

NetBackup™ Upgrade Guide

Release 11.1

NetBackup™ Upgrade Guide

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Documentation

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Cohesity Services and Operations Readiness Tools (SORT)

Cohesity 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

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Introduction

This chapter includes the following topics:

- [About the NetBackup 11.1 Upgrade Guide](#)
- [Available NetBackup upgrade methods](#)
- [About Cohesity Usage Insights](#)
- [Best practices for Cohesity Usage Insights](#)

About the NetBackup 11.1 Upgrade Guide

The NetBackup 11.1 Upgrade Guide is provided to help assist you plan and accomplish your upgrade to NetBackup 11.1. The NetBackup 11.1 Upgrade Guide provides an upgrade path from supported versions of NetBackup to NetBackup 11.1. You can obtain the latest version of this guide on the [NetBackup Upgrade Portal](#).

Your NetBackup environment supports mixed versions of NetBackup. Support for multiple versions of NetBackup lets you upgrade one server at a time. This upgrade process minimizes the effect on overall system performance. More information about mixed version support is available.

Refer to the [NetBackup Release Notes](#) for information about changes to NetBackup in the 11.1 release.

See [“About compatibility between NetBackup versions”](#) on page 190.

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

See [“About Cohesity Services and Operations Readiness Tools”](#) on page 24.

Upgrade to NetBackup 11.1 from End of Support Life versions of NetBackup

Information about required upgrade steps for EOSL versions of NetBackup are not included in the NetBackup 11.1 Upgrade Guide. For a successful upgrade from an EOSL version of NetBackup directly to 11.1, you must:

- Refer to the NetBackup 8.0 Release Notes to understand the changes to NetBackup.
- Refer to the upgrade procedure that is listed in the NetBackup 8.0 Upgrade Guide.
- Combine the upgrade steps in the NetBackup 8.0 procedure with the upgrade steps in the NetBackup 11.1 Upgrade Guide.

Refer to the NetBackup Release Notes and NetBackup Upgrade Guide for each release between your EOSL version and NetBackup 11.1.

These documents provide additional information about the upgrade steps and the requirements that are helpful for a successful upgrade.

For copies of these documents, refer to the [NetBackup Documentation Landing Page](#).

To determine what NetBackup versions are EOSL, refer to the *Product life cycle information*.

https://www.veritas.com/support/en_US/eosl

Available NetBackup upgrade methods

[Table 1-1](#) and [Table 1-2](#) provide details on the ways in which you can upgrade NetBackup. To better understand which upgrade method is best for your environment, consider:

- Interactive: Requires user input through the UI during the upgrade process.
- Silent or native: Upgrades that use the Windows command files, or directly call the UNIX and Linux native package managers.
- Push or remote: Includes options such as VxUpdate, Chef, and SCCM. Additionally, you can do a remote upgrade with Windows or use `ssh` or `sftp` with UNIX and Linux.
- NetBackup supports the use of certain Ansible playbooks for upgrades. More information is available
See [“Ansible supported playbooks for NetBackup”](#) on page 158.

Table 1-1 UNIX and Linux upgrade and EEB

Method	Primary	Media	Client
Interactive	See “Upgrading Linux server software to NetBackup 11.1” on page 53.	See “Upgrading NetBackup media servers to NetBackup 11.1” on page 77. See “About VxUpdate” on page 106.	Yes. See the information about primary servers. See “About VxUpdate” on page 106.
Silent or native	See “Silently upgrading NetBackup primary server software on Linux” on page 61.	See “Silently upgrading NetBackup media server software on Linux” on page 80. See “About VxUpdate” on page 106.	See “Upgrade of the UNIX and Linux client binaries with native installers” on page 92. See “About VxUpdate” on page 106.
Push or remote	Upgrade: No EEB: Push upgrade of EEBs may work through 3rd party deployment tools.	See “About VxUpdate” on page 106.	See “Upgrading clients after servers are upgraded” on page 204. See “About VxUpdate” on page 106.
Ansible playbooks	You can use NetBackup Ansible playbooks to upgrade NetBackup. See “Ansible supported playbooks for NetBackup” on page 158.	You can use NetBackup Ansible playbooks to upgrade NetBackup. See “Ansible supported playbooks for NetBackup” on page 158.	You can use NetBackup Ansible playbooks to upgrade NetBackup. See “Ansible supported playbooks for NetBackup” on page 158.

Table 1-2 Windows upgrade and EEB

Method	Primary	Media	Client
Interactive	See “Performing local, remote, or clustered server upgrades on Windows systems” on page 37.	See “Upgrading NetBackup media servers to NetBackup 11.1” on page 77. See “About VxUpdate” on page 106.	Yes. See the information about primary servers. See “About VxUpdate” on page 106.
Silent	See “Performing silent upgrades on Windows systems” on page 48.	See “Performing silent upgrades on Windows systems” on page 48. See “About VxUpdate” on page 106.	Yes. See the information about primary servers. See “About VxUpdate” on page 106.

Table 1-2 Windows upgrade and EEB (*continued*)

Method	Primary	Media	Client
Push or remote	Upgrade: See “Performing local, remote, or clustered server upgrades on Windows systems” on page 37. EEB: Push upgrade of EEBs may work through 3rd party deployment tools.	See “Upgrading NetBackup media servers to NetBackup 11.1” on page 77. See “About VxUpdate” on page 106.	Yes. See the information about primary servers. See “About VxUpdate” on page 106.
Ansible playbooks	You can use NetBackup Ansible playbooks to upgrade NetBackup. See “Ansible supported playbooks for NetBackup” on page 158.	You can use NetBackup Ansible playbooks to upgrade NetBackup. See “Ansible supported playbooks for NetBackup” on page 158.	You can use NetBackup Ansible playbooks to upgrade NetBackup. See “Ansible supported playbooks for NetBackup” on page 158.

About VxUpdate

VxUpdate provides a policy-based and on demand upgrade tool for media servers and clients. The policy format provides a simplified tool for media server and client upgrades. The on demand ability provides immediate upgrades as needed.

The VxUpdate configuration is in a familiar policy-based format, similar to a backup policy. You can use the deployment policies to automate the installation of emergency engineering binaries, as provided by NetBackup. The deployment policy lets you configure and run deployment activities on a schedule or enable the client host owners to upgrade on demand. The use of VxUpdate for push or remote upgrades where possible is recommended.

About Cohesity Usage Insights

Cohesity Usage Insights helps you manage your NetBackup deployment more efficiently, spot trends, and plan for the future. With accurate, near real-time reporting, it reveals the total amount of data that is backed up. Usage Insights alerts you if you are close to exceeding your licensed capacity limits.

Usage Insights provides:

- Accurate, near real-time reporting of terabytes protected.
- Usage trends that are shown in a graphical display.
- Consumption assessments to alert before licensed capacity is exceeded.

- Easy capacity planning and budgeting.
- Identification of growth spikes or potential gaps in coverage.

For customers who use capacity licensing (NDMP, Limited Edition, Complete, Enterprise, Enterprise Cloud, or Data Mover Edition), Usage Insights helps accurately measure capacity usage. This measurement gives total visibility into how each of the protected workloads consumes storage and enables efficient capacity planning. Furthermore, Usage Insights eliminates the need for these customers to provide manual uploads of telemetry data by automatically providing the necessary telemetry.

For details on frequently asked questions, see the *Cohesity Usage Insights for NetBackup Getting Started Guide*.

Caution: Usage Insights is compatible with Google Chrome and Mozilla Firefox. Use of Microsoft Edge or Microsoft Internet Explorer is not recommended, as they do not render all information correctly.

See [“Best practices for Cohesity Usage Insights”](#) on page 12.

For additional information about Cohesity Usage Insights, see the [Cohesity Usage Insights for NetBackup Getting Started Guide](#)

Best practices for Cohesity Usage Insights

Certain best practices for use of the Usage Insights tool are recommended.

- Usage Insights is compatible with Google Chrome and Mozilla Firefox. Use of Microsoft Edge or Microsoft Internet Explorer is not recommended, as they do not render all information correctly.
- Confirm your site's ability to transmit secure web traffic.
Usage Insights uses `HTTPS` to send relevant information. Your primary server must allow outbound `HTTPS` traffic to take advantage of the automatic upload feature. Manual uploads require `HTTPS` traffic from the upload location.

Planning for an upgrade

This chapter includes the following topics:

- [General upgrade information](#)
- [Upgrade operational notes and limitations for NetBackup 11.1](#)
- [Performance and tuning considerations](#)
- [About upgrade tools](#)

General upgrade information

Review this section for the details that are related to planning for an upgrade.

About planning a NetBackup 11.1 upgrade

The currently installed version of NetBackup affects the upgrade process for the NetBackup 11.1.

- Review the upgrade requirements for your platform:
 - See [“Upgrade requirements for UNIX and Linux”](#) on page 191.
 - See [“Upgrade requirements for Windows and Windows clusters”](#) on page 195.
 - See [“Requirements for Windows cluster upgrades”](#) on page 200.
- Upgrades from pre-NetBackup 10.3 to NetBackup 10.3 or later releases require you to download a license file from the Cohesity Entitlement management portal, <https://support.veritas.com>. A license is only required on the primary server.
- All pre NetBackup 10.2 versions must plan for the database 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
Download license file	Upgrades from pre-NetBackup 10.3 to NetBackup 10.3 or later releases require you to download a license file from the Cohesity Entitlement management portal. A license is only required on the primary server. More information is available: https://www.veritas.com/support/en_US/article.100058779
Database conversion precheck	All upgrades from pre NetBackup 10.2 to NetBackup 10.2 and later should run the database conversion precheck utility. Run this utility before an upgrade from pre NetBackup 10.2. See https://www.veritas.com/support/en_US/article.100055151 for additional information.

Before you begin an upgrade, 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 11.1 that you should be familiar with before you upgrade.

Caution: To help ensure a successful upgrade to NetBackup 11.1, you should visit the SORT page and the NetBackup Upgrade Portal and for complete upgrade details:

SORT page:

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

See “About Cohesity Services and Operations Readiness Tools” on page 24.

NetBackup Upgrade Portal:

https://www.veritas.com/support/en_US/article.100032801

Windows compiler and security requirements for NetBackup 11.1 and later upgrade

NetBackup 11.1 and later for Windows uses the Visual Studio 2022 compiler and the Windows 11 Software Development Kit (SDK). To run NetBackup 11.1, Windows computers require Visual C++ run-time libraries version 14.44.35208 or later.

Microsoft makes available the redistributable utilities that install these libraries. More information on these redistributable utilities is available.

<https://visualstudio.microsoft.com/downloads>

These utilities from Microsoft can alter Windows hosts such that a restart is required. The restart requirement can occur if the Visual C++ run-time libraries are in use by one or more processes on the system. Before you install NetBackup 11.1 or later, you should install Visual Studio 2022 C++ run-time libraries on Windows computers. The installation of these libraries should take place within a maintenance window where you can safely restart the computer.

On Windows computers that do not have compatible Visual C++ run-time libraries present, the NetBackup upgrade process may offer to do it for you. You are required to acknowledge the risks and opt-in. More information about the risks and the opt-in process is available.

https://www.veritas.com/content/support/en_US/article.100062924

The redistributable utilities can fail or behave unexpectedly on hosts without all security updates in place. If a Windows host is not current with security updates, the following behaviors can occur:

- NetBackup's upgrade process fails shortly after start with a message about inability to deploy Visual Studio 2022 C++ run-time libraries.
- The `nbcertcmdtool` application fails unexpectedly when run by the NetBackup installation or upgrade process. This failure is difficult to distinguish from `nbcertcmdtool` failures that result from invalid or insufficient security configuration.
- MSDP applications fail unexpectedly near the conclusion of the NetBackup installation or upgrade process.

Database user, port, and disk space requirements

For Linux environments, the new NetBackup database must have a non-root user for operations. You are prompted for the non-root user if the root user starts the NetBackup daemons. The username must meet the criteria shown:

- Root accounts are not allowed.
- Accounts with access to the `sudo` utility are not allowed.
- The username must be 1-31 characters.
- The username must contain only English characters.
- Do not use the `nbwebsvc` user as the scale-out database user.
- For more details, see: <https://www.veritas.com/docs/100053091>

If the NetBackup daemons already start with a non-root user this same account is used to run the NetBackup database.

The new database has a connection pooler service that by default uses port 13787. Confirm that this port is available for database operation before upgrade. Failure to provide valid port numbers renders NetBackup unusable until the port issues are resolved.

If this port is not available, you can change the value with the answer file during a Linux upgrade. The Linux interactive upgrade does not have a prompt. For a Windows primary server, you can change the port value by selecting the **Custom installation** path during upgrade. More information about the answer file is available:

See [“About the NetBackup answer file”](#) on page 128.

During upgrade, additional disk space is required for the conversion. The space is necessary to create the new PostgreSQL databases as well as to store the temporary `.dat` files. NetBackup expects the new database to be approximately the same as the old database. The temporary `.dat` files require space equivalent to size of the current ASA `.db` files.

The additional disk space for the NetBackup database conversion is only required when you upgrade from pre NetBackup 10.2 to NetBackup 10.2 and later. Once the database is converted, this additional disk space is not required.

On Linux primary servers, the database files are in the `/usr/opensv/db/data` directory. On Windows primary servers, the database files are in the `install_path\NetBackupDB\data` directory.

Starting NetBackup daemons and services as non-administrative user

You can start most of the NetBackup daemons and services as a non-root user. Start the NetBackup services as a non-root user. If you decide to use a less privileged user, you must plan accordingly. Ensure that the user account has access to the paths of disaster recovery files, external certificate authority (ECA) files, and temporary files.

On UNIX and Linux, you see a new prompt during the primary server upgrade. The new prompt asks you to provide a service user, preferably a non-root user. You must create this user in advance and the user must have `nbwebgrp` as the secondary group.

The service user is used as the database user if it is a non-root account. In this case, you are not prompted for a separate database user.

On Windows, you can use the Local Service built-in account as the service account. This option is available in the **Custom** upgrade path for primary servers.

You can use the `nbSERVICEUSERCMD` command to change the service user on media servers and clients after the installation completes. Refer to the *NetBackup Commands Reference Guide* for more information about the `nbSERVICEUSERCMD` command. For more details about the service user account, refer to https://www.veritas.com/support/en_US/article.100053035.

On Windows, if services such as the NetBackup Legacy Network Service or the NetBackup Client Service run as an administrator account other than **Local System**, their **Log on as** value isn't changed.

Creating the user account to support the NetBackup web server

The NetBackup primary 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 primary server (or each node of a clustered primary 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 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 Linux

- 1 Create the local group with the command shown:

Command: # `groupadd group_name`

Example: # `groupadd nbwebgrp`

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

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

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

Upgrade NetBackup Snapshot Manager before primary and media servers

If your environment includes computers with NetBackup Snapshot Manager, you must upgrade these computers before any other NetBackup computers. The correct upgrade order is: NetBackup Snapshot Manager computers > primary servers > media servers > clients. More information about upgrade order and NetBackup versions is available:

See [“About compatibility between NetBackup versions”](#) on page 190.

License file required for upgrade

Starting with NetBackup 10.3, NetBackup uses license files instead of license keys. As part of the primary server upgrade process, you must either download a license file or use a temporary production license. You don't need to download the temporary production license as it's included with NetBackup.

Upgrades from versions earlier than NetBackup 8.1.2 only support the production licenses that are downloaded from Cohesity Entitlement Management System (VEMS) or the evaluation license. You don't need to download the evaluation license as it's included with NetBackup. You cannot use the temporary production license when you upgrade from a NetBackup version earlier than 8.1.2.

Use your production license that is downloaded from VEMS for all upgrades. If you do not have access to your production license, you can use one of the built-in non-downloaded licenses. Which license you use depends on your version of NetBackup.

The evaluation license is only used during upgrades if the upgrade is from NetBackup versions earlier than NetBackup 8.1.2. The evaluation license is valid for 60 days. Alerts appear in the web UI immediately after upgrade, indicating the number of days remaining in the evaluation.

The temporary license is used in upgrades of NetBackup 8.1.2 or later to NetBackup 10.3 or later. The temporary license is valid for 60 days. Alerts appear in the web UI immediately after upgrade, indicating the number of days remaining before the temporary license expires.

More information about license files is available.

https://www.veritas.com/support/en_US/article.100058779

Windows primary server upgrades are slowed if a large number of files are in the installation directory

When you upgrade from 9.1 or later releases, the NetBackup Windows primary server upgrade may appear to hang while full control to the NetBackup files is granted. The message in the upgrade reads, **Granting full control to NetBackup services over NetBackup files.**

As part of the upgrade, the `nbfp.exe` process updates the installation directory permissions. This process may take longer if the installation directory has a large number of files in addition to logs and the images database. Do not stop the installation while the installer waits for a reply from `nbfp.exe`.

Customers are advised not to create their own files in the NetBackup installation directory. If there are more than 300,000 files in the install directory, contact Cohesity

Technical Support for assistance with the upgrade. More information is available to determine the number of files in the NetBackup installation directory.

https://www.veritas.com/support/en_US/article.100060329

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 2-2 Protected paths and files for UNIX and Linux

Protected path or file	Action
<code>/usr/opensv/netbackup/bin/initbpbm</code> <code>/usr/opensv/netbackup/bin/initbprd</code>	The current NetBackup version number is appended to the file name. Example: <code>initbpbm.version</code>
<code>/usr/opensv/netbackup/nblog.conf</code>	A suffix is added to the file during upgrade. Review the contents of the <code>/usr/opensv/netbackup</code> directory after the upgrade completes for details.
<code>/usr/opensv/msg/C</code> <code>/usr/opensv/netbackup/bin/goodies</code> <code>/usr/opensv/netbackup/bin/help</code> <code>/usr/opensv/volmgr/help</code>	The entire directory is moved to the directory name plus the current version number. Example: <code>/usr/opensv/netbackup/ bin/goodies.version</code>

For Windows

Table 2-3 Protected paths and files for Windows

Protected path or file	Action
<code>install_path\NetBackup\nblog.conf</code>	The file is copied to the <code>install_path\NetBackup\bin.original_version</code> directory. The <i>original_version</i> value is the version of NetBackup before you begin the upgrade. Example: <code>install_path\NetBackup\bin.version</code>
<code>install_path\NetBackup\bin\goodies\netbackup.adm</code> <code>install_path\NetBackup\bin\goodies\help_script.cmd</code> <code>install_path\NetBackup\bin\goodies\available_media.cmd</code> <code>install_path\NetBackup\bin\goodies\check_coverage.cmd</code> <code>install_path\NetBackup\bin\goodies\cleanstats.cmd</code> <code>install_path\NetBackup\bin\goodies\duplicate_images.cmd</code> <code>install_path\NetBackup\bin\goodies\verify_images.cmd</code> <code>install_path\NetBackup\bin\goodies\bpstart_notify</code> <code>install_path\NetBackup\bin\goodies\bpend_notify</code>	The files are copied to the <code>install_path\NetBackup\bin\goodies.release</code> directory. The <i>release</i> value is the current version of NetBackup. Example: <code>install_path\NetBackup\bin\goodies.version\netbackup.adm</code>

Reduce the job database size before upgrade

Following an upgrade from 9.0 or earlier to NetBackup 9.1 or later, existing jobs for certain workloads are assigned an asset namespace to enable access control at an asset level. This process may take some time. You should reduce the size of the jobs database before upgrade. This action minimizes the amount of processing required to perform the association and minimizes the effect on web services performance. Very large job databases may see an alert regarding high heap space usage.

The affected workloads include: Cloud, Nutanix AHV, RHV, and VMware.

For further details see the following article:

<http://www.veritas.com/docs/100049808>

Upgrade operational notes and limitations for NetBackup 11.1

The following describes some important changes to NetBackup version 11.1. For complete details, see the *NetBackup Release Notes* for version 11.1.

About log file directory changes

Beginning with NetBackup 11.1, logs at

`%ALLUSERSPROFILE%\Cohesity\NetBackup\InstallLogs` are contextually named and organized. The naming format may include operation status, NetBackup role, operation type, along with date and time information. For more information, see `%ALLUSERSPROFILE%\Cohesity\NetBackup\InstallLogs\README.txt`.

Existing policies are registered with role-based access control when you upgrade to NetBackup 11.1

When you upgrade from NetBackup 11.0 and earlier versions to NetBackup 11.1 or later, any existing policies are registered with role-based access control (RBAC). This change allows administrators to apply object-level permissions for the existing policies.

About the NetBackup DirectIO

Beginning with NetBackup 11.1, Cohesity introduces NetBackup DirectIO. This plug-in allows NetBackup to communicate directly with Cohesity Data Protect clusters. The plug-in manages how NetBackup data is sent to the Cohesity Data Protect cluster.

The plug-in is installed on NetBackup hosts that need to communicate directly with DirectIO storage. Cohesity supports this plug-in on Windows and Red Hat x86 platforms. You can install it as an option on any primary, media server, or client systems.

About NetBackup database changes

The NetBackup database is converted to a new database solution. As a part of the database conversion, NetBackup attempts to determine the number of records in the NetBackup database, and estimate the time that is required for update. If the estimated upgrade time exceeds 2 hours, you are prompted to confirm that you want to continue.

As a part of internal NetBackup testing, databases that were roughly 55 GB in size with around 100 million records took the approximate time shown based on operating system:

- Linux: Approximately 30 minutes.
- Windows: Between 30 minutes and 2 hours, depending on hardware.

The times shown here apply only to the database conversion, not to the upgrade itself.

During upgrade, additional disk space is required for the conversion. The space is necessary to create and migrate the new databases. Internal NetBackup testing shows that the upgrade requires approximately twice the space of the current NetBackup database for the conversion.

Run the database precheck tool to identify any potential data issues before you upgrade NetBackup. See https://www.veritas.com/support/en_US/article.100055151 for instructions about how to use the precheck tool. You should defragment the NetBackup database before upgrade to improve the overall conversion experience. See the *NetBackup Administrator's Guide, Volume I* for additional information on the **Reorganize** option to defragment the database.

Performance and tuning considerations

The *NetBackup Backup Planning and Performance Tuning Guide* provides environmental recommendations based on field experience. Your specific environment may require different considerations.

Administrators should use the guide to analyze, evaluate, and tune NetBackup performance in their specific NetBackup environment. Use the information that is presented to determine:

- Size requirements for the NetBackup primary server.
- The number of CPUs, disk drives, and tape drives required.
- How best to optimize of NetBackup for various workloads.
- Tuning parameters for maximum backup performance.
- Appropriate strategies for improved recovery time.
- Available tools to understand how NetBackup handles data.

For additional information, see the [NetBackup Backup Planning and Performance Tuning Guide](#).

About upgrade tools

Review this section for the details on upgrade tools such as Services and Operations Readiness Tools (SORT) and the preinstall checker.

About Cohesity Services and Operations Readiness Tools

Cohesity Services and Operations Readiness Tools (SORT) is a robust set of standalone and web-based tools that support 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.
- **NetBackup Future Platform and Feature Plans**
Use this tool to determine what items you can expect to see replaced with newer and improved functionality. The tool also provides insight about what items you can expect to see discontinued without replacement. Some of these items include certain NetBackup features, functionality, 3rd-party product integration, other 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 upgrades

Current NetBackup users should perform the four 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 2-4

Procedure	Details
Create an account on the SORT webpage	See “To create an account on the SORT page” on page 25.
Create system-specific installation reports	See “To create a system-specific installation report for Windows” on page 26. See “To create a system-specific installation report for UNIX or Linux” on page 27.
Review the future platform and feature plans.	See “To review future platform changes and feature plans” on page 28.
Review the hot fix and emergency engineering binary release auditor information.	See “To review hot fix and emergency engineering binary information” on page 28.

To create an 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 logon 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 logon information, you can log into SORT and begin uploading your customized information.

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 or Linux computers, you need the UNIX or Linux 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. You should start 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. For ease of centralized analysis, upload the results to the My SORT website. Click **Upload** and enter your My SORT logon 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 or Linux computers, you need the UNIX or Linux data collector.
- 5 Change to directory that contains the downloaded utility.
- 6 Run `./sortdc`

The utility performs checks to confirm that 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 is used to make improvements to the tool.

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 NetBackup installer includes a preinstall checker. This feature helps to determine if your computer is ready for a successful installation or upgrade.

The check runs automatically when you start an upgrade. The results of the check are shown at the following point:

- UNIX or Linux upgrade script
After you accept the end user license agreement but before the installation starts.
- Windows installation wizard
On the **Ready to Install the Program** screen, where the **Installation Summary** appears.

Additionally, you can run the preinstall checker through VxUpdate. See [“About VxUpdate”](#) on page 106.

NetBackup uses a preinstallation program that does a check at the beginning of installations or upgrades. The check looks for any known problems that you can eliminate so the operation can succeed. The checks that are performed are developed from customer input on the previous problems that were encountered during installations and upgrades. NetBackup can update the checker whenever new customer feedback is received. Refreshes are not dependent on a NetBackup release. If your server can connect to telemetry.veritas.com, NetBackup automatically updates the checker with the latest version when the installation or the upgrade starts.

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:

- Linux
In the installation trace file in the following path:
`/usr/opensv/tmp`
- Windows
In the following directories:
`%ALLUSERSPROFILE%\Cohesity\NetBackup\InstallSummary\`
`%ALLUSERSPROFILE%\Cohesity\NetBackup\InstallLogs`

More information about the `InstallLogs` directory is available: See [“About log file directory changes”](#) on page 22.

About the NetBackup database analyzer tool

The NetBackup database analyzer tool was developed to confirm that your environment is ready for the new NetBackup database. Given the importance of the NetBackup database, you should run this tool before an upgrade to NetBackup 10.2. Details about where to locate the tool and how to run the tool are found at the URL shown:

https://www.veritas.com/support/en_US/article.100055151

Primary server upgrade

This chapter includes the following topics:

- [About primary server upgrades](#)
- [Preinstall procedure for upgrading to NetBackup 11.1](#)
- [Performing local, remote, or clustered server upgrades on Windows systems](#)
- [Performing silent upgrades on Windows systems](#)
- [Upgrading Linux server software to NetBackup 11.1](#)
- [Silently upgrading NetBackup primary server software on Linux](#)
- [Post-install procedure for upgrading to NetBackup 11.1](#)
- [About NetBackup startup and shutdown scripts](#)
- [Completing your system update after an upgrade](#)

About primary server upgrades

Upgrade NetBackup on the primary server before you upgrade NetBackup on any other computers in your environment. Once the primary 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 190.

Two primary server upgrade methods are supported: either the NetBackup upgrade script or the native UNIX and Linux installers. The NetBackup upgrade script is the standard upgrade method and is recommended for new users. The native UNIX and Linux installers are potentially more difficult and require additional steps.

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: It is recommended that after you install or upgrade NetBackup server software, you 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 190.

Proceed with the upgrade.

See “[Preinstall procedure for upgrading to NetBackup 11.1](#)” on page 32.

Preinstall procedure for upgrading to NetBackup 11.1

Be aware of the general information shown as you plan your NetBackup 11.1 upgrade:

- Several tools are available to help you perform the extra step that is required for the guided method. For more details, contact your Business Critical Services (BCS) representative.
- Additional steps are required if the NetBackup upgrade includes an upgrade to RHEL 7.5 and you use Fibre Transport Media Server (FTMS). More information is available.
See “[About NetBackup 11.1 support for Fibre Transport Media Server with RHEL 7.5 and later](#)” on page 168.
- For NetBackup installations that include globally clustered primary 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: https://www.veritas.com/support/en_US/article.100041191
- IT Analytics is the solution for NetBackup reporting and analytics. The IT Analytics Data Collector may be upgraded during the upgrade of NetBackup primary server. More information about the IT Analytics Data Collector and upgrades is available.
See “[About the IT Analytics Data Collector](#)” on page 174.

Use the procedure shown to prepare to upgrade your primary server to NetBackup 11.1.

Preinstall steps to upgrade to NetBackup 11.1 and complete the image metadata migration

- 1 Perform environment checks with the SORT tool.
See “[Recommended SORT procedures for upgrades](#)” on page 25.
- 2 Download your license file with the procedure shown:
 - Log on to your Cohesity Support account (Cohesity Support) with your username and password.
 - Select **Licensing**. This option takes you to the Cohesity Entitlement Management System (VEMS).
 - Select **Entitlements** on the **VEMS** main menu.
 - Search the **Entitlements** page for the entitlement that you want to use to generate a license key.
 - Once you have located the entitlement, select the associated **Generate License** option.
 - Use the **Select Version** filter to view the list of license key options for the version of the product that you want to deploy.
 - Select the license key option in the table, specify the required information, and select **Generate**.
 - Select **Download File** to save the new license to your computer.

Note: More information about how to download license files is available: https://www.veritas.com/content/support/en_US/article.100048764

- 3 Run the database precheck tool to confirm your environment is ready for conversion to the new NetBackup database. For details about this tool, see: https://www.veritas.com/support/en_US/article.100055151
- 4 (Conditional) On Linux, if the NetBackup database files reside on `btrfs` file system, move it to a supported file system (such as `ext4` or `xfs`) before you upgrade. It is not supported to reside the NetBackup database on a `btrfs` file system. The database files reside on the primary server in the directories under `/usr/opensv/db`.

To move the NetBackup database files on Linux:

- Perform a catalog backup.
- Shut down all NetBackup daemons:
`/usr/opensv/netbackup/bin/bp.kill_all`

- Start the NetBackup database server


```
/usr/opensv/netbackup/bin/nbdbms_start_stop start
```
 - ```
/usr/opensv/db/bin/nbdb_move -data data_directory -index index_directory -tlog log_directory
```

 If you use mirrored transaction log, use the command shown:
 

```
/usr/opensv/db/bin/nbdb_move -data data_directory -index index_directory -tlog log_directory -mlog log_mirror_directory
```
  - Start all NetBackup daemons:
 

```
/usr/opensv/netbackup/bin/bp.start_all
```
  - Perform a catalog backup.
- 5** (Conditional) On Windows, be sure that all operating system and security updates are applied. More information is available.
- See [“Windows compiler and security requirements for NetBackup 11.1 and later upgrade”](#) on page 14.
- 6** (Conditional) On Windows, if the NetBackup installation directory contains a large number of files, your upgrade time may be longer. More information is available.
- See [“Windows primary server upgrades are slowed if a large number of files are in the installation directory”](#) on page 19.
- [https://www.veritas.com/support/en\\_US/article.100060329](https://www.veritas.com/support/en_US/article.100060329)
- 7** Perform any pre-upgrade tasks that you would normally do in regard to your NetBackup environment. For example:
- Disable antivirus software.
 

If the antivirus software cannot be disabled, you should exclude NetBackup files and folders from virus scan events. More information about excluding NetBackup files and folders is available.

[https://www.veritas.com/support/en\\_US/article.100004864](https://www.veritas.com/support/en_US/article.100004864)
  - Stop all customized or third-party scripts.
  - Perform any cluster-specific tasks.
  - Run a hot catalog backup.
  - Disable all storage lifecycle policies (SLPs).
  - Deactivate all NetBackup policies.
  - For VMware and Red Hat Virtualization (RHV) environments, reduce the size of the job database before upgrade. Following an upgrade, existing VMware and RHV jobs are assigned an asset namespace to enable access

control at an asset level. This process may take some time. More information about this process is available:

See [“Reduce the job database size before upgrade”](#) on page 21.

- 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 *NetBackup Clustered Primary Server Administrator's Guide* for the commands to take these resources offline.

- 8 (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
```

- 9 The NetBackup primary 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 primary server (or each node of a clustered primary server). More information is available:

See “[NetBackup primary server web server user and group creation](#)” on page 158.

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**Note:** It is recommended that you save the details of the user account that you use for the NetBackup Web Services. A primary server recovery requires the same NetBackup Web Services user account and credentials that were used when the NetBackup catalog was backed up.

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**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.

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

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- 10 (Conditional) If you have customized the settings for your Tomcat web server, determine if those settings persist across upgrades. More information is available:

See “[Persistent Java Virtual Machine options](#)” on page 180.

- 11 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, ensure that no backups are running. Stop the RMAN processes before you install NetBackup. If you use AIX, you should run `/usr/bin/slibclean` as the root user after you stop the RMAN processes.

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>

- 12 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 37.
- See [“Performing silent upgrades on Windows systems”](#) on page 48.
- See [“Upgrading Linux server software to NetBackup 11.1”](#) on page 53.

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

Use the following procedure to upgrade to NetBackup 11.1 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 Navigate to the directory where the ESD images (downloaded files) reside and run `Browser.exe` to start the NetBackup Installation Wizard.
- 3 On the initial browser screen (**Home**), click **Install/Upgrade**.
- 4 On the **Install/Upgrade** screen, click **NetBackup Server Software Install/Upgrade**.
- 5 If you are prompted about the absence of required Visual C++ run-time libraries, review the information and respond accordingly. More information is available.
 

See [“Windows compiler and security requirements for NetBackup 11.1 and later upgrade”](#) on page 14.
- 6 On the **Welcome** screen, review the content and click **Next**.
- 7 (Conditional) If you previously installed NetBackup 11.1 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 11.1 to its original state on the local host.
  - Select **Remove** to remove NetBackup 11.1 from the local host.
- 8 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**.
- 9 On the **NetBackup Install/Upgrade Type** screen, provide the following information:

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Where to install | <p>For a local upgrade, select <b>Upgrade this computer only</b>.</p> <p>For a remote upgrade, select <b>Install or upgrade one or more computers on your network</b>.</p> <p>For a clustered upgrade, the only option is <b>Upgrade a clustered primary server</b>.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Typical          | <p>Select this option to upgrade NetBackup with the default settings.</p> <p><b>Primary server only:</b> By default the typical option looks at the primary server's configuration and only upgrades the NetBackup Administration Console if it's currently present. Choose <b>Custom</b> if you want to force a state other than what is currently on the primary server. If you select to exclude the NetBackup Administration Console, any previous versions are removed.</p> <p><b>Media server only:</b> By default the typical option looks at the media server's configuration and only upgrades the Java GUI and the JRE packages if they are currently present. Choose <b>Custom</b> if you want to force a state other than what is currently on the media server. If you select to exclude the Java GUI and the JRE, any previous versions are removed.</p> |
| Custom           | <p>Select this option to override the default NetBackup settings.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

Click **Next**.

**10** On the **NetBackup Server Role and Licenses** screen, provide the following information:

- **License**

Upgrades from versions earlier than NetBackup 8.1.2 only support the production licenses that are downloaded from the Veritas Entitlement Management System (VEMS) or the evaluation license. You cannot use the temporary production license when you upgrade from a NetBackup version earlier than 8.1.2.

Upgrades from NetBackup 8.1.2 or later to NetBackup 10.3 or later releases require you to download a license file from VEMS or use the temporary production license. A license is only required on the primary server. More information is available:

[https://www.veritas.com/support/en\\_US/article.100058779](https://www.veritas.com/support/en_US/article.100058779)

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**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, you must enter a valid license to upgrade that node.

For upgrades from pre-10.3 to 10.3 or later release, if no license is provided, NetBackup uses in-built temporary production license. More information is available:

[https://www.veritas.com/support/en\\_US/article.100058779](https://www.veritas.com/support/en_US/article.100058779)

For upgrade from 10.3 or later releases, if license is either invalid or expired, the precheck fails for remote or clustered Windows installation. The NetBackup version on that node remains unchanged and NetBackup continues to function. For a successful upgrade, you must provide a valid license.

For push installation to multiple computers in the network, the upgrade fails at the precheck if the remote computer doesn't have a valid license. NetBackup on that node is not upgraded but it continues to function.

For clustered primary server, the licenses are stored on the shared disk that is accessible only to the active node. As such, the license isn't pushed to the inactive nodes.

- Select **NetBackup Primary Server**, browse and add licenses, and then **Next** to proceed to upgrade the primary server software. More information about licenses is available:  
[https://www.veritas.com/support/en\\_US/article.100058779](https://www.veritas.com/support/en_US/article.100058779)
- Select **NetBackup Media Server** and **Next** to proceed to upgrade the media server software. Note that the media server upgrade does not require a license.

**11** (Conditional) Remote upgrades see the **FIPS Compliance in NetBackup** dialog.

NetBackup does not support changing the FIPS mode during upgrade. Enable FIPS mode before the upgrade if the existing NetBackup version supports FIPS. Otherwise, enable it after the upgrade.

Enabling or disabling FIPS mode during Windows remote upgrade does not change the existing FIPS mode value in the NetBackup configuration on remote hosts.

For more information about FIPS please check the *NetBackup Security and Encryption Guide*.

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

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

- **Java GUI Options**  
(Conditional: Primary server only) Depending on your upgrade, the options you see include:
  - **Include Java GUI:** Install or upgrade the NetBackup Administration Console on the specified computer.
  - **Exclude Java GUI:** Exclude the NetBackup Administration Console from the specified computer. Preexisting versions of the NetBackup Administration Console are removed.
  - **Match Existing Configuration:** Preserve the current state of the NetBackup Administration Console. The component is upgraded if it's present on the pre-upgraded systems. The NetBackup Administration Console isn't installed if it's not present on the pre-upgraded systems.
- **Java GUI and JRE Options**

(Conditional: Media server only) Depending on your upgrade, the options you see include:

- **Include Java GUI and JRE:** Install or upgrade the NetBackup Administration Console and the JRE on the specified computer.
- **Exclude Java GUI and JRE:** Exclude the NetBackup Administration Console and the JRE components from the specified computer. Any preexisting NetBackup Administration Console and JRE components are removed.
- **Match Existing Configuration:** Preserve the current state of the NetBackup Administration Console and JRE components. The components are upgraded if they are present on the pre-upgraded systems. The components are not installed if they are not present on the pre-upgraded systems.

#### ■ **NetBackup DirectIO Options**

Depending on your upgrade, the options you see include:

- **Include NetBackup DirectIO:** Install or upgrade the NetBackup DirectIO on the specified computer.
- **Exclude NetBackup DirectIO:** Exclude the NetBackup DirectIO from the specified computer. Preexisting versions of the NetBackup DirectIO are removed.
- **Match Existing Configuration:** Preserve the current state of the NetBackup DirectIO. The component is upgraded if it's present on the pre-upgraded systems. The NetBackup DirectIO isn't installed if it's not present on the pre-upgraded 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:

|                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Privileged Account Details</b>                            | <p>Specify either <b>Local System account</b> or <b>Custom account</b>.</p> <p>By default, the <b>Local System account</b> is selected, so that NetBackup uses the built-in system account. When this option is selected, the fields below it are disabled.</p> <p>To specify a different system account:</p> <ul style="list-style-type: none"> <li>■ Select <b>Custom account</b>.</li> <li>■ Enter the account information in the following fields: <ul style="list-style-type: none"> <li><b>Domain</b></li> <li><b>Username</b></li> <li><b>Password</b></li> </ul> </li> </ul> |
| <b>Non-Privileged Account Details</b>                        | <p>Specify either <b>Same as the Privileged Account specified above</b> or <b>Local Service account</b>.</p> <p>Using a local service account involves a one-time conversion that may significantly increase the upgrade time based on your catalog size.</p> <p>For more information for the non-privileged service user account, refer to: <a href="https://www.veritas.com/docs/100048220">https://www.veritas.com/docs/100048220</a></p> <p>This information is only applicable to primary server upgrades.</p>                                                                  |
| <b>Startup Type</b>                                          | <p>This option determines whether NetBackup services start automatically if you need to restart the NetBackup host. The default is <b>Automatic</b>.</p> <p>To start NetBackup services manually after a restart, select <b>Manual</b>.</p>                                                                                                                                                                                                                                                                                                                                          |
| <b>Start job-related NetBackup services after completion</b> | <p>By default, job-related services are set to start automatically after the upgrade has completed.</p> <p>To prevent job-related services from starting automatically, click on the box to clear the check mark.</p>                                                                                                                                                                                                                                                                                                                                                                |
| <b>Safe Abort Option</b>                                     | <p>This option determines how the upgrade proceeds if a restart is required as part of the upgrade.</p> <p>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.</p> <p>If you do not select this option, the upgrade proceeds even if the upgrade process determines that a restart is required.</p> <p>Click <b>Next</b>.</p>                                                                                                                                          |
| <b>13</b>                                                    | <p>On the <b>NetBackup Web Services</b> screen, enter the <b>Web Services Password</b>.</p> <p>This password is the password for the NetBackup web services user account. You must create this account before you install the primary server. More information is available.</p> <p>On the <b>NetBackup Web Services</b> screen, specify the account type and the account details.</p>                                                                                                                                                                                               |

### 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 [“Upgrade requirements for Windows and Windows clusters”](#) on page 195.

- 14 (Conditional: For media servers only)** If your environment uses an external certificate authority, you receive the **External Certificate** screen. On the **External Certificate** screen, select one of the three radio buttons based on how you want to configure the external certificate authority (ECA). Depending on which one you select, you must complete different information:

#### ■ Use Windows certificate store

You must enter the certificate location as *Certificate Store Name\Issuer Distinguished Name\Subject Distinguished Name*.

---

**Note:** You can use the `$hostname` variable for any of the names in the certificate store specification. The `$hostname` variable evaluates at run time to the name of the local host. This option provides flexibility when you push NetBackup software to a large number of clients.

---

Alternatively, you can specify a comma-separated list of Windows certificate locations. For example, you can specify:

```
MyCertStore\IssuerName1\SubjectName,
```

MyCertStore\IssuerName2\SubjectName2,  
 MyCertStore4\IssuerName1\SubjectName5

Then select the Certificate Revocation List (CRL) option from the radio buttons shown:

- **Use the CRL defined in the certificate.** No additional information is required.
- **Use the CRL at the following path:** You are prompted to provide a path to the CRL.
- **Do not use a CRL.**
- **Use certificate from a file**  
 After you select this option, specify the following:
  - **Certificate file:** This field requires you to provide the path to the certificate file and the certificate file name.
  - **Trust store location:** This field requires you to provide the path to the trust store and the trust store file name.
  - **Private key path:** This field requires you to provide the path to the private key file and the private key file name.
  - **Passphrase file:** This field requires you to provide the path of the passphrase file and the passphrase file name. This field is optional.
  - **CRL option:** Specify the correct CRL option for your environment:
    - **Use the CRL defined in the certificate.** No additional information is required.
    - **Use the CRL at the following path:** You are prompted to provide a path to the CRL.
    - **Do not use a CRL.**
- **Proceed without security**  
 You receive a warning message listing potential issues. Depending on the state of the current security configuration, NetBackup may be unable to perform backups or restores until an external CA certificate has been configured.

Click **Next** to continue.

- 15** For remote upgrades only, on the **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:

## 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 a system check. 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 primary 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.
- 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**.

- 16 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**.

- 17 **(Conditional: For primary servers only)** Depending on the size of your catalog, you may be prompted to proceed with the **Infinite retention conversion**.

Upgrades from pre-NetBackup 9.0 to NetBackup 9.0 and later include the infinite expiration conversion. This conversion supports expiration dates beyond 2038. This conversion may extend the time that is required to complete the upgrade. Review the article that is shown for more information:

[https://www.veritas.com/content/support/en\\_US/article.100048600](https://www.veritas.com/content/support/en_US/article.100048600)

- 18** On the **Ready to Upgrade** screen, review the **Upgrade Summary** that shows your selections from the previous steps.

If the ECA health check utility indicates the Cryptographic Service Provider (CSP) or the Key Storage Provider (KSP) doesn't support the security descriptors, the upgrade cannot proceed.

This flag indicates that the provider cannot be used when NetBackup services are run in the local service user account context. Use a provider that supports security descriptors or use an administrator account to run all NetBackup services.

For more details on the service user account, see the *Limitations of Windows Certificate Store support when NetBackup services are running in Local Service account context* information in the [NetBackup Security and Encryption Guide](#).

- 19** Select one of the following options:

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

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

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.

- 20** For remote upgrades only, when all remote upgrades have completed, click **Finish**.

- 21** On the **Upgrade Complete** screen, select from the following options:

**Please review the log file for details**

The upgrade log files provide detailed installation information and show whether any errors occurred.

Examine the upgrade logs at the following location:

`%ALLUSERSPROFILE%\Cohesity\NetBackup\InstallLogs\`

More information about the `InstallLogs` directory is available: See [“About log file directory changes”](#) on page 22.

**Note:** When you perform a remote upgrade to multiple computers, this option only lets you view the logs for the local computer. Each computer that you selected for upgrade contains its own upgrade log files. To view the log files of a remote computer, open a Windows Explorer window and enter `\\<COMPUTERNAME>`. Then navigate to the `%ALLUSERSPROFILE%\Cohesity\ NetBackup\InstallLogs\` directory.

Search the upgrade logs 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 Web UI 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.

- 22** 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 Cohesity Enterprise technical support if you have questions.
- 23** The binaries are successfully installed. Proceed to the post-installation procedure.

More information is available.

See [“Post-install procedure for upgrading to NetBackup 11.1”](#) on page 67.

## 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 files at the following location:

```
%ALLUSERSPROFILE%\Cohesity\NetBackup\InstallLogs
```

More information about the `InstallLogs` directory is available: See [“About log file directory changes”](#) on page 22.

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

---

**Note:** For Windows 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 Navigate to the location where the ESD images (downloaded files) reside.
- 3 Open Windows Explorer and copy the contents of 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 primary server, edit `silentprimary.cmd`
  - To upgrade a media server, edit `silentmedia.cmd`
- 6 Edit the following lines as needed for your installation:
  - `SET ADDITIONALSERVICES=media1,media2,media3`

Enter the names of any additional NetBackup primary 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.

- `SET LICENSE=TEMP_PRODUCTION | license_file_path | EVALUATION`  
Upgrades from versions earlier than NetBackup 8.1.2 only support the production licenses that are downloaded from VEMS or the evaluation license. You cannot use the temporary production license when you upgrade from a NetBackup version earlier than 8.1.2.

If you have not downloaded your license from VEMS then you can use `TEMP_PRODUCTION`. More information is available:

[https://www.veritas.com/support/en\\_US/article.100058779](https://www.veritas.com/support/en_US/article.100058779)

- `SET ALLOW_PRE_90_UPGRADE=value`

This field is for primary servers only. This value determines if the upgrade from releases earlier than NetBackup 9.0 can proceed. Specify `1` to allow the upgrade to continue. The upgrade includes the infinite expiration conversion process. If you specify `0`, then you cannot upgrade the primary server.

NetBackup 9.0 and later versions support the expiration dates that extend beyond the year 2038. To ensure compatibility with previous NetBackup versions, all items with an infinite expiration date are updated to reflect the

new infinite expiration date value. This conversion may extend the time that is required to complete the upgrade. Review the article that is shown for more information:

[https://www.veritas.com/content/support/en\\_US/article.100048600](https://www.veritas.com/content/support/en_US/article.100048600)

- `SET ECA_CERT_STORE=cert_store_string`  
This field is for media servers only. Use this field to specify the external certificate location in a Windows certificate store. This field is specified in the form `store_name\issuer_DN\subject`. This field is required to use an external certificate from the Windows certificate store.
- `SET ECA_CERT_PATH=path`  
This field is for media servers only. Use this field to specify the path and the file name of the external certificate file. This field is required to set up an external certificate from a file.
- `SET ECA_TRUST_STORE_PATH=path`  
This field is for media servers only. Use this field to specify the path and the file name of the file representing the trust store location. This field is required to set up an external certificate from a file.
- `SET ECA_PRIVATE_KEY_PATH=path`  
Use this field to specify the path and the file name of the file representing the private key. This field is required to set up an external certificate from a file.
- `SET ECA_CRL_CHECK_LEVEL=value`  
This field is for media servers only. Use this field to specify the CRL mode. This field is required. Supported values are:
  - `USE_CDP`: Use the CRL defined in the certificate.
  - `USE_PATH`: Use the CRL at the path that is specified in `ECA_CRL_PATH`.
  - `DISABLED`: Do not use a CRL.
- `SET ECA_CRL_PATH=path`  
This field is for media servers only. Use this field to specify the path and the file name of the CRL associated with the external CA certificate. This field is required only when `ECA_CRL_CHECK_LEVEL` is set to `USE_PATH`. If not applicable, leave this field empty.
- `SET ECA_KEY_PASSPHRASEFILE=path`  
This field is for media servers only. Use this field to specify the path and the file name of the file that contains the passphrase to access the keystore. This field is optional and applies only when setting up an external certificate from a file.

- `SET INCLUDE_JAVA_GUI_ON_PRIMARY=value`  
 (Conditional: Primary servers only) Installation of the Java GUI is optional for NetBackup Windows primary server installation. This option specifies if the Java GUI should be installed, upgraded, or removed. Supported values for this option are:
  - INCLUDE: Include the Java GUI when installing or upgrading NetBackup.
  - EXCLUDE: Exclude the Java GUI when installing or upgrading NetBackup. Preexisting versions of the NetBackup Administration Console are removed.
  - MATCH: Match the existing configuration on the host. Hosts that already have the Java GUI are updated with the latest version. The Java GUI is excluded for all other hosts.
- `SET INCLUDE_JAVA_GUI_AND_JRE=value`  
 (Conditional: Media servers only) Installation of the NetBackup Java GUI and JRE packages is optional for NetBackup Windows media server installation. This option specifies if the Java GUI and the JRE packages should be installed, upgraded, or removed. Supported values for this option are:
  - INCLUDE: Include the Java GUI and JRE when installing or upgrading NetBackup.
  - EXCLUDE: Exclude the Java GUI and JRE when installing or upgrading NetBackup. Any preexisting NetBackup Java GUI and JRE packages are removed.
  - MATCH: Match the existing configuration on the host. Hosts that already have the Java GUI and JRE components are updated with the latest versions. The components are excluded for all other hosts.
- `INCLUDE_NBDIRECTIO=value`  
 Installation of the NetBackup DirectIO package is optional for NetBackup Windows primary server installation. NetBackup DirectIO is only for customers who plan to write to Cohesity Data Protect clusters. This option specifies if NetBackup DirectIO should be installed, upgraded, or removed. Supported values for this option are:
  - INCLUDE: Include the NetBackup DirectIO package when installing or upgrading NetBackup.
  - EXCLUDE: Exclude the NetBackup DirectIO package when installing or upgrading NetBackup. Preexisting versions of the NetBackup Administration Console are removed.

- **MATCH:** Match the existing configuration on the host. Hosts that already have the NetBackup DirectIO package are updated with the latest version. The NetBackup DirectIO package is excluded for all other hosts.
  - `INSTALL_ITA_DATA_COLLECTOR=value`  
 Use this field to specify the installation behavior for the IT Analytics Data Collector. The default the value is 1 which installs the IT Analytics Data Collector. Specify 0 if you don't want the IT Analytics Data Collector installed.
- 7 Save the script and run it.
  - 8 Examine the installation logs at the following location:  
`%ALLUSERSPROFILE%\Veritas\NetBackup\InstallLogs\`  
 More information about the `InstallLogs` directory is available: See [“About log file directory changes”](#) on page 22.  
 Search the installation logs 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 11.1”](#) on page 67.

## Upgrading Linux server software to NetBackup 11.1

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.

---

**Note:** Refer to *Upgrade NetBackup failover server on the PCS Linux* in the *NetBackup Clustered Primary Server Administrator's Guide* for additional information on how to upgrade a PCS Linux environment.

---

### To upgrade Linux server software to 11.1

- 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 primary server, make sure that the first `SERVER` entry matches the `CLUSTER_NAME` entry for the `bp.conf` file.
  - Take the NetBackup Server Resource (*ServerResource*) offline. Use the command shown:  
`/opt/VRTSvcs/bin/hares -offline ServerResource -sys $nodename`
  - 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 Primary Server Administrator's Guide* for other cluster upgrade requirements.  
<http://www.veritas.com/docs/DOC5332>
- 4 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 20.

Save any files that you have modified and want to keep.
- 5 Navigate to the location where the installation images reside. Enter the command that is shown to start the upgrade script:  
`./install`
- 6 Follow the prompts in the installation script to install the NetBackup server binaries.
- 7 **(Conditional: For primary server only)** If prompted, provide the name of the service user account you want to use to start most of the daemons. This prompt is shown if the installer cannot retrieve the service user value from the `bp.conf` file or if the server user is root.

Enter the name of the service user account to be used to start most of the daemons

Please note:

- The service username cannot exceed 32 characters and can only contain English characters.
- The recommendation is that you do not use the root user as the service user.
- You cannot use the `nbwebsvc` user as the service user.
- The `nbwebgrp` group must be a secondary group of the service user.
- Ownership of the `/usr/openv` directory changes to the new service user account that you specified here.
- Using a service account involves a one-time conversion that may significantly increase the upgrade time based on your catalog size.
- If you want to change the service user account after the installation, use the `nbSERVICEUSERCMD --changeUser` command.

For more details on the service user account, see:

<https://www.veritas.com/docs/100048220>

- 8 (Conditional: For primary server only)** If prompted, provide the non-root database user name. The prompt is only shown if the service user is root.

ATTENTION! The NetBackup services currently use a root system account, which is not recommended. NetBackup is unable to use this account for the new scale-out database server process. Provide an alternative account name that meets the following criteria:

- Root accounts are not allowed.
- The username must be 1-31 characters.
- The username must contain only English characters.
- The `nbwebsvc` user should not be used as the scale-out database user.

- 9 (Conditional)** If prompted, reply to the question about the IT Analytics Data Collector. If your primary server is clustered, the reply to this question is ignored because you cannot install the IT Analytics Data Collector on clusters.

IT Analytics Data Collector is currently not installed on this host and can be optionally installed with NetBackup. Be aware IT Analytics Data Collector is currently not supported for clustered primary servers. It is excluded if this is a clustered install no matter the response to the install Analytics Data Collector question.

Do you want to install IT Analytics Data Collector? [y,n]  
 (y)

- 10 (Conditional: For primary servers only)** If prompted, reply to the question regarding the infinite expiration conversion:

NetBackup 9.0 and later versions support the retention periods that extend beyond the year 2038. To ensure compatibility with previous NetBackup versions, all items with an infinite expiration date are updated to reflect the new infinite expiration date value. This conversion may extend the time that is required to complete the upgrade. Review the following article for more information:

[https://www.veritas.com/content/support/en\\_US/article.100048600](https://www.veritas.com/content/support/en_US/article.100048600)

Date of collection: *date\_time*  
 NetBackup state: *online|offline*  
 Records found: *records*  
 Conversion time estimate: *time* (hh:mm)

Please see the linked article to obtain a more accurate estimate of how long the conversion may take.

Would you like to continue with the upgrade? [y,n]

- 11 (Conditional: For media servers only)** If your environment uses an external certificate authority, provide the external certificate authority information at the prompts shown:

Enter the certificate file path or q to skip security configuration:  
/usr/eca/cert\_chain.pem

Enter the trust store location or q to skip security configuration:  
/usr/eca/trusted/cacerts.pem

Enter the private key path or q to skip security configuration:  
/usr/eca/private/key.pem

Enter the passphrase file path or q to skip security configuration  
(default: NONE): /usr/eca/private/passphrase.txt

---

**Note:** Be aware the passphrase file path is optional.

---

- 12 (Conditional: For media servers only)** When prompted, provide the required information for the CRL configuration:

Should a CRL be honored for the external certificate?

- 1) Use the CRL defined in the certificate.
- 2) Use the CRL from a file path.
- 3) Do not use a CRL.
- q) skip security configuration

CRL option (1):

- 13 (Conditional: For media servers only)** If you specified **Use the CRL from a file path**, you must enter the path to the CRL location:

Enter the CRL location path or q to skip security configuration:  
/usr/eca/crl

**14 (Conditional: For media servers only)** The installer echoes the configuration information you entered and attempts to retrieve details for the external certificate:

```
External CA values entered:
Certificate file path: /usr/eca/cert_chain.pem
Trust store file path: /usr/eca/trusted/cacerts.pem
Private key file path: /usr/eca/private/key.pem
Passphrase file path: /usr/eca/private/passphrase.txt
 CRL check level: Use the CRL from a file path.
 CRL location path: /usr/eca/crl

Getting external CA certificate details
 Issued By : CN=IITFRMNUSINT,O=Acme,OU=iitf
 Subject Name : CN=cuomovm04,O=Acme,OU=iitf
 Expiry Date : Oct 31 17:25:59 2019 GMT
 SHA1 Fingerprint : 62:B2:C3:31:D5:95:15:85:9D:C9:AE:C6:EA:C2:
 DF:DF:6D:4B:92:5B
 Serial Number : 0x6c7fa2743072ec3eaae4fd60085d468464319a
 Certificate Path : /usr/eca/cert_chain.pem
```

Validating host ECA certificate.

NOTE: Depending on the network, this action may take a few minutes.

To continue without setting up secure communication, press Ctrl+C.

**15 (Conditional: For media servers only)** If the external certificate enrollment pre-check finishes successfully, select **1** and press **Enter** to continue.

The external certificate enrollment pre-check is successful.

The external certificate is valid for use with primary server *name*  
 How do you want to proceed?

- 1) Continue the installation using this certificate.
- 2) Modify the external CA values entered.
- 3) Abort the installation.

Default option (1):

- 16 (Conditional: For media servers only)** If the external certificate enrollment pre-check fails, select from the choices shown. The default is **2**.

The external certificate enrollment pre-check failed.

The external certificate is not valid for use with primary server *name*  
 How do you want to proceed?

- 1) Continue the installation and set up external certificates later.
- 2) Modify the external CA values entered.
- 3) Abort the installation.

Default option (2):

- 17 (Conditional: For media servers only)** When prompted, indicate how the upgrade should handle the Java GUI and JRE binaries.

The Java GUI and JRE packages are currently *install\_state* on this host.

The Java GUI and JRE can be optionally included with NetBackup. The Java GUI and JRE enable the NetBackup Administration Console and the Backup, Archive and Restore (BAR) GUI. Choose an option from the list below.

- 1) Update the Java GUI and JRE.
- 2) Remove the Java GUI and JRE.

If you specify **1**, the Java and JRE binaries are installed or upgraded, based on the status of the server. If you specify **2**, the Java and JRE binaries are removed or excluded, based on the status of the server.

**18 (Conditional: Primary server upgrades from pre-NetBackup 10.3 to NetBackup 10.3 and later)** When prompted, indicate how the upgrade should handle license information.

Are the license files downloaded from the licensing portal? (y/n):

If you have not downloaded your license from the Cohesity Entitlement Management System portal, answer `n`. You are then prompted to use a temporary production license for upgrades. The installer cannot proceed without a license or a temporary production license, and exits gracefully. More information is available:

[https://www.veritas.com/support/en\\_US/article.100058779](https://www.veritas.com/support/en_US/article.100058779)

If you have already downloaded the license, then answer `y`. You are then prompted to provide the file path for the license you want to use. When you provide a license file path, NetBackup validates the file exists, is a valid file for NetBackup, the contents were not modified, it is not expired etc. After NetBackup determines the license is valid, the installer shows the license details and prompts the user to add this license. If user answers `y` the license is added. In case of invalid license, installer provides reason why the file is invalid and prompts you to provide new license file path.

Upgrades from versions earlier than NetBackup 8.1.2 only support the production licenses that are downloaded from VEMS or the evaluation license. You cannot use the temporary production license when you upgrade from a NetBackup version earlier than 8.1.2.

You can also install additional licenses.

**19** Starting with NetBackup 11.1, the `VRTSpddei.rpm` is no longer present in NetBackup. `VRTSpddei.rpm` provided the Instant Access and malware scans of VMware images. In NetBackup 11.1 and later, `libguestfs.rpm` and `python3-libguestfs.rpm` provide this functionality. To continue to use the Instant Access or malware scans of VMware images functionality, additional steps may be required. If you see one of these messages that is shown in the upgrade script output, follow the steps in the article listed.

- Unable to remove `VRTSpddei.rpm` during upgrade. Remove this RPM manually after the upgrade finishes. For more details, see: [https://www.veritas.com/support/en\\_US/article.100066233](https://www.veritas.com/support/en_US/article.100066233)
- After the upgrade finishes, remove `VRTSpddei.rpm`. For more details, see: [https://www.veritas.com/support/en\\_US/article.100066233](https://www.veritas.com/support/en_US/article.100066233)

- After the upgrade finishes, remove `VRTSpddei.rpm` and install the `libguestfs` RPMs. For more details, see:  
[https://www.veritas.com/support/en\\_US/article.100066233](https://www.veritas.com/support/en_US/article.100066233)

**20** 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 11.1](#)” on page 67.

## Silently upgrading NetBackup primary server software on Linux

You can upgrade NetBackup Linux primary servers with native installers. You can use either the NetBackup install script or your preferred installer method.

- For Linux: `rpm`, `yum`, etc.

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

---

**Note:** Refer to *Upgrade NetBackup failover server on the PCS Linux* in the *NetBackup Clustered Primary Server Administrator's Guide* for additional information on how to upgrade a PCS Linux environment.

---

### To upgrade the Linux primary server binaries using native installers:

- 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 primary 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 Primary Server Administrator's Guide* for other cluster upgrade requirements.  
<http://www.veritas.com/docs/DOC5332>
- 4 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 20.
- Save any files that you have modified and want to keep.
- 5 Please create the NetBackup installation answer file (`NBInstallAnswer.conf`) in the primary server's temporary directory. That directory is usually the `/tmp` directory. More information about the answer file and its contents is available.
- See “[About the NetBackup answer file](#)” on page 128.
- 6 You can add optional parameters to the `NBInstallAnswer.conf` file. The parameters that are shown are examples of some of the parameters you can add. Review the NetBackup answer file section that is included in this documentation:

■ **LICENSE entries**

`LICENSE` entries are only required on primary servers.

For upgrades from pre-NetBackup 10.3 to NetBackup 10.3 or later, the `LICENSE` entry is required. `LICENSE=TEMP_PRODUCTION | license_file_path`. If you have not downloaded your license from Cohesity Entitlement management portal, you can use `TEMP_PRODUCTION`. More information is available:

[https://www.veritas.com/support/en\\_US/article.100058779](https://www.veritas.com/support/en_US/article.100058779)

For upgrades from NetBackup 10.3 or later releases, you don't need to provide a `LICENSE` entry if you already have valid and unexpired license installed.

■ **SERVER entries**

■ **DATABASE\_USER**

■ **VXDBMS\_POSTGRESQL\_POOLER\_ODBC\_PORT**

See “[About the NetBackup answer file](#)” on page 128.

- 7** (Conditional) If you want to assign RBAC security and backup administration roles to a user or a user group, populate `NBInstallAnswer.conf` with the following required information:

- `RBAC_DOMAIN_TYPE`  
Use this field to specify the domain type to which the user or the user group belongs. The following `RBAC_DOMAIN_TYPE` values are supported: `NT`, `VX`, `UNIXPWD`, `LDAP`.
- `RBAC_DOMAIN_NAME`  
Use this field to specify the name of the domain to which the user or the user group belongs.
- `RBAC_PRINCIPAL_TYPE`  
Use this field to specify `USER` or `USERGROUP`.
- `RBAC_PRINCIPAL_NAME`  
Use this field to specify the user name or the user group.

More information about the `RBAC_*` options is available.

See [“About RBAC bootstrapping”](#) on page 181.

See [“About the NetBackup answer file”](#) on page 128.

- 8** Download the server package that matches your server platform to a system with sufficient space. Then extract the contents of the server package file.

Extract the contents of the server package file. Example:

- For Linux RedHat:  

```
tar -xzvf NetBackup_11.1_LinuxR_x86_64.tar.gz
```
- For Linux SuSE:  

```
tar -xzvf NetBackup_11.1_LinuxS_x86_64.tar.gz
```

- 9** Change to the directory for your desired operating system and copy packages to the computer to be installed.

Operating system directory:

- For Linux RedHat:  
`NetBackup_11.1_LinuxR_x86_64/linuxR_x86/anb`
- For Linux SuSE:  
`NetBackup_11.1_LinuxS_x86_64/linuxS_x86/anb`

Copy packages to machine to be installed:

---

**Note:** The installation of the NetBackup Administration Console is optional. If you do not want it installed, omit the copy and the install of the `VRTSnbjava` package.

---



---

**Note:** The installation of the NetBackup DirectIO package is optional. If you do not want it installed, omit the copy and the install of the `VRTSnbdirectio` package.

---

- `VRTSnbcfg.rpm`
- `VRTSnbclibs.rpm`
- `VRTSnbclt.rpm`
- `VRTSnbjava.rpm`
- `VRTSnbjre.rpm`
- `VRTSnbmqbrkr.rpm`
- `VRTSnbpcck.rpm`
- `VRTSnbprimary.rpm`
- `VRTSnbslibs.rpm`
- `VRTSnbdirectio.rpm`
- `VRTSnbweb.rpm`
- `VRTSnetbp.rpm`
- `VRTSpbx.rpm`
- `VRTSpddea.rpm`
- `VRTSpddes.rpm`
- `VRTSpddeu.rpm`
- `VRTSpstgresql.rpm`

- 10** (Conditional) If you are upgrading from pre-NetBackup 8.0, remove the old `SYMC*` packages. The example shown indicates the commands used to remove the `SYMC` RPM packages. This process preserves your NetBackup configuration.

```
rpm -e SYMCnbjava
rpm -e SYMCpddea
rpm -e SYMCnbc1t
rpm -e SYMCnbjre
rpm -e SYMCnetbp
rpm -e SYMCpddes
```

- 11** (Conditional): If the upgrade is from NetBackup 10.1.1 or earlier and you want to install IT Analytics Data Collector; or if you have an unconfigured IT Analytics Data Collector you want to upgrade:

- Create the `/usr/opensv/tmp` directory with the `mkdir -p /usr/opensv/tmp` command.
- Copy the `ita_dc.tar.gz` tarball from the media's `/catalog/anb/` directory to `/usr/opensv/tmp`.
- Verify the `INSTALL_ITA_DATA_COLLECTOR` value is set to `YES` in the `NBInstallAnswer.confNetBackup` file.  
If you do not want to install IT Analytics Data Collector, make sure the `INSTALL_ITA_DATA_COLLECTOR` value is set to `NO` in the `NBInstallAnswer.conf` file.

## 12 Install the files in the order that is shown with the commands that are shown:

### RedHat

#### Linux

```
rpm -U VRTSnbpck.rpm
rpm -U VRTSspb.x.rpm
rpm -U VRTSnbclt.rpm
rpm -U VRTSnbclibs.rpm
rpm -U VRTSnbjre.rpm
rpm -U VRTSnbjava.rpm
rpm -U VRTSnbdirectio.rpm
rpm -U VRTSpddes.rpm
rpm -U VRTSpddeu.rpm
rpm -U VRTSpddea.rpm
rpm -U VRTSnbcfg.rpm
rpm -U VRTSpostgresql.rpm
rpm -U VRTSnetbp.rpm
rpm -U VRTSnbprimary.rpm
rpm -U VRTSnbmqbrkr.rpm
rpm -U VRTSnbweb.rpm
rpm -U VRTSnbslibs.rpm
```

**Note:** The VRTSpddei package is no longer delivered in NetBackup 10.5. Remove this rpm and install libguestfs.rpm and python3-libguestfs.rpm if you want to continue to use Instant Access or malware scans of VM images.

### SuSE Linux

```
rpm -U VRTSnbpck.rpm
rpm -U VRTSspb.x.rpm
rpm -U VRTSnbclt.rpm
rpm -U VRTSnbclibs.rpm
rpm -U VRTSnbjre.rpm
rpm -U VRTSnbjava.rpm
rpm -U VRTSpddeu.rpm
rpm -U VRTSpddea.rpm
rpm -U VRTSpddes.rpm
rpm -U VRTSnbcfg.rpm
rpm -U VRTSpostgresql.rpm
rpm -U VRTSnetbp.rpm
rpm -U VRTSnbprimary.rpm
rpm -U VRTSnbmqbrkr.rpm
rpm -U VRTSnbweb.rpm
rpm -U VRTSnbslibs.rpm
```

- 13 If you decide to install the NetBackup Administration Console after the upgrade completes, refer to the following topic:  
See “[Add or remove Java components after upgrade](#)” on page 170.
- 14 If you decide to install the NetBackup DirectIO package after the upgrade completes, refer to the following section:  
See “[Add or remove the NetBackup DirectIO package after upgrade](#)” on page 156.

## Post-install procedure for upgrading to NetBackup 11.1

[Post-installation steps to upgrade to NetBackup 11.1](#) describes the post-installation steps to upgrade NetBackup and complete the image metadata migration.

### Post-installation steps to upgrade to NetBackup 11.1

- 1 Check for an available NetBackup 11.1 maintenance release. Maintenance releases include very important fixes that are released after NetBackup 11.1. You are encouraged to install the latest available maintenance release during upgrade activities.

To access the latest NetBackup 11.1 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. Proceed once `bprd` is restarted.

Linux: `/usr/openv/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 and Linux: `/usr/openv/netbackup/bin/bp.kill_all`

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

- Install the maintenance release.
- Restart NetBackup with the commands shown:  
 UNIX and Linux systems: `/usr/openv/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 [NetBackup Troubleshooting Guide](#).
- 3 If you plan to use role-based access control (RBAC), you must designate a security administrator. More information is available:  
 See [“About the NetBackup web user interface”](#) on page 172.  
 See [NetBackup Web UI Administrator's Guide](#).
- 4 Start any applications on the system that interact with NetBackup. This step includes any databases or system components being backed up.
- 5 (Conditional) If you have a clustered primary 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 primary server”](#) on page 166.
- 6 (Conditional) If this server is a clustered server, update the other nodes in the cluster. You can update the other primary servers nodes in the cluster to NetBackup 11.1 by following standard cluster upgrade process. For complete details, see the [NetBackup Clustered Primary Server Administrator's Guide](#).

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

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

- 7 (Conditional) For a primary server that uses external certificate authority (ECA) or for a media server that skipped ECA configuration, configure the ECA now. More information is available:

[https://www.veritas.com/support/en\\_US/article.100044300](https://www.veritas.com/support/en_US/article.100044300)

For more information, see the [NetBackup Security and Encryption Guide](#) and refer to the chapter on external CA and external certificates.

- 8 If you have any media servers that you intend to upgrade to NetBackup 11.1, 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 163.

---

More information about this topic is available.

See [“Upgrading NetBackup media servers to NetBackup 11.1”](#) on page 77.

- 9 Reactivate the following in the order as shown:
  - All disk staging storage units.
  - All NetBackup policies.
  - All storage lifecycle policies (SLPs).
- 10 (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 203.
- 11 (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 183.
- 12 (Conditional) For the cloud and the storage servers with SSL enabled, the CRL validation is enabled by default. Verify if the storage servers are running and the CRL functionality works correctly. More information is available.

See the [NetBackup Cloud Administrator's Guide](#).

- 13 (Conditional) For Amazon configurations, after you upgrade NetBackup and CloudPoint to the latest version, you must update the credentials. Run the `tpconfig -update` command. After the upgrade, the credentials are updated to only support the AWS IAM role. More information is available.

See the [NetBackup Web UI Cloud Administrator's Guide](#).

- 14 Monitor your backup environment to verify that normal NetBackup operation has resumed.
- 15 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 11.1](#)” on page 77.

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>

- 
- 16 (Conditional) For upgrades of NetBackup 8.2 Linux clusters with NAT enabled to the latest version, the upgrade disables NAT. To turn on NAT and allow the cluster to monitor the `nbmqbroker` service that is added to a NetBackup cluster group, run the command shown:

- To configure with default ports:

```
configureMQ -enableCluster -defaultPorts
```

- To configure with specific ports:

```
configureMQ -enableCluster -externalPort port1 -internalPorts
port2 port3 port4
```

- 17 The VRTSpddei package is no longer delivered in NetBackup 10.5. Remove this rpm and install libguestfs.rpm and python3-libguestfs.rpm if you want to continue to use Instant Access or malware scans of VM images.
- 18 Perform any additional upgrade steps. More information about this topic is available.

See [“Completing your system update after an upgrade”](#) on page 72.

## 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 3-1](#) lists the links for the startup and the shutdown scripts for the various platforms that are installed during NetBackup installation.

**Table 3-1** NetBackup startup and shutdown script links by platform

| Platform     | Links                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AIX          | <div>/etc/rc.netbackup.aix</div> <div><ul style="list-style-type: none"><li>The NetBackup installation script edited the /etc/inittab file and added the following entry to ensure that the script is called during a level-two boot:<br/>netbackup:2:wait:/etc/rc.netbackup.aix</li><li>To shut down, add the following line to the /etc/rc.shutdown file:<br/>/etc/rc.netbackup.aix stop</li></ul></div> |
| Linux Debian | <div>/etc/rc0.d/K01netbackup -&gt;/etc/init.d/netbackup</div> <div>/etc/rc1.d/K01netbackup -&gt;/etc/init.d/netbackup</div> <div>/etc/rc2.d/S95netbackup -&gt;/etc/init.d/netbackup</div>                                                                                                                                                                                                                  |

**Table 3-1** NetBackup startup and shutdown script links by platform  
*(continued)*

| Platform      | Links                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Linux Red Hat | <div><div>/etc/rc.d/rc0.d/K01netbackup</div><div>-&gt;/etc/rc.d/init.d/netbackup</div><div>/etc/rc.d/rc1.d/K01netbackup</div><div>-&gt;/etc/rc.d/init.d/netbackup</div><div>/etc/rc.d/rc2.d/S77netbackup</div><div>-&gt;/etc/rc.d/init.d/netbackup</div><div>/etc/rc.d/rc3.d/S77netbackup</div><div>-&gt;/etc/rc.d/init.d/netbackup</div><div>/etc/rc.d/rc5.d/S77netbackup</div><div>-&gt;/etc/rc.d/init.d/netbackup</div><div>/etc/rc.d/rc6.d/K01netbackup</div><div>-&gt;/etc/rc.d/init.d/netbackup</div></div> |
| Linux SUSE    | <div><div>/etc/init.d/rc0.d/K01netbackup</div><div>-&gt;/etc/init.d/netbackup</div><div>/etc/init.d/rc2.d/S77netbackup</div><div>-&gt;/etc/init.d/netbackup</div><div>/etc/init.d/rc3.d/S77netbackup</div><div>-&gt;/etc/init.d/netbackup</div><div>/etc/init.d/rc5.d/S77netbackup</div><div>-&gt;/etc/init.d/netbackup</div><div>/etc/init.d/rc6.d/K01netbackup</div><div>-&gt;/etc/init.d/netbackup</div></div>                                                                                                 |
| Solaris       | <div><div>/etc/rc0.d/K01netbackup -&gt;/etc/init.d/netbackup</div><div>/etc/rc1.d/K01netbackup -&gt;/etc/init.d/netbackup</div><div>/etc/rc2.d/S77netbackup -&gt;/etc/init.d/netbackup</div></div>                                                                                                                                                                                                                                                                                                                |

# 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:

|                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Primary server privileges                                                                              | <p>If you upgraded a primary 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.</p>                                                                                                                                                                                                                                                                 |
| Update the trust relationship between remote primary servers for targeted auto image replication (AIR) | <p>After you upgrade both your source and your target primary server from 8.0 or earlier to 8.1 or later, you must update the trust relationship. Upgrading from NetBackup 8.1 to a later version does not require you to reestablish the trust relationship. Run the command that is shown on both the source and the target primary servers to reestablish the trust relationship:</p> <pre>nbseccmd -setuptrustedmaster -update</pre> <p>More information is available. See the <a href="#">NetBackup Commands Reference Guide</a>.</p> |
| Add-on products                                                                                        | <p>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.</p>                                                                                                                                                                                                                                                                                                                                                               |
| NetBackup scripts                                                                                      | <p>If you made changes to NetBackup scripts before the upgrade, apply those changes to the new, upgraded versions of the scripts.</p>                                                                                                                                                                                                                                                                                                                                                                                                      |
| External certificate authority                                                                         | <p>Configure your external certificate authority. If you opted to skip the security configuration or if your environment uses ECA, you may need to configure an ECA. More information about configuring ECAs is available:</p> <p><a href="https://www.veritas.com/support/en_US/article.100044300">https://www.veritas.com/support/en_US/article.100044300</a></p> <p>For more information, see the <a href="#">NetBackup Security and Encryption Guide</a> and refer to the chapter on external CA and external certificates.</p>        |

|                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Update storage servers        | NetBackup does not update objects such as storage servers and disk pools every time the storage changes. Storage changes can result from NetBackup MSDP changes and 3rd party OST vendor software upgrades. Additionally, changes to the storage-defined replication topologies that SLP replication uses as well as import operations require an update. The user must proactively confirm these changes through the use of the <code>updatests</code> and <code>updatedp</code> commands. A NetBackup upgrade may introduce new functionality you want to use in your environment. The recommendation is that you run the <code>updatests</code> and <code>updatedp</code> commands on the storage servers and disk pools where you want to use this new functionality. For more information about the <code>updatests</code> and <code>updatedp</code> commands, see the <a href="#">NetBackup Commands Reference Guide</a> . |
| NetBackup Access Control      | If NetBackup Access Control is enabled in your environment, you must run the <code>bpnbat -login</code> command after the primary server upgrade.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| NetBackup Kubernetes operator | If your environment includes the NetBackup Kubernetes operator, see the <b>Upgrade the NetBackup Kubernetes operator</b> section in the <i>NetBackup for Kubernetes Administrator's Guide</i> for details on how to upgrade the operator.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

# Media server upgrade

This chapter includes the following topics:

- [Preinstall procedure for upgrading media servers to NetBackup 11.1](#)
- [Upgrading NetBackup media servers to NetBackup 11.1](#)
- [Silently upgrading NetBackup media server software on Linux](#)

## Preinstall procedure for upgrading media servers to NetBackup 11.1

Use the procedure that is shown to upgrade your media server to NetBackup 11.1.

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

Additional steps are required if the NetBackup upgrade includes an upgrade to RHEL 7.5 and you use Fibre Transport Media Server (FTMS). More information is available.

See [“About NetBackup 11.1 support for Fibre Transport Media Server with RHEL 7.5 and later”](#) on page 168.

### Preinstall steps to upgrade media servers to NetBackup 11.1

- 1 Perform environment checks with the SORT tool.  
See [“Recommended SORT procedures for upgrades”](#) on page 25.
- 2 Be sure that all operating system and security updates are applied.
- 3 Perform any pre-upgrade tasks that you would normally do in regard to your NetBackup media server. For example:
  - Disable antivirus software.

If the antivirus software cannot be disabled, you should exclude NetBackup files and folders from virus scan events. More information about excluding NetBackup files and folders is available.

[https://www.veritas.com/support/en\\_US/article.100004864](https://www.veritas.com/support/en_US/article.100004864)

- Stop all customized or third-party scripts.
- 4** (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
```

- 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, ensure that no backups are running. Stop the RMAN processes before you install NetBackup. If you use AIX, you should run `/usr/bin/slibclean` as the root user after you stop the RMAN processes.

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 and Linux 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 37.

See [“Performing silent upgrades on Windows systems”](#) on page 48.

See [“Upgrading Linux server software to NetBackup 11.1”](#) on page 53.

See [“Silently upgrading NetBackup media server software on Linux”](#) on page 80.

See [“About VxUpdate”](#) on page 106.

# Upgrading NetBackup media servers to NetBackup 11.1

There are three media server upgrade methods available for customers: the NetBackup upgrade script, the native Linux installers, and VxUpdate. The NetBackup upgrade script is the standard upgrade method and is recommended for new users. The native Linux installers are potentially more difficult and require additional steps. VxUpdate provides remote installation capabilities as well as the ability to upgrade on a user-defined schedule.

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 163.

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>

Additional steps are required if the NetBackup 8.1.2 upgrade includes an upgrade to RHEL 7.5 and you use Fibre Transport Media Server (FTMS). More information is available.

See “[About NetBackup 11.1 support for Fibre Transport Media Server with RHEL 7.5 and later](#)” on page 168.

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**Note:** Before you begin an upgrade, disable antivirus software.

If the antivirus software cannot be disabled, you should exclude NetBackup files and folders from virus scan events. More information about excluding NetBackup files and folders is available.

[https://www.veritas.com/support/en\\_US/article.100004864](https://www.veritas.com/support/en_US/article.100004864)

---

**Table 4-1** Media server migration procedure

| Step | Task                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Completed |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 1    | <p>If your media server upgrade is part of the primary server upgrade, you can proceed to the next step.</p> <p>If not, deactivate the media server.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |           |
| 2    | <p>Stop all NetBackup services.</p> <ul style="list-style-type: none"> <li>■ On Linux systems: <code>/usr/opensv/netbackup/bin/bp.kill_all</code></li> <li>■ On Windows systems: <code>install_path\NetBackup\bin\bpdwn -f</code></li> </ul>                                                                                                                                                                                                                                                                                                                                                                           |           |
| 3    | <p>Upgrade the NetBackup binaries. More information is available about this topic.</p> <ul style="list-style-type: none"> <li>■ See <a href="#">"Performing local, remote, or clustered server upgrades on Windows systems"</a> on page 37.</li> <li>■ See <a href="#">"Performing silent upgrades on Windows systems"</a> on page 48.</li> <li>■ See <a href="#">"Upgrading Linux server software to NetBackup 11.1"</a> on page 53.</li> <li>■ See <a href="#">"Silently upgrading NetBackup media server software on Linux"</a> on page 80.</li> <li>■ See <a href="#">"About VxUpdate"</a> on page 106.</li> </ul> |           |
| 4    | <p>If you did not get a security certificate, generate the certificate. More information about this topic is available.</p> <p>See <a href="#">"About security certificates for NetBackup hosts"</a> on page 163.</p>                                                                                                                                                                                                                                                                                                                                                                                                  |           |

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

| Step | Task                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Completed |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 5    | <p>Check for an available NetBackup 11.1 maintenance release. Maintenance releases include very important fixes that are released after NetBackup 11.1. It is recommended that you install the latest available maintenance release during upgrade activities.</p> <p>To access the latest NetBackup 11.1 maintenance release:</p> <ol style="list-style-type: none"> <li><b>1</b>    Go to the Cohesity SORT website.<br/> <a href="https://sort.veritas.com/netbackup">https://sort.veritas.com/netbackup</a></li> <li><b>2</b>    In the <b>Installation and Upgrade Checklist</b> section: <ul style="list-style-type: none"> <li>■ Under <b>Product</b>, select the correct product (NetBackup Enterprise Server or NetBackup Server)</li> <li>■ Under <b>Product version you are installing or upgrading to</b> specify the latest version of NetBackup</li> <li>■ Under <b>Platform</b> select the platform of the server you want to upgrade.</li> <li>■ Under <b>Processor</b> specify the processor of your server.</li> <li>■ Under <b>Product version you are upgrading from (Optional)</b> select the current version of NetBackup on the server you want to upgrade.</li> <li>■ Click <b>Generate Checklist</b>.</li> </ul> </li> <li><b>3</b>    Under <b>Upgrade Information</b>, there is a <b>version_number Download Links</b> hyperlink. Click that hyperlink for the latest maintenance release.</li> <li><b>4</b>    If no maintenance release is available, proceed to step 6.</li> <li><b>5</b>    If you find a maintenance release is available, download it now.</li> <li><b>6</b>    Prepare for the install by stopping all NetBackup processes and services. Use the command shown:<br/><br/> Linux: <code>/usr/opensv/netbackup/bin/bp.kill_all</code><br/> Windows: <code>install_path\NetBackup\bin\bpdown -f</code></li> <li><b>7</b>    Install the maintenance release.</li> <li><b>8</b>    Restart NetBackup with the commands shown:<br/><br/> Linux systems: <code>/usr/opensv/netbackup/bin/bp.start_all</code><br/> Windows systems: <code>install_path\NetBackup\bin\bpup -f</code></li> </ol> |           |
| 6    | <p>(Conditional) If the media server upgrade is part of a primary server upgrade, skip this step.</p> <p>Reactivate the media server.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |
| 7    | <p>(Conditional) If the media server upgrade is part of a primary server upgrade, resume the primary server upgrade procedure.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |           |

Table 4-1 Media server migration procedure (continued)

| Step | Task                                                                                                                                                | Completed |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 8    | If your environment includes computers with NetBackup Snapshot Manager, upgrade these computers after the successful upgrade of your media servers. |           |

# Silently upgrading NetBackup media server software on Linux

You can upgrade NetBackup Linux media servers with native installers. You can use either the NetBackup install script or your preferred installer method.

For Linux: rpm, yum, etc.

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

**Caution:** You must remove the NetBackup Nutanix plug-in package before you upgrade NetBackup Red Hat and SUSE Linux with the native installers. Both the Nutanix plug-in and NetBackup install the same libraries to the same location, which results in a failure to upgrade. The upgrade fails with an `install of package_name conflicts with file from package package_name` error message.

Use the command that is shown to uninstall the plug-in before attempting the NetBackup upgrade.

```
rpm -e VRTSnbntnxahv*
```

**To upgrade the Linux media server binaries using native installers:**

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

See [“About the NetBackup answer file”](#) on page 128.

- 2 (Conditional) If your environment uses a NetBackup Certificate Authority, and the media server is already configured for NetBackup Certificate Authority, proceed to 4. Otherwise, populate `NBInstallAnswer.conf` with the following required information:

```
CA_CERTIFICATE_FINGERPRINT=fingerprint
```

Example (the fingerprint value is wrapped for readability):

```
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 128.

- 3 (Conditional) If your environment uses an external certificate authority, and the media server is already configured for external certificate authority, proceed to 4. Otherwise, populate `NBInstallAnswer.conf` with the following required information:

- `ECA_CERT_PATH`

Use this field to specify the path and the file name of the external certificate file. This field is required to set up an external certificate from a file.

- `ECA_TRUST_STORE_PATH`

Use this field to specify the path and the file name of the file representing the trust store location. This field is required to set up an external certificate from a file.

- `ECA_PRIVATE_KEY_PATH`

Use this field to specify the path and the file name of the file representing the private key. This field is required to set up an external certificate from a file.

- `ECA_KEY_PASSPHRASEFILE`

Use this field to specify the path and the file name of the file that contains the passphrase to access the keystore. This field is optional and applies only when setting up an external certificate from a file.

- `ECA_CRL_CHECK_LEVEL`  
Use this field to specify the CRL mode. This field is required. Supported values are:
    - `USE_CDP`: Use the CRL defined in the certificate.
    - `USE_PATH`: Use the CRL at the path that is specified in `ECA_CRL_PATH`.
    - `DISABLED`: Do not use a CRL.
  - `ECA_CRL_PATH`  
Use this field to specify the path to the CRL associated with the external CA certificate. This field is required only when `ECA_CRL_CHECK_LEVEL` is set to `USE_PATH`. If not applicable, leave this field empty.
- 4 Additionally, you can add the optional parameters that are shown to the `NBInstallAnswer.conf` file.
- Additional `SERVER` entries
- More information about each option is available.
- See [“About the NetBackup answer file”](#) on page 128.
- 5 Download the server package that matches your server platform to a system with sufficient space. Then extract the required server package.
- Extract the contents of the server package file. Example:
- For Linux Red Hat:  

```
tar -xzf NetBackup_11.1_LinuxR_x86_64.tar.gz
```
  - For Linux SuSE:  

```
tar -xzf NetBackup_11.1_LinuxS_x86_64.tar.gz
```
- 6 Change to the directory for your desired operating system and copy packages to the media server.
- Operating system directory:
- For Linux Red Hat:  
`NetBackup_11.1_LinuxR_x86_64/linuxR_x86_64/anb`
  - For Linux SuSE:  
`NetBackup_11.1_LinuxS_x86_64/linuxS_x86_64/anb`
- Copy server files to the computer to be installed.

---

**Note:** The upgrade of the Java GUI and the JRE is optional. If you do not want them upgraded, omit the copy and the install of the `VRTSnbjava` and `VRTSnbjre` packages.

Remove the old Java GUI and JRE packages if you decide not to upgrade them.

See [“Add or remove Java components after upgrade”](#) on page 170.

---

---

**Note:** The installation of the NetBackup DirectIO package is optional. If you do not want it installed, omit the copy and the install of the `VRTSnbdirectio` package.

---

- `VRTSnbcfg.rpm`
- `VRTSnbclibs.rpm`
- `VRTSnbclt.rpm`
- `VRTSnbjava.rpm`
- `VRTSnbjre.rpm`
- `VRTSnbpck.rpm`
- `VRTSnbslibs.rpm`
- `VRTSnbdirectio.rpm`
- `VRTSnetbp.rpm`
- `VRTSpbx.rpm`
- `VRTSpddea.rpm`
- `VRTSpddes.rpm`
- `VRTSpddeu.rpm`

## 7 Install the Cohesity precheck package.

Linux: `rpm -U VRTSnbpck.rpm`

- 8** (Conditional) If you are upgrading from pre-NetBackup 8.0, remove the old `SYMC*` packages. The example that is shown indicates the commands that are used to remove the `SYMC` RPM packages. This process preserves your NetBackup configuration.

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

- 9 Install the files in the order that is shown with the commands shown:

---

**Note:** The upgrade of the Java GUI and the JRE is optional. If you do not want them upgraded, omit the copy and the install of the `VRTSnbjava` and `VRTSnbjre` packages.

Remove the old Java GUI and JRE packages if you decide not to upgrade them.

See [“Add or remove Java components after upgrade”](#) on page 170.

---

|        |                                     |
|--------|-------------------------------------|
| RedHat | <code>rpm -U VRTSpxb.rpm</code>     |
| Linux  | <code>rpm -U VRTSnbclt.rpm</code>   |
|        | <code>rpm -U VRTSnbclibs.rpm</code> |
|        | <code>rpm -U VRTSnbjre.rpm</code>   |
|        | <code>rpm -U VRTSnbjava.rpm</code>  |
|        | <code>rpm -U VRTSpddes.rpm</code>   |
|        | <code>rpm -U VRTSpddeu.rpm</code>   |
|        | <code>rpm -U VRTSpddea.rpm</code>   |
|        | <code>rpm -U VRTSnbcfg.rpm</code>   |
|        | <code>rpm -U VRTSnetbp.rpm</code>   |
|        | <code>rpm -U VRTSnbslibs.rpm</code> |

**Note:** The `VRTSpddei` package is no longer delivered in NetBackup 11.1. Remove this rpm and install `libguestfs.rpm` and `python3-libguestfs.rpm` if you want to continue to use Instant Access or malware scans of VM images.

|            |                                     |
|------------|-------------------------------------|
| SuSE Linux | <code>rpm -U VRTSpxb.rpm</code>     |
|            | <code>rpm -U VRTSnbclt.rpm</code>   |
|            | <code>rpm -U VRTSnbclibs.rpm</code> |
|            | <code>rpm -U VRTSnbjre.rpm</code>   |
|            | <code>rpm -U VRTSnbjava.rpm</code>  |
|            | <code>rpm -U VRTSpddeu.rpm</code>   |
|            | <code>rpm -U VRTSpddea.rpm</code>   |
|            | <code>rpm -U VRTSpddes.rpm</code>   |
|            | <code>rpm -U VRTSnbcfg.rpm</code>   |
|            | <code>rpm -U VRTSnetbp.rpm</code>   |
|            | <code>rpm -U VRTSnbslibs.rpm</code> |

- 10 You can remove the old versions of the Java GUI and the JRE if you no longer plan to use them.

■ Linux:

`rpm -e VRTSnbjava.rpm`

```
rpm -e VRTSnbjre.rpm
```

- 11** You can remove the old versions of the NetBackup DirectIO package if you no longer plan to use it.

```
rpm -e VRTSnbdirectio.rpm
```

# Client upgrade

This chapter includes the following topics:

- [About client upgrades](#)
- [Preinstall procedure for upgrading clients to NetBackup 11.1](#)
- [Upgrading UNIX and Linux clients with the NetBackup upgrade script](#)
- [Upgrade of the UNIX and Linux client binaries with native installers](#)

## About client upgrades

Once the primary and the media servers for a client computer are upgraded, you can upgrade the client computer. Do not upgrade a client computer before the associated primary and media server are upgraded.

From a NetBackup perspective, client computer upgrades present minimal concerns. The client computers have minimal NetBackup binaries and no NetBackup databases. From the customer perspective, however, the client computers may host mission critical databases or unique business-specific applications. As such, review your client computers and determine where you need to engage additional resources to ensure uninterrupted access to important databases and applications.

NetBackup supports four client upgrade methods:

- NetBackup upgrade script. The NetBackup upgrade script is the standard upgrade method and is recommended for new users. More information is available.  
See [“Performing local, remote, or clustered server upgrades on Windows systems”](#) on page 37.  
See [“Upgrading UNIX and Linux clients with the NetBackup upgrade script”](#) on page 90.

- Native UNIX and Linux installers. The native UNIX and Linux installers are potentially more difficult and require additional steps. More information is available.  
See [“Upgrade of the UNIX and Linux client binaries with native installers”](#) on page 92.
- VxUpdate. VxUpdate is the replacement for LiveUpdate and lets you schedule the client upgrade for your client computers. More information is available.  
See [“About VxUpdate”](#) on page 106.
- Ansible playbooks. More information is available.  
See [“Ansible supported playbooks for NetBackup”](#) on page 158.

---

**Note:** Before you begin an upgrade, disable antivirus software.

If the antivirus software cannot be disabled, you should exclude NetBackup files and folders from virus scan events. More information about excluding NetBackup files and folders is available.

[https://www.veritas.com/support/en\\_US/article.100004864](https://www.veritas.com/support/en_US/article.100004864)

---

## Preinstall procedure for upgrading clients to NetBackup 11.1

Use the procedure that is shown to upgrade your clients to NetBackup 11.1.

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

Additional steps are required if the NetBackup upgrade includes an upgrade to RHEL 7.5 and you use Fibre Transport Media Server (FTMS). More information is available.

See [“About NetBackup 11.1 support for Fibre Transport Media Server with RHEL 7.5 and later”](#) on page 168.

### Preinstall steps to upgrade clients to NetBackup 11.1

- 1 Perform environment checks with the SORT tool.  
See [“Recommended SORT procedures for upgrades”](#) on page 25.
- 2 Be sure that all operating system and security updates are applied.
- 3 Perform any pre-upgrade tasks that you would normally do in regard to your NetBackup clients. For example:
  - Disable antivirus software.

If the antivirus software cannot be disabled, you should exclude NetBackup files and folders from virus scan events. More information about excluding NetBackup files and folders is available.

[https://www.veritas.com/support/en\\_US/article.100004864](https://www.veritas.com/support/en_US/article.100004864)

- Stop all customized or third-party scripts.
- 4 (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
```

- 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, ensure that no backups are running. Stop the RMAN processes before you install NetBackup. If you use AIX, you should run `/usr/bin/slibclean` as the root user after you stop the RMAN processes.

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 and Linux 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 37.

See [“Upgrading UNIX and Linux clients with the NetBackup upgrade script”](#) on page 90.

See [“Upgrade of the UNIX and Linux client binaries with native installers”](#) on page 92.

See [“About VxUpdate”](#) on page 106.

# Upgrading UNIX and Linux clients with the NetBackup upgrade script

Use the following procedure to upgrade to NetBackup 11.1 on UNIX and Linux clients:

## To upgrade UNIX and Linux clients with the NetBackup upgrade script:

- 1 Log in to the client as root.
- 2 Navigate to where the ESD images (downloaded files) reside and enter the command shown:

```
./install
```

- 3 When the following message appears press `Enter` to continue:

```
NetBackup Installation Script
Copyright (c) 2025 Cohesity, Inc. All rights reserved
```

```
Installing NetBackup Client Software
```

```
Please review the COHESITY SOFTWARE TERMS OF USE located on
the installation media before proceeding. The agreement includes
details on the NetBackup Product Improvement Program.
```

```
For NetBackup installation and upgrade information specific to your
platform and to find out if your installed EEBs or hot fixes are
contained in this release, check the Installation and Upgrade checklists
and the Hot Fix and EEB Release Auditor, both available on the Cohesity
Services and Operations Readiness Tools (SORT) page:
```

```
https://sort.veritas.com/netbackup
```

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

- 4 After NetBackup checks for required system conditions, press `Enter` to continue.

```
Do you want to install the NetBackup client software for this
client? [y,n] (y)
```

- 5 (Conditional) If your environment uses NetBackup Certificate Authority, the installer retrieves certificate details and prompts you to confirm the information. After you confirm the certificate authority information, you are prompted for authorization token information.

- 6** If your environment uses an external certificate authority, provide the external certificate authority information at the prompts shown:

Enter the certificate file path or q to skip security configuration:  
/usr/eca/cert\_chain.pem

Enter the trust store location or q to skip security configuration:  
/usr/eca/trusted/cacerts.pem

Enter the private key path or q to skip security configuration:  
/usr/eca/private/key.pem

Enter the passphrase file path or q to skip security configuration  
(default: NONE): /usr/eca/private/passphrase.txt

---

**Note:** Be aware the passphrase file path is optional.

---

- 7** If prompted, indicate how the upgrade should handle the Java GUI and the JRE binaries.

The Java GUI and JRE packages are currently *install\_state* on this host.

The Java GUI and JRE can be optionally included with NetBackup. The Java GUI and JRE enable the Backup, Archive and Restore (BAR) GUI. Choose an option from the list below.

1) Update the Java GUI and JRE.

2) Remove the Java GUI and JRE.

If you specify 1, the Java and JRE binaries are installed or upgraded, based on the status of the server. If you specify 2, the Java and JRE binaries are removed or excluded, based on the status of the server.

- 8** If prompted, indicate how the upgrade should handle the NetBackup DirectIO package binaries.

NetBackup DirectIO is only for customers planning to write to Cohesity Data Protect clusters.

The NetBackup DirectIO package is currently *install\_state* on this host. The NetBackup DirectIO package can be optionally included with NetBackup.

Choose an option from the list below.

- 1) Include the NetBackup DirectIO package.
- 2) Exclude the NetBackup DirectIO package.

If you specify 1, the NetBackup DirectIO package is installed or upgraded, based on the status of the server. If you specify 2, the NetBackup DirectIO package is removed or excluded, based on the status of the server.

- 9** If there are no problems, the installer exits without error.

## Upgrade of the UNIX and Linux client binaries with native installers

You can 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 upgraded with the NetBackup install script.

- For AIX: `ls1pp`, `installp`
- For Linux: `rpm`, `yum`, `etc.`
- For Solaris: `pkginfo`, `pkgadd`

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

---

**Caution:** You must remove the NetBackup Nutanix plug-in package before you upgrade NetBackup Red Hat and SUSE Linux with the native installers. Both the Nutanix plug-in and NetBackup install the same libraries to the same location, which results in a failure to upgrade. The upgrade fails with an `install of package_name conflicts with file from package package_name` error message.

Use the command that is shown to uninstall the plug-in before attempting the NetBackup upgrade.

```
rpm -e VRTSnbntnxahv*
```

---

### To 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 128.

- 2 (Conditional) If your environment uses a NetBackup Certificate Authority, and the client is already configured for NetBackup Certificate Authority, proceed to [5](#). Otherwise, populate `NBInstallAnswer.conf` with the following required information:

```
CA_CERTIFICATE_FINGERPRINT=fingerprint
```

Example (the fingerprint value is wrapped for readability):

```
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 128.

- 3 (Conditional) If your environment uses an external certificate authority, and the client is already configured for external certificate authority, proceed to [5](#). Otherwise, populate `NBInstallAnswer.conf` with the following required information:

- `SET ECA_CERT_PATH=path`

Use this field to specify the path and the file name of the external certificate file. This field is required to set up an external certificate from a file.

- `SET ECA_TRUST_STORE_PATH=path`

Use this field to specify the path and the file name of the file representing the trust store location. This field is required to set up an external certificate from a file.

- `SET ECA_PRIVATE_KEY_PATH=path`

Use this field to specify the path and the file name of the file representing the private key. This field is required to set up an external certificate from a file.

- `SET ECA_KEY_PASSPHRASEFILE=path`

Use this field to specify the path and the file name of the file that contains the passphrase to access the keystore. This field is optional and applies only when setting up an external certificate from a file.

- `SET ECA_CRL_CHECK_LEVEL=value`

Use this field to specify the CRL mode. This field is required. Supported values are:

- `USE_CDP`: Use the CRL defined in the certificate.
- `USE_PATH`: Use the CRL at the path that is specified in `ECA_CRL_PATH`.
- `DISABLED`: Do not use a CRL.

- `SET ECA_CRL_PATH=path`

Use this field to specify the path to the CRL associated with the external CA certificate. This field is required only when `ECA_CRL_CHECK_LEVEL` is set to `USE_PATH`. If not applicable, leave this field empty.

- 4 (Conditional) If the NetBackup primary server is configured to support network address translation (NAT) clients, populate `NBInstallAnswer.conf` with the following required information:

```
ACCEPT_REVERSE_CONNECTION=TRUE
```

More information is available. See [“About the NetBackup answer file”](#) on page 128.

- 5 Additionally, you can add the optional parameter shown to the `NBInstallAnswer.conf` file.

- `SERVICES=no`
- `MERGE_SERVER_LIST=value`

More information about each option is available.

See [“About the NetBackup answer file”](#) on page 128.

- 6 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.
- 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     | <code>gunzip NetBackup_11.1_CLIENTS1.tar.gz; tar -xvf NetBackup_11.1_CLIENTS1.tar</code> |
| Linux   | <code>tar -xzvf NetBackup_11.1_CLIENTS2.tar.gz</code>                                    |
| Solaris | <code>tar -xzvf NetBackup_11.1_CLIENTS1.tar.gz</code>                                    |

- Change to the directory for your desired operating system.  
Example:

|                 |                                                                                                                                                                                                                                                                                                         |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AIX             | <code>CLIENTS1/NBClientS/anb/ClientS/usr/opensv/netbackup/client/RS6000/AIX7.1/</code>                                                                                                                                                                                                                  |
| Linux           | <p>For Linux Red Hat:</p> <p><code>CLIENTS2/NBClientS/anb/ClientS/usr/opensv/netbackup/client/Linux/RedHat4.18.0/</code></p> <p>For Linux SuSE:</p>                                                                                                                                                     |
| Linux - s390x   | <p>For Linux-s390x Red Hat:</p> <p><code>CLIENTS2/NBClientS/anb/ClientS/usr/opensv/netbackup/client/Linux-s390x/IBMzSeriesRedHat4.18.0/</code></p> <p>For Linux-s390x SuSE:</p> <p><code>CLIENTS2/NBClientS/anb/ClientS/usr/opensv/netbackup/client/Linux-s390x/IBMzSeriesSuSE5.3.18</code></p>         |
| Linux - ppc64le | <p>For Linux-ppc64le Red Hat:</p> <p><code>CLIENTS2/NBClientS/anb/ClientS/usr/opensv/netbackup/client/Linux-ppc64le/IBMpSeriesRedHat4.18.0/</code></p> <p>For Linux-ppc64le SuSE:</p> <p><code>CLIENTS2/NBClientS/anb/ClientS/usr/opensv/netbackup/client/Linux-ppc64le/IBMpSeriesSuSE5.3.18</code></p> |

Solaris

For Solaris SPARC:

CLIENTS1/NBclients/anb/Clients/usr/openv/netbackup/client/Solaris/Solaris10/

For Solaris x86

CLIENTS1/NBclients/anb/Clients/usr/openv/netbackup/client/Solaris/Solaris\_x86\_10\_64/

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

**Note:** Where supported, the upgrade of the Java GUI and the JRE is optional. If you don't want to upgrade them, don't copy or install the `VRTSnbjava` and `VRTSnbjre` packages. Remove the old Java GUI and JRE packages if you decide not to upgrade them.

See [“Add or remove Java components after upgrade”](#) on page 170.

**Note:** The installation of the NetBackup DirectIO is optional. If you do not want it installed, omit the copy and the install of the `VRTSnbdirectio` package.

|     |                                   |
|-----|-----------------------------------|
| AIX | <code>VRTSnbpck.image</code>      |
|     | <code>VRTSpbx.image.gz</code>     |
|     | <code>VRTSnbclt.image.gz</code>   |
|     | <code>VRTSnbclibs.image.gz</code> |
|     | <code>VRTSnbjre.image.gz</code>   |
|     | <code>VRTSnbjava.image.gz</code>  |
|     | <code>VRTSpddea.image.gz</code>   |
|     | <code>VRTSnbcfg.image.gz</code>   |

|       |                                                                                                                                                                                                    |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Linux | VRTSnbpcck.rpm<br>VRTSspbxx.rpm<br>VRTSnbclt.rpm<br>VRTSnbclibs.rpm<br>VRTSnbjre.rpm<br>VRTSnbjava.rpm<br>VRTSnbdirectio.rpm (Red Hat x86 only)<br>VRTSpddeu.rpm<br>VRTSpddea.rpm<br>VRTSnbcfg.rpm |
|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Note:** Please be aware the VRTSnbjre.rpm, VRTSnbjava.rpm, and VRTSpddea.rpm files are not supported on the IBM pSeries clients.

**Note:** The VRTSpddeu.rpm package is optional, and is not supported on IBM pSeries and zSeries clients.

**Note:** The VRTSnbdirectio.rpm package is optional, and is only supported on the Red Hat x86 platform.

|         |                                                                                                                                          |
|---------|------------------------------------------------------------------------------------------------------------------------------------------|
| Solaris | .pkg_defaults<br>VRTSnbpcck.pkg.gz<br>VRTSspbxx.pkg.gz<br>VRTSnbclt.pkg.gz<br>VRTSnbclibs.pkg.gz<br>VRTSpddea.pkg.gz<br>VRTSnbcfg.pkg.gz |
|---------|------------------------------------------------------------------------------------------------------------------------------------------|

**Note:** The Solaris client binaries include a hidden administration file called .pkg\_defaults. This administration file contains default installation actions.

---

**Note:** Be aware the VRTSnbjre.pkg.gz and VRTSnbjava.pkg.gz files are not supported on Solaris clients.

---



---

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

---



---

**Note:** Be aware the VRTSnbjre.rpm, VRTSnbjava.rpm, and VRTSpddea.rpm files are not supported on the IBM pSeries clients.

---

- 7** (Conditional) For Solaris 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
VRTSnbclibs.pkg
VRTSnbjre.pkg
VRTSnbjava.pkg
VRTSpddea.pkg
VRTSnbcfg.pkg
```

---

**Note:** The `VRTSnbjre.pkg` and `VRTSnbjava.pkg` files are not supported on Solaris clients so they are not included.

---

- 8** Install the Cohesity precheck package.

- **AIX:** `installp -ad VRTSnbpck.image all`
- **Linux:** `rpm -U VRTSnbpck.rpm`
- **Solaris:** `pkgadd -a .pkg_defaults -d VRTSnbpck.pkg VRTSnbpck`

- 9** (Conditional) If you are upgrading from pre-NetBackup 8.0, remove the old `SYMC*` packages. The example shown indicates the commands used to remove the `SYMC` RPM packages. This process preserves your NetBackup configuration.

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

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

---

**Note:** The upgrade of the Java GUI and JRE is optional. If you do not want them upgraded, omit the copy and the install of the `VRTSnbjava` and `VRTSnbjre` packages.

It is recommended to remove the old Java GUI and JRE packages if you decide not to upgrade them.

See [“Add or remove Java components after upgrade”](#) on page 170.

---

```
AIX installp -ad VRTSpbx.image all
 installp -ad VRTSnbclt.image all
 installp -ad VRTSnbclibs.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
```

```
Linux rpm -U VRTSpbx.rpm
 rpm -U VRTSnbclt.rpm
 rpm -U VRTSnbclibs.rpm
 rpm -U VRTSnbjre.rpm
 rpm -U VRTSnbjava.rpm
 rpm -U VRTSpddeu.rpm
 rpm -U VRTSnbdirectio.rpm (Red Hat x86 only)
 rpm -U VRTSpddea.rpm
 rpm -U VRTSnbcfg.rpm
```

**Note:** Please be aware the `VRTSnbjre.rpm`, `VRTSnbjava.rpm`, and `VRTSpddea.rpm` files are not supported on the IBM pSeries clients.

**Note:** The `VRTSpddeu.rpm` package is optional, and is not supported on IBM pSeries and zSeries clients.

**Note:** The `VRTSnbdirectio.rpm` package is optional, and is only supported on the Red Hat x86 platform.

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

```
pkgadd -a .pkg_defaults -d VRTSpxb.pkg VRTSpxb
pkgadd -a .pkg_defaults -d VRTSnbclt.pkg VRTSnbclt
pkgadd -a .pkg_defaults -d VRTSnbclibs.pkg VRTSnbclibs
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
```

- Be aware the `VRTSnbjre.pkg.gz` and `VRTSnbjava.pkg.gz` files are not supported on Solaris clients.
- 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.

**11** (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](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](https://www.veritas.com/support/en_US/article.000127129)

**12** You can remove the old versions of the Java GUI and the JRE if you no longer plan to use them or if they are no longer supported.

- **Linux:**

```
rpm -e VRTSnbjava.rpm
rpm -e VRTSnbjre.rpm
```
- **Solaris:**

```
pkgrm VRTSnbjava
```

```
pkgrm VRTSnbjre
```

■ AIX

```
installp -u VRTSnbjre
installp -u VRTSnbjava
```

- 13** You can remove the old versions of the NetBackup DirectIO if you no longer plan to use it or if it is no longer supported.

```
rpm -e VRTSnbdirectio.rpm
```

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/opensv/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 5-1](#) shows some of the actions and the message that is generated.

**Table 5-1** 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. | # installp -ad VRTSnbpck.image all<br>package VRTSnbpck.image is already installed                                                   | Use the <code>lsllpp -L package_name</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.                     | # installp -ad VRTSnbcfg.image all<br>error: Failed dependencies:<br>VRTSnbclt >= 8.1.0.0 is needed by<br>VRTSnbcfg-version-platform | Refer to the documentation for the correct image package installation order. More information is also available in the error which lists the dependent packages.<br><br>See <a href="#">“To upgrade the UNIX or Linux client binaries using native installers:”</a> on page 93. |

**Table 5-1** Installation error messages and solutions (*continued*)

| Install action                                                                                       | Error message                                                                                                                                                                                           | Solution                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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>lsldpp -L package_name</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 VRTSnbpcck.rpm package VRTSnbpcck.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 &gt;= 8.1.0.0 is needed by VRTSnbcfg-version-platform</pre>                                                                           | <p>Refer to the documentation for the correct RPM installation order. More information is available.</p> <p>See <a href="#">“To upgrade the UNIX or Linux client binaries using native installers.”</a> on page 93.</p> |
| 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 5-1**      Installation error messages and solutions (*continued*)

| Install action                                                                   | Error message | Solution                                                                                                                                                                                                                                                                |
|----------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| User attempts to install the binaries on top of the same version of the binaries |               | <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 5-1** Installation error messages and solutions (*continued*)

| Install action | Error message                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Solution |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|                | <pre>pkgadd -a .pkg_defaults -d VRTSnbpck.pkg VRTSnbpck  Processing package instance &lt;VRTSnbpck&gt; from &lt;/root/packages/Solaris/ Solaris_x86_10_64/VRTSnbpck.pkg&gt;  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 (c) 2025 Cohesity, Inc. All rights reserved.  ## Executing checkinstall script.  Using &lt;/&gt; 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 &lt;VRTSnbpck&gt;  ## Executing preinstall script.  Wednesday, May 10, 2017 03:15:44 PM IST: Installing package VRTSnbpck.</pre> |          |

**Table 5-1** Installation error messages and solutions (*continued*)

| Install action                                                                                       | Error message                                                                                                                                                                                                                                                                                                                                                                                                                     | Solution                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                      | <pre>Installing NB-Pck.  ## Installing part 1 of 1.  [ verifying class &lt;NBclass&gt; ]  ## Executing postinstall script.  Wednesday, May 10, 2017 03:15:45 PM IST: Install of package VRTSnbpcck was successful.</pre>                                                                                                                                                                                                          |                                                                                                                                                                                                                             |
| User attempts to install the binaries in the incorrect order.                                        | <pre># pkgadd -a .pkg_defaults -d VRTSnbclt.pkg VRTSnbclt  ERROR: VRTSnbpcck &gt;=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 <a href="#">“To upgrade the UNIX or Linux client binaries using native installers:”</a> on page 93.</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 &lt;VRTSnbclt&gt; from &lt;/root/80packages/Solaris/ Solaris_x86_10_64/VRTSnbclt.pkg&gt;  NetBackup Client(i386) 8.0.0.0  The following instance(s) of the &lt;VRTSnbclt&gt; 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>                                                          |

# NetBackup Deployment Management with VxUpdate

This chapter includes the following topics:

- [About VxUpdate](#)
- [Commands used in VxUpdate](#)
- [Repository management](#)
- [Deployment policy management](#)
- [Manually initiating upgrades from the primary server using VxUpdate](#)
- [Manually initiating upgrades from the media server or client using VxUpdate](#)
- [Deployment job status](#)
- [EEB management view](#)

## About VxUpdate

VxUpdate provides a policy-based upgrade tool for media servers and clients. By using the policy format, NetBackup provides a simplified tool for media server and client upgrades. No additional external tools are required and the configuration is in a familiar policy-based format, similar to a backup policy. Signed packages are verified and installed into the VxUpdate repository on the primary server. Once the packages are installed, they become available for use with deployment policies. Additionally, you can use the deployment policies to automate the installation of NetBackup emergency engineering binaries.

See [“EEB management view”](#) on page 125.

The deployment policy lets you configure and run deployment activities on a schedule or enable the client host owners to upgrade at their convenience. Furthermore, you can split deployment activities into smaller, discrete tasks. You can schedule pre-check, staging, and installation tasks as separate activities with different schedules, each with their own specific deployment windows.

---

**Note:** You can only cancel queued deployment jobs. Once a VxUpdate job enters the active state it cannot be canceled.

---

The deployment policies are not located with the other policies in the NetBackup Administrative Console. Deployment policies are located in the NetBackup Administration Console under **Deployment Management > Deployment Policies**.

To successfully create and use deployment policies:

**Table 6-1**

| Step | Action                                                                                   | Additional information                                                                                                                                                                                                       |
|------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Populate the NetBackup repository                                                        | See <a href="#">“Repository management”</a> on page 108.                                                                                                                                                                     |
| 2    | Create the deployment policy                                                             | See <a href="#">“Deployment policy management”</a> on page 111.                                                                                                                                                              |
| 3    | (Optional) Manually run the upgrade from the primary server, media server, or the client | See <a href="#">“Manually initiating upgrades from the primary server using VxUpdate”</a> on page 117.<br><br>See <a href="#">“Manually initiating upgrades from the media server or client using VxUpdate”</a> on page 121. |

## Commands used in VxUpdate

NetBackup uses two commands to let you modify the NetBackup package repository as well as initiate policies from the command line. Command-line policy initiation is useful in environments where scripting is in use. The commands are:

- `nbrepo`

Use the `nbrepo` command to manage the NetBackup package repository. You can add, validate, and delete packages, as well as obtain package identifier and other information on packages in the repository. This command is only located on the primary server.

- `nbinstallcmd`

Use the `nbinstallcmd` command to initiate the deployment policies from the command line. You can also use the command to initiate on-demand deployment jobs. This command is located on all hosts in the NetBackup environment.

More information about these and other related commands is available.

[NetBackup Commands Reference Guide](#)

## Repository management

VxUpdate uses a repository that resides on the primary server. The repository contains all packages that you can deploy to media servers and clients. Your repository can contain upgrade packages, emergency engineering binaries, and hotfixes.

VxUpdate packages contain a digital signature. Attempts to populate the repository with unofficial or unsigned NetBackup packages fail. These packages are referenced in the deployment policies that install NetBackup on target hosts.

Depending on the packages added, the repository can grow large. When you use the NetBackup web UI or the `nbrepo` command to populate the repository, be mindful of the required disk space. Confirm that you have sufficient space on your primary server for all packages that are required for your environment. The primary server must have enough disk space to store packages for the NetBackup versions and platforms that are specified in deployment policies.

For Linux, the repository is in `/usr/opensv/var/global/repo`. For Windows, the repository is in `install_path\NetBackup\var\global\repo`.

The package types you can load into the repository include:

- VxUpdate media server and client packages

You can upgrade NetBackup media servers and clients to a newer version of NetBackup with VxUpdate. These packages are slightly different from standard NetBackup media server and client packages. The packages include additional components to support the various VxUpdate operations.

- Emergency engineering binaries (EEBs) and hotfixes

You can use VxUpdate to deploy emergency engineering binaries and hotfixes to NetBackup 8.1.2 and later media servers and clients. You can obtain VxUpdate formatted EEBs from support in the same way you obtain traditional EEBs. These EEBs are only for NetBackup version 8.1.2 and later. Any media server or client hotfixes for NetBackup 8.1.2 and later releases include VxUpdate formatted fixes.

## About downloading NetBackup approved media server and client packages

VxUpdate formatted packages are available from the [myveritas.com](https://myveritas.com) licensing portal. Emergency binaries and hotfixes are obtained from the standard locations. You should download the VxUpdate versions of these packages and place them in a location accessible to the primary server or the host that is running the web UI. Once accessible, you can add them to the NetBackup package repository.

### To download approved packages:

- 1 Go to the [myveritas.com](https://myveritas.com) licensing portal.
- 2 Enter your username and password.
- 3 Select **Licensing**.
- 4 Enter or select your account number.
- 5 Select **Apply Filters**.
- 6 Select your account number from the resulting table.  
  
This action presents a listing of your entitlements. From here, you have the ability to download the associated software.
- 7 Select **Downloads**.
- 8 Use the filter options to limit the results to the NetBackup product line and the appropriate product version.  
  
Add your filters and select **Apply Filters**.
- 9 Under **Actions**, select the download icon.
- 10 In the resulting table, select the VxUpdate packages and then select **Download**.  
  
Packages that contain both media server and client binaries follow the naming convention shown: `vxupdate_nb_version_operatingsystem_platform.sja`
- 11 Download and extract the files to a temporary location on your computer.

When you finish downloading and extracting all the relevant packages to your computer, add the packages to the NetBackup package repository. More information about this topic is available.

See [the section called “About adding packages to the NetBackup package repository”](#) on page 109.

## About adding packages to the NetBackup package repository

With VxUpdate, the NetBackup web UI and the `nbrepo` command control the package repository management. Do not attempt to manually modify or update the

repository without the use of the NetBackup web UI or the `nbrepo` command. The NetBackup web UI and the `nbrepo` command verify and populate the repository with NetBackup packages.

VxUpdate can only use signed packages that you added to the NetBackup package repository. Use the `nbrepo` command or the NetBackup web UI to add packages to the repository. These options add metadata to the EMM database and place the packages in the repository directory structure on the file system. You can use either of these options to list the contents of the package repository as well as the details about individual packages.

**To add packages to the NetBackup package repository with the `nbrepo` command:**

- 1 Navigate to the `admincmd` directory from a command prompt.

Linux: `/usr/opensv/netbackup/bin/admincmd`

Windows: `install_path\NetBackup\bin\admincmd\`

- 2 Use the `nbrepo` command with the `-a` option:

`nbrepo -a package_path`

Example: `nbrepo -a C:\temp\nbclient_#.##_windows_x64.sja`

- 3 After successfully verifying and adding the package to the repository, the command returns a success message.

- 4 More information about the `nbrepo` command is available.

[NetBackup Commands Reference Guide](#)

- 5 When there are packages in the repository that are no longer used, remove the packages. More information is available.

See [the section called "About removing packages from the NetBackup package repository"](#) on page 111.

**To add packages to the NetBackup package repository with the NetBackup web UI**

- 1 Open the NetBackup web UI.
- 2 Navigate to **Hosts > Deployment management > Package Repository**.
- 3 When prompted, specify if you want to add packages from the primary server or the host that is running the web UI.

- 4 Perform any other required actions.
- 5 When there are packages in the repository that are no longer used, remove the packages. More information is available.

See [the section called “About removing packages from the NetBackup package repository”](#) on page 111.

## About removing packages from the NetBackup package repository

You can remove packages from the repository either when they are no longer needed or to conserve disk space. Use the `nbrepo` command to remove packages. Use of the `-pkgDetails` option shows the package details, including the file system path and other package attributes. To verify that a package is removed, use the `nbrepo` command to list all packages. You can confirm that the package is no longer in the repository. You can also verify that the package is no longer located at the file system path.

### To remove packages from the NetBackup package repository:

- 1 Navigate to the `admincmd` directory from a command prompt.  
  
Linux: `/usr/opensv/netbackup/bin/admincmd`  
  
Windows: `install_path\NetBackup\bin\admincmd\`
- 2 Use the `nbrepo` command with the `-l` option to list all the packages and their identifiers.  
  
`nbrepo -l`
- 3 Use the `nbrepo` command with the `-d` option to delete any unused packages.  
  
`nbrepo -d package_identifier`  
  
Example: `nbrepo -d 6`
- 4 More information about the `nbrepo` command is available.  
  
[NetBackup Commands Reference Guide](#)

## Deployment policy management

Use the procedures that are shown to create, modify, and delete your deployment policies.

## Creating a deployment policy

---

**Note:** You must add packages to the VxUpdate repository before you can create a working deployment policy. You can create deployment policies without packages in the repository, but those policies fail to run successfully.

For more information regarding adding packages, see the *Repository Management* section within the [NetBackup Upgrade Guide](#).

---

- 1 In the NetBackup Administration Console, in the left pane, select **Deployment Management > Deployment Policies**.
- 2 From the **Actions** menu, select **New Deployment Policy**.
- 3 Enter a unique name for the new policy in the **Add a New Deployment Policy** dialog box.
- 4 Click **OK**.
- 5 Specify the information that is shown on the **Attributes** tab in the **Change Deployment Policy** window:
  - **Package:** Select the package that you want deployed from the drop-down menu. Only packages that are in the **Ready** state are available for use.

---

**Note:** Specifying a package that supports external certificate authority certificates presents you with an additional tab titled **Security**. That tab is covered later in this procedure.

---

- **Media server:** Specify the media server from drop-down. The media server that is specified is used to connect and transfer files to the NetBackup hosts that are included in the policy. The media server also caches the files from the NetBackup repository. Since the repository resides on the primary server, the primary server is the default value for the media server field. When you upgrade media servers, the **Media server** drop-down is automatically set to the primary server and cannot be changed.
- **Java GUI and JRE:** Specify if you want the Java GUI and the JRE upgraded on the target systems. The three options include:
  - **INCLUDE:** Install or upgrade the Java GUI and JRE components on the specified computers.
  - **EXCLUDE:** Exclude the Java GUI and JRE components from the specified computer. Any preexisting NetBackup Java GUI and JRE packages are removed.

- **MATCH:** Preserve the current state of the Java GUI and JRE components. The components are upgraded if they are present on the pre-upgraded system. The components are not installed if they are not present on the pre-upgraded system.
- **NetBackup DirectIO:** Specify if you want the NetBackup DirectIO package upgraded on the target systems. The three options include:
  - **INCLUDE:** Install or upgrade the NetBackup DirectIO package on the specified computers.
  - **EXCLUDE:** Exclude the NetBackup DirectIO package from the specified computer. Any preexisting NetBackup DirectIO package binaries are removed.
  - **MATCH:** Preserve the current state of the NetBackup DirectIO package. The plug-in is upgraded if it is present on the pre-upgraded system. The plug-in is not installed if they are not present on the pre-upgraded system.
- (Conditional): Select the **Limit simultaneous jobs** option and specify a value for **jobs** to limit the total number of concurrent jobs that can run at a time. The minimum value is 1 and the maximum value is 999.  
 If the check box is selected, the default value is 3. If you do not select the check box, no limit is enforced for the simultaneous upgrade jobs.  
 You can set unlimited simultaneous upgrade jobs through command line interface by setting the value as 0.
- **Select hosts:** Select hosts from the **Available hosts** list and select **Add** to add hosts to the deployment policy. The list is generated from hosts in the host database and backup policies. Once you select **Add**, the hosts are shown under **Selected hosts**.  
 Deployment policies can contain either media servers or clients but not both. When you select the package you want installed, the list of available hosts is filtered to media servers or clients.

---

**Note:** To upgrade an 8.0 media server, the media server must be in a backup policy. The policy does not need to be active and you do not need to run the policy. Once the media server is upgraded to post NetBackup 8.1 version, you can remove the policy. The policy only needs to have the media server in the client list. You do not need to specify a file list, schedule, or any other policy attributes.

If the media server is not in a policy, the operating system for the media server is listed as **Unknown**. A tool tip suggests this issue is a missing package. **Package for the selected host's operating system is missing. Add the required missing packages to the repository using the nbrepo command line.** While it may be true the package is not in the repository, you should also add the media server to a backup policy. If the tool tip persists after the media server is added to a policy, you probably need to add the required package.

---

**6** Select the **Schedules** tab in the **Change Deployment Policy** window.

You can see a summary of all schedules within that policy.

**7** Select **New**.

**8** Specify the information that is shown in the **Add Deployment Schedule** window.

- **Name:** Enter a name for the new schedule.
- **Type:** Specify the type of schedule you want created.

Schedule types:

- **Precheck**  
Performs the various precheck operations, including confirming there is sufficient space on the client for the update. The precheck schedule type does not exist for EEB packages.
- **Stage**  
Moves the update package to the client, but does not install it. Also performs the precheck operation.
- **Install**  
Installs the specified package. Also performs the precheck and the stage package operations. If you already performed the stage package operation, the install schedule does not move the package again.

---

**Note:** Please be aware that adding multiple different schedule types to the same deployment schedule window has unpredictable results. VxUpdate has no defined behavior to determine which schedule type runs first. If a single deployment schedule window has precheck, stage, and install jobs, there is no way to specify the order in which they run. The precheck or the stage schedules can fail, but the install completes successfully. If you plan to use precheck, stage, and install schedules, it is recommended that you create separate schedules and separate windows for each.

---

- **Starts:** Specify the date and time you want the policy to start in the text field or with the date and the time spinner. You can also click the calendar icon and specify a date and time in the resulting window. You can select a schedule by clicking and dragging over the three-month calendar that is provided at the bottom of the window.
- **Ends:** Specify the date and time you want the policy to end as you specified the start time.
- **Duration:** Optionally, you can specify a duration in days, hours, minutes, and seconds instead of an end time for the policy. The minimum value is 5 minutes and the maximum is 99 days.
- Select **Add/OK** and the schedule is created. Select **OK** to save and create your policy.

- 9** A **Security** tab appears when you select a deployment package that contains support for external certificate authorities.

By default, the **Use existing certificates when possible** option is selected. This option instructs NetBackup to use the existing NetBackup CA or external CA certificates, if available.

---

**Note:** If you specify this option and certificates are not available, your upgrade fails.

---

Deselecting the **Use existing certificates when possible** option lets you specify the location for external certificate authority information for both UNIX and Linux computers and Windows computers.

Deselecting this option does not allow the user to change the security configuration settings during the upgrade.

- 10** Windows clients have **Use Windows certificate store** selected by default.

You must enter the certificate location as *Certificate Store Name\Issuer Distinguished Name\Subject Distinguished Name*.

---

**Note:** You can use the `$hostname` variable for any of the names in the certificate store specification. The `$hostname` variable evaluates at run time to the name of the local host. This option provides flexibility when you push NetBackup software to a large number of clients.

---

Alternatively, you can specify a comma-separated list of Windows certificate locations. For example, you can specify:

```
MyCertStore\IssuerName1\SubjectName,
MyCertStore\IssuerName2\SubjectName2,
MyCertStore4\IssuerName1\SubjectName5
```

Then select the Certificate Revocation List (CRL) option from the radio buttons shown:

- **Do not use a CRL.** No additional information is required.
  - **Use the CRL defined in the certificate.** No additional information is required.
  - **Use the CRL at the following path:** You are prompted to provide a path to the CRL.
- 11** For both media servers and clients that select the **From certificate file path (for file-based certificates)** option, specify the information as shown:
- **Certificate file:** This field requires you to provide the path to the certificate file and the certificate file name.
  - **Trust store location:** This field requires you to provide the path to the trust store and the trust store file name.
  - **Private key path:** This field requires you to provide the path to the private key file and the private key file name.
  - **Passphrase file:** This field requires you to provide the path of the passphrase file and the passphrase file name. This field is optional.
  - Then specify the correct CRL option for your environment:
    - **Do not use a CRL.** No additional information is required.
    - **Use the CRL defined in the certificate.** No additional information is required.
    - **Use the CRL at the following path:** You are prompted to provide a path to the CRL.

### To change a deployment policy

- 1 Right click on the deployment policy and select **Change**.
- 2 Navigate through the deployment policy tabs and make any necessary changes to the policy.
- 3 Select **OK** and the policy is updated.

### Deleting a deployment policy

- 1 Right click on the deployment policy and select **Delete**.
- 2 Select **OK**.
- 3 Confirm the deletion of the policy.

## Manually initiating upgrades from the primary server using VxUpdate

You can manually initiate upgrades with VxUpdate using one of two methods. You can manually initiate an upgrade based on an existing policy. You can also initiate an upgrade without an associated policy.

Manually initiate deployment policies when you are logged into the primary server locally and need to force an immediate update. Or you can initiate an immediate upgrade for emergency binaries. VxUpdate also provides the ability to launch upgrades from the media server or client with the command line. More information is available.

See [“Manually initiating upgrades from the media server or client using VxUpdate”](#) on page 121.

### To manually initiate an upgrade of all media servers or clients in a policy from the administration console

- 1 In the NetBackup Administration Console, navigate to **Deployment Management > Deployment Policies**.
- 2 In the middle pane, expand the primary server, and select the policy you want to run.
- 3 Right-click on the policy you want to start, and select **Manual Deployment**.
- 4 Alternatively, after selecting the policy you want to run, you can select **Actions > Manual Deployment**.

**To manually initiate an upgrade of a specific host in a policy from the administration console**

- 1** Select **NetBackup Management > Host Properties > Media Servers** or **NetBackup Management > Host Properties > Clients** in the NetBackup Administrative Console.
- 2** Right click on the host you want to upgrade in the right pane.
- 3** Select **Upgrade Host**.
- 4** In the **Upgrade Host** dialog:
  - Select the package you want to use from the **Package** drop-down. Only packages that are in the **Ready** state are available for use.

---

**Note:** Specifying a package that supports external certificate authority certificates presents you with an additional button titled **Configure**. That button is covered in the next step.

---

- Specify the type of schedule you want to run from the **Type** drop-down.
  - Select the media server you want to use from the **Media server** drop-down. When you upgrade media servers, the **Media server** drop-down is automatically set to the primary server and cannot be changed.
  - Confirm that the host you want upgraded is listed under **Selected hosts**.
- 5** (Conditional) If present, click on the **Configure** button to configure external certificate authority information.

By default, the **Use existing certificates when possible** option is selected. This option instructs NetBackup to use the existing NetBackup CA or external CA certificates, if certificates available.

---

**Note:** If you specify this option and certificates are not available, the upgrade fails.

---

Deselecting the **Use existing certificates when possible** option lets you specify the location for external certificate authority information for both UNIX and Linux computers and Windows computers.

Deselecting this option does not allow the user to change the security configuration settings during the upgrade.

- 6** Windows clients have **Use Windows certificate store** selected by default.

You must enter the certificate location as *Certificate Store Name\Issuer Distinguished Name\Subject Distinguished Name*.

---

**Note:** You can use the `$hostname` variable for any of the names in the certificate store specification. The `$hostname` variable evaluates at run time to the name of the local host. This option provides flexibility when you push NetBackup software to a large number of clients.

---

Alternatively, you can specify a comma-separated list of Windows certificate locations. For example, you can specify:

```
MyCertStore\IssuerName1\SubjectName,
MyCertStore\IssuerName2\SubjectName2,
MyCertStore4\IssuerName1\SubjectName5
```

Then select the Certificate Revocation List (CRL) option from the radio buttons shown:

- **Do not use a CRL.** No additional information is required.
- **Use the CRL defined in the certificate.** No additional information is required.
- **Use the CRL at the following path:** You are prompted to provide a path to the CRL.

**7** For both UNIX and Linux clients and Windows clients that select the **From certificate file path (for file-based certificates)** option, specify the information as shown:

- **Certificate file:** This field requires you to provide the path to the certificate file and the certificate file name.
- **Trust store location:** This field requires you to provide the path to the trust store and the trust store file name.
- **Private key path:** This field requires you to provide the path to the private key file and the private key file name.
- **Passphrase file:** This field requires you to provide the path of the passphrase file and the passphrase file name. This field is optional.
- Then specify the correct CRL option for your environment:
  - **Do not use a CRL.** No additional information is required.
  - **Use the CRL defined in the certificate.** No additional information is required.

- **Use the CRL at the following path:** You are prompted to provide a path to the CRL.

**8** Select **OK** to launch the upgrade.

---

**Note:** You can also launch a client upgrade job from the **Policies** section of the NetBackup Administrative Console. Select **NetBackup Management > Policies** in the NetBackup Administrative Console. In the middle pane, select **Clients**. Then right-click on the client you want to upgrade in the right pane and select **Upgrade Host**. Then follow the procedure shown. This procedure is only applicable to clients, not media servers.

---

### **To manually initiate an upgrade from the command line for all media servers or clients in a policy**

Use this procedure to manually start an upgrade for all media servers or clients in a policy.

---

**Note:** This procedure starts the upgrade for all media servers or clients in the specified policy. You can start an upgrade on selected media servers or clients. More information is available.

### [To manually initiate an upgrade from the command line for selected hosts in a policy](#)

---

**1** Open a command prompt and navigate to the directory shown:

Windows: `install_path\netbackup\bin`

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

**2** Use the `nbinstallcmd` command as shown to launch a policy:

```
nbinstallcmd -policy policy_name -schedule schedule
[-master_server primary]
```

Where *policy\_name* is the name of the deployment policy, *schedule* is the name of the schedule, and *primary* is the name of the primary server.

### **To manually initiate an upgrade from the command line for selected hosts in a policy**

Use this procedure to manually start an upgrade for selected hosts in a policy.

---

**Note:** This procedure starts the upgrade on selected media servers and client in the specified policy. You can start an upgrade for all media servers and clients in a policy. More information is available.

[To manually initiate an upgrade from the command line for all media servers or clients in a policy](#)

---

- 1 Open a command prompt and navigate to the directory shown:

Windows: `install_path\netbackup\bin`

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

- 2 Use the `nbinstallcmd` command as shown:

```
nbinstallcmd -policy policy_name -schedule schedule
{-host_filelist filename|-hosts client1, client2, clientN}
```

Where:

- *policy\_name* is the name of the deployment policy
- *schedule* is the name of the schedule
- *filename* is the name of a file that contains a list of media servers or clients to upgrade.
- *client1, client2, clientN* is a list of media servers or clients to upgrade.

You can manually initiate the upgrade of a single client from the command line without an associated policy. The options required for the `nbinstallcmd` command vary depending on your security configuration. Please refer to the `nbinstallcmd` command documentation for a list of all possible options and examples of command usage.

[NetBackup Commands Reference Guide](#)

## Manually initiating upgrades from the media server or client using VxUpdate

Manually initiate deployment jobs when you are logged into the media server or client locally and want to force an immediate update. You can either use a deployment policy to initiate an immediate upgrade or specify an upgrade without an associated policy. You can use the upgrade to update the NetBackup version or for other upgrades such as emergency binaries.

Among the reasons for a media server or a client initiated upgrade using VxUpdate is mission critical systems with specific maintenance windows. One example of these systems is database servers with limited available down time.

---

**Note:** You can only launch updates on the local media server or client. You cannot use the `nbinstallcmd` command on a media server or client to launch jobs on other media servers or clients. If you want to launch updates on other media servers and clients, you must initiate them from the primary server.

---

VxUpdate also provides the ability to launch upgrades from the primary server with the command line. More information is available.

See [“Manually initiating upgrades from the primary server using VxUpdate”](#) on page 117.

The `nbinstallcmd` version on a back-level host is not the current `nbinstallcmd` version when you initiate a non-policy based upgrade directly on the target client or media server. Refer to the [NetBackup Commands Reference Guide](#) for the currently installed version of NetBackup for the exact format of `nbinstallcmd` command.

Because of this older version of `nbinstallcmd`, exceptions to normal VxUpdate behavior include:

- If your primary server uses both NetBackup certificate and an external certificate, and your target media server or client is at NetBackup 8.1.2: Running a non-policy based upgrade directly on the target host is not supported. You must upgrade with one of the options shown:
  - Upgrade the client or the media server using VxUpdate from the primary server.
  - Create a policy on the primary server. Then run policy-based `nbinstallcmd` on the target client or media server.
  - Disable the external certificate on your primary server before starting the non-policy-based upgrade on the target host. You may turn on the external certificate after the upgrade completes successfully.
- If the client or the media server is at NetBackup 8.2 or earlier, the `-components` flag is not available. This flag was introduced in NetBackup 8.3 to enable optional installation of the NetBackup Java GUI and JRE. When you run an ad-hoc `nbinstallcmd` on a client or a media server at NetBackup 8.2 or earlier, the `-components javagui_jre` option defaults to `MATCH`. This value causes the upgrade to match the Java GUI and JRE status of the pre-upgrade host. If the pre-upgrade host had Java GUI and JRE installed, it remains installed after

upgrade. If the pre-upgrade host did not have Java GUI and JRE installed, it is not installed after upgrade.

### To start a media server or client initiated deployment job based on an existing policy

- 1 Navigate to the binary directory from a command prompt.

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

Windows: `install_path\netbackup\bin`

- 2 Use the `nbinstallcmd` as shown:

```
nbinstallcmd -policy policy -schedule schedule -master_server
name
```

**Example:** `nbinstallcmd -policy all_clients -schedule install812  
-master_server primary1`

If the job initiated successfully, you are returned to the command prompt without an error message.

---

**Note:** When you initiate a media server upgrade with the `nbinstallcmd` command, you must include both the `-master_server` and the `-media_server` options. In this case, the value for both these options must be the same.

---

- 3 Monitor upgrade status with the NetBackup administrator and the Activity Monitor in the NetBackup Administrative Console.

You can start a media server or client initiated deployment job without an associated policy from the command line. The options that are required for the `nbinstallcmd` command vary depending on your security configuration and the NetBackup version on the computer you want to upgrade. Refer to the `nbinstallcmd` command documentation for a list of all possible options and examples of command usage.

[NetBackup Commands Reference Guide](#)

## Deployment job status

Monitor and review deployment job status in the Activity monitor. The **Deployment** job type is the new type for VxUpdate policies. Deployment policy parent jobs that exit with a status code 0 (zero) indicate that all the child jobs successfully completed. Parent jobs that finish with a status code 1 indicate that one or more of the child jobs succeeded, but at least one failed. Any other status code indicates failure. Review the status of the child jobs to determine why they failed. Otherwise, there are no differences between deployment jobs and other NetBackup jobs.

Your deployment job may receive a status code 224. This error indicates that the client's hardware and operating system are specified incorrectly. You can correct this error by modifying the deployment policy with the `bpplclients` command found in:

**Linux:** `/usr/opensv/netbackup/bin/admincmd`

**Window:** `install_path\netbackup\bin\admincmd.`

Use the syntax shown:

```
bpplclients deployment_policy_name -modify client_to_update -hardware
new_hardware_value -os new_os_value
```

Deployment policies use a simplified naming scheme for operating system and hardware values. Use the values as shown for the `bpplclients` command:

**Table 6-2** Deployment policy operating system and hardware

| Operating system | Hardware |
|------------------|----------|
| debian           | x64      |
| redhat           | x64      |
| suse             | x64      |
| redhat           | ppc64le  |
| suse             | ppc64le  |
| redhat           | zseries  |
| suse             | zseries  |
| aix              | rs6000   |
| solaris          | sparc    |
| solaris          | x64      |
| windows          | x64      |

Security certificates are not deployed as part of the VxUpdate upgrade if the **Security level for certificate deployment** is set to **Very High**. This setting is located in the **Global security** settings.

If you cannot communicate with your clients after you use VxUpdate to upgrade your clients, please ensure that the proper security certificates were issued during upgrade. You may need to manually deploy the certificates. Refer to the following article that is shown for additional details:

[https://www.veritas.com/content/support/en\\_US/article.100039650](https://www.veritas.com/content/support/en_US/article.100039650)

Your deployment job may receive a status code 7207. This error can occur if NetBackup precheck or upgrade processes take longer than expected to finish or never finish. To configure the amount of time VxUpdate waits before jobs end with status 7207, you can define the following values in the NetBackup configuration on the primary server.

`VXUPDATE_CLIENT_READ_TIMEOUT_SECONDS`

This value controls how long the precheck operations and the client upgrade operations are allowed to take, in seconds. The default value is 1800, or 30 minutes. It can be decreased to as little as 600, 10 minutes, or increased to as much as 3600, 60 minutes.

`VXUPDATE_SERVER_READ_TIMEOUT_SECONDS`

This value controls how long server upgrade operations are allowed to take, in seconds. The default value is 2700, or 45 minutes. It can be decreased to as little as 600, 10 minutes, or increased to as much as 5400, 90 minutes.

See the [NetBackup Commands Reference Guide](#) for details on how to use the `bpsetconfig` command to add values to the NetBackup configuration of a primary server.

## EEB management view

The **EEB management** tab under **Deployment management** provides a window into your environment's use of NetBackup emergency engineering binaries (EEBs). The **EEB management** tab displays all the EEBs deployed in your NetBackup environment.

Each EEB lists a description of the issue as well as the formal NetBackup releases in which the issue was resolved. You can view either the hosts that particular EEB installed or the hosts that don't. You can export the EEB information into a CSV file for review and analysis.

You can review each individual EEB and determine which hosts have a given EEB installed. Like the description information, you can export these details to a CSV file.

For the description and fixed version information to display, the computer running the NetBackup web UI must have access to the internet. This information is collected from the latest data on the NetBackup SORT website. If there are problems with the SORT API, you are provided a URL to the SORT auditor site.

The **EEB Management** view can display all EEBs installed on NetBackup appliance hosts at NetBackup 11.1 or later.

The **EEB Management** view is integrated with VxUpdate **Deploy Now**, so you can deploy EEBs to hosts that don't have them installed.

Be aware that pre-8.0 and earlier clients and media servers cannot use this feature.

# Reference

This appendix includes the following topics:

- [About the NetBackup answer file](#)
- [Add or remove the NetBackup DirectIO package after upgrade](#)
- [Previous upgrade operational notes and limitations](#)
- [About the NetBackup Java Runtime Environment](#)
- [Add or remove Java components after upgrade](#)
- [About the NetBackup web user interface](#)
- [About pushing client software from a primary server to clients](#)
- [About the IT Analytics Data Collector](#)
- [Manually install or uninstall IT Analytics Data Collector binaries](#)
- [Manually configure the IT Analytics Data Collector](#)
- [Manually upgrading the IT Analytics Data Collector](#)
- [Persistent Java Virtual Machine options](#)
- [About RBAC bootstrapping](#)
- [About NetBackup software availability](#)
- [Additional post-upgrade steps for NetApp clusters](#)
- [Using NetApp disk arrays with Replication Director](#)
- [About compatibility between NetBackup versions](#)
- [Known catalog backup limitation](#)

- [Upgrade requirements for UNIX and Linux](#)
- [Upgrade requirements for Windows and Windows clusters](#)
- [Requirements for Windows cluster upgrades](#)
- [Removing a clustered media server by migrating all data to a new media server](#)
- [Post upgrade procedures for Amazon cloud storage servers](#)
- [Upgrading clients after servers are upgraded](#)
- [Upgrade failure rollback steps](#)
- [Size guidance for the NetBackup primary server and domain](#)

## About the NetBackup answer file

NetBackup provides a way to perform unattended, silent installation, and upgrades with a predefined set of configuration options. These options allow the user to:

- Override some default values.
- Avoid answering some questions during interactive installation.

On UNIX and Linux, templates for primary, media, and clients are available at the top level of the NetBackup installation image that is downloaded from the <https://www.myveritas.com> licensing portal. These templates should be modified as needed and placed in `/tmp/NBInstallAnswer.conf` for use during installs and upgrades.

On Windows, templates for primary, media, and client are in the `windows_x64` directory at the top level of the NetBackup installation image that is downloaded from the <https://www.myveritas.com> licensing portal. These templates are called `silentprimary.cmd`, `silentmedia.cmd`, and `silentclient.cmd`.

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.

**Table A-1** All template options and required computers

| Option                               | NetBackup role             | Platform       | Required for upgrade? |
|--------------------------------------|----------------------------|----------------|-----------------------|
| <a href="#">ABORT_REBOOT_INSTALL</a> | Primary, media, and client | Windows        | No                    |
| <a href="#">ACCEPT_EULA</a>          | Primary, media, and client | UNIX and Linux | No                    |

**Table A-1** All template options and required computers (*continued*)

| Option                         | NetBackup role             | Platform          | Required for upgrade?                                                           |
|--------------------------------|----------------------------|-------------------|---------------------------------------------------------------------------------|
| ACCEPT_REVERSE_CONNECTION      | Client                     | All               | No                                                                              |
| ADDITIONALSERVERS              | Primary, media, and client | Windows           | No                                                                              |
| ALLOW_LONG_NBDB_MIGRATION_TIME | Primary                    | Windows and Linux | Yes                                                                             |
| ALLOW_PRE_90_UPGRADE           | Primary                    | All               | See the option for details.                                                     |
| APPLICATION_FOLDER             | Primary, media, and client | Windows           | No                                                                              |
| AUTHORIZATION_TOKEN            | Media and client           | All               | Review <a href="#">About security configuration considerations</a> for details. |
| CA_CERTIFICATE_FINGERPRINT     | Media and client           | All               | Review <a href="#">About security configuration considerations</a> for details. |
| CLIENT                         | Client                     | Windows           | Yes                                                                             |
| CLIENT_NAME                    | Media and client           | UNIX and Linux    | No                                                                              |
| DATABASE_USER                  | Primary                    | Linux             | Review <a href="#">DATABASE_USER</a> for details.                               |
| ECA_CERT_PATH                  | Media and client           | All               | Review <a href="#">About security configuration considerations</a> for details. |
| ECA_CERT_STORE                 | Media and client           | Windows           | Review <a href="#">About security configuration considerations</a> for details. |
| ECA_CRL_CHECK_LEVEL            | Media and client           | All               | Review <a href="#">About security configuration considerations</a> for details. |
| ECA_CRL_PATH                   | Media and client           | All               | Only when <code>ECA_CRL_CHECK_LEVEL=USE_PATH</code> is specified.               |
| ECA_KEY_PASSPHRASEFILE         | Media and client           | All               | No                                                                              |

**Table A-1** All template options and required computers (*continued*)

| Option                                        | NetBackup role             | Platform                | Required for upgrade?                                                               |
|-----------------------------------------------|----------------------------|-------------------------|-------------------------------------------------------------------------------------|
| <a href="#">ECA_PRIVATE_KEY_PATH</a>          | Media and client           | All                     | Review <a href="#">About security configuration considerations</a> for details.     |
| <a href="#">ECA_TRUST_STORE_PATH</a>          | Media and client           | All                     | Review <a href="#">About security configuration considerations</a> for details.     |
| <a href="#">IGNORE_MISSING_CATALOG_BACKUP</a> | Primary                    | All                     | No                                                                                  |
| <a href="#">INCLUDE_JAVA_GUI_AND_JRE</a>      | Media and UNIX clients     | All                     | UNIX and Linux media servers and clients: No<br>Windows media servers: Yes          |
| <a href="#">INCLUDE_JAVA_GUI_ON_PRIMARY</a>   | Primary                    | All                     | Linux: No<br>Windows: Yes                                                           |
| <a href="#">INCLUDE_NBDIRECTIO</a>            | Primary, media, and client | Windows and Red Hat x86 | No                                                                                  |
| <a href="#">INCLUDE_VRTSPDDEV_CLIENT</a>      | Client                     | Linux                   | No<br><br>See the option details for more information related to role and platform. |
| <a href="#">INSTALL_ITA_DATA_COLLECTOR</a>    | Primary                    | All                     | No                                                                                  |
| <a href="#">INSTALL_PATH</a>                  | Primary, media, and client | UNIX and Linux          | No, see the option details for additional information.                              |
| <a href="#">LICENSE</a>                       | Primary                    | All                     | See the option for details.                                                         |
| <a href="#">MACHINE_ROLE</a>                  | Media and client           | UNIX and Linux          | No                                                                                  |
| <a href="#">MEDIA_SERVER</a>                  | Client                     | UNIX and Linux          | No                                                                                  |
| <a href="#">MEDIASERVER</a>                   | Media                      | Windows                 | No                                                                                  |
| <a href="#">MERGE_SERVERS_LIST</a>            | Client                     | UNIX and Linux          | No                                                                                  |
| <a href="#">PRIMARYSERVER</a>                 | Primary, media, and client | Windows                 | Yes                                                                                 |
| <a href="#">PROCEED_WITH_INSTALL</a>          | Primary, media, and client | UNIX and Linux          | No                                                                                  |

**Table A-1** All template options and required computers (*continued*)

| Option                            | NetBackup role                | Platform       | Required for upgrade?              |
|-----------------------------------|-------------------------------|----------------|------------------------------------|
| RBAC_DOMAIN_NAME                  | Primary                       | Linux          | No                                 |
| RBAC_DOMAIN_TYPE                  | Primary                       | Linux          | No                                 |
| RBAC_PRINCIPAL_NAME               | Primary                       | Linux          | No                                 |
| RBAC_PRINCIPAL_TYPE               | Primary                       | Linux          | No                                 |
| SECURITY_CONFIGURATION            | Media and client              | All            | No                                 |
| SERVER                            | Media and client              | UNIX and Linux | No                                 |
| SERVICES                          | Client                        | UNIX and Linux | No                                 |
| SERVICESTARTTYPE                  | Primary, media,<br>and client | Windows        | No                                 |
| SERVICE_USER                      | Primary                       | Linux          | Yes                                |
| START_JOB_DAEMONS                 | Primary                       | Linux          | No                                 |
| STOP_NB_BEFORE_VCREDIST           | Primary, media,<br>and client | Windows        | No                                 |
| STOP_NBU_PROCESSES                | Primary, media,<br>and client | Windows        | No                                 |
| VCREDIST_ATTEMPT_PREFERENCE       | Primary, media,<br>and client | Windows        | No                                 |
| VCREDIST_RESTART_PREFERENCE       | Primary, media,<br>and client | Windows        | No                                 |
| VNETD_PORT                        | Primary, media,<br>and client | Windows        | No                                 |
| VXDMS_POSTGRESQL_POOLER_ODBC_PORT | Primary                       | All            | No                                 |
| WEBSVC_DOMAIN                     | Primary                       | Windows        | Yes                                |
| WEBSVC_GROUP                      | Primary                       | All            | UNIX and Linux: No<br>Windows: Yes |
| WEBSVC_PASSWORD_PLAIN             | Primary                       | Windows        | Yes                                |
| WEBSVC_USER                       | Primary                       | All            | UNIX and Linux: No<br>Windows: Yes |

## Answer file options by platform and role

These tables show the possible answer file options based on platform and role. Not all listed options are required. Refer to [Table A-1](#) or the option details for further information.

**Table A-2** Platform and role

| Role    | Windows computers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | UNIX and Linux computers                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Primary | ABORT_REBOOT_INSTALL<br>ADDITIONALSERVERS<br>ALLOW_LONG_NBDB_MIGRATION_TIME<br>ALLOW_PRE_90_UPGRADE<br>APPLICATION_FOLDER<br>INCLUDE_JAVA_GUI_ON_PRIMARY<br>INCLUDE_NBDIRECTIO<br>IGNORE_MISSING_CATALOG_BACKUP<br>INSTALL_ITA_DATA_COLLECTOR<br>LICENSE<br>PRIMARYSERVER<br>SERVICESTARTTYPE<br>STOP_NB_BEFORE_VCREDIST<br>STOP_NBU_PROCESSES<br>VCREDIST_ATTEMPT_PREFERENCE<br>VCREDIST_RESTART_PREFERENCE<br>VNETD_PORT<br>VXDBMS_POSTGRESQL_POOLER_ODBC_PORT<br>WEBSVC_DOMAIN<br>WEBSVC_GROUP<br>WEBSVC_PASSWORD_PLAIN<br>WEBSVC_USER | ACCEPT_EULA<br>ALLOW_LONG_NBDB_MIGRATION_TIME<br>ALLOW_PRE_90_UPGRADE<br>CLIENT_NAME<br>DATABASE_USER<br>INCLUDE_JAVA_GUI_ON_PRIMARY<br>INCLUDE_NBDIRECTIO<br>IGNORE_MISSING_CATALOG_BACKUP<br>INSTALL_ITA_DATA_COLLECTOR<br>LICENSE<br>MACHINE_ROLE<br>MEDIA_SERVER<br>PROCEED_WITH_INSTALL<br>RBAC_DOMAIN_NAME<br>RBAC_DOMAIN_TYPE<br>RBAC_PRINCIPAL_NAME<br>RBAC_PRINCIPAL_TYPE<br>SERVER<br>SERVICE_USER<br>START_JOB_DAEMONS<br>VXDBMS_POSTGRESQL_POOLER_ODBC_PORT<br>WEBSVC_GROUP<br>WEBSVC_USER |

**Table A-2** Platform and role (*continued*)

| Role  | Windows computers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | UNIX and Linux computers                                                                                                                                                                                                                                                                                              |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Media | ABORT_REBOOT_INSTALL<br>ADDITIONALSERVICES<br>APPLICATION_FOLDER<br>AUTHORIZATION_TOKEN<br>CA_CERTIFICATE_FINGERPRINT<br>ECA_CERT_PATH<br>ECA_CERT_STORE<br>ECA_CRL_CHECK_LEVEL<br>ECA_CRL_PATH<br>ECA_KEY_PASSPHRASEFILE<br>ECA_PRIVATE_KEY_PATH<br>ECA_TRUST_STORE_PATH<br>INCLUDE_JAVA_GUI_AND_JRE<br>INCLUDE_NBDIRECTIO<br>MEDIASERVER<br>PRIMARYSERVER<br>SERVICESTARTTYPE<br>STOP_NB_BEFORE_VCREDIST<br>STOP_NBU_PROCESSES<br>VCREDIST_ATTEMPT_PREFERENCE<br>VCREDIST_RESTART_PREFERENCE<br>VNETD_PORT | ACCEPT_EULA<br>AUTHORIZATION_TOKEN<br>CA_CERTIFICATE_FINGERPRINT<br>CLIENT_NAME<br>ECA_CERT_PATH<br>ECA_CRL_CHECK_LEVEL<br>ECA_CRL_PATH<br>ECA_KEY_PASSPHRASEFILE<br>ECA_PRIVATE_KEY_PATH<br>ECA_TRUST_STORE_PATH<br>INCLUDE_JAVA_GUI_AND_JRE<br>INCLUDE_NBDIRECTIO<br>MACHINE_ROLE<br>PROCEED_WITH_INSTALL<br>SERVER |

**Table A-2** Platform and role (*continued*)

| Role   | Windows computers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | UNIX and Linux computers                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Client | ABORT_REBOOT_INSTALL<br>ACCEPT_REVERSE_CONNECTION<br>ADDITIONALSERVERS<br>APPLICATION_FOLDER<br>AUTHORIZATION_TOKEN<br>CA_CERTIFICATE_FINGERPRINT<br>CLIENT<br>ECA_CERT_PATH<br>ECA_CERT_STORE<br>ECA_CRL_CHECK_LEVEL<br>ECA_CRL_PATH<br>ECA_KEY_PASSPHRASEFILE<br>ECA_PRIVATE_KEY_PATH<br>ECA_TRUST_STORE_PATH<br>INCLUDE_NBDIRECTIO<br>PRIMARYSERVER<br>SERVICESTARTTYPE<br>STOP_NB_BEFORE_VCREDIST<br>STOP_NBU_PROCESSES<br>VCREDIST_ATTEMPT_PREFERENCE<br>VCREDIST_RESTART_PREFERENCE<br>VNETD_PORT | ACCEPT_EULA<br>ACCEPT_REVERSE_CONNECTION<br>AUTHORIZATION_TOKEN<br>CA_CERTIFICATE_FINGERPRINT<br>CLIENT_NAME<br>ECA_CERT_PATH<br>ECA_CRL_CHECK_LEVEL<br>ECA_CRL_PATH<br>ECA_KEY_PASSPHRASEFILE<br>ECA_PRIVATE_KEY_PATH<br>ECA_TRUST_STORE_PATH<br>INCLUDE_JAVA_GUI_AND_JRE<br>INCLUDE_NBDIRECTIO<br>INCLUDE_VRTSPDDEV_CLIENT<br>MACHINE_ROLE<br>MEDIA_SERVER<br>MERGE_SERVERS_LIST<br>PROCEED_WITH_INSTALL<br>SERVER<br>SERVICES |

## About security configuration considerations

The version of NetBackup and the operation that is performed determines what security parameters are required in the template file.

### Security configuration considerations for initial installation or pre-8.1 upgrade

If this operation is an initial installation or an upgrade from pre-8.1, at least one set of security configuration parameters must be provided. You can skip the security configuration but that requires manual steps on each target host after installation or upgrade.

To use the NetBackup primary server as your Certificate Authority, the `CA_CERTIFICATE_FINGERPRINT` of the primary server must be provided. The `AUTHORIZATION_TOKEN` option may be required depending on either the security level of the primary server or if this computer is already configured on the primary server. More information is available:

[https://www.veritas.com/support/en\\_US/article.000127129](https://www.veritas.com/support/en_US/article.000127129).

To use an external certificate authority on UNIX and Linux, the `ECA_CERT_PATH`, `ECA_CRL_CHECK_LEVEL`, `ECA_PRIVATE_KEY_PATH`, and `ECA_TRUST_STORE_PATH` values are required. More information is available:

[https://www.veritas.com/support/en\\_US/article.100044300](https://www.veritas.com/support/en_US/article.100044300)

For more information, see the [NetBackup Security and Encryption Guide](#) and refer to the chapter on external CA and external certificates.

To use an external certificate authority on Windows: either provide the `ECA_CERT_STORE` and `ECA_CRL_CHECK_LEVEL` values or all values previously specified for UNIX and Linux.

The `ECA_CRL_PATH` and `ECA_KEY_PASSPHRASEFILE` values are optional. More information is available: [https://www.veritas.com/support/en\\_US/article.100044300](https://www.veritas.com/support/en_US/article.100044300).

For more information, see the [NetBackup Security and Encryption Guide](#) and refer to the chapter on external CA and external certificates.

## Security configuration considerations for upgrades of NetBackup 8.1 or newer

When you upgrade NetBackup from a version that already has secure communications configured (NetBackup 8.1 or newer), the `CA_CERTIFICATE_FINGERPRINT` and `AUTHORIZATION_TOKEN` values are ignored.

## Security configuration considerations for upgrades of NetBackup 8.2 or newer

When you upgrade NetBackup from a version that already has ECA configured (NetBackup 8.2 or newer), all the `ECA*` parameters are ignored.

## About skipping the external certificate authority configuration

To continue the installation or upgrade without configuring the certificate authority, include the `SECURITY_CONFIGURATION` key and set it to `SKIP`. Remove the `CA_CERTIFICATE_FINGERPRINT`, `AUTHORIZATION_TOKEN`, and all `ECA_` values from the answer file. If you continue the installation or the upgrade without the required certificate authority components, backups and restores fail.

### **ABORT\_REBOOT\_INSTALL**

- **Description:** This option specifies whether to proceed with remaining steps if one or more files being held in use have been overwritten such that a restart is required. If set to 1, the installation halts, the system is restored to its original state, and the restart is not required.
- **Applicable platforms:** Windows only.

- Default value: 0
- Required: No.
- `ABORT_REBOOT_INSTALL 0 | 1`
- Return to [Table A-1](#).

#### **ACCEPT\_EULA**

- Description: This option specifies if you accept the terms of the EULA and want to proceed with the installation or the upgrade.
- Applicable platforms: UNIX and Linux
- Default value: None
- Required: No
- `ACCEPT_EULA = yes | no`
- Return to [Table A-1](#).

#### **ACCEPT\_REVERSE\_CONNECTION**

- Description: Use this option to identify how a NAT client connects with a NetBackup host. Accepted values are `TRUE` and `FALSE`. Set this option to `TRUE` if NetBackup needs to support NAT, otherwise set it to `FALSE`. Set `ACCEPT_REVERSE_CONNECTION=FALSE` if:
  - You do not want NetBackup to support NAT clients.
  - The NetBackup clients are not behind the firewall.
- Applicable platforms: Both UNIX and Windows.
- Default value: `FALSE`
- `ACCEPT_REVERSE_CONNECTION=TRUE | FALSE`
- Return to [Table A-1](#).

#### **ADDITIONALSERVERS**

- Description: Use this option to Include NetBackup media servers that are used to proxy security requests to the primary server. List only the servers that were added since the last installation of this host. The install process combines the existing set of servers with the new ones. The use of IP addresses is not supported. Valid input values are a comma-separated list of fully qualified computer names.
- Applicable platforms: Windows only.

- Default value: None.
- Required: No.
- `ADDITIONALSERVERS server1,server2,servern`
- Return to [Table A-1](#).

#### `ALLOW_LONG_NBDB_MIGRATION_TIME`

- Description: This option specifies if an upgrade from a pre NetBackup 11.1 primary server is allowed to proceed. NetBackup 11.1 and later versions use a new scale-out database. For pre NetBackup 11.1, the upgrade can take longer. The increased time allows for the migration of NetBackup to the new database. This value is only applicable for primary servers.
- Applicable platforms: Both UNIX and Windows.
- Default value: None.
- Required: Yes.
- `ALLOW_LONG_NBDB_MIGRATION_TIME = yes | no`
- Return to [Table A-1](#).

#### `ALLOW_PRE_90_UPGRADE`

- Description: This field is for primary servers only. This value determines if the upgrade from pre-NetBackup 9.0 releases to NetBackup 9.0 and later can proceed. The upgrade includes the infinite expiration conversion process. This conversion only takes place when you upgrade from pre-NetBackup 9.0 to NetBackup 9.0 or later. The upgrade behavior and need for this option depend on your primary server platform.
  - **Windows**  
This value is required for silent upgrades of Windows primary servers. Specify `1` to allow the upgrade to continue, specify `0` to prevent the upgrade. This value is ignored during an interactive Windows primary server upgrade. Depending on the size of the NetBackup catalog and the required conversion time, you may be asked if you want to continue the upgrade.
  - **Linux**  
For Linux primary servers, specify `yes` or `no` to eliminate user prompts. If the infinite expiration conversion is expected to add length to the upgrade process, a value of `yes` means the upgrade proceeds. A value of `no` means the upgrade stops. If this value is not specified, NetBackup prompts you if you want to continue with the upgrade.

NetBackup 9.0 and later versions support the expiration dates that extend beyond the year 2038. To ensure compatibility with previous NetBackup versions, all items with an infinite expiration date are updated to reflect the new infinite expiration date value. This conversion may extend the time that is required to complete the upgrade. Review the article that is shown for more information:

[https://www.veritas.com/content/support/en\\_US/article.100048600](https://www.veritas.com/content/support/en_US/article.100048600)

- Applicable platforms: Both UNIX and Windows.
- Default value: None
- Required: Platform and upgrade method dependent.
- `ALLOW_PRE_90_UPGRADE=yes|no` (UNIX)  
`ALLOW_PRE_90_UPGRADE=1|0` (Windows)
- Return to [Table A-1](#).

#### **APPLICATION\_FOLDER**

- Description: This option specifies the application folder for NetBackup. The fully qualified path to the base directory is required.
- Applicable platforms: Windows only.
- Default value: None.
- Required: No
- `APPLICATION_FOLDER=C:\Program Files\Cohesity NetBackup`
- Return to [Table A-1](#).

#### **AUTHORIZATION\_TOKEN**

- Description: This option specifies that NetBackup should automatically use an authorization or a reissue token when it retrieves 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 `SKIP` is specified, the installer attempts to retrieve a host certificate without including a token. In some environments this choice may result in additional manual steps following the installation.

Be aware that `AUTHORIZATION_TOKEN` is ignored under either of these conditions:

- ECA is in use on the primary server.
- The primary server's security level is set lower than `High`.
- Applicable platforms: Both UNIX and Windows.

- Default value: None.
- Required: Review [About security configuration considerations](#) for details.
- `AUTHORIZATION_TOKEN=ABCDEFGHIJKLMN OP | SKIP`
- Return to [Table A-1](#).

#### **CA\_CERTIFICATE\_FINGERPRINT**

- Description: This option specifies the Certificate Authority (CA) Certificate Fingerprint. Both SHA-1 and SHA-256 fingerprints are supported. The Certificate Fingerprint is retrieved from the CA during installation or upgrade. The fingerprint format is 59 or 95 characters and is a combination of the digits 0-9, the letters A-F, and colons. For example,  
`01:23:45:67:89:AB:CD:EF:01:23:45:67:89:AB:CD:EF:01:23:45:67`. The fingerprint value must match the fingerprint for the server value that is specified in the first `SERVER=server_name` option.  
Be aware that `CA_CERTIFICATE_FINGERPRINT` is ignored under either of these conditions:
  - ECA is in use on the primary server.
  - The primary server's security level is set lower than `High`.
- Applicable platforms: Both UNIX and Windows.
- Default value: None.
- Required: Review [About security configuration considerations](#) for details.
- `CA_CERTIFICATE_FINGERPRINT=fingerprint`
- Return to [Table A-1](#).

#### **CLIENT**

- Description: This option specifies the name that NetBackup uses to identify this client host. The `%COMPUTERNAME%` value lets the local host provide the computer name. If this value is used, it may be possible to use the same answer file on all computers within a single primary server domain. The use of IP addresses is not supported.
- Applicable platforms: Windows only.
- Default value: None.
- Required: Yes.
- `CLIENT=client_name | %COMPUTERNAME%`
- Return to [Table A-1](#).

**CLIENT\_NAME**

- Description: This option specifies the name that NetBackup uses to identify this computer. The `XLOCALHOSTX` value lets the local host provide the computer name. If this value is used, it may be possible to use the same answer file on all computers within a single primary server domain. This value is added to the `bp.conf` file.

If `CLIENT_NAME` is specified on upgrade, a check is made to validate that the name that is provided in the answer file matches the value that is configured in the `bp.conf` file.

- Applicable platforms: UNIX and Linux only.
- Default value: None.
- Required: No
- `CLIENT_NAME=name | XLOCALHOSTX`
- Return to [Table A-1](#).

**DATABASE\_USER**

- Description: This option specifies the user name of the account that owns the NetBackup scale-out database instance.  
This user must already exist on the system. The `DATABASE_USER` cannot be root. The `DATABASE_USER` cannot be an account with access to the `sudo` utility. If the specification resolves to root, the installation fails. If the `SERVICE_USER` defined previously is not root, you can specify `SAME_AS_SERVICE_USER`. Otherwise, specify a non-root user account name.

- Applicable platforms: Linux
- Default value: `SAME_AS_SERVICE_USER`
- Required: Conditional.  
This value is required if the service user is root. Additionally, this value is required if `DATABASE_USER` does not exist in the `bp.conf` file and the configured `SERVICE_USER` entry is root. If the value is provided and the `DATABASE_USER` exists in `bp.conf`, this value must match the configured database user on the machine.
- `DATABASE_USER = username | SAME_AS_SERVICE_USER`
- Return to [Table A-1](#).

**ECA\_CERT\_PATH**

- Description: This option specifies the path and the file name of the external certificate file.  
The `ECA_CERT_PATH` option is ignored on upgrade if ECA is already configured on the host or if NBCA only is in use on the primary server.
- Applicable platforms: All.
- Default value: None.
- Required: Review [About security configuration considerations](#) for details.
- `ECA_CERT_PATH=path_and_file_name`
- Return to [Table A-1](#).

**ECA\_CERT\_STORE**

- Description: This option specifies the external certificate location in a Windows certificate store. The option is required to set up an external certificate from the Windows certificate store.
- Applicable platforms: Windows only.
- Default value: None.
- Required: Review [About security configuration considerations](#) for details.
- `ECA_CERT_STORE=store_name\issuer_distinguished_name\subject`
- Return to [Table A-1](#).

**ECA\_CRL\_CHECK\_LEVEL**

- Description: This option specifies the CRL mode. Supported values are:
  - `USE_CDP`: Use the CRL defined in the certificate.
  - `USE_PATH`: Use the CRL at the path that is specified in `ECA_CRL_PATH`.
  - `DISABLED`: Do not use a CRL.
  - The `ECA_CERT_PATH` option is ignored on upgrade if ECA is already configured on the host or if NBCA only is in use on the primary server.
- Applicable platforms: All.
- Default value: None.
- Required: Review [About security configuration considerations](#) for details.
- `ECA_CRL_CHECK_LEVEL=value`
- Return to [Table A-1](#).

**ECA\_CRL\_PATH**

- Description: This option specifies the path and the file name of the CRL associated with the external CA certificate.  
The `ECA_CERT_PATH` option is ignored on upgrade if ECA is already configured on the host or if NBCA only is in use on the primary server.
- Applicable platforms: All.
- Default value: None.
- Required: Only when `ECA_CRL_CHECK_LEVEL=USE_PATH` is specified.
- `ECA_CRL_PATH=path`
- Return to [Table A-1](#).

**ECA\_KEY\_PASSPHRASEFILE**

- Description: This option specifies the path and the file name of the file that contains the passphrase to access the keystore.  
The `ECA_CERT_PATH` option is ignored on upgrade if ECA is already configured on the host or if NBCA only is in use on the primary server.
- Applicable platforms: All.
- Default value: None.
- Required: No
- `ECA_KEY_PASSPHRASEFILE=path/filename`
- Return to [Table A-1](#).

**ECA\_PRIVATE\_KEY\_PATH**

- Description: This option specifies the path and the file name of the file representing the private key.  
The `ECA_CERT_PATH` option is ignored on upgrade if ECA is already configured on the host or if NBCA only is in use on the primary server.
- Applicable platforms: All.
- Default value: None.
- Required: Review [About security configuration considerations](#) for details.
- `ECA_PRIVATE_KEY_PATH=path/filename`
- Return to [Table A-1](#).

**ECA\_TRUST\_STORE\_PATH**

- Description: This option specifies the path and the file name of the file representing the trust store location.  
The `ECA_CERT_PATH` option is ignored on upgrade if ECA is already configured on the host or if NBCA only is in use on the primary server.
- Applicable platforms: All.
- Default value: None.
- Required: Review [About security configuration considerations](#) for details.
- `ECA_TRUST_STORE_PATH=path/filename`
- Return to [Table A-1](#).

**IGNORE\_MISSING\_CATALOG\_BACKUP**

- Description: This option specifies if an upgrade from a 10.1.1 or earlier primary server is allowed to proceed. NetBackup 10.2 and later versions check if a catalog backup was performed in the last 24 hours.
- Applicable platforms: All
- Default value: None
- Required: No
- `IGNORE_MISSING_CATALOG_BACKUP = YES | NO`
- Return to [Table A-1](#)

**INCLUDE\_JAVA\_GUI\_AND\_JRE**

- Description: Used to determine how to handle the optional Java and JRE components during install or upgrade. Supported values are:
  - `INCLUDE`: Include the Java GUI and JRE as part of the installation or upgrade.
  - `EXCLUDE`: Exclude the Java GUI and JRE. This option also removes all previous versions of the Java GUI and the JRE if they are present on the host.
  - `MATCH`: Match the existing configuration on the host. If you specify this option on an initial installation, the components are not installed.
- Applicable platforms: All.
- Default value: None
- Required: UNIX and Linux, no. Windows media servers, yes.
- `INCLUDE_JAVA_GUI_AND_JRE = INCLUDE | EXCLUDE`

- Return to [Table A-1](#).

#### **INCLUDE\_JAVA\_GUI\_ON\_PRIMARY**

- Description: Installation of the NetBackup Java GUI is optional on NetBackup primary servers. This option specifies whether the Java GUI should be installed, upgraded, or removed. Supported values are:
  - `INCLUDE` = Include the Java GUI package when you install or upgrade NetBackup.
  - `EXCLUDE` = Exclude the Java GUI package when you install or upgrade NetBackup. Any preexisting NetBackup Java GUI packages are removed.
  - `MATCH` = Match the existing configuration on the host. Specifying this value for an initial install does not install the NetBackup Java GUI packages.
- Applicable platforms: All.
- Default value: UNIX: `MATCH`, Windows: None.
- Required: UNIX: No, Windows: Yes.
- `INCLUDE_JAVA_GUI_ON_PRIMARY = INCLUDE | EXCLUDE | MATCH`
- Return to [Table A-1](#).

#### **INCLUDE\_NBDIRECTIO**

- Description: Installation of the NetBackup DirectIO package is optional on NetBackup all computers. NetBackup DirectIO is only available for customers who plan to write to Cohesity Data Protect clusters. This option specifies whether the NetBackup DirectIO package should be installed, upgraded, or removed. Supported values are:
  - `INCLUDE` = Include the NetBackup DirectIO package when you install or upgrade NetBackup.
  - `EXCLUDE` = Exclude the NetBackup DirectIO package when you install or upgrade NetBackup. Any preexisting NetBackup DirectIO packages are removed.
  - `MATCH` = Match the existing configuration on the host. Specifying this value for an initial install does not install the NetBackup DirectIO package.
- Applicable platforms: Windows and Red Hat x86
- Default value: `MATCH`
- Required for initial install: No
- Required for upgrade: No

- `INCLUDE_NBDIRECTIO = INCLUDE | EXCLUDE | MATCH`
- Return to [Table A-1](#).

#### `INCLUDE_VRTSPDDEU_CLIENT`

- Description: This option specifies whether the `VRTSpddeu` package is installed in the client. This option only affects the Red Hat client installations that are neither pSeries nor zSeries. Installation of `VRTSpddeu` package is optional. The supported values for the option are:
  - `MATCH`: Match the current configuration on the client. If you specify this value for an initial install, the `VRTSpddeu` package is not installed.
  - `INCLUDE`: Include the `VRTSpddeu` package for the installation or upgrade of a client.
  - `EXCLUDE`: Exclude the `VRTSpddeu` package for the installation or upgrade of a client.
- Applicable platforms: Linux. Specifically, Red Hat Linux clients that are neither pSeries nor zSeries.
- Default value: `MATCH`
- Required: No
- `INCLUDE_VRTSPDDEU_CLIENT = INCLUDE | EXCLUDE | MATCH`
- Return to [Table A-1](#).

#### `INSTALL_ITA_DATA_COLLECTOR`

- Description: This option determines how to handle the IT Analytics Data Collector option. Acceptable values are 1, install, or 0, do not install. The behavior of the installer is based on the version of NetBackup.

For NetBackup 10.1 and earlier, the upgrade behavior depends on the installed and configured state of the IT Analytics Data Collector.

  - If IT Analytics Data Collector is not installed, the installer honors the value for `INSTALL_ITA_DATA_COLLECTOR`. If you specify 1, the option is installed. If you specify 0, the option is not installed.
  - If IT Analytics Data Collector is installed, NetBackup ignores the value and maintains the state of the IT Analytics Data Collector option.
    - If IT Analytics Data Collector is present and not configured, NetBackup upgrades it.

- If IT Analytics Data Collector is present and configured, NetBackup leaves it alone. The IT Analytics Data Collector is managed by the Alta portal, which upgrades the binaries as necessary.

For NetBackup 10.1.1 and later, the `INSTALL_ITA_DATA_COLLECTOR` value is ignored. The upgrade maintains the state of the IT Analytics Data Collector option.

- If IT Analytics Data Collector is not present, NetBackup does not install it.
- If IT Analytics Data Collector is present and not configured, NetBackup upgrades it.
- If IT Analytics Data Collector is present and configured, NetBackup leaves it alone. The IT Analytics Data Collector is managed by the Alta portal, which upgrades the binaries as necessary.

You cannot uninstall the IT Analytics Data Collector option as part of an upgrade.

- Applicable platforms: All
- Default value: Windows: 1, UNIX and Linux: Yes
- Required: No
- `INSTALL_ITA_DATA_COLLECTOR=1|0`
- Return to [Table A-1](#).

#### **INSTALL\_PATH**

- Description: This option specifies the location to install the NetBackup binaries. Be aware that the `INSTALL_PATH` option is ignored on upgrade. This option cannot be used to change the location of NetBackup during an upgrade. Only the absolute path to a base directory is required for this option. The installer automatically appends `/openv`.
- Applicable platforms: UNIX and Linux only.
- Default value: `/usr`
- Required: No, the `INSTALL_PATH` option is ignored on upgrade.
- `INSTALL_PATH = path`
- Return to [Table A-1](#).

#### **LICENSE**

- Description: This option specifies the path of the license file to apply to the primary server. For Linux, additional `LICENSE` lines may be added if more licenses are to be applied. For Windows, use a single `LICENSE` line with multiple license

file paths separated with semicolons. This option only adds additional keys. Any conflicting licenses are removed.

Use your production license that is downloaded from VEMS for all upgrades. If you do not have access to your production license, you can use one of the built-in non-downloaded licenses. Which license you use depends on your version of NetBackup.

The evaluation license (`EVALUATION`) is valid for both installs and upgrades. You only use the `EVALUATION` license for an upgrade if the upgrade is from NetBackup versions earlier than NetBackup 8.1.2. The evaluation license is valid for 60 days. Alerts appear in the web UI immediately after upgrade, indicating the number of days remaining in the evaluation.

The temporary license (`TEMP_PRODUCTION`) is used in upgrades of NetBackup 8.1.2 or later to NetBackup 10.3 or later. The temporary license is valid for 60 days. Alerts appear in the web UI immediately after upgrade, indicating the number of days remaining before the temporary license expires.

---

**Note:** After an upgrade to NetBackup 10.3 or later, existing NetBackup licenses become obsolete. They remain in the `license.txt` file. This file is located in either `/usr/opensv/var/` on Linux or `install_path\NetBackup\var\` on Windows.

---

- Applicable platforms: All
- Default value: None.
- Required: Depends on the NetBackup version:
  - For upgrades from pre-NetBackup 10.3 to NetBackup 10.3 and later: Yes, for primary servers. Not required for media servers and clients.

---

**Note:** You cannot use the temporary production license when you upgrade from a NetBackup version earlier than 8.1.2. Upgrades from versions earlier than NetBackup 8.1.2 only support the production licenses that are downloaded from VEMS or the evaluation license.

---

- For upgrades from NetBackup 10.3 to later releases: No, provided there is a valid license on the primary server. Not required for media servers and clients.

More information is available:

[https://www.veritas.com/support/en\\_US/article.100058779](https://www.veritas.com/support/en_US/article.100058779)

- `LICENSE = TEMP_PRODUCTION | slf_filepath | EVALUATION`

More information is available:

[https://www.veritas.com/support/en\\_US/article.100058779](https://www.veritas.com/support/en_US/article.100058779)

- Return to [Table A-1](#).

#### **MACHINE\_ROLE**

- Description: This option specifies the NetBackup role to install and configure on this computer. For upgrades, this value must match the configured role on the computer.
- Default value: None. Supported values are `PRIMARY`, `MEDIA`, and `CLIENT`.
- Applicable platforms: UNIX and Linux only.
- Required: No.
- `MACHINE_ROLE = PRIMARY | MEDIA | CLIENT`
- Return to [Table A-1](#).

#### **MEDIA\_SERVER**

- Description: This option specifies that NetBackup may 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 primary server is blocked. This communication is required to obtain a host certificate during the NetBackup installation or upgrade. You can have multiple `MEDIA_SERVER` entries in the answer file.
- Applicable platforms: UNIX and Linux only.
- Default value: None.
- Required: No.
- `MEDIA_SERVER=media_server_name`
- Return to [Table A-1](#).

#### **MEDIASERVER**

- Description: This option specifies the name of the host this computer recognizes as its media server. The use of IP addresses is not supported.
- Applicable platforms: Windows only.
- Default value: None.
- Required: No.
- `MEDIASERVER=media_server_name`
- Return to [Table A-1](#).

**MERGE\_SERVERS\_LIST**

- Description: Merge the servers present in `bp.conf` on the primary with the server list contained in this client's `bp.conf`.
- Applicable platforms: UNIX and Linux only.
- Default value: NO
- Required: No.
- `MERGE_SERVERS_LIST = yes | no`
- Return to [Table A-1](#).

**PRIMARYSERVER**

- Description: This option specifies the server name this computer recognizes as the current NetBackup primary server. If this host is the primary server, `%COMPUTERNAME%` can be used for the value. The use of IP addresses is not supported. Additional primary servers can be specified with the `ADDITIONALSERVERS` option.
- Applicable platforms: Windows only.
- Default value: None.
- Required: Yes.
- `PRIMARYSERVER=primary_server_name`
- Return to [Table A-1](#).

**PROCEED\_WITH\_INSTALL**

- Description: This option specifies the answer to two possible prompts during the install or the upgrade of NetBackup. The first prompt determines if the install or the upgrade proceeds after NetBackup passes critical preinstallation checks. The user may receive a second prompt if there are potential disk space concerns. In both cases, if `YES`, the install or upgrade proceeds to install the NetBackup and media manager files on the file system. If `NO`, the install or the upgrade halts and allows the user to make changes.
- Applicable platforms: UNIX and Linux
- Default value: None
- Required: No
- `PROCEED_WITH_INSTALL = yes | no`
- Return to [Table A-1](#).

**RBAC\_DOMAIN\_NAME**

- Description: This option specifies the domain name of the principal that is configured to have the role-based access control (RBAC) permissions for the Administrator role.
- Default value: None.
- Applicable platforms: UNIX and Linux only.
- Required: No
- `RBAC_DOMAIN_NAME = domain_name`
- Return to [Table A-1](#).

**RBAC\_DOMAIN\_TYPE**

- Description: This option specifies the domain type of the principal that is configured to have the role-based access control (RBAC) permissions for the Administrator role.
- Applicable platforms: UNIX and Linux only.
- Default value: None.
- Required: No
- `RBAC_DOMAIN_TYPE = domain_type`
- Return to [Table A-1](#).

**RBAC\_PRINCIPAL\_NAME**

- Description: This option specifies the name of the principal that is configured to have the role-based access control (RBAC) permissions for the Administrator role. This user or the user group must already exist on the system.
- Applicable platforms: UNIX and Linux only.
- Default value: None.
- Required: No
- `RBAC_PRINCIPAL_NAME = principal_name`
- Return to [Table A-1](#).

**RBAC\_PRINCIPAL\_TYPE**

- Description: This option specifies the type of the principal that is configured to have the role-based access control (RBAC) permissions for the Administrator role.

- Applicable platforms: UNIX and Linux only.
- Default value: None.
- Required: No
- `RBAC_PRINCIPAL_TYPE = USER | USERGROUP`
- Return to [Table A-1](#).

#### SECURITY\_CONFIGURATION

- Description: Applicable only if neither NetBackup certificate authority nor external certificate authority are configured on the host. Set this option to `SKIP` to continue the installation or upgrade without configuring the host to use NBCA or ECA. If you skip security, you must take additional manual steps on all target hosts when the installation or the upgrade finishes. When this option is set to `SKIP`, values cannot be specified for `CA_CERTIFICATE_FINGERPRINT`, `AUTHORIZATION_TOKEN`, and the `ECA_` options.
- Applicable platforms: All.
- Default value: None.
- Required: No.
- `SECURITY_CONFIGURATION = SKIP`
- Return to [Table A-1](#)

#### SERVER

- Description: This option specifies the server name this computer recognizes as the current NetBackup primary server. Additional `SERVER=` lines may be added if there are other servers that should be recognized. In the case where multiple `SERVER=` lines are present, the first occurrence is the primary server. These entries are added to the `bp.conf` file.
- Applicable platforms: UNIX and Linux only.
- Default value: None.
- Required: No.
- `SERVER=primary_server_name`
- Return to [Table A-1](#).

#### SERVICES

- Description: This option specifies whether NetBackup services should be started upon completion of the client installation or upgrade. If no is specified, the

NetBackup services are not started. Additional manual configuration steps may be performed after the install or upgrade but before the NetBackup services are started.

- Applicable platforms: UNIX and Linux only.
- Default value: `YES`
- Required: No.
- `SERVICES=no`
- Return to [Table A-1](#).

#### **SERVICESTARTTYPE**

- Description: This option specifies if the NetBackup services are restarted after the host server reboots.
- Applicable platforms: Windows only.
- Default value: `Automatic`
- Required: No.
- `SERVICESTARTTYPE=Automatic | Manual`
- Return to [Table A-1](#).

#### **SERVICE\_USER**

- Description: This option specifies the service user account is used to start most of the NetBackup services or daemons on the primary server. Be aware of the items shown:
  - Do not use the root user as the service user.
  - You cannot use the `nbwebsvc` user as the service user.
  - The `nbwebgrp` group must be a secondary group of the service user.
  - Ownership of the `/usr/opensv` directory changes to the new service user account that you specify with this option.
  - Use the `nbserveusercmd --changeUser` command to change this user after installation.
  - For cluster servers, the service user and the service user ID must be same on all cluster nodes.
  - If the `SERVICE_USER` value is provided in the answer file and it exists in the `bp.conf` file, the values must match.

- More information about the service user account is available:  
<https://www.veritas.com/docs/100048220>
- Applicable platforms: Linux only.
- Default value: None.
- Required: Yes.
- `SERVICE_USER=name`
- Return to [Table A-1](#).

#### **START\_JOB\_DAEMONS**

- Description: This option specifies whether the NetBackup daemons that control the execution of jobs should be started.
- Applicable platforms: Linux only.
- Default value: yes
- Required: No.
- `START_JOB_DAEMONS=yes|no`
- Return to [Table A-1](#).

#### **STOP\_NB\_BEFORE\_VCREDIST**

- Description: This option specifies if NetBackup processes should be stopped automatically before NetBackup attempts to update Visual C++ run-time libraries using Microsoft's redistributable installers. In some cases, stopping NetBackup processes reduces the chances of a restart being required.
- Applicable platforms: Windows only.
- Default value: YES
- Required: No
- `STOP_NB_BEFORE_VCREDIST=YES|NO`
- Return to [Table A-1](#)

#### **STOP\_NBU\_PROCESSES**

- Description: This option specifies if the install process should stop any active NetBackup processes automatically if detected. Be sure to confirm there are no active NetBackup jobs and that all NetBackup databases are shut down before installation or upgrade. Valid input values are 0 for don't stop, and 1 for stop.
- Applicable platforms: Windows only.

- Default value: 0
- Required: No.
- `STOP_NBU_PROCESSES = 0 | 1`
- Return to [Table A-1](#).

#### **VCREDIST\_ATTEMPT\_PREFERENCE**

- Description: This option specifies the NetBackup behavior on Windows computers where the compatible Visual C++ run-time libraries are not already present. If set to YES, the setup attempts to update Visual C++ run-time libraries using Microsoft's redistributable installers. The setup halts with an error if a computer does not have the required run-time libraries and this option is set to NO.
- Applicable platforms: Windows only.
- Default value: YES
- Required: No
- `VCREDIST_ATTEMPT_PREFERENCE=YES|NO`
- Return to [Table A-1](#)

#### **VCREDIST\_RESTART\_PREFERENCE**

- Description: This option determines how the NetBackup setup proceeds if the Visual C++ run-time libraries were updated and a restart is required to complete the operation. If the option is set to STOP, the setup halts. If the option is set to PROCEED, NetBackup continues the setup but does not restart the computer. Perform the required restart as soon as possible.
- Applicable platforms: Windows only.
- Default value: STOP
- Required: No
- `VCREDIST_RESTART_PREFERENCE=PROCEED|STOP`
- Return to [Table A-1](#)

#### **VNETD\_PORT**

- Description: This option specifies the port NetBackup's `vnetd` process uses.
- Applicable platforms: Windows only.
- Default value: 13724
- Required: No.

- `VNETD_PORT=port_number`
- Return to [Table A-1](#).

#### **VXDBMS\_POSTGRESQL\_POOLER\_ODBC\_PORT**

- Description: This option specifies the port that the NetBackup scale-out database connection pool service uses.
- Applicable platforms: All.
- Default value: 13787
- Required: No.  
If the value is provided for upgrade, it must match the current value that is stored in the `VXDBMS_POSTGRESQL_POOLER_ODBC_PORT` field in `vxdbms.conf`.
- `VXDBMS_POSTGRESQL_POOLER_ODBC_PORT = port_number`
- Return to [Table A-1](#)

#### **WEBSVC\_DOMAIN**

- Description: Use this option to associate the web server with Domain (Active Directory) accounts. Provide the domain name in this field. If you plan to associate the web server with local accounts, leave this field blank.
- Applicable platforms: Windows only.
- Default value: None.
- Required: No.
- `WEBSVC_DOMAIN=domain_name`
- Return to [Table A-1](#).

#### **WEBSVC\_GROUP**

- Description: This option specifies the group name of the account that the NetBackup web server uses. This group must already exist on the system.
- If the `WEBSVC_GROUP` value is provided in the answer file and it exists in the `bp.conf` file, the values must match.
- Applicable platforms: All.
- Default value: `nbwebgrp`
- Required: Linux primary servers, no. Windows primary servers, yes.
- `WEBSVC_GROUP=custom_group_account_name`
- Return to [Table A-1](#).

#### WEBSVC\_PASSWORD\_PLAIN

- Description: This option specifies the password for the Windows `WEBSVC_USER` account. If your `websvc` password contains any special characters (`% ^ & < > | ' ` , ; = ( ) ! " \ [ ] . * ?`), add the appropriate escape characters to the password. For example if the `websvc` password is `abc%` you must enter `abc%%`.

---

**Caution:** This option places the password for this account in clear text and can potentially be a security concern.

---

- Applicable platforms: Windows only.
- Default value: None.
- `WEBSVC_PASSWORD_PLAIN=password`
- Return to [Table A-1](#).

#### WEBSVC\_USER

- Description: This option specifies the user name of the account that the NetBackup web server uses. This user must already exist on the system. If the `WEBSVC_USER` value is provided in the answer file and it exists in the `bp.conf` file, the values must match.
- Applicable platforms: All.
- Default value: `nbwebsvc`
- Required: Linux primary servers, no. Windows primary servers, yes.
- `WEBSVC_USER=custom_user_account_name`
- Return to [Table A-1](#).

## Add or remove the NetBackup DirectIO package after upgrade

After the upgrade completes, you can add or remove the NetBackup DirectIO package from primary servers, media servers, and clients.

### Add the NetBackup DirectIO package

To add the NetBackup DirectIO package, use one of the options shown:

- (Media servers and clients) Create and run a VxUpdate policy (or ad hoc operation) and specify that the NetBackup DirectIO package should be included.
- On Red Hat x86, access the upgrade media and run the commands shown:  

```
rpm -U VRTSnbdirectio.rpm
```
- On Windows, access the installation media, and run the packages shown:  

```
Cohesity NetBackup DirectIO.msi
```

## Remove the NetBackup DirectIO package

To remove the NetBackup DirectIO package, use one of the options shown:

- (Media servers and clients) Create and run a VxUpdate policy (or ad hoc operation) and specify that the NetBackup DirectIO package should be excluded.
- On Red Hat x86, run the commands shown:  

```
rpm -e VRTSnbdirectio.rpm
```
- On Windows:
  - Select **Start > Settings > Control Panel**.
  - In the **Control Panel** window, select the appropriate utility for installed programs and applications.
  - From the **Currently Installed Programs** list, select **NetBackup DirectIO** and click **Remove**.

# Previous upgrade operational notes and limitations

This section contains two types of information:

- Information that is not required for all installations.  
Depending on your specific environment, some installation details are not required. Cohesity strives to keep the install process focused on the critical core details required for installation. Details which apply only to some installations are located here to help minimize the core NetBackup installation.
- Information regarding new features or requirements that were previously part of the **Upgrade operational notes and limitations** section.  
After Cohesity introduces a new requirement or feature, it is considered part of the NetBackup. While the information is incorporated into the overall installation process, it's maintained here for historical reasons.  
See [“Upgrade operational notes and limitations for NetBackup 11.1”](#) on page 22.

## Ansible supported playbooks for NetBackup

The use of specific Ansible playbooks for provisioning and configuring NetBackup is supported. Playbooks supported by NetBackup are available from GitHub at:

<https://github.com/VeritasOS/netbackup-automation-platform/blob/main/README.md>

The playbooks that are provided at this location are the only playbooks currently supported by NetBackup. Refer to the readme files to determine the versions of NetBackup the individual playbooks support.

## Addition of web service account for NetBackup installation and upgrade

The NetBackup primary 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 primary server (or each node of a clustered primary server). More information is available:

See “[NetBackup primary server web server user and group creation](#)” on page 158.

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**Note:** It is recommended that you save the details of the user account that you use for the NetBackup Web Services. A primary server recovery requires the same NetBackup Web Services user account and credentials that were used when the NetBackup catalog was backed up.

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**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>

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## NetBackup primary server web server user and group creation

The NetBackup primary 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 primary server (or each node of a clustered primary 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 [“Upgrade requirements for UNIX and Linux”](#) on page 191.

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

- In 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 primary 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 primary servers, you must use a domain group.

The NetBackup primary 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 [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:** `# groupadd nbwebgrp`

- **Windows:** `C:\>net localgroup nbwebgrp /add`
- 2 Create a local user.
- **Linux:** `# useradd -g nbwebgrp -c 'NetBackup Web Services account' -d /usr/opensv/wmc 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**.

NetBackup database user

As part of the NetBackup 10.2 upgrade, the NetBackup database is converted to a new database. That database operates under a user account with limited privileges. For Linux, this account must be a non-root user. The account must be on each primary server (or each node of a clustered primary server).

Note: For security purposes, do not create an account with administrator or superuser privileges. Do not add the user to the `sudoer` list.

You can use numerous procedures to create this user. Some specific approaches are shown, but other methods may accomplish the same goal. The user must have sufficient permissions to run daemons. More information about this topic is available.

See [“Upgrade requirements for UNIX and Linux”](#) on page 191.

Be aware of the operating system-specific account requirements:

- A separate database user account is required for Linux only if the service account is root. If the service account is non-root, you do not need to create an additional user.

- In 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 primary servers, you must use a domain account. You can use a domain account for non-clustered environments, but it is not required.

The NetBackup primary server installation fails if 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 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 NetBackup catalog remains active, NetBackup continues to operate normally.

When you attempt to restart NetBackup, the restart fails due to the expired password. Navigate to the appropriate area in the operating system, supply the correct password, and restart the service.

To create the database user account

- 1 Create a local user.
 - **Linux:** `useradd -c 'NetBackup database user account' username`
 - **Windows:** `C:\>net user username strong_password /add`
- 2 (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.
 - Save your changes and close the **Properties** dialog for **Log on as a service**.

Client push staging area no longer populated

As of NetBackup 11.0, the NetBackup client push install and upgrade staging area is no longer populated during primary server and media server installation or

upgrade. Follow the process that is shown to add client operating systems for push install or upgrade.

See [“Installing client type software on a primary server”](#) on page 173.

As of NetBackup 11.0, you can populate the client push install and upgrade with a single client rather than families of clients. For example, you can add the `Linux-ppc64le Red Hat` client without also adding the `Linux-ppc64le SuSE` client.

VRTSpddei.rpm no longer delivered in NetBackup 10.5

Starting with NetBackup 10.5, the `VRTSpddei.rpm` is no longer present in NetBackup. `VRTSpddei.rpm` provided the Instant Access and malware scans of VMware images.

To continue to use the Instant Access or malware scans of VMware images, use the `libguestfs.rpm` and `python3-libguestfs.rpm` packages. The NetBackup upgrade script automatically removes `VRTSpddei` if it detects that these two new RPMs are present. Otherwise, the upgrade script notifies the user that there are manual steps to install the new RPMs and remove `VRTSpddei`.

About binaries installed on primary and media servers

Starting with NetBackup 10.3, NetBackup no longer provides the primary server binaries on media servers. This change was made to reduce the installed footprint and minimize the number of potentially vulnerable components on media servers. Given the comprehensive nature of the software, NetBackup cannot provide an installed binary listing. NetBackup has a myriad of installation options available for primary and media servers, all of which affect the binaries installed.

NetBackup Administration Console and JRE installation optional for some computers

The NetBackup Administration Console is optional on all NetBackup primary servers, media servers, and client computers. The JRE package is required on NetBackup primary servers, but optional for all media servers and client computers.

As with previous releases, the JRE package is installed by default on NetBackup primary servers because it's required. The NetBackup Administration Console and the JRE are not part of the default installation on Windows clients. Install the Java Remote Administration Console if you require this functionality on your Windows clients.

The various NetBackup installation methods allow the user the choice to install or not install the NetBackup Administration Console on all NetBackup computers. Additionally, users can install or not install the JRE packages on NetBackup media

servers and client computers. More information about installing the NetBackup Administration Console and the JRE after install or upgrade is available.

See “[Add or remove Java components after upgrade](#)” on page 170.

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 primary server acts as the NetBackup Certificate Authority (CA) and issues NetBackup 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 primary server assigns these identifiers to the hosts.

NetBackup uses the certificates that are issued from either a NetBackup Certificate Authority or an external certificate authority for host authentication. If you intend to use external certificates on your primary server, you configure the certificates in a post-installation process. The media servers and the clients that use external certificates can either configure external certificates during the installation or upgrade, or after the installation or upgrade.

More information about the post-installation process is available:

https://www.veritas.com/support/en_US/article.100044300

For information on external CA support in NetBackup and external CA-signed certificates, see the [NetBackup Security and Encryption Guide](#).

Changes to Cloud protection policies

When a user upgrades from a pre-NetBackup 9.1 environment to a NetBackup 9.1 or later environment, changes are made to Cloud protection plans. If the pre-upgrade environment has one protection plan with multiple cloud assets from different cloud provider types, that plan is split into one protection plan per cloud provider type after upgrade. The assets are distributed among the new protection plans based on the cloud provider type. For example, if there was a **WeeklyBackups** protection plan that contained Amazon, Azure, and Google assets, it is split as shown:

- **WeeklyBackups**: Contains only the Amazon assets.
- **WeeklyBackups_azure**: Contains only the Azure assets.
- **WeeklyBackups_gcp**: Contains only the Google assets.

Media Server Deduplication Pool changes in NetBackup 8.1

The NetBackup 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 [NetBackup Deduplication Guide](#). Additionally, refer to the `crcontrol` command in the [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, it is not possible to return to the original NetBackup version. More information about the rolling conversion is available. See the rolling data conversion sections in the [NetBackup Deduplication Guide](#).

See [“MSDP upgrade considerations for NetBackup 8.1”](#) on page 211.

See [“About MSDP rolling data conversion”](#) on page 212.

Environment variable for certificate key size in upgrades from NetBackup 8.2 and earlier

This information is applicable to NetBackup upgrades of 8.2 and earlier environments.

NetBackup uses security certificates to authenticate NetBackup hosts for secure communication. The security certificates conform to the X.509 Public Key Infrastructure (PKI) standard. A NetBackup primary server acts as the certificate authority (CA) and issues digital certificates to hosts. NetBackup supports the following certificate key sizes: 2048 bits, 3072 bits, 4096 bits, and 8192 bits.

With a NetBackup 9.1 upgrade, new root CA with 2048 bit key strength is deployed. To use a certificate key size larger than 2048 bits, set the `NB_KEYSIZE` environment variable on the primary server before you start the installation.

For example:

```
NB_KEYSIZE = 4096
```

The `NB_KEYSIZE` can only have the following values: 2048, 3072, 4096, and 8192.

Note: If the FIPS mode is enabled on the primary server, you can only specify 2048 bits or 3072 bits as a value for the `NB_KEYSIZE` environment variable.

Caution: You should carefully choose the key size for your environment. Choosing a large key size may reduce performance. You should consider all factors to determine the correct key size for your environment.

For more information about CA migration and certificate key sizes, see the [NetBackup Security and Encryption Guide](#).

[Table A-3](#) shows the overview of the upgrade procedure.

Table A-3 Overview of the upgrade process

Step	Details	More information
1	Review operating system requirements and confirm the computer meets all requirements.	See “Upgrade requirements for UNIX and Linux” on page 191. See “Upgrade requirements for Windows and Windows clusters” on page 195. See “Requirements for Windows cluster upgrades” on page 200.
2	Confirm that the web server user account and group account are created and enabled.	More information is available: See “NetBackup primary server web server user and group creation” on page 158.
3	Begin the upgrade process	See “About primary server upgrades” on page 31.

Move the NetBackup database from any `btrfs` file systems

Installation or upgrade of the NetBackup database on a `btrfs` file system is not supported. If the NetBackup database resides on a `btrfs` file system, move the database to a supported file system (such as `ext4` or `xfs`) before you start the upgrade. The database files reside on the primary server in the directories under `/usr/openv/db`. More information about moving the database before an upgrade is available. See [“Preinstall procedure for upgrading to NetBackup 11.1”](#) on page 32.

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

After finishing a clustered primary 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 primary 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.

Linux: `/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 primary server nodes in the *NetBackup Security and Encryption Guide*.

Notifications, Messages, and Resiliency configuration information are not upgraded

During the upgrade from a pre-NetBackup 10.0 environment to NetBackup 10.0 and later, previous notifications, messages, and Resiliency configuration information is not migrated. Any previously added Resiliency Domains are no longer present on the **Resiliency** tab in the NetBackup web interface.

You can reconfigure and rediscover the Resiliency information on the **Resiliency** tab by performing the steps that are shown in the referenced tech note. The **Resiliency** tab contains configuration information about the Cohesity Resiliency Platform (VRP) and all the data pertaining to that resiliency domain, including managed and unmanaged assets.

You must reconfigure after the upgrade completes to rediscover the resiliency domain data. Refer to the referenced tech note for additional information on how to reconfigure VRP after upgrading NetBackup to 10.0.

https://www.veritas.com/support/en_US/article.100052464

The information that is not migrated as a part of the NetBackup 10.0 upgrade is stored in these files:

- `vrp-h2-store.mv.db`
- `messages-h2-store.mv.db`
- `notifications-h2-store.mv.db`

These files are preserved on the primary server in the following directories. These files remain in the specified location unless you remove them. You cannot use these files in a NetBackup to 10.0 or later environment:

- Windows files:

```
install_path\NetBackup\var\global\wmc\h2stores\vrp-h2-store.mv.db
install_path\NetBackup\var\global\wmc\h2stores\messages\
messages-h2-store.mv.db
install_path\NetBackup\var\global\wmc\h2stores\notifications\
notifications-h2-store.mv.db
```

- Linux files:

```
/usr/opensv/var/global/wmc/h2stores/vrp-h2-store.mv.db  
/usr/opensv/var/global/wmc/h2stores/messages/  
messages-h2-store.mv.db  
/usr/opensv/var/global/wmc/h2stores/notifications/  
notifications-h2-store.mv.db
```

Upgrade issue with pre-8.1 clients and 8.1 or later media servers

With the NetBackup 8.1 upgrade, the fingerprinting algorithm was upgraded from MD5 to SHA2 to provide improved protection against security vulnerabilities. NetBackup introduced two conversion methods to convert existing MD5 fingerprint data to SHA2: rolling conversion and inline conversion. Problems occur under the conditions shown:

- Client is pre-8.1 NetBackup.
- Client uses Client Direct, which performs deduplication at the client.
- Client is backed up by a NetBackup 8.1 or later media server.

Under these conditions, the fingerprint conversion happens inline. As a result, backup performance is negatively effected and the CPU processing load on the media server increases. The media server has to rehash the MD5 information and create a SHA2 fingerprint.

To prevent this issue:

- For pre-8.1 clients, change their backup to use media server deduplication (MSDP) with a media server that is at NetBackup 8.1 or later. This action avoids the backup performing the inline conversion.
- Do not use Client Direct on pre-8.1 clients that are backed up by 8.1 and later media servers.

About NetBackup 11.1 support for Fibre Transport Media Server with RHEL 7.5 and later

If you plan to use Fibre Transport Media Server (FTMS) with RHEL 7.5 and later, ensure that you upgrade NetBackup to 8.1.2 or later. You can also use a new RHEL 7.5 or later release system that has NetBackup 8.1.2 or later.

Before you upgrade RHEL to 7.5 or later release, complete the following steps:

- 1 Disable FTMS.
- 2 Upgrade NetBackup to 8.1.2 or later.
- 3 Upgrade RHEL to 7.5 or later release and then reconfigure FTMS.

For more information about reconfiguring FTMS, see the [NetBackup SAN Client and Fibre Transport Guide](#).

About the NetBackup Java Runtime Environment

NetBackup installs a customized version of the Java Runtime Environment (JRE) when you install any of the products shown. The customized version of JRE does not include all the directories that a standard JRE installation includes, such as `man` and `plugin`.

Products that install the JRE:

- NetBackup primary server, media server, or UNIX and Linux client software
- NetBackup Java Remote Administration Console

The Java GUI and the JRE packages are optional for NetBackup 8.3 and later for Linux and Windows media servers and UNIX and Linux clients.

As with previous releases, the Java GUI and JRE packages are installed automatically on all primary servers because they are required. The Java GUI and the JRE are not part of the default installation on Windows clients. Install the Java Remote Administration Console if you require this functionality on your Windows clients.

The various NetBackup installation methods allow the user the choice to install or not install the Java GUI and JRE packages. More information about installing or removing the Java GUI and the JRE after install or upgrade is available.

See [“Add or remove Java components after upgrade”](#) on page 170.

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

- NetBackup primary server, media server, or UNIX and Linux client software
- NetBackup Java Remote Administration Console

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

Use [Table A-4](#) to determine the location of the `nbcomponentupdate` utility.

Table A-4 Location of JRE update utility

Product	Operating system	Path
NetBackup	Windows	<i>install_path</i> \netbackup\java\nbcomponentupdate.exe
	UNIX or Linux	/usr/opensv/java/nbcomponentupdate
NetBackup Java Remote Administration Console	Windows	<i>install_path</i> \java\nbcomponentupdate.exe

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.

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>

Add or remove Java components after upgrade

After the upgrade completes, you can add or remove Java components. On the primary server, you can add or remove the NetBackup Administration Console after the upgrade completes. On media servers, UNIX clients, and Linux clients, you can

add or remove the NetBackup Administration Console and the JRE after upgrade. With media servers, UNIX clients, and Linux clients, the recommendation is that you add or remove both the NetBackup Administration Console and the JRE together.

Add Java GUI and JRE

To add the packages, use one of the options shown:

- (Media servers and clients) Create and run a VxUpdate policy (or ad hoc operation) and specify that the Java GUI and JRE packages should be included.
- On UNIX, access the upgrade media and run the commands shown:

Linux	<pre>rpm -U VRTSnbjre.rpm rpm -U VRTSnbjava.rpm</pre>
AIX	<pre>installp -ad VRTSnbjre.image all installp -ad VRTSnbjava.image all</pre>
Debian	Re-run the Debian install script and specify the correct value to add the Java GUI and the JRE packages.

- On Windows, access the installation media, and run the packages shown:
 - Cohesity NetBackup JRE.msi
 - Cohesity NetBackup Java GUI.msi

Remove Java GUI and JRE

To remove the packages, use one of the options shown:

- (Media servers and clients) Create and run a VxUpdate policy (or ad hoc operation) and specify that the Java GUI and JRE packages should be excluded.
- On UNIX, run the commands shown:

Linux	<pre>rpm -e VRTSnbjava rpm -e VRTSnbjre</pre>
AIX	<pre>installp -u VRTSnbjre installp -u VRTSnbjava</pre>
Debian	Re-run the Debian install script and specify the correct value to remove the Java GUI and the JRE packages.

- On Windows
 - Select **Start > Settings > Control Panel**.
 - In the **Control Panel** window, select the appropriate utility for installed programs and applications.
 - From the **Currently Installed Programs** list, select **Cohesity NetBackup Java** and click **Remove**.
 - From the **Currently Installed Programs** list, select **Cohesity NetBackup JRE** and click **Remove**.

About the NetBackup web user interface

The NetBackup web interface is designed to improve the ease of use and functionality. At this time, not all functionality of the NetBackup Administration Console is present in this interface.

NetBackup uses the Transport Layer Security (TLS) protocol to encrypt the communication for the new interface. You need a TLS certificate that identifies the NetBackup host to enable TLS on the NetBackup web server. NetBackup uses self-signed certificates for client and host validation. A self-signed certificate is automatically generated during install for enabling TLS communications between the web browser and the NetBackup web server. You can create and implement third-party certificates to use in place of the self-signed certificates to support the NetBackup Web Service. The certificates are used for TLS encryption and authentication. See the [NetBackup Web UI Administrator's Guide](#) for more information.

First-time sign in to a NetBackup primary server from the NetBackup web UI

After the installation of NetBackup, an RBAC administrator must sign into the NetBackup web UI from a web browser and create RBAC roles for users. A role gives a user permissions and access to the NetBackup environment through the web UI, based on the user's role in your organization. Some users have access to the web UI by default.

See the [NetBackup Web UI Administrator's Guide](#) for details on authorized users, creating roles, and signing in and out of the web UI.

About pushing client software from a primary server to clients

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

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

- Install the client type software on the primary server. Be sure to install all of the client types that pertain to your NetBackup configuration.

As of NetBackup 11.1, no client software is populated in the client push install and upgrade staging area. Follow the process that is shown for all client operating systems.

See [“Installing client type software on a primary server”](#) on page 173.

- Before you can push client software from the primary server, each client name must be assigned to a NetBackup policy. Policies are created on the primary server.

When you create a policy, you must identify the policy type, which indicates the operating system on the clients that are assigned to that policy. Without a policy, the remote installation (or push) fails because the primary server does not know the operating system of the client.

For information on how to create NetBackup policies, refer to the [NetBackup Administrator's Guide, Volume I](#).

- After the required policies are created, you can push client software from the primary server to the clients.

Installing client type software on a primary server

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

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

To install client type software on a primary server

- 1 Log in to the server as root.
- 2 Navigate to where the ESD images (downloaded files) reside and enter the command shown:

```
./install
```

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

```
NetBackup Installation Script  
Copyright (c) 2025 Cohesity, Inc. All rights reserved.
```

```
Installing NetBackup Client Software
```

```
Please review the COHESITY SOFTWARE TERMS OF USE located on  
the installation media before proceeding. The agreement includes  
details on the NetBackup Product Improvement Program.
```

```
For NetBackup installation and upgrade information specific to your  
platform and to find out if your installed EEBs or hot fixes are  
contained in this release, check out the Cohesity Services and  
Operations Readiness Tools (SORT) Installation and Upgrade Checklist  
and Hot fix and EEB Release Auditor, respectively, at  
https://sort.veritas.com/netbackup.
```

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

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

About the IT Analytics Data Collector

IT Analytics is the solution for NetBackup reporting and analytics. IT Analytics 11.0 introduces a NetBackup-only feature set that is specifically created to help customers transition from OpsCenter to IT Analytics.

You can install the IT Analytics Data Collector during either the installation or the upgrade of NetBackup primary server. Only the binaries are deployed with NetBackup. You must configure the IT Analytics Data Collector to communicate with the IT Analytics Portal once the installation completes successfully.

Once the NetBackup primary server is configured with Cohesity Alta Analytics or IT Analytics, the process configures the Data Collector for data collection. You are required to configure the Data Collector manually if your NetBackup primary server is designed with an on-premises IT Analytics Portal.

Once the Data Collector is installed and configured, the Data Collector reports NetBackup information to IT Analytics Portal or Cohesity Alta Analytics.

How NetBackup handles the Data Collector values in the answer file depends on the NetBackup version and the current state of the IT Analytics Data Collector.

Upgrades

- If the IT Analytics Data Collector is installed and configured, the answer file is always ignored. The IT Analytics Data Collector handles the upgrades.
- For pre-10.1.1 versions of NetBackup, if the IT Analytics Data Collector is not installed, NetBackup always honor the value in the answer file. If there is no value in the answer file, the IT Analytics Data Collector is installed by default.
- For NetBackup versions 10.1.1 and later, if the IT Analytics Data Collector is not installed, NetBackup never installs IT Analytics Data Collector, regardless of the values in the answer file.
- For NetBackup versions 10.1.1 and later, if the IT Analytics Data Collector is installed but not configured, NetBackup always upgrades the binaries to the latest version, regardless of the values in the answer file. This behavior insures the binaries are always current.
- Regardless of version, the value `NO` in the answer file does not uninstall the IT Analytics Data Collector. You must manually uninstall the IT Analytics Data Collector.

References

For additional information:

- See *Installing the Data Collector software* in the *IT Analytics Data Collector Installation Guide*.
- See *Clustering Data Collectors with VCS and Cohesity NetBackup in IT Analytics Data Collector Notes and Troubleshooting* guide.

Manually install or uninstall IT Analytics Data Collector binaries

The IT Analytics Data Collector reports NetBackup information to IT Analytics or Cohesity Alta Analytics. The Data Collector is installed along with NetBackup

installation or upgrade. The following steps help you manually install or uninstall the Data Collector.

You may need to manually install the Data Collector if it fails to install during the NetBackup install or upgrade. A failure to install the Data Collector does not cause the entire NetBackup primary server installation or upgrade to fail. If you don't plan to use the Data Collector, you may want to uninstall it.

The steps that are shown do not configure the Data Collector to connect with any portal. These steps only install the Data Collector. The Data Collector is configured after the NetBackup primary server connects with Cohesity Alta Analytics or IT Analytics Portal.

More information about how to configure the Data Collector is available.

See [“Manually configure the IT Analytics Data Collector”](#) on page 176.

To manually install the Data Collector on a Linux primary server:

- 1 Copy `/catalog/anb/ita_dc.tar.gz` from the NetBackup installation media to a temporary location.
- 2 Extract the `ita_dc.tar.gz` tarball in that temporary location.
- 3 Run `temporary_location/dc_installer -i /usr/openssl -n`

To manually install the Data Collector on a Windows primary server:

- 1 Locate the installation media kit and navigate to the `x64/ITA_DC` folder.
- 2 Run `silentinstall.cmd /INSTALL_PATH:NetBackup_install_path /INSTALL_TYPE:INSTALL /REMOVE_NON_OEM_DIR:Y`

To manually uninstall the Data Collector from a Linux primary server

- ◆ Run `/usr/openssl/analyticscollector/UninstallerData/uninstall_dc.sh -r`

To manually uninstall the Data Collector from a Windows primary server

- 1 In **Windows Programs and Features**, locate IT Analytics Data Collector. Right-click this item and select **Uninstall**.
- 2 An uninstall script is also available. The script is located in:

```
C:\ProgramData\Veritas\NetBackup IT  
Analytics\DC\silentuninstall.cmd
```

Manually configure the IT Analytics Data Collector

The primary server installation deploys the IT Analytics Data Collector binaries automatically as part of a successful NetBackup installation. The binaries are

installed to `install_path\AnalyticsCollector` (Windows) or `/usr/openv/analyticscollector` (Linux). This section details the steps that are required to manually configure the Data Collector.

Keep the following details handy when you configure the Data Collector:

- Name of the Data Collector (as configured on the Cohesity Alta or IT Analytics Portal).
- Passcode of the Data Collector (as configured on the Cohesity Alta or IT Analytics Portal).
- Data receiver URL (generated when you create the Data Collector on the Cohesity Alta or IT Analytics Portal). Ensure the NetBackup primary server can resolve the host name of the Data Receiver URL.
- Key file path (generated when you create the Data Collector on the Cohesity Alta or IT Analytics Portal and copied to the NetBackup primary server).

See the *Add/Edit Data Collectors* section in the *IT Analytics User Guide* for more information.

To configure the Data Collector manually on Windows:

- 1 Create a response file as a batch script `responsefile.cmd` with the contents shown. These are the responses to the user input required to configure the Data Collector.

```
SET DATACOLLECTOR_NAME=name_of_the_data_collector
SET DATACOLLECTOR_PASSCODE=passcode_for_the_data_collector
SET DATARECEIVER_URL=data_receiver_URL
SET DATACOLLECTOR_KEY_FILE_PATH=path_to_the_key_file
SET HTTP_PROXY_CONF=N
SET PROXY_HTTP_URL=
SET PROXY_HTTP_PORT=
SET PROXY_HTTPS_URL=
SET PROXY_HTTPS_PORT=
SET PROXY_USERID=
SET PROXY_PASSWORD=
SET PROXY_NOT_FOR=
```

- 2 Update the value for each field with appropriate data. A sample response file is also available in the installer media in `x64\ITA_DC\responsefile.cmd`.

3 Run the command shown:

```
"C:\ProgramData\Veritas\NetBackup IT Analytics\DC\configure.cmd"  
\RESPFILE:response_file_path \INSTALL_TYPE:CONFIG
```

4 Validate the Data Collector integration with IT Analytics by going to *install_path\analyticscollector\mbs\bin* and running this command:

```
checkinstall.bat
```

If the Data Collector is configured with the Portal, the response is displayed as **SUCCESSFUL**.

Note: If there is a version mismatch of `aptare.jar` between the Data Collector and the portal, execution of the `checkinstall.bat` command starts an auto-update of the Data Collector.

To configure the Data Collector manually on Linux:

1 Create a response file with the contents shown. These are the responses to the user input required to configure the Data Collector:

```
COLLECTOR_NAME=name_of_the_data_collector  
COLLECTOR_PASSCODE=passcode_for_the_data_collector  
DR_URL=data_receiver_URL  
COLLECTOR_KEY_PATH=path_to_the_key_file  
HTTP_PROXY_CONF=N  
HTTP_PROXY_ADDRESS=  
HTTP_PROXY_PORT=  
HTTPS_PROXY_ADDRESS=  
HTTPS_PROXY_PORT=  
PROXY_USERNAME=  
PROXY_PASSWORD=  
PROXY_EXCLUDE=
```

2 Update the value for each field with appropriate data.

A sample response file is available on the install media and from `/usr/openv/analyticscollector/installer/responsefile.sample` on the primary server.

3 Run the command:

```
/usr/openv/analyticscollector/installer/dc_installer.sh -c  
responsefile_path
```

4 Validate the Data Collector integration with IT Analytics by navigating to

`/usr/openv/analyticscollector/mbs/bin/` and running `./checkinstall.sh`

If the Data Collector is able to communicate with the IT Analytics Portal, the response is displayed as **SUCCESSFUL**.

Note: If there is a version mismatch of `aptare.jar` between the Data Collector and the portal, execution of the `checkinstall.sh` command starts an auto-update of the Data Collector.

Start, stop, and get the status of the Data Collector

On Linux:

- To start the Data Collector processes, run:

```
/usr/openv/analyticscollector/mbs/bin/aptare_agent start
```

- To stop the Data Collector processes, run:

```
/usr/openv/analyticscollector/mbs/bin/aptare_agent stop
```

- To get the status of the Data Collector processes, run:

```
/usr/openv/analyticscollector/mbs/bin/aptare_agent status
```

On Windows: Review the status of Aptare Agent, Aptare Kafka, and Aptare Zookeeper services on the Windows service panel.

Note: If the Data Collector is configured with an on-premises IT Analytics Portal, then to edit any of the Data Collector properties on the Portal, refer to *Edit IT Analytics Data Collector credentials* section in the *IT Analytics User Guide*.

Manually upgrading the IT Analytics Data Collector

If the IT Analytics Data Collector version is 11.1.51, then you must manually upgrade the Data Collector.

To determine the Data Collector version, review the `version.txt` file that is found in:

- **Linux:** `/usr/opencv/analyticscollector/upgrade/version.txt`
- **Windows:** `install_path\analyticscollector\upgrade\version.txt`

Manually upgrade the Data Collector if the version shown is 11.1.51.

More information is available to determine the Data Collector version:

https://www.veritas.com/content/support/en_US/doc/140578616-149890641-0/pgfId-105383-149890641

To manually upgrade the Data Collector on Linux:

1 Log on to the Data Collector server as root.

2 Run the command shown:

```
/usr/opencv/analyticscollector/mbs/bin/downloadlib.sh
```

3 The Data Collector is upgraded.

To manually upgrade the Data Collector on Windows:

1 Log on to the Data Collector server.

2 Open a command prompt as the Administrator.

3 Run the command shown:

```
install_path\AnalyticsCollector\mbs\bin\downloadlib.bat
```

4 The Data Collector is upgraded.

After you successfully configure the Data Collector with an on-premises based IT Analytics Portal or Cohesity Alta Analytics, the web portal automatic upgrade mechanism upgrades the Data Collector after communication is established. The NetBackup installer does not upgrade the Data Collector. If NetBackup finds a previous version of the Data Collector that is not configured, the installation process removes it and installs the newer version.

If you disable the automatic upgrade mechanism for any reason, you must manually upgrade the Data Collector with every upgrade of the IT Analytics Portal. The upgrade is required to ensure that the Data Collector version is the same as the IT Analytics Portal version.

Persistent Java Virtual Machine options

Before NetBackup 9.0, any web service Java Virtual Machine (JVM) tuning values (such as memory allocation) are overwritten during NetBackup upgrades. In NetBackup 9.0, a set of web server JVM tuning options that persist across upgrades

was defined. These options are defined as environment variables in an executable shell script that is stored on the local host. The script's contents override the out of the box JVM tuning options. The script only runs when the NetBackup 9.0 or later web service starts. You can configure the options for which you want to override the default values. You can define this script at any time. Once the values are defined, you do not need to redefine them in any future upgrades.

To define the persistent JVM tuning options:

- 1 Create the `wmcConfig` script in the appropriate NetBackup configuration directory:

Windows: `install_path\NetBackup\var\global\wsl\config\wmcConfig.bat`

UNIX and Linux: `/usr/opensv/var/global/wsl/config/wmcConfig.sh`

- 2 Edit the script to include the desired variables from the supported variables list. Each value must be on its own line. Supported variables are:

```
WMC_HEAP
WMC_METASPACE
WMC_NEW_RATIO
WMC_SURVIVOR_RATIO
WMC_GC_CONFIG
WMC_HEAP_DUMP_CONFIG
```

Refer to the JVM documentation from Oracle for more information on the variables and their appropriate ranges.

- 3 Restart the web service to apply the configuration changes.

About RBAC bootstrapping

RBAC Bootstrapping lets you assign role-based access control (RBAC) permissions to a user or a user group during NetBackup installation or upgrade on Linux platforms. The Linux installer uses the `bpbaz -AddRBACPrincipal` command to grant the Administrator role permissions to the user or the user group that you specify in the `/tmp/NBInstallAnswer.conf` file.

Note: RBAC bootstrapping provides access to all objects for the specified user or user group, even if previously the user or the user group had restricted access to certain objects. For example, the existing user Tester1 was assigned the Default VMware Administrator role. If Tester 1 is specified for RBAC bootstrapping, Tester1 is assigned the Administrator role.

After installation or upgrade, you can run the `bpbaz -AddRBACPrincipal` command standalone on both Windows and Linux platforms to assign RBAC permissions. The command is available only on the primary server. For more information about this command, see the [NetBackup Commands Reference Guide](#).

RBAC Bootstrapping during installation and upgrades on Linux platforms:

Use the answer file template `NBInstallAnswer-primary.template` available in the install package to create the `/tmp/NBInstallAnswer.conf` file. In that file, add the following entries before you run the installation or upgrade:

```
RBAC_DOMAIN_TYPE = domain_type
RBAC_DOMAIN_NAME = domain_name
RBAC_PRINCIPAL_TYPE = USER | USERGROUP
RBAC_PRINCIPAL_NAME = principal_name
```

Be aware that `RBAC_DOMAIN_TYPE` supports the values shown: NT, VX, UNIXPWD, LDAP.

Note: Additional information about the `RBAC_*` options is available.

See [“About the NetBackup answer file”](#) on page 128.

RBAC bootstrapping is not performed if all the entries are empty or missing. In this case, the message `Answer file did not contain any RBAC entries` is posted in the install trace file. The install process always continues whether the RBAC bootstrapping is successful or not. The audit records are created under the `SEC_CONFIG` category.

If RBAC bootstrapping is successful, the installer displays the following message:

```
Successfully configured the RBAC permissions for principal_name.
```

The installer also displays this message if the user or the user group already exists with the Administrator RBAC role.

If one or more RBAC entries exist in the answer file, but a required answer file entry is missing, the installer displays the following message:

```
Warning: Unable to configure the RBAC permissions. One or more
required fields are missing in /tmp/NBInstallAnswer.conf.
```

If there are other issues with the RBAC Bootstrapping, the installer displays the following message:

Warning: Failed to configure the RBAC permissions for *principal_name*.
Refer to logs in /usr/opensv/netbackup/logs/admin for more information.

If RBAC bootstrapping is successful but auditing fails, the install displays the following message:

```
Successfully configured the RBAC permissions for
user_or_usergroup_name.
WARNING: Auditing of this operation failed.
Refer to logs in /usr/opensv/netbackup/logs/admin for more information.
```

After the installation or upgrade completes, the specified user or user group is assigned the Administrator role with its corresponding RBAC access permissions. The user can then access APIs and the Web UI.

About NetBackup software availability

NetBackup 11.1 is available as ESD images for download from the **MyVeritas** webpage (<https://my.veritas.com/>). 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.

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-5](#) 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-5 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	NetBackup 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 184.
Vserver aware mode	Not applicable	Additional steps required. See “Additional changes required for NetApp clusters in Vserver aware mode” on page 186.

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 *NetBackup NAS 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 *NetBackup NAS 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: 10.1
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 primary server, or any media servers (Figure A-2).

Both modes support the same topologies.

Table A-6 describes the association between NetBackup versions and the NetApp plug-ins.

Table A-6 Version compatibility

NetBackup version	NetApp plug-in version	Description	Ratio of primary server to OCUM server	Supported policy types
8.x and later	1.1	Provides 7-mode support for all NetBackup Replication Director features.	One primary 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 Replication Director features.	One primary server supports many OCUM servers.	MS-Windows, Standard, NDMP, VMware, Oracle
	2.0	Provides cDOT support.	One primary 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 primary 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 primary servers, media servers, clients, and any hosts which communicate with the plug-in.

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

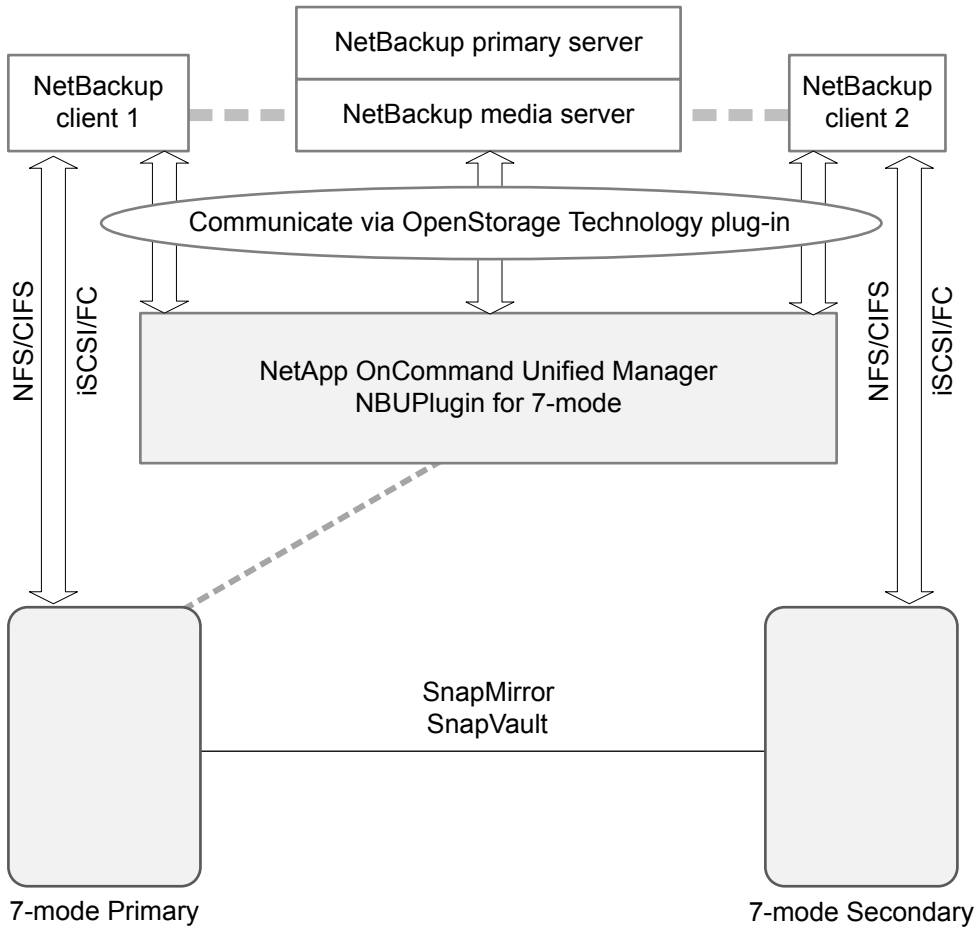
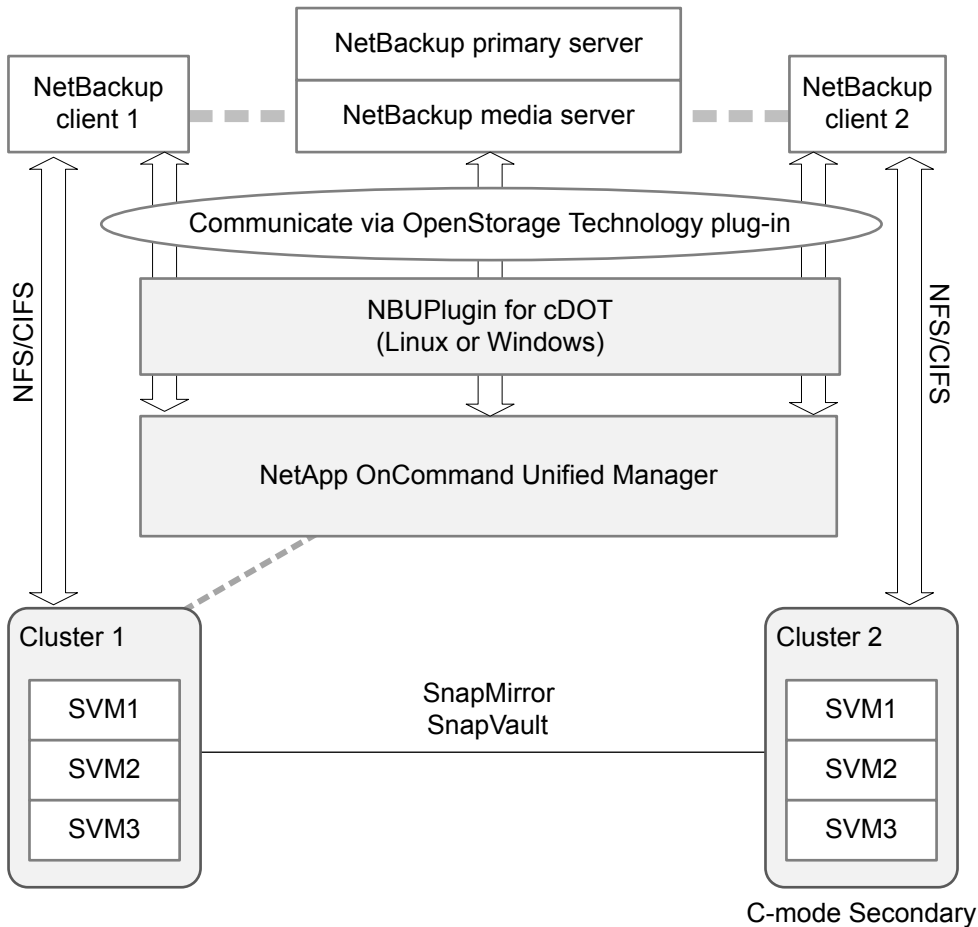


Figure A-2 Communication between NetBackup and the NBUPugin for Clustered Data ONTAP



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 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 primary 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.

NetBackup supports only certain combinations of servers and clients. In mixed version environments, certain computers must be the highest version. Specifically, the version order is: NetBackup Snapshot Manager computer, primary server, media server, and then clients. For example, the scenario that is shown is supported: 11.0 NetBackup Snapshot Manager > 10.2 primary server > 10.0 media server > 9.1.0.1 client.

All NetBackup versions are four digits long. The NetBackup 11.0 release is the 11.0.0.0 release. Likewise, the NetBackup 10.2 release is the NetBackup 10.2.0.0 release. For the purposes of supportability, the fourth digit is ignored. A 10.2 primary server supports a 10.2.0.1 media server. An example of what is not supported is a 10.2.0.1 primary server with a 11.0 media server.

The NetBackup catalog resides on the primary server. Therefore, the primary 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 primary server to perform a catalog backup.

For complete information about compatibility between NetBackup versions, refer to the [Cohesity SORT website](#).

Review the [End of Support Life](#) information available online.

Known catalog backup limitation

Mixed versions of NetBackup in the backup environment is supported. Limitations exist, however, when you back up the NetBackup catalog.

If the primary server performs catalog backups to a separate media server, that media server must use the same version of NetBackup as the primary server. Since the NetBackup catalog resides on the primary server, the primary server is considered to be the client for a catalog backup.

As such, the media server must have the same version of NetBackup as the primary server.

Failure to use the same version of NetBackup on the media server results in improperly protected catalog data.

More information on mixed version support is available.

See [“About compatibility between NetBackup versions”](#) on page 190.

Upgrade requirements for UNIX and Linux

[Table A-7](#) describes the requirements to prepare your UNIX and Linux systems for NetBackup upgrade. Use this table as a checklist to address each item.

For the most up-to-date information about installation requirements, visit the Cohesity SORT website. More information about SORT is available.

See [“About Cohesity Services and Operations Readiness Tools”](#) on page 24.

Table A-7 NetBackup requirements for UNIX and Linux

Check	Requirement	Details
	Operating System	For a complete list of compatible UNIX and Linux operating systems, refer to the <i>Software Compatibility List (SCL)</i> at the following website: https://www.veritas.com/support/en_US/article.100040093 https://sort.veritas.com/netbackup
	Memory	Use the information that is shown to correctly size your server: - The SORT website. See “About Cohesity Services and Operations Readiness Tools” on page 24. - General details on how to size your NetBackup environment. See “Size guidance for the NetBackup primary server and domain” on page 209. - Detailed information about planning and tuning your NetBackup environment are available. These details are found in the <i>NetBackup Backup Planning and Performance Tuning Guide</i>.

Table A-7 NetBackup requirements for UNIX and Linux (*continued*)

Check	Requirement	Details
	Disk space	■ The exact amount of space that is required depends on the hardware platform. More information about this topic is available. NetBackup Release Notes for 11.1 ■ 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: ■ 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. 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>. Note: The value for disk space is for initial installation only. The NetBackup catalog requires considerably more space once the primary server is placed in a production environment.
	General requirements	■ 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 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 NetBackup Release Notes for 11.1. ■ 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-7 NetBackup requirements for UNIX and Linux (*continued*)

Check	Requirement	Details
	Clustered systems	■ 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 login to each node in the cluster without entering a password. This remote login is necessary for installation and configuration of the NetBackup server and any NetBackup agents and options. After installation and configuration 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. More information about cluster requirements is available. NetBackup Clustered Primary Server Administrator's Guide
	Host names	All NetBackup servers must use a host name that is compliant with RFC 1123 ("Requirements for Internet Hosts - Application and Support") and RFC 952 ("DOD Internet Host Table Specification") standards. These standards include the supported and unsupported characters that can be used in a host name. For example, the underscore character (<code>_</code>) is not a supported character for host names. More information is available about these standards and about this issue: RFC 1123: http://www.ietf.org/rfc/rfc1123.txt RFC 952: http://www.ietf.org/rfc/rfc952.txt NetBackup Status Code 130 System Error Occurred: http://www.veritas.com/docs/000125019
	NFS compatibility	NetBackup does not support installation on an NFS-mounted directory. File locking in NFS-mounted file systems can be unreliable.
	btrfs file system	The installation of the NetBackup database on a <code>btrfs</code> file system is not supported. Do not attempt to install the NetBackup database onto a <code>btrfs</code> file system. The database files reside on the primary server in the directories under <code>/usr/openv/db</code>. Before you attempt a NetBackup upgrade, move the database to a supported file system (such as <code>ext4</code> or <code>xfs</code>). More information about moving the database before an upgrade is available in the <i>NetBackup Upgrade Guide</i>.
	Kernel reconfiguration	For some peripherals and platforms, kernel reconfiguration is required. For more details, see the NetBackup Device Configuration Guide.
	Red Hat Linux	For Red Hat Linux, NetBackup requires server networking.

Table A-7 NetBackup requirements for UNIX and Linux (*continued*)

Check	Requirement	Details
	Other backup software	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.
	Web Services	The NetBackup primary 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 primary server (or each node of a clustered primary server). You must create these required account elements before installation. More information is available: See “NetBackup primary server web server user and group creation” on page 158. Note: Save the details of the user account that you use for the NetBackup Web Services. A primary 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 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. 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.

Upgrade requirements for Windows and Windows clusters

Table A-8 describes the requirements to prepare your Windows systems for NetBackup 11.1 installation. Use this table as a checklist to address each item.

For the most up-to-date information about installation requirements, visit the Cohesity SORT website. More information about SORT is available.

See “About Cohesity Services and Operations Readiness Tools” on page 24.

Caution: NetBackup supports moving the NetBackup catalog with the `nbdbb_move` command 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 primary server is rendered unusable if you fail to move the database back to the default location before upgrade. More information about the `nbdbb_move` is available.

[NetBackup Commands Reference Guide](#)

Table A-8 NetBackup requirements for Windows and Windows clusters

Check	Requirement	Details
	Operating system	- Make sure that you have applied the most current operating system patches and updates, including any security 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: https://www.veritas.com/support/en_US/article.100040093
	Memory	Use the information that is shown to correctly size your server: - The SORT website. See “About Cohesity Services and Operations Readiness Tools” on page 24. - General details on how to size your NetBackup environment. See “Size guidance for the NetBackup primary server and domain” on page 209. - Detailed information about planning and tuning your NetBackup environment are available. These details are found in the <i>NetBackup Backup Planning and Performance Tuning Guide</i>.

Table A-8 NetBackup requirements for Windows and Windows clusters
(continued)

Check	Requirement	Details
	Disk space	- 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. 11.1 Release Notes for 11.1 - Upgrades require additional space on the primary drive, even if NetBackup is installed to an alternative location. The primary drive is the drive where Windows is installed. - For server upgrades NetBackup requires 2.8 GB of free space on the primary Windows drive when you install NetBackup to an alternative drive location. - For client upgrades NetBackup requires 1.7 GB of free space on the primary Windows drive when you install NetBackup to an alternative drive location. - 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: - 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. - The NetBackup recommendation is that you have a minimum available disk space of 5% in any Disk Storage Unit volume or file system. Note: The value for disk space is for initial installation only. The NetBackup 11.1 catalog requires considerably more space once the primary server is placed in a production environment.
	General requirements	Make sure that you have all of the following items: - NetBackup installation ESD images - Appropriate license files More information is available: https://www.veritas.com/support/en_US/article.100058779 - Administrator account and password for all servers - Screen resolution configured for at least 1024x768, 256 colors.

Table A-8 NetBackup requirements for Windows and Windows clusters
(continued)

Check	Requirement	Details
	Remote and cluster installations	In addition to all previously stated installation requirements, the following guidelines apply to remote installations and cluster installations: ■ 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 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) ■ The shared disk that the NetBackup Group uses must already be configured in the cluster and online on the active node. ■ Install 11.1 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 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. More information about cluster requirements is available. NetBackup Clustered Primary Server Administrator's Guide

Table A-8 NetBackup requirements for Windows and Windows clusters
(continued)

Check	Requirement	Details
	Host names	All NetBackup servers must use a host name that is compliant with RFC 1123 ("Requirements for Internet Hosts - Application and Support") and RFC 952 ("DOD Internet Host Table Specification") standards. These standards include the supported and unsupported characters that can be used in a host name. For example, the underscore character (_) is not a supported character for host names. More information is available about these standards and about this issue: RFC 1123: http://www.ietf.org/rfc/rfc1123.txt RFC 952: http://www.ietf.org/rfc/rfc952.txt NetBackup Status Code 130 System Error Occurred: http://www.veritas.com/docs/000125019
	Remote Administration Console host names	You must provide the names of the Remote Administration Console hosts during primary server installation.
	NetBackup communication	Make sure that your network configuration allows all servers and clients to recognize and communicate with one another. Generally, if you can reach the clients from a server by using the ping command, the setup works with NetBackup. ■ NetBackup services and port numbers must be the same across the network. ■ The recommendation for NetBackup is 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 primary 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	NetBackup does not support installation 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.

Table A-8 NetBackup requirements for Windows and Windows clusters
(continued)

Check	Requirement	Details
	Mixed versions	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. See “About compatibility between NetBackup versions” on page 190.
	Installations on Windows Server Core	You can only install NetBackup on these computers with the silent installation method. See “Performing silent upgrades on Windows systems” on page 48.
	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	The NetBackup primary 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 primary server (or each node of a clustered primary server). More information is available: See “NetBackup primary server web server user and group creation” on page 158. Note: Save the details of the user account that you use for the NetBackup Web Services. A primary 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: If you use a NetBackup Certificate Authority, you must know the CA Certificate fingerprint of the primary server at time of installation. This requirement only applies if you use a NetBackup Certificate Authority. 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

Table A-8 NetBackup requirements for Windows and Windows clusters
(continued)

Check	Requirement	Details
	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. In some cases, if you use a NetBackup Certificate Authority, 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
	External certificate authority	For primary servers (including cluster): The configuration of an external certificate authority is a post-installation activity. For media servers and clients: You can configure the ECA during the install procedure or after the installation completes. More information about post-installation configuration is available: https://www.veritas.com/support/en_US/article.100044300 For more information, see the NetBackup Security and Encryption Guide and refer to the chapter on external CA and external certificates.

See “[Upgrade requirements for UNIX and Linux](#)” on page 191.

Requirements for Windows cluster upgrades

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

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

Table A-9 Windows cluster requirements for installation and upgrade

Item	Requirement
Server operating system	Make sure that you have applied the most current operating system patches and updates, including any security 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 operating systems, refer to the Software Compatibility List (SCL) at the following website: ■ http://www.netbackup.com/compatibility ■ https://sort.veritas.com/netbackup
Privileges	To perform clustered installations, you must have administrator privileges on all of the remote nodes in the cluster. 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.

Table A-9 Windows cluster requirements for installation and upgrade
(continued)

Item	Requirement
Windows Server Failover Clusters (WSFC)	Make sure that you have applied the most current operating system patches and updates, including any security 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 operating systems, refer to the Software Compatibility List (SCL) at the following website: ■ http://www.netbackup.com/compatibility ■ https://sort.veritas.com/netbackup ■ 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.
Cluster Server (VCS) clusters	■ All NetBackup disk resources must be configured in Cohesity Enterprise Administrator (VEA) before you install NetBackup. ■ You must take the VCS NetBackup resource offline before you begin the install or the upgrade. Note: Make sure that shared disk and IP resources are online during the install or the upgrade on active node.
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 NetBackup database. The cluster node name (provided by <code>gethostname</code>) stores or retrieves the device configuration in the NetBackup 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.

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 [NetBackup Administrator's Guide, Volume I](#). Please see the **About decommissioning a media server** topic in the [NetBackup Administrator's Guide, Volume I](#).

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 primary 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 *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`

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 primary server. You cannot push software this way because the server software and client binaries must be of the same version on a single host.

Note: Be aware you cannot use the `update_clients` installation script to push NetBackup 8.2 or later clients. You must use `VxUpdate`.

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

You can run `update_clients` from a media server. The `-ClientList` parameter is required in this situation. The script lets you maintain a media server and a set of clients at an earlier release level than the primary server. Doing so requires the informed use of the `update_clients -ClientList` command on a primary 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 primary server. More information on this topic is available. See the topic on deploying certificates on clients without connectivity to the primary server in the [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:

ESD images (downloaded files)

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

```
./install
```

Native install tools

NetBackup supports the install and upgrade of the UNIX and Linux client binaries with native installers. More information is available.

See [“Upgrade of the UNIX and Linux client binaries with native installers”](#) on page 92.

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, Solaris 10 binaries are also used on the Solaris 11 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 As a root user on the NetBackup primary 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/bprreq -terminate
```

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

```
/usr/opensv/netbackup/bin/admincmd/bpdbjobs
```

- 6 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 primary server or from a media server, as follows:

If you push from the primary 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:

<code>m_server_name</code>	Name of the NetBackup primary server in this environment.
<code>file</code>	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
```

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

7 The `update_clients` script requests primary 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 primary server? (y/n) [y]
```

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

Press **Enter**.

8 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):
```

9 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 primary 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 one here. 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.
```

10 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]
```

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

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

Upgrade failure rollback steps

After a successful upgrade to NetBackup 10, the permissions on the legacy log directories are more restrictive. If the NetBackup 11.1 upgrade fails, you must roll back the permissions changes associated with the upgrade, otherwise NetBackup may not work correctly.

To roll back the permissions on Linux:

1 Go to the `/usr/opensv/tmp` directory.

2 Run the command shown:

```
. recoverPermissions.txt
```

To roll back the permissions on Windows:

- 1 Go to the `install_path\NetBackup\logs\` directory.
- 2 Run the command shown:

```
icacls install_path\NetBackup\logs\ /restore
install_path\NetBackup\Temp\recoverPermissions.txt /C
```

The `/c` switch is critical as it lets the operation proceed despite any failures. Without this switch, the operation stops if there is any failure.

Size guidance for the NetBackup primary server and domain

NetBackup primary server sizing is an important activity as part of an overall NetBackup solution design. Always complete a comprehensive data protection assessment to determine the optimal configuration for a NetBackup primary and NetBackup domain.

The following information is meant as guidelines:

- NetBackup has no hard limit on catalog size. However, the recommended best practice that you keep the catalog size under 4 TB to ensure good catalog backup and recovery performance.

The size of the NetBackup catalog and the performance that is related to reading data from the NetBackup catalog is driven by the I/O performance and more specifically the disk speed. The use of solid-state drives (SSDs) for the catalog is recommended where possible. The disks require good read and write performance, which is even more critical in large environments.

Managing the size of the catalog through compression and catalog archiving is recommended for images with a long-term retention (LTR).

For additional information about managing the catalog size through compression and catalog archiving, see the *NetBackup Backup Planning and Performance Tuning Guide*.

- The number of devices in the EMM database should not exceed 1500. Examples of devices are a tape drive, a tape library, a disk pool, and so on.

- The number of media servers should not exceed 50.

It is important to maintain a manageable number of media servers and storage targets within each NetBackup domain. Every media server and storage target that is deployed must be managed, maintained, and eventually patched and upgraded. Each of those media servers has a configuration that has to also be maintained. Therefore, it is important to consider the manageability, usability, and the administrative implications. Deploy media servers and storage targets

that are properly sized with the necessary CPU, memory, network bandwidth, and disk I/O to support the backup workloads. It is also important to consider whether the same workloads require duplication or replication to a DR location. Sizing the media servers and storage targets to accommodate those secondary options is crucial. In summary, Deploy properly sized media servers and storage targets, while keeping the number less than 50 per domain.

- The number of jobs must not exceed one job per second per client, but it is possible to submit multiple jobs per second, each sent from a different client. Each backup client has the "one job per second per client" limit, so multiple clients may run in parallel.
- Computing resources such as CPU and memory affect how well the primary server scales.

To accommodate the processing of the metadata streams from media servers, it is critical that the primary server has the requisite amount of system resources. A media server sends metadata about the files it has backed up to the primary server. This metadata is batched and sent periodically. The batch size, which is determined by the tuning parameter `MAX_ENTRIES_PER_ADD`, has significant effect on primary server performance, especially for backup images that contain many small files.

For additional information about batch size for sending metadata to the NetBackup catalog, see the *NetBackup Backup Planning and Performance Tuning Guide*.

The primary server must then process each of these metadata message payloads. Each payload requires an operating system process, each of which consumes system resources. The consumed system resources are disk capacity, CPU cycles, memory capacity, network bandwidth, and disk I/O.

[Table A-10](#) provides additional information.

Table A-10 Sizing guidelines

Number of processors	Recommended memory requirement	Maximum number of media servers per primary server *
8	128 GB	20
16	256 GB	100

*Limit the number of media servers to less than 50 media servers per domain.

Additional recommendations about processor and memory requirements are available.

See [“Upgrade requirements for UNIX and Linux”](#) on page 191.

See [“Upgrade requirements for Windows and Windows clusters”](#) on page 195.

MSDP upgrade for NetBackup

This appendix 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. It is recommended that you split the media servers by algorithm and create different storage units for each of them.

More information is available.

[NetBackup Deduplication Guide](#)