM, `VRTSnbjava`, is optional. You may not want to install the NetBackup Java Console on every client in your environment.

Note: Be aware there is no `VRTSpddea.rpm` for the **z/Architecture** client.

- 4** (Conditional) For Solaris, HP-UX, and AIX, extract the compressed package files with the command shown:

```
gunzip VRTS*.*
```

This action extracts all the package files as shown:

```
VRTSnbpck.pkg
VRTSspbx.pkg
VRTSnbclt.pkg
VRTSnbjre.pkg
VRTSnbjava.pkg
VRTSpddea.pkg
VRTSnbcfg.pkg
```

- 5** Install the files in the order that is shown with the command shown:

```
AIX      installp -ad VRTSnbpck.image all
         installp -ad VRTSspbx.image all
         installp -ad VRTSnbclt.image all
         installp -ad VRTSnbjre.image all
         installp -ad VRTSnbjava.image all
         installp -ad VRTSpddea.image all
         installp -ad VRTSnbcfg.image all
```

Alternatively use a single command to install all packages:

```
installp -ad folder_name all
```

```
HP-UX   swinstall -s VRTSnbpck.depot \*
         swinstall -s VRTSspbx.depot \*
         swinstall -s VRTSnbclt.depot \*
         swinstall -s VRTSnbjre.depot \*
         swinstall -s VRTSnbjava.depot \*
         swinstall -s VRTSpddea.depot \*
         swinstall -s VRTSnbcfg.depot \*
```

Alternatively use a single command to install all packages:

```
swinstall -s ./VRTSnbpck.depot \*;swinstall -s
./VRTSspbx.depot \*;swinstall -s ./VRTSnbclt.depot
\*;swinstall -s ./VRTSnbjre.depot \*;swinstall -s
./VRTSnbjava.depot \*;swinstall -s ./VRTSpddea.depot
\*;swinstall -s ./VRTSnbcfg.depot \*
```

Install and upgrade of the UNIX and Linux client binaries with native installers

```
Linux      rpm -U VRTSnbpck.rpm
           rpm -U VRTSspbx.rpm
           rpm -U VRTSnbclt.rpm
           rpm -U VRTSnbjre.rpm
           rpm -U VRTSnbjava.rpm
           rpm -U VRTSpddea.rpm
           rpm -U VRTSnbcfg.rpm
```

Solaris Use the `pkgadd -a admin -d device [pkgid]` command as shown to install the files:

```
pkgadd -a .pkg_defaults -d VRTSnbpck.pkg VRTSnbpck
pkgadd -a .pkg_defaults -d VRTSspbx.pkg VRTSspbx
pkgadd -a .pkg_defaults -d VRTSnbclt.pkg VRTSnbclt
pkgadd -a .pkg_defaults -d VRTSnbjre.pkg VRTSnbjre
pkgadd -a .pkg_defaults -d VRTSnbjava.pkg VRTSnbjava
pkgadd -a .pkg_defaults -d VRTSpddea.pkg VRTSpddea
pkgadd -a .pkg_defaults -d VRTSnbcfg.pkg VRTSnbcfg
```

- The `-a` option defines a specific admin (`.pkg_defaults`) to use in place of the default administration file. The admin file contains default installation actions.
- The `-d` device option specifies the source of the software packages. A device can be the path to a device, a directory, or a spool directory.
- Use the `pkgid` parameter to specify a name for the package being installed. This parameter is optional.

6 (Conditional) If you do not have the answer file in place or you do not populate it correctly, you receive the error message shown:

```
WARNING: There is no answer file present and no valid bp.conf.
Therefore, security configuration is not complete. Manual steps
are required before backups and restores can occur. For more
information:
```

https://www.veritas.com/support/en_US/article.000127129

Change to the `/usr/openv/netbackup/bin/private` directory and run the `nb_init_cfg` command to configure the `bp.conf` file. You can also manually configure `bp.conf` file. You may have to set up the security and the certificate configuration manually. More information is available.

https://www.veritas.com/support/en_US/article.000127129

Customers who use the NetBackup installation script for their UNIX and Linux clients only see a single change to the installation behavior. The NetBackup installation script no longer copies the installation package into the `/usr/openv/pack/` directory

on the client. A successful installation or upgrade is recorded in the `/usr/opensv/pack/install.history` file.

Installation error messages on UNIX and Linux, their causes, and their solutions

Installation attempts that vary from the procedure that is shown may generate error messages. [Table A-8](#) shows some of the actions and the message that is generated.

Table A-8 Installation error messages and solutions

Install action	Error message	Solution
For AIX		
User attempts to install the binaries on top of the same version of the binaries.	<pre># installp -ad VRTSnbpck.image all package VRTSnbpck.image is already installed</pre>	Use the <code>lsllpp -L <i>package_name</i></code> command to determine the name of the installed package. Uninstall this package and then retry the operation.
User attempts to install the binaries in the incorrect order.	<pre># installp -ad VRTSnbcfg.image all error: Failed dependencies: VRTSnbclt >= 8.1.0.0 is needed by VRTSnbcfg-version-platform</pre>	Refer to the documentation for the correct image package installation order. More information is also available in the error which lists the dependent packages. See “To install or upgrade the UNIX or Linux client binaries using native installers.” on page 94.
User attempts to install an older version of a binary over the top of a newer version of the binary.	<pre># installp -d VRTSnbclt.image all WARNING: file /usr/opensv/lib/java/nbvmwaretags.jar from install of VRTSnbclt-version-platform conflicts with file from package VRTSnbclt-version-platform</pre>	Use the <code>lsllpp -L <i>package_name</i></code> command to determine the name of the installed package. Uninstall this package and then retry the operation.
For HP-UX		
User attempts to install the binaries on top of the same version of the binaries.	<pre># swinstall -s ./VRTSnbpck.depot 1 filesets have the selected revision already installed.</pre>	Use the <code>swlist</code> command to determine the name of the installed package. Uninstall this package and then retry the operation.

Table A-8 Installation error messages and solutions (*continued*)

Install action	Error message	Solution
User attempts to install the binaries in the incorrect order.	<pre># swinstall -s ./VRTSnbcfg.depot ERROR: "hostname/": The software dependencies for 1 products or filesets cannot be resolved.</pre>	Refer to the documentation for the correct depot package installation order. More information is also available in the error which lists the dependent packages. See "To install or upgrade the UNIX or Linux client binaries using native installers:" on page 94.
User attempts to install an older version of a binary over the top of a newer version of the binary.	<pre># swinstall -s ./VRTSnbclt.depot WARNING: "hostname/": 1 filesets have a version with a higher revision number already installed.</pre>	Use the <code>swlist</code> command to determine the name of the installed package. Uninstall this package and then retry the operation.
For Linux		
User attempts to install the binaries on top of the same version of the binaries.	<pre># rpm -U VRTSnbpck.rpm package VRTSnbpck.rpm-version-platform is already installed</pre>	Use the <code>rpm</code> command to determine the name of the installed package. Uninstall this package and then retry the operation.
User attempts to install the binaries in the incorrect order.	<pre># rpm -U VRTSnbcfg.rpm error: Failed dependencies: VRTSnbclt >= 8.1.0.0 is needed by VRTSnbcfg-version-platform</pre>	Refer to the documentation for the correct RPM installation order. More information is available. See "To install or upgrade the UNIX or Linux client binaries using native installers:" on page 94.
User attempts to install an older version of a binary over the top of a newer version of the binary.	<pre># rpm -U VRTSnbclt.rpm file /usr/opensv/lib/java/nbvmwaretags.jar from install of VRTSnbclt-version-platform conflicts with file from package VRTSnbclt-version-platform</pre>	Use the <code>rpm</code> command to determine the name of the installed package. Uninstall this package and then retry the operation.
For Solaris		

Table A-8 Installation error messages and solutions (*continued*)

Install action	Error message	Solution
<p>User attempts to install the binaries on top of the same version of the binaries</p>		<p>Use the <code>pkginfo</code> command to determine the name of the package that is currently installed. Uninstall this package and then retry the operation.</p> <p>Alternatively, use the admin file that is provided with the package to reinstall the package.</p>

Table A-8 Installation error messages and solutions (*continued*)

Install action	Error message	Solution
	<pre> pkgadd -a .pkg_defaults -d VRTSnbpck.pkg VRTSnbpck Processing package instance <VRTSnbpck> from </root/packages/Solaris/ Solaris_x86_10_64/VRTSnbpck.pkg> NetBackup Pre-Check(i386) 8.1.0.0 This appears to be an attempt to install the same architecture and version of a package which is already installed. This installation will attempt to overwrite this package. Copyright 2017 Veritas Technologies LLC. All rights reserved. ## Executing checkinstall script. Using </> as the package base directory. ## Processing package information. ## Processing system information. 6 package pathnames are already properly installed. ## Verifying disk space requirements. Installing NetBackup Pre-Check as <VRTSnbpck> ## Executing preinstall script. Wednesday, May 10, 2017 03:15:44 PM IST: Installing package VRTSnbpck. </pre>	

Table A-8 Installation error messages and solutions (*continued*)

Install action	Error message	Solution
	<pre>Installing NB-Pck. ## Installing part 1 of 1. [verifying class <NBclass>] ## Executing postinstall script. Wednesday, May 10, 2017 03:15:45 PM IST: Install of package VRTSnbpck was successful.</pre>	
User attempts to install the binaries in the incorrect order.	<pre># pkgadd -a .pkg_defaults -d VRTSnbclt.pkg VRTSnbclt ERROR: VRTSnbpck >=8.1.0.0 is required by VRTSnbclt. checkinstall script suspends</pre>	<p>Refer to the documentation for the correct package installation order. More information is available.</p> <p>See “To install or upgrade the UNIX or Linux client binaries using native installers.” on page 94.</p>
User attempts to install an older version of a binary over the top of a newer version of the binary.	<pre># pkgadd -a .pkg_defaults -d VRTSnbclt.pkg VRTSnbclt Processing package instance <VRTSnbclt> from </root/80packages/Solaris/ Solaris_x86_10_64/VRTSnbclt.pkg> NetBackup Client (i386) 8.0.0.0 The following instance(s) of the <VRTSnbclt> package are already installed on this machine: 1 VRTSnbclt NetBackup Client (i386) 8.1.0.0 Do you want to overwrite this installed instance [y,n,?,q]</pre>	<p>Use the <code>pkginfo</code> command to determine the name of the package that is currently installed. Uninstall this package and then retry the operation.</p>

Removing a clustered media server by migrating all data to a new media server

You can remove clustered media servers from the NetBackup environment. You must migrate all data from the cluster to a new standalone server, and then decommission the old clustered server.

The steps required to migrate all NetBackup resources and decommission a media server is covered in depth in the *Veritas NetBackup Administrator's Guide, Volume I*. Please see the **About decommissioning a media server** topic in the *Veritas NetBackup Administrator's Guide, Volume I*.

<http://www.veritas.com/docs/DOC5332>

Disabling the connection between your NetBackup OpsCenter server and your NetBackup Master Server

If you need to upgrade your NetBackup Master Server before you upgrade your NetBackup OpsCenter server, you can disable the relationship between your master and OpsCenter servers.

Please be aware of the limitations and potential data loss concerns related to disabling data collection:

- Veritas does not support data collection in OpsCenter with a NetBackup master server that is at a higher version than OpsCenter. OpsCenter must be at the same version or higher than the NetBackup Master Server.
- After the OpsCenter Data Collection is disabled for the master server, OpsCenter does not receive any alerts or new data in the OpsCenter reports. Data that was collected before data collection was disabled is still available in the OpsCenter reports.
- After you upgrade OpsCenter and enable data collection, OpsCenter receives any new alerts for the master server and new data in the reports. OpsCenter collects data for the time when data collection was disabled only if the data is still available on the master server. Reporting data and alerts are lost if the master server job retention level is shorter than the time that the data collection is disabled.

To disable the connection between the master server and the OpsCenter server

- 1 Disable data collection in OpsCenter.
Settings > Configuration > NetBackup > NetBackup Master Server to be upgraded > Disable Data Collection
- 2 Upgrade the NetBackup Master Server.
You can now operate both NetBackup and OpsCenter, but OpsCenter does not have complete data.

To enable the connection between the master server and the OpsCenter server

- 1 Upgrade OpsCenter.
- 2 Enable data collection on OpsCenter once the OpsCenter upgrade completes successfully.
Settings > Configuration > NetBackup > NetBackup Master Server to be upgraded > Enable Data Collection

Post upgrade procedures for Amazon cloud storage servers

Starting with NetBackup 8.1, the object size for Amazon (S3) and Amazon GovCloud storage servers has changed. This change affects the valid range for read and write buffer size for these cloud storage servers. You must update the read and write buffer size values for pre-NetBackup 8.1 servers using the NetBackup Administration Console on the master server. Update these settings for each cloud storage server that is associated with a media server.

For the valid range, review the `READ_BUFFER_SIZE` and `WRITE_BUFFER_SIZE` information in the *Veritas NetBackup Cloud Administrator's Guide*.

To update the Amazon (S3) and Amazon GovCloud read and write buffer size in the NetBackup Administrators Console

- 1 Open the NetBackup Administration Console.
- 2 Go to **Media and Device Manager > Credentials > Storage Server**.
- 3 For your Amazon (S3) and Amazon GovCloud storage servers:
 - Double click the storage server in the right pane to open the **Change Storage Server** dialog box.
 - In the **Change Storage Server** dialog box, click the **Properties** tab.
 - Update the value of the parameters shown. Enter these values in bytes:

```
READ_BUFFER_SIZE  
WRITE_BUFFER_SIZE
```

4 Click **Save**.

Use the commands shown to update the read and write buffer size from the command line

1 `nbdevconfig -getconfig -stype storage_server_type -storage_server storage_server_name -configlist filename`

2 Update the value of the parameters shown. Enter these values in bytes:

```
READ_BUFFER_SIZE  
WRITE_BUFFER_SIZE
```

3 `nbdevconfig -setconfig -stype storage_server_type -storage_server storage_server_name -configlist filename`

Index

A

- about
 - mounting NetBackup media 46
 - preinstall checker 19
 - startup and shutdown scripts 48
 - UNIX and Linux installation requirements 77
 - Veritas Services and Operations Readiness Tools 12
- AIX
 - install 24
 - upgrade 24
- authentication certificates. *See* security certificates
- Auto Image Replication
 - Bare Metal Restore errors 11
- automatic file changes
 - after upgrade 9

B

- Bare Metal Restore
 - Auto Image Replication errors 11
- bpplclients command 91
 - create client list 91

C

- catalog backup
 - limitation 12
- certificate
 - requirements 8
- certificates. *See* security certificates
- changes
 - in NetBackup 8.1 8
- clients
 - upgrading after server upgrades 88
- cluster
 - private network 37
- cluster installation and upgrade
 - requirements 87

- commands
 - bpplclients 91
- complete system update
 - after upgrade 50
- create client list
 - bpplclients command 91

D

- Domain Name Service (DNS) 78

E

- ESD images
 - for NetBackup 69

H

- hosts file 78

I

- install
 - AIX 24
- installation requirements
 - UNIX and Linux systems 77
 - Windows systems 80

L

- limitation
 - catalog backup 12
- Linux
 - mount NetBackup DVD 47
- local, remote, clustered upgrade
 - Windows systems 31

M

- master server
 - upgrade 27
- media kit
 - description of contents 68
- media server
 - upgrade 52

mixed version support
 NetBackup 8.x 76

mount DVD
 NetBackup installation 46

mount NetBackup DVD
 Linux 47
 UNIX 47

MSDP 8

N

NBUPlugin
 determining the version 75
 upgrading 76

NetBackup
 ESD images 69
 media kit contents 68

NetBackup 8.1
 changes 8

NetBackup 8.x
 mixed version support 76

NetBackup DVDs 67

NetBackup Electronic Software Distribution (ESD)
 images 67

NetBackup installation
 mount DVD 46

NetBackup media
 about mounting 46

NetBackup media kit
 about 68

NetBackup scripts
 startup and shutdown 48
 UNIX 48

Network Information Service (NIS) 78

O

ovpass driver
 AIX 42

P

plug-ins
 NetApp 73
 upgrading from NetApp 76

preinstall checker
 about 19

private network
 cluster 37

R

recommended installation procedures
 Veritas Operations Readiness Tools 13

recommended upgrade procedures
 Veritas Operations Readiness Tools 17

required changes
 after upgrade 50

requirements
 cluster installation and upgrade 87

requirements for server installation
 Red Hat Linux 79

S

security certificates
 for NetBackup hosts 26

server installation
 requirements for Red Hat Linux 79

servers
 silent upgrade on Windows 39

silent upgrade on Windows
 servers 39

SORT
 Veritas Operations Readiness Tools 13, 17
 Veritas Services and Operations Readiness
 Tools 12

startup and shutdown
 NetBackup scripts 48

startup and shutdown scripts
 about 48

U

UNIX
 mount NetBackup DVD 47
 NetBackup scripts 48

UNIX and Linux installation requirements
 about 77

UNIX and Linux systems
 installation requirements 77

upgrade
 AIX 24
 automatic file changes after 9
 complete system update after 50
 master server 27
 media server 52
 plan 21
 planning 20
 required changes after 50

- upgrade clients
 - after upgrading servers 88
- upgrade method 28, 43
- upgrade server software
 - server software 41
- user account
 - web server 22

V

- Veritas Operations Readiness Tools (SORT)
 - recommended installation procedures 13
 - recommended upgrade procedures 17
- Veritas Services and Operations Readiness Tools (SORT)
 - about 12
- versions, determining NetApp NBUPlugin 73

W

- web server
 - user account 22
- Windows systems
 - cluster installation and upgrade requirements 87
 - installation requirements 80
 - local, remote, clustered upgrade 31