# Veritas NetBackup™ Installation Guide

## UNIX and Windows

## Release 9.0

21317387

VERITAS™

# Veritas NetBackup™ Installation Guide

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## Legal Notice



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| | |
|---|---|
| Worldwide (except Japan) | CustomerCare@veritas.com |
| Japan | CustomerCare_Japan@veritas.com |

## Documentation

Make sure that you have the current version of the documentation. Each document displays the date of the last update on page 2. The latest documentation is available on the Veritas website:

https://sort.veritas.com/documents

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http://www.veritas.com/community/

## Veritas Services and Operations Readiness Tools (SORT)

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

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

# Contents

Chapter 1

# Preparing for installation

This chapter includes the following topics:



## General installation information

Review this section for the general installation information that is related to NetBackup.

### Available NetBackup installation methods

The table that is shown details the various ways you can install NetBackup.

**Table 1-1** Installation options

| Installation type and operating system | Server | Client |
|---|---|---|
| Interactive UNIX and Linux | Master server<br>See "Installing NetBackup master server software on UNIX" on page 40.<br>Media server<br>See "Installing NetBackup media server software on UNIX" on page 47. | See "Installing UNIX clients locally" on page 116. |
| Interactive Windows | Master and media server<br>See "Performing local, remote, or clustered server installation on Windows systems" on page 72. | See "Installing NetBackup Windows clients locally or remotely" on page 103. |
| Silent UNIX and Linux | Media server<br>See "Silently installing NetBackup media server software on UNIX and Linux" on page 57. | See "Install of the UNIX and Linux client binaries with native installers" on page 122. |
| Silent Windows | Master and media server<br>See "Installing NetBackup servers silently on Windows systems" on page 90. | See "Installing NetBackup Windows clients silently" on page 112. |
| Remote UNIX and Linux | Not a valid installation method. | SSH<br>See "Installing client software with the ssh method" on page 135.<br>SFTP<br>See "Installing client software with the sftp method" on page 136. |
| Remote Windows | Master and media server<br>See "Performing local, remote, or clustered server installation on Windows systems" on page 72. | See "Installing NetBackup Windows clients locally or remotely" on page 103. |

# About compatibility between NetBackup versions

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

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

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

https://sort.veritas.com/

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

https://sort.veritas.com/eosl

See “About NetBackup software availability” on page 10.

# About NetBackup software availability

NetBackup 9.0 is available as ESD images for download from the **MyVeritas** webpage. The images adhere to a 1.8G size limitation.

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

# How to install NetBackup

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

| | |
|---|---|
| Step 1 | Install master server software. |
| Step 2 | Install media server software (NetBackup Enterprise only). |

| | |
|---|---|
| Step 3 | Install the NetBackup Remote Administration Console (optional). |
| Step 4 | Install client software. |
| Step 5 | Install any NetBackup add-on products (such as language packages). |

Before you proceed with any installation procedure, be sure to review the installation requirements.

See "Installation requirements for UNIX and Linux" on page 34.

See "Installation and upgrade requirements for Windows and Windows clusters" on page 64.

## About the NetBackup preinstall checker

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

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

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

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. Veritas 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.

One of the tests that is performed is a comparison of the installed Emergency Engineering Binaries (EEBs) with the fixes in the NetBackup version being installed.

If any of the preinstall tests fail, a message appears to indicate what type of action is required.

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

The preinstall check results are stored in the following locations:

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

See "About Veritas Services and Operations Readiness Tools" on page 20.

## About the NetBackup Product Improvement Program

The NetBackup Product Improvement Program captures installation deployment and product usage information.

During the NetBackup installation, you are enrolled in the NetBackup Product Improvement Program and send this information automatically and securely to Veritas. The information that Veritas receives becomes part of a continuous quality improvement program that helps understand how customers configure, deploy, and use the NetBackup product. This information is then used to help Veritas identify improvements in product features, testing, technical support, and future requirements.

To learn more about the NetBackup Product Improvement Program, refer to the NetBackup license agreement section 17.18 Data Collection; Data Protection Regulations. The following describes where to find the license agreement:

- UNIX
  In the downloaded media images from **MyVeritas**, see the file `LICENSE`.
- Windows
  From the downloaded media images from **MyVeritas**, start the installation wizard (`Browser.exe`). On the **Home** page, click **Installation**. On the **Installation** page, select either **Server Software Installation** or **Client Software Installation**. On the **Welcome** page, click **Next** to advance to the **License Agreement** page.

# Creating the user account to support the NetBackup web server

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

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

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

**To create the user account and the user group on UNIX or 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/openv/wmc user_name`

   Example: `# useradd -g nbwebgrp -c 'NetBackup Web Services application account' -d /usr/openv/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 master server fails if any of these requirements are not met. On Windows, you are asked to provide the password for the user account as part of the installation process.

# About storage device configuration

Reliable use of NetBackup depends on the proper configuration of your storage devices. To ensure reliable backups and restores, you must first install and configure devices to work with the operating system.

Before you install NetBackup, use the following guidelines to configure storage devices to work with the operating system:

| | |
|---|---|
| New installations | Before you install NetBackup, Veritas recommends that you install and configure your devices with the latest version of drivers. |

| | |
|---|---|
| Connections and settings | To prepare and connect new devices, perform the following tasks:<br>■ Set the SCSI ID (target). Make sure that it is set it to an available SCSI ID.<br>■ Physically attach your device to a compatible host bus adapter where that SCSI ID is available.<br>Compatible means that both the device and the host bus adapter are of the same type. For example, single-ended, high-voltage differential, low voltage differential, or Fibre Channel. |
| Configuration | To configure storage devices to work with the operating system, refer to the following documentation:<br>■ The instructions from the device and the operating system vendors.<br>■ See the chapter in the NetBackup Device Configuration Guide that is appropriate for your operating system. |
| NetBackup installation | After all storage devices are installed, configured, and verified to work with the operating system, you can install NetBackup. |

**Warning:** An improperly configured device can lead to backup failures, data loss, or both.

See "Installation requirements for UNIX and Linux" on page 34.

See "Installation and upgrade requirements for Windows and Windows clusters" on page 64.

## Locating supported robot types

You can find a list of the supported robot types in the *NetBackup Hardware and Cloud Storage Compatibility List (HCCL)*.

For your convenience, Veritas periodically updates this document on the Veritas support website

**To find the latest robot types that this release supports**

◆ Click on the following link to access the *NetBackup Hardware and Cloud Storage Compatibility List (HCCL)*:

http://www.netbackup.com/compatibility

# About security certificates for NetBackup hosts

NetBackup uses security certificates for authentication of NetBackup hosts. The NetBackup security certificates conform to the X.509 Public Key Infrastructure (PKI) standard. A master server acts as the 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 master server assigns these identifiers to the hosts.

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

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.

# Environment variable for certificate key size

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 master server acts as the certificate authority (CA) and issues digital certificates to hosts. NetBackup now supports the following certificate key sizes: 2048 bits, 4096 bits, 8192 bits, and 16384 bits.

With a NetBackup 9.0 installation, new root CA with 2048 bits key strength is deployed. To use a certificate key size larger than 2048 bits, set the `NB_KEYSIZE` environment variable on the master server before you start the installation.

For example:

```
NB_KEYSIZE = 4096
```

The `NB_KEYSIZE` can only have the following values: 2048, 4096, 8192, and 16384.

For more information about CA migration and certificate key sizes, see the NetBackup Security and Encryption Guide.

## Restrictions on the NetBackup installation directory

Each NetBackup supported file system defines restrictions on file and folder names for the installation folder. Consult the file system vendor provided documentation for more details on the file and the folder name restrictions.

Additionally, NetBackup supports only certain characters for the installation folder name. Use of non-supported characters can produce unexpected results and possibly result in lost data. The NetBackup supported characters for the installation folder are:

- UNIX and Linux
  The POSIX fully portable file name characters (`A-Z a-z 0-9 . _ -`)
- Windows
  The printable characters within the ASCII 7-bit range

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**Note:** On Traditional Chinese and Korean versions of Windows, if the NetBackup client is installed to a path that contains a space, restore operations may fail. Paths such as `C:\Program Files` contain a space. Make sure to install the NetBackup client software to a path that does not contain a space on these versions of Windows.

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Be aware that for Windows master servers, if you install NetBackup into a directory name with two periods, some restore operations fail. Directory names such as `..foldername` or `folder..name` are examples of directories where a restore can fail.

## NetBackup database is not supported on the `btrfs` file system

Veritas does not support the installation of the NetBackup database on a `btrfs` file system. Do not attempt to install the NetBackup database onto a `btrfs` file system. The database files reside on the master server in the directories under `/usr/openv/db`. Before you attempt a NetBackup upgrade, move the database to a supported file system (such as `ext4` or `xfs`) before you start the upgrade. More information about moving the database before an upgrade is available in the NetBackup Upgrade Guide.

# Installation operational notes and limitations

Review this section for the details that are related to operational notes, limitations, and requirements.

## Java GUI and JRE installation optional for some computers

Starting with NetBackup 8.3, the Java GUI and the JRE packages are optional for UNIX, 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 master 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 the Java GUI and the JRE after install or upgrade is available.

See "Add or Remove Java GUI and JRE after install" on page 196.

## Enable 8dot3 name file setting for NetBackup master servers that support NAT

For master servers only: To use the NetBackup Messaging Broker service for NAT you must enable the 8dot3 name file setting for the volume where NetBackup is installed. Use the Microsoft `fsutil` command to modify or confirm this setting.

## NetBackup servers must use a host name that is compliant with RFC 1123 and RFC 952

All NetBackup server names must use a host name that is complaint 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

## Host ID-based certificate is not deployed during installation on 8.1 media server or client host with dual stack configuration

In the environment shown, the host ID-based certificate is not deployed:

- The NetBackup master server is 8.1 or later with IPv6-only configuration.
- NetBackup 8.1 software is installed on a media server or a client host with dual stack configuration.

The host ID-based certificate is not deployed because the web service connection between the host and the master server was not established.

Workaround: Manually deploy the host ID-based certificate to the 8.1 host after the installation. Refer to the article shown:

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

## NetBackup 8.2 and later RHEL 8 installation issue

After you provide the NetBackup license key during the NetBackup 8.2 and later installation on RHEL 8, you receive the error shown:

```
/usr/openv/netbackup/bin/admincmd/bpminlicense: error while loading shared libraries: libnsl.so.1: cannot open shared object file: No such file or directory (127)
```

This issue results from the upgrade of the `libnsl.so.1` library by Red Hat. To resolve this installation issue, do one of the following:

1. Before you start the NetBackup installation, log into the RHEL 8 server with root credentials and install the `libnsl` library.
2. Log into the RHEL 8 server with root credentials and install the `libnsl` library. Then reinstall NetBackup.

## NetBackup 8.2 and later SUSE 15 installation issue

After you install NetBackup 8.2 and later on a SUSE 15 server, the NetBackup services do not start. This issue is the result of changes to the SUSE packages.

**To resolve this installation issue, do one of the following:**

1. Before NetBackup installation, install the `insserv-compat` package from the SuSE15 ISO.
2. If NetBackup is already installed:
   - Install the `insserv-compat` package from SuSE15 ISO.
   - Run the `insserv netbackup` command.
   - Run the `chkconfig netbackup` command. The output should be `netbackup on`.

## External certificate authority certificates supported in NetBackup 8.2 and later

NetBackup introduced support for external certificate authority certificates in NetBackup 8.2. This change provides an alternative to the NetBackup Certificate Authority for providing host verification and security. It supports certificates in PEM, DER, and P7B formats.

For information on external CA support in NetBackup and external CA-signd certificates, see the NetBackup Security and Encryption Guide.

### External certificate authority limitations in NetBackup 8.2

- **External certificate authority specifications containing UNC paths or mapped network drives fail for Windows hosts that use a remote installation method**

  You cannot use UNC paths and mapped network drives for external CA certificate specifications on Windows hosts performing remote installations. Remote installation methods include VxUpdate and the setup wizard push installation option. If you attempt to use a UNC path or mapped network drive, the precheck and the installation operations fail due to inaccessible paths.

## SCCM and Chef deployment tools and documentation now available

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

# SORT information

Review this section for the details that are related to Services and Operations Readiness Tools (SORT).

## About Veritas Services and Operations Readiness Tools

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

Access SORT from the following webpage:

https://sort.veritas.com/netbackup

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

- **Installation and Upgrade Checklist**
  Use this tool to create a checklist to see if your system is ready for a NetBackup installation or an upgrade. This report contains all the software and the hardware compatibility information specific to the information provided. The report also includes product installation or upgrade instructions, as well as links to other references.
- **Hot fix and EEB Release Auditor**
  Use this tool to find out whether a release that you plan to install contains the hot fixes that you need.
- **Custom Reports**
  Use this tool to get recommendations for your system and Veritas enterprise products.
- **NetBackup Future Platform and Feature Plans**
  Use this tool to get information about what items Veritas intends to replace with newer and improved functionality. The tool also provides insight about what items Veritas intends to discontinue without replacement. Some of these items include certain NetBackup features, functionality, 3rd-party product integration, Veritas product integration, applications, databases, and the OS platforms.

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

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

## Recommended SORT procedures for new installations

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

**Table 1-2**

| Procedure | Details |
|---|---|
| Create a Veritas Account on the SORT webpage | See "To create a Veritas Account on the SORT page" on page 22. |
| Create generic installation reports | See "To create a generic installation checklist" on page 23. |
| Create system-specific installation reports | See "To create a system-specific installation report for Windows" on page 23.<br>See "To create a system-specific installation report for UNIX or Linux" on page 24. |

### To create a Veritas Account on the SORT page

1. In your web browser, navigate to:

   https://sort.veritas.com/netbackup

2. In the upper right corner, click **Login**, then click **Register now**.
3. Enter the requested login and contact information:

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

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

**To create a generic installation checklist**

1. In your web browser, navigate to:

   https://sort.veritas.com/netbackup

2. Find and select the **Installation and Upgrade Checklist** widget.

3. Specify the requested information

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

4. Click **Generate Checklist**.

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

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

**To create a system-specific installation report for Windows**

1. Go to the SORT website:

   https://sort.veritas.com/netbackup

2. In the **Installation and Upgrade** section, select **Installation and Upgrade custom reports by SORT data collectors**.

3. Select the **Data Collectors** tab

4. Select the radio button for **Graphical user interface** and download the correct data collector for your platform.

   The data collector is OS-specific. To collect information about Windows computers, you need the Windows data collector. To collect information about UNIX computers, you need the UNIX data collector.

5. Launch the data collector after it finishes downloading.

6. On the **Welcome** screen, select **NetBackup** from the product family section and click **Next**.

7. On the **System Selection** screen, add all computers you want analyzed. Click **Browse** to see a list of computers you can add to the analysis. Veritas recommends starting the tool with an administrator or a root account.

8. When all systems are selected, review the **System names** section and click **Next**.

9. In the **Validation Options** screen, under **Validation options**, select the version to which you plan to upgrade.

10. Click **Next** to continue

11. The utility performs the requested checks and displays the results. You can upload the report to My SORT, print the results, or save them. Veritas recommends that you upload the results to the My SORT website for ease of centralized analysis. Click **Upload** and enter your My SORT login information to upload the data to My SORT.

12. When you are finished, click **Finish** to close the utility.

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

1. Go to the SORT website:

   https://sort.veritas.com/netbackup

2. In the **Installation and Upgrade** section, select **Installation and Upgrade custom reports by SORT data collectors**.

3. Select the **Data Collector** tab.

4. Download the appropriate data collector for your platform.

   The data collector is OS-specific. To collect information about Windows computers, you need the Windows data collector. To collect information about UNIX computers, you need the UNIX data collector.

5. Change to directory that contains downloaded utility.

6. Run `./sortdc`

   The utility performs checks to confirm the latest version of the utility is installed. In addition, the utility checks to see it has the latest data. The utility then lists the location of the log file for this session.

7. If requested, press **Enter** to continue.

8. Select the **NetBackup Family** at the **Main Menu**.

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

   You can select multiple options by separating your response with commas.

10. Specify the system or systems you want included in the report.

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

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

    The progress of the utility is displayed to the screen.

11. Specify **NetBackup** when prompted for the product you want installation or upgrade reports.

12. Enter the number that corresponds to the version of NetBackup you want to install.

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

    The progress of the utility is displayed to the screen.

13. The utility prompts you to upload the report to the SORT website if you want to review the report online. The online report provides more detailed information than the text-based on-system report.

14. When your tasks are finished, you can exit the utility. You have the option to provide feedback on the tool, which Veritas uses to make improvements to the tool.

## Recommended SORT procedures for upgrades

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

**Table 1-3**

| Procedure | Details |
|---|---|
| Create a Veritas Account on the SORT webpage | See "To create a Veritas Account on the SORT page" on page 22. |
| Create a system-specific upgrade report | See "To create a system-specific installation report for Windows" on page 23.<br>See "To create a system-specific installation report for UNIX or Linux" on page 24. |
| Review the future platform and feature plans.<br>Review the hot fix and emergency engineering binary release auditor information. | See "To review future platform changes and feature plans" on page 26.<br>See "To review hot fix and emergency engineering binary information" on page 26. |

### 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.

# Veritas NetInsights Console information

Veritas NetInsights Console is a new SaaS-based unified platform with Veritas products and features. It helps you manage your usage and your license entitlements as well as leverages product telemetry and support data to offer software and appliance insights.

The NetInsights Console delivers a cohesive experience and eliminates the need to switch between multiple products.

To connect to Veritas NetInsights Console, use the following URL:

https://netinsights.veritas.com

## About Veritas Usage Insights

Veritas 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 requires Veritas NetBackup 8.1.2 and later.

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, or Complete), 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 to Veritas by automatically providing the necessary telemetry.

The following URL provides additional answers to frequently asked questions.

https://help.veritas.com/vxhelp6/#/?context=veritas_usage_insights_netbackup&token=vui_nbu_faqs

---

**Caution:** Usage Insights is compatible with Google Chrome and Mozilla Firefox. Veritas does not recommend using Microsoft Edge or Microsoft Internet Explorer, as they do not render all information correctly.

---

See "Best practices for Veritas Usage Insights" on page 28.

# Best practices for Veritas Usage Insights

Veritas suggests certain best practices for use of the Usage Insights tool.

- Usage Insights is compatible with Google Chrome and Mozilla Firefox. Veritas does not recommend using Microsoft Edge or Microsoft Internet Explorer, 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 master server must allow outbound `HTTPS` traffic to take advantage of the automatic upload feature. Manual uploads require `HTTPS` traffic from the upload location.
- Your customer registration key is not a license key.
  The registration key is required for Usage Insights to work, but it is not your NetBackup license key. The customer registration key is downloaded from the Usage Insights website and is specific to Usage Insights.
- If you have multiple account IDs, when you download your customer registration key, you may have an aggregate registration key. This aggregate registration key includes all of your account IDs. You can use the aggregate key on all of your master servers. NetBackup does, however, prompt you to assign the specific key with a specific account ID to a specific master server. If you want, you can use this aggregate key for all your master servers.
- During install and upgrade to NetBackup 8.1.2, allow the installer to copy the `veritas_customer_registration_key.json` file to its final destination. NetBackup can set the file permission and ownership correctly through this process. If you place the file onto your systems outside of the install or the upgrade process, the process may not work correctly.
- Be aware that NetBackup does not support the short file name format (8.3 format) for the customer registration key file name.
- For answers to frequently asked questions, visit the URL shown:
  https://help.veritas.com/vxhelp6/#/?context=veritas_usage_insights_netbackup&token=vui_nbu_faqs

**To download the customer registration key**

1. Log into Veritas NetInsights Console with Google Chrome or Mozilla Firefox.
   https://netinsights.veritas.com
2. Navigate to the **Veritas Usage Insights** page.
3. Download the appropriate customer registration key for your master server.

Chapter 2

# NetBackup licenses

This chapter includes the following topics:



## About NetBackup license requirements

To install NetBackup master server or media server software, you must enter a NetBackup product license.

To obtain licenses, you must order a license SKU when you order your NetBackup products.

After you place your order, Veritas sends you an email with a license certificate that includes the following information:

| | |
|---|---|
| List of NetBackup licenses purchased | This list includes all of the licenses for the products that you ordered.<br><br>Keep this list in a secure location. You may be asked for a product license if you ever need to contact technical support for assistance. |
| Serial number for access to download NetBackup products | Go to the following website and enter this serial number to download the ESD images to your system:<br><br>http://my.veritas.com |

When you install NetBackup, Veritas recommends that you enter all other product licenses on the master server when you are prompted. Although you can add these licenses later, it is easier to enter them when you install the master server software.

For detailed information on how to administer NetBackup licenses, refer to the NetBackup Administrator's Guide, Volume I.

# About license key entry

Licenses for all NetBackup SKUs must be entered on the master server. Licenses for some SKUs must also be entered on the media server, depending on the capabilities that you require for the media server.

Table 2-1 describes the licenses that must be entered on each server.

**Table 2-1** Required licenses for NetBackup media servers

| Media server type | Required licenses (based on media server capabilities) |
|---|---|
| Enterprise media servers | ■ NetBackup Enterprise Server 9.0 UNX<br>■ NetBackup Enterprise Server 9.0 WIN/LNX/SOLX64<br>■ NetBackup Standard Infrastructure 9.0 XPLAT1 Front End TBYTE<br>■ NetBackup Enterprise Infrastructure 9.0 XPLAT1 Front End TBYTE<br>■ NetBackup Platform Base<br>■ NetBackup Option Library Based Tape Drive 9.0 XPLAT<br>■ NetBackup Option Shared Storage Option 9.0 XPLAT<br>■ NetBackup Option NDMP 9.0 XPLAT |
| SAN media servers | ■ NetBackup Enterprise Client, UNIX<br>■ NetBackup Enterprise Client, Windows/Linux |

Enter licenses by using one of the following methods:

- During NetBackup master server and media server installation (recommended)
  The installation script prompts you to enter the licenses for all NetBackup products that you plan to install.
- NetBackup Administration Console
  After NetBackup master server or media server installation, open the console and click **Help > License Keys**.
- Command-line interface (UNIX only)
  After NetBackup master server or media server installation, use the following command:

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

**Note:** You can log on to a NetBackup server from almost any server in a system to view, enter, and administer licenses. When you administer licenses remotely, make sure that you view the licenses of the system you intend to change. You do not want to add or change a license on the wrong server.

# Frequently asked questions about license keys

Veritas customers have asked the following questions about how to manage license keys.

**Table 2-2**

| Question | Answer |
|---|---|
| Is the license system for NetBackup the same as the license system in other Veritas products? | NetBackup uses a common license system that other Veritas products also use. Please remember, however, that the common license system provides flexibility in the license features that each product implements. For example, NetBackup does not have a node-locked license system, but some other products do. |
| What does the license key look like? What information does it contain? | The key is a serial number (for example: `xxxx-xxxx-xxxx-xxxx-xxxx-xxx`). The key contains information on the following:<br>■ Whether the key is for NetBackup Server or NetBackup Enterprise Server<br>■ Whether the key is for a server, a client, an agent, or an option (and which one)<br>■ Whether the key is a permanent key or an evaluation key<br>■ Information about how and where the key was generated |
| Is the license key serialized? | Yes, serialization information is embedded in the key. |
| Can I see reports on what license keys I have? | Yes. Information about license keys is stored on the master server.<br>To access the information, open the NetBackup Administration Console and select **Help > License Keys**.<br>On UNIX servers, you can also run the following command:<br>`/usr/openv/netbackup/bin/admincmd/get_license_key`<br>For more information on how to view reports, refer to the NetBackup Administrator's Guide, Volume I. |

**Table 2-2** *(continued)*

| Question | Answer |
|---|---|
| How do I enable options and agents? | When you install NetBackup, you are prompted to enter the license keys for all options and agents.<br><br>If you purchase an agent or other add-on product at a later date, you can enter its license key manually. Open the NetBackup Administration Console and select **Help > License Keys**.<br><br>On UNIX servers, you can also run the following command:<br><br>`/usr/openv/netbackup/bin/admincmd/get_license_key` |
| Should I save license keys after they have been entered? | Yes. Always store copies of your license keys in a secure place. |
| What should I do if I have lost my license key(s)? | Veritas has a record of all license keys that are issued to customers. Customers who lose their license key(s) can call Order Management to get copies of their license keys.<br><br>If you have purchased NetBackup from a Veritas partner, you need to contact that partner for information on your key. |
| How are large volume orders handled? | Many NetBackup installations are very large, and the license keys are long. License keys that you enter multiple times can be time-consuming. You can request a single license key for each type of NetBackup component you purchase. For example, you can obtain one license key for use with 50 Oracle agents. Site licenses enable unrestricted use for specific NetBackup agents or options.<br><br>You still need a unique license key for each type of NetBackup component that you purchase. Separate license keys are required for components like NetBackup Server, a Lotus Notes agent, or any NDMP option. |
| What about license keys for customers with site licenses? | Site licenses are handled much like large volume orders are. The certificate for a site license states that the license key is good for unlimited copies. |
| Do I need a license key to enable NetBackup Remote Administration Consoles? | No. NetBackup Remote Administration Consoles do not require special license keys. You can install them on any computer with access to the master server. |
| Can a license key be used multiple times? | Yes. You can use your license keys multiple times. You are, however, legally bound to install and use only the number of NetBackup servers, clients, agents, and options for which you purchase licenses. |

**Table 2-2** *(continued)*

| Question | Answer |
|---|---|
| How do existing customers get license keys? | All NetBackup customers who have current maintenance contracts with Veritas automatically receive the latest version of NetBackup. You receive the NetBackup media kit and license keys for every component for which you purchased licenses.<br>If your maintenance is through a Veritas partner, you upgrade through the partner. Contact the partner for more details. |
| What if I do not get the right license keys? | If you believe that you received an incorrect license key, contact Order Management using the number on your license key certificate. Technical support does not issue permanent license keys. You can obtain license keys only through Order Management. Technical support can provide temporary one-month license keys to you while issues regarding permanent license keys are resolved. |
| What does an evaluation license enable? | The evaluation license enables unrestricted use of NetBackup, its agents, and its options for a predetermined period of time. |
| Am I notified when an evaluation is about to expire? | To find out when a license key expires, open the NetBackup Administration Console and select **Help > License Keys**.<br>On UNIX servers, you can also run the following command:<br>`/usr/openv/netbackup/bin/admincmd/get_license_key` |
| What happens when an evaluation license expires? | The NetBackup services or daemons are shut down. When you attempt to use the product you are informed that its evaluation period has expired. |
| Does NetBackup save the backup configuration and catalog information when evaluation license expire? | Yes. Customers who add a permanent license to an evaluation version of NetBackup have immediate access to their catalog information and configuration information. |
| How do I upgrade from an evaluation license to a permanent license? | It is easy. When you purchase a permanent license, you add that license to NetBackup. All the configuration information and catalog data from your evaluation version is retained.<br>To enter your permanent license key, open the NetBackup Administration Console and select **Help > License Keys**.<br>On UNIX servers, you can also run the following command:<br>`/usr/openv/netbackup/bin/admincmd/get_license_key` |

Chapter 3

# Installing server software on UNIX systems

This chapter includes the following topics:



## Installation requirements for UNIX and Linux

Table 3-1 describes the requirements to prepare your UNIX and Linux systems for NetBackup installation. Use this table as a checklist to address each item.

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

See "About Veritas Services and Operations Readiness Tools" on page 20.

**Table 3-1** 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 *Software Compatibility List (SCL)* at the following website:<br>http://www.netbackup.com/compatibility<br>https://sort.veritas.com/netbackup |

**Table 3-1** NetBackup requirements for UNIX and Linux *(continued)*

| Check | Requirement | Details |
|---|---|---|
| | Memory | ■ Master servers in a production environment with several database agents enabled should have a minimum of 16 GB of memory and four cores each.<br>NetBackup does not enforce minimum memory requirements. Veritas does, however, recommend using at least the minimum recommended memory. Failure to use the minimum recommended memory amounts can result in unacceptable performance.<br>■ Media servers in a production environment with several database agents enabled should have a minimum of 4 GB of memory each. |
| | Disk space | ■ The exact amount of space that is required depends on the hardware platform. More information about this topic is available.<br>NetBackup Release Notes for 9.0<br>■ 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:<br>■ The number of files that are backed up.<br>■ The frequency of your backups.<br>■ The amount of time that you set to retain your backup data.<br>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 `/usr/openv`.<br>**Note:** The value for disk space is for initial installation only. The NetBackup catalog requires considerably more space once the master server is placed in a production environment. |
| | General requirements | ■ Ensure that the `gzip` and the `gunzip` commands are installed on the local system. The directories where these commands are installed must be part of the root user's path environment variable setting.<br>■ All NetBackup installation ESD images, appropriate licenses, and the root password for all servers.<br>■ 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 9.0.<br>■ All NetBackup servers must recognize and be recognizable by their client systems. In some environments, this means that each must be defined in the other's `/etc/hosts` file. Other environments may use the Network Information Service (NIS) or Domain Name Service (DNS).<br>■ The minimum screen resolution configuration is 1024x768, 256 colors. |

**Table 3-1** NetBackup requirements for UNIX and Linux *(continued)*

| Check | Requirement | Details |
|---|---|---|
| | Clustered systems | ■ Ensure that each node in the NetBackup cluster can run the `ssh` command or its equivalent. The root user must be able to perform a remote logon to each node in the cluster without entering a password. This remote logon is necessary for installation and configuration of the NetBackup server and any NetBackup agents and options. After installation and configuration are complete, it is no longer required.<br>■ You must install, configure, and start the cluster framework before you install NetBackup.<br>■ You must have defined a virtual name using DNS, NIS, or the `/etc/hosts` file. The IP address is defined at the same time. (The virtual name is a label for the IP address.)<br>■ Begin the upgrade from the active node, and then upgrade the inactive nodes.<br>More information about cluster requirements is available.<br>NetBackup Clustered Master Server Administrator's Guide |
| | NFS compatibility | Veritas does not support installation of NetBackup in an NFS-mounted directory. File locking in NFS-mounted file systems can be unreliable. |
| | Kernel reconfiguration | For some peripherals and platforms, kernel reconfiguration is required.<br>For more details, see the NetBackup Device Configuration Guide. |
| | Linux | Before NetBackup installation, confirm the system libraries that are shown are present. If any library is not present, install the one provided by your operating system.<br>■ `libnsl.so.1`<br>■ `insserv-compat`<br>■ `libXtst` |
| | Red Hat Linux | For Red Hat Linux, NetBackup requires server networking. |
| | Other backup software | Veritas recommends that you remove any other vendor backup software currently configured on your system before you install this product. Other vendor backup software can negatively affect how NetBackup installs and functions. |

**Table 3-1** NetBackup requirements for UNIX and Linux *(continued)*

| Check | Requirement | Details |
|---|---|---|
| | Web Services | Beginning with NetBackup 8.0, the NetBackup master server includes a configured Tomcat web server to support critical backup operations. This web server operates under user account elements with limited privileges. These user account elements must be available on each master server (or each node of a clustered master server). You must create these required account elements before installation. More information is available:<br><br>See "NetBackup master server web server user and group creation" on page 192.<br><br>**Note:** Veritas recommends that you save the details of the user account that you use for the NetBackup Web Services. A master server recovery requires the same NetBackup Web Services user account and credentials that were used when the NetBackup catalog was backed up.<br><br>**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.<br><br>http://www.veritas.com/docs/000115774<br><br>By default, the UNIX installation script attempts to associate the web server with user account `nbwebsvc` and group account `nbwebgrp`. 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.<br><br>**1** Log in to the server as root.<br><br>**2** Open the file /tmp/NBInstallAnswer.conf with your preferred text editor. Create the file if it does not exist.<br><br>**3** Override the default web server user account name by adding the line shown:<br><br>`WEBSVC_USER=`*`custom_user_account_name`*<br><br>**4** Override the default web server group account name by adding the line shown:<br><br>`WEBSVC_GROUP=`*`custom_group_account_name`*<br><br>**5** Save and close the file. |

**Table 3-1** NetBackup requirements for UNIX and Linux *(continued)*

| Check | Requirement | Details |
|---|---|---|
| | Customer Registration Key for Veritas Usage Insights | Beginning with NetBackup 8.1.2, you must specify a Customer Registration Key for Veritas Usage Insights. More information about Veritas Usage Insights is available:<br>See "About Veritas Usage Insights" on page 27.<br>During install and upgrade to NetBackup 8.1.2, please allow the installer to copy the `veritas_customer_registration_key.json` file to its final destination. NetBackup can set the file permission and ownership correctly through this process. If you place the file onto your systems outside of the install or the upgrade process, the process may not work correctly.<br>**Note:** Be aware that NetBackup does not support the short file name format (8.3 format) for the customer registration key file name. |

## Do not mix non-English versions of Windows and UNIX platforms unless master and media servers are NetBackup appliances

Do not mix non-English versions of Windows and UNIX platforms unless your master servers and media servers are NetBackup appliances. If you mix non-English versions of Windows and UNIX platforms, differences in operating system architecture and encodings may cause non-ASCII file names and folder names to display incorrectly within the user interface. This issue may cause functional failures.

## NetBackup installations on environments that run different versions of UNIX-based operating systems

NetBackup can be installed in environments that run different versions of UNIX-based operating systems as long as the system locales are identical. The use of different locales across UNIX platforms may cause non-ASCII file names and folder names to display incorrectly within the user interface. This issue may cause functional failures.

## Special installation guidelines for Solaris systems

Several kernel-tunable parameters, such as Message Queue, Semaphore, and Shared Memory Parameters, can affect NetBackup performance. If you adjust these values, you may prevent your system performance from slowing down or even reaching a deadlock state.

More information about tunable parameters is available online.

- Recommended NetBackup *NIX semaphore tuning values (Linux and Solaris)

http://www.veritas.com/docs/000081309

- Tuning Solaris 10 for NetBackup
  http://www.veritas.com/docs/000035120
- Tuning Solaris 10 shared memory for NetBackup Media Server processes (bptm / bpdm)
  http://www.veritas.com/docs/000034846
  While this link refers to NetBackup 6.*x*, the information remains valid for NetBackup 7.*x* and NetBackup 8.*x*.

## Special installation guidelines for UNIX clustered environments

Use the following guidelines when you install NetBackup in clustered systems:

- Ensure that each node in the NetBackup cluster can run the `ssh` command. 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 options. After installation and configuration are completed, it is no longer required.
- You must install, configure, and start the cluster framework before you install NetBackup. For additional installation prerequisites and installation notes, see the NetBackup Clustered Master Server Administrator's Guide.
- You must have defined a virtual name using DNS, NIS, or `/etc/hosts`. The IP address is defined at the same time. (The virtual name is a label for the IP address.) Use this virtual name and IP address only for the NetBackup resource.

# How the installation script works

When you install NetBackup server software, client software is also installed.

When you install NetBackup 9.0, the following options are also installed if the platform supports them:

- BMR Master Server
- NDMP
- Veritas Product Authentication and Authorization (NetBackup Access Control)
- Vault
- BMR Boot Server
- DB2
- Encryption

- Informix
- VxUpdate agent
- Lotus Notes
- Oracle
- SAP
- Snapshot Client
- Sybase

After installation is complete, a valid license key for each option must be entered to enable its functionality. Each option must also be configured as needed.

In addition to server software and options, the installation script performs the following tasks:

| | |
|---|---|
| Host names | Places the host name in the `/usr/openv/netbackup/bp.conf` file on the server.<br>For clustered environments, the script places the virtual host name in the `/usr/openv/netbackup/bp.conf` file on the server. |
| Automatic startup and shutdown scripts | Adds the automatic startup and shutdown scripts to the appropriate directories on the various supported platforms. |
| PBX | If the computer where you install NetBackup does not already have PBX and the platform supports it, the installation script installs PBX.<br>If PBX already exists on the computer, the installation script performs one of the following tasks:<br>■ Updates the existing version if it is older than the version that is included with 9.0.<br>■ Does not update PBX if the existing version is the same or later than the version that is included with 9.0. |

# Installing NetBackup master server software on UNIX

The master server manages backups, archives, and restores. The master server is where the NetBackup catalog resides which includes the internal databases that contain information about NetBackup configuration and backups.

Customers who use the NetBackup installation script for their UNIX and Linux master servers only see a single change to the installation behavior. The NetBackup installation script no longer copies the installation package into the `/usr/openv/pack/` directory on the client. A successful installation or upgrade is recorded in the `/usr/openv/pack/install.history` file.

Use the following guidelines for a new master server installation:

| | |
|---|---|
| Designate master server | Designate the computer that you want to be the master server and install the master server software on that computer first. |
| Licenses | During master server installation, you must enter a NetBackup base product license. You must also enter licenses for any additional NetBackup product options or agents that are used on the server or its clients. These additional licenses must be entered on the master server.<br><br>If you add or make and save any license updates in the NetBackup-Java Administration Console, you must restart the console.<br><br>For more information on how to administer NetBackup licenses, see the NetBackup Administrator's Guide, Volume I. |
| Customer Registration Key for Veritas Usage Insights | Beginning with NetBackup 8.1.2, you must specify a Customer Registration Key for Veritas Usage Insights. More information about Veritas Usage Insights is available:<br><br>See "About Veritas Usage Insights" on page 27.<br><br>During install and upgrade to NetBackup 8.1.2, please allow the installer to copy the `veritas_customer_registration_key.json` file to its final destination. NetBackup can set the file permission and ownership correctly through this process. If you place the file onto your systems outside of the install or the upgrade process, the process may not work correctly. |
| Installation method | NetBackup installation script:<br><br>See "To install NetBackup master server software" on page 42. |

### To install NetBackup master server software

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:

   ```
   Veritas Installation Script
   Copyright 1993 - 2016 Veritas Corporation, All Rights Reserved.


           Installing NetBackup Server Software


   Please review the VERITAS SOFTWARE LICENSE AGREEMENT 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 Veritas Services and
   Operations Readiness Tools (SORT) Installation and Upgrade Checklist
   and Hot fix and EEB Release Auditor, respectively, at
   https://sort.veritas.com/netbackup.

   ATTENTION!  To help ensure a successful upgrade to NetBackup 9.0,
   please visit the NetBackup 8.x Upgrade Portal:
   http://www.veritas.com/docs/000115678.

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

4. When the following message appears press **Enter** to continue:

   ```
   Is this host a master server? [y/n] (y)
   ```

5 If you need to perform a disaster recovery of your master server, select `Y` when prompted. Press **Enter** for the default **N**.

```
Do you want to do a disaster recovery on this master server? [y/n]
(n)
```

The disaster recovery process requires additional steps and information that is not covered in this manual. More information is available.

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6 When the following question appears, enter the fully qualified path that contains your customer registration key.

```
Please enter the fully qualified path containing your customer
registration key file, or enter q to quit the install script.
```

During install and upgrade to NetBackup 8.1.2, please allow the installer to copy the `veritas_customer_registration_key.json` file to its final destination. NetBackup can set the file permission and ownership correctly through this process. If you place the file onto your systems outside of the install or the upgrade process, the process may not work correctly.

7 For the NetBackup installation location, enter the appropriate platform information as follows:

- When the following question appears, press `Enter` to accept the default (**y**).

```
The NetBackup and Media Manager software is built
for use on <platform> hardware. Do you want to install
NetBackup and Media Manager files? [y,n] (y)
```

- When the following question appears, select where to install NetBackup and Media Manager software:

```
NetBackup and Media Manager are normally
installed in /usr/openv.
Is it OK to install in /usr/openv? [y,n] (y)
```

The path displayed for Solaris is `/opt/openv`.

To accept the default (**y**), press `Enter`.

To change the installation location, type `n` and press **Enter**. Then enter the appropriate destination.

Additional information about installation folder restrictions is available.

See "Restrictions on the NetBackup installation directory" on page 17.

8 Enter the Netbackup server or Enterprise server License.

9 Type **y**, then follow the prompts to add license keys for other NetBackup options and agents.

Although you can add licenses later, you should enter them now. If you add any licenses later through the NetBackup Administration Console, you must restart the console.

10 After all licenses are entered, type **q** to quit the License Key Utility and complete the server software installation.

11 Verify or enter the correct computer name when prompted by the following message:

```
Installing NetBackup Enterprise Server version: 9.0
If this machine will be using a different network interface than
the default (name), the name of the preferred interface
should be used as the configured server name. If this machine
will be part of a cluster, the virtual name should be used as the
configured server name.
The domainname of your server appears to be "domain". You
may choose to use this domainname in your configured NetBackup
server name, or simply use "name" as the configured
NetBackup server name.
Would you like to use "name.domain" as the configured NetBackup server
name of this machine? [y, n] (y)
```

**Note:** Incorrect information for the domain name results in failures during the configuration of Authentication Broker and NetBackup Access Controls. To correct this problem, use the `bpnbaz -configureauth` command to configure Authentication Broker. More information about the `bpnbaz -configureauth` command is available.

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

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

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

- To accept the displayed name (which is the name that you identified in the previous step), press **Enter**.
- If you entered a virtual name for the server in the previous step, the installation script presents the following question:

  ```
  Is this server part of a cluster installation?
  ```

  If the answer is yes, press **y** and answer the series of cluster configuration questions that appear.
  If the answer is no, press **n**.

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

```
Do you want to add any media servers now? [y, n] (n)
```

- If there are no media servers for this master server, press **Enter** and proceed to the next step.
- If there are media servers for this master server, type **y** and enter the name of each media server.
  When you enter the media server names, you must enter the computer name and the domain name. For example:

  **alpha.domain.com**

  Where `alpha` is the computer name and `domain.com` is the domain name. The media server names that you enter here are added to the `bp.conf` file on the master server, automatically. After you install the media server software later, the master server can then communicate with the media servers immediately.
- To add a media server to an existing and an operational NetBackup environment, you cannot use the procedures in this guide. For complete details on how to add a media server to an existing and an operational NetBackup environment, see the NetBackup Administrator's Guide, Volume II.

**14** When the following message appears, press **Enter** and accept the default name of the EMM server. You must configure EMM on the master server. All master servers must have their own EMM configuration. Remote EMM or shared EMM is no longer supported.

```
NetBackup maintains a centralized catalog (separate from the
image catalog) for data related to media and device
configuration, device management, storage units, hosts and host
aliases, media server status, NDMP credentials, and other
information. This is managed by the Enterprise Media Manager
server.
Enter the name of the Enterprise Media Manager (default: <name>)
```

**15** Answer the following question when it appears:

```
Do you want to start the NetBackup job-related processes so backups and
restores can be initiated? [y, n] (y)
```

- If you have (or want to have) a clustered NetBackup server, type **n**.
- For non-clustered installations, press **Enter** to accept the default answer (**y**) and start the NetBackup processes and the EMM server.
  You must start these processes now because the EMM server must be running when you install any media servers later.

**16** For a clustered NetBackup master server, repeat these steps on every node on which you want to run NetBackup.

**17** (Conditional) On a clustered NetBackup master server, you must obtain the Certificate Authority certificate and the host certificate for each inactive node. More information is available:

See "Generate a certificate on the inactive nodes of a clustered master server" on page 170.

**18** After your initial installation is complete, you can install any other NetBackup add-on products (such as language packages).

**19** (Conditional) If you use an external certificate authority (ECA) in your environment, configure the ECA now. More information is available:

https://www.veritas.com/support/en_US/article.100044300

**20** (Conditional) If you plan to configure customized settings for your Tomcat web server, determine if those settings can persist across upgrades. More information is available:

See "Persistent Java Virtual Machine options" on page 189.

**21** Complete the NetBackup installation as indicated.

See "Continuing with NetBackup software installation" on page 47.

## Continuing with NetBackup software installation

After you have installed the master server software, you are ready to install media server software or client software depending on your environment.

- If you have media servers in your system, you are ready to install media server software.
  See "Installing NetBackup media server software on UNIX" on page 47.
- If there are no media servers in your environment, you are ready to install client software on client computers.
  - See "Installing UNIX clients locally" on page 116.
  - To install client software on clients from the master server location (recommended), you must first install the client type software on the master server.
    See "Installing client type software on a master server" on page 62.

# Installing NetBackup media server software on UNIX

This section describes how to install a new NetBackup media server. After you have installed the master server, you are ready to install media server software on media server computers. Use this information to install the server software on a computer with no existing version of NetBackup.

Veritas supports two media server installation methods: either the NetBackup installation script or the native UNIX and Linux installers. The NetBackup installation script is the standard installation method and is recommended for new users. The native UNIX and Linux installers are potentially more difficult and require additional steps.

Customers who use the NetBackup installation script for their UNIX and Linux media servers only see a single change to the installation behavior. The NetBackup installation script no longer copies the installation package into the

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

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

Use the following guidelines when you install new media servers:

| | |
|---|---|
| Designate media servers | Designate the computers that you want to be media servers and install the media server software on them. |
| License keys | When you install NetBackup media server software, you must enter a NetBackup product license. You must also enter a license for any additional NetBackup product options or agents that are used on the server or its clients. These additional licenses must be entered on each media server.<br><br>For more information on how to administer NetBackup licenses, see the NetBackup Administrator's Guide, Volume I.<br><br>**Note:** If you make and save any license changes in the NetBackup-Administration Console, you must restart the console. |
| CA Certificate fingerprint | If you use a NetBackup Certificate Authority, you must know the CA Certificate fingerprint of the master 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.<br><br>https://www.veritas.com/support/en_US/article.000127129 |
| Authorization Token | In some cases, if you use a NetBackup Certificate Authority, the installer requires an authorization token to successfully deploy security certificates. This requirement only applies if you use a NetBackup Certificate Authority. More information is available about the details on authorization tokens and their role in generation of security certificates.<br><br>https://www.veritas.com/support/en_US/article.000127129 |
| External certificate authority | If you use an external certificate authority (ECA), you need to know the location of your certificate. You also need know how you want to configure the Certificate Revocation Lists (CRLs). |

| | |
|---|---|
| Install method | ■ NetBackup installation script<br>See "To install NetBackup media server software with the NetBackup installation script" on page 49.<br>■ Native UNIX and Linux installers<br>See "Silently installing NetBackup media server software on UNIX and Linux" on page 57. |
| Java GUI and JRE | Installation of the Java GUI and the JRE is optional. Decide if you want to install the Java GUI and JRE on this computer.<br><br>If you change your mind after the installation completes, you can add or remove the Java GUI and the JRE after the installation. More information about the Java GUI and the JRE is available.<br><br>See "Add or Remove Java GUI and JRE after install" on page 196. |

### To install NetBackup media server software with the NetBackup installation script

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:

```
Veritas Installation Script
Copyright 1993 - 2016 Veritas Corporation, All Rights Reserved.


        Installing NetBackup Server Software


Please review the VERITAS SOFTWARE LICENSE AGREEMENT 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 Veritas Services and
Operations Readiness Tools (SORT) Installation and Upgrade Checklist
and Hot fix and EEB Release Auditor, respectively, at
https://sort.veritas.com/netbackup.

ATTENTION!  To help ensure a successful upgrade to NetBackup 9.0,
please visit the NetBackup 8.x Upgrade Portal:
http://www.veritas.com/docs/000115678.

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

**4** Indicate if the current computer is the master server by answering the following question when it appears:

```
Is this host the master server? [y,n]
```

**5** Verify or enter the correct computer name when prompted by the following message:

```
Installing NetBackup Enterprise Server version: 9.0
If this machine will be using a different network interface than
the default (name), the name of the preferred interface
should be used as the configured server name. If this machine
will be part of a cluster, the virtual name should be used as the
configured server name.
The domainname of your server appears to be "domain". You
may choose to use this domainname in your configured NetBackup
server name, or simply use "name" as the configured
NetBackup server name.
```

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

**Note:** Incorrect information for the domain name results in failures during the configuration of Authentication Broker and NetBackup Access Controls. To correct this problem, use the `bpnbaz -configureauth` command to configure Authentication Broker. More information about the `bpnbaz -configureauth` command is available.

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- If the displayed (default) media server name is correct, press **Enter**.
- If the displayed (default) media server name is not correct, type **n** and enter the correct name.

6 Identify the name of the master server when prompted with this question:

```
What is the fully qualified name of the master server?
```

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

7 For the NetBackup installation location, enter the appropriate platform information as follows:

- When the following question appears, press **Enter** to accept the default (**y**).

```
The NetBackup and Media Manager software is built
for use on <platform> hardware. Do you want to install
NetBackup and Media Manager files? [y,n] (y)
```

- When the following question appears, select where to install NetBackup and Media Manager software:

```
NetBackup and Media Manager are normally
installed in /usr/openv.
Is it OK to install in /usr/openv? [y,n] (y)
```

The path displayed for Solaris is `/opt/openv`.
To accept the default (**y**), press **Enter**.
To change the installation location, type **n** and press **Enter**. Then enter the appropriate destination.

Additional information about installation folder restrictions is available.

See "Restrictions on the NetBackup installation directory" on page 17.

8 After you confirm the installation location for the binaries, the installer fetches the certificate authority certificate details.

```
Getting CA certificate mode from the master server.
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.

9 The installer then looks to see what certificate authority the local system is configured to use. The options for certificate authority on the local system are: NetBackup Certificate Authority, external certificate authority, or indeterminate.

The installer then uses a combination of the master server certificate authority mode and the local system certificate authority configuration to determine the next steps.

10 If the installer prompts you for a certificate file path, your environment uses an external certificate authority. Proceed to step 11.

If the installer prompts you for fingerprint information, your environment uses a NetBackup Certificate Authority. Proceed to step 17.

If the installer cannot determine the configuration of the certificate authority on the master server, you are presented with two options:

- Skip the security configuration and configure your certificate authority after installation. More information about post-installation certificate authority configuration is available:
  https://www.veritas.com/support/en_US/article.100044300
  Proceed to step 21.
- Exit the installation and restart the installation once you configure your certificate authority.

**11** 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** 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) If you specify 2, you must enter the path to the CRL location:

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

**14** 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=Veritas,OU=iitf
      Subject Name : CN=cuomovm04,O=Veritas,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) 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 master server name
How do you want to proceed?
1) Continue the installation using this certificate.
2) Update external certificate values.
3) Abort the installation.
Default option (1):
```

Proceed to step 21.

**16** (Conditional) 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 master 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):
```

Proceed to step 21.

**17** When prompted, review the fingerprint information and confirm that it is accurate.

```
Master server [master_name] reports CA Certificate fingerprint
[fingerprint]. Is this correct? [y/n] (y)
```

After you confirm the fingerprint information, the installer stores the certificate authority certificate details.

```
Storing CA certificate.
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.

**18** After the Certificate Authority certificate is stored, the installer fetches the host certificate.

```
Getting host certificate.
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.

**19** (Conditional) If prompted for the Authorization Token, please enter it.

```
An authorization token is required in order to get the host
certificate for this host. At the prompt, enter the authorization
token or q to skip the question. NOTE: The answer entered will
not be displayed to the terminal.

Enter the authorization token for master_server_FQDN or q to skip:
```

**20** When prompted, specify if you want Java GUI and the JRE packages installed.

```
The Java GUI and JRE packages are currently not installed 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) Include the Java GUI and JRE.

2) Exclude the Java GUI and JRE.
```

If you specify `1`, you see: `Including the installation of Java GUI and JRE packages`. If you specify 2, you see: `Excluding the installation of Java GUI and JRE packages.`

**21** Enter the NetBackup Server or NetBackup Enterprise Server license key.

**22** Type **`y`**, then follow the prompts to add license keys for other NetBackup options and agents.

Although you can add license keys later, you should enter them now. If you add any license keys later through the NetBackup-Java Administration Console, you must restart the console.

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

**24** When the following message appears, press **Enter** and accept the default name of the EMM server. You must configure EMM on the master server. All master servers must have their own EMM configuration. Remote EMM or shared EMM is no longer supported.

```
Enter the name of the Enterprise Media Manager (default: <name>)
```

The master server name is displayed by default.

**25** Repeat steps 1 through 24 to install media server software on any remaining media servers.

# Silently installing NetBackup media server software on UNIX and Linux

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

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

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

**To install the UNIX or Linux media server binaries using native installers:**

1. Please 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 171.

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

   ```
   SERVER=master_server_name
   CLIENT_NAME=media_server_name
   MACHINE_ROLE=MEDIA
   LICENSE=license_key
   ```

   Be aware you can use `CLIENT_NAME=XLOCALHOSTX` instead of stating the media server name explicitly.

3. (Conditional) If your environment uses a NetBackup Certificate Authority, 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 171.

4. (Conditional) If your environment uses an external certificate authority, 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.
  - SKIP: Used to skip setting up the certificate authority. To skip the ECA configuration, you must set all required ECA_ values to SKIP. Be aware that if you continue with the installation without a certificate authority, the backups and restores fail.
- 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.

**5** Additionally, you can add the optional parameters shown to the NBInstallAnswer.conf file.

- INSTALL_PATH
- Additional LICENSE entries
- Additional SERVER entries

More information about each option is available.

See "About the NetBackup answer file" on page 171.

6 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 RedHat:
  `tar -xzvf NetBackup_9.0_LinuxR_x86_64.tar.gz`
- For Linux SuSE:
  `tar -xzvf NetBackup_9.0_LinuxS_x86_64.tar.gz`
- For Solaris SPARC:
  `tar -xzvf NetBackup_9.0_Solaris_Sparc64.tar.gz`
- For Solaris x86:
  `tar -xzvf NetBackup_9.0_Solaris_x86.tar.gz`

7 Change to the directory for your desired operating system and copy server files to the media server.

Operating system directory:

- For Linux RedHat:
  `NetBackup_9.0_LinuxR_x86_64/linuxR_x86/anb`
- For Linux SuSE:
  `NetBackup_9.0_LinuxS_x86_64/linuxS_x86/anb`
- For Solaris SPARC:
  `NetBackup_9.0_Solaris_Sparc64/solaris/anb`
- For Solaris x86
  `NetBackup_9.0_Solaris_x86/solaris_x86/anb`

Copy server files to the computer to be installed

- Linux: `VRTSnetbp.rpm` and `VRTSpddes.rpm`
- Linux RedHat: `VRTSpddei.rpm`
- Solaris: `VRTSnetbp.pkg` and `VRTSpddes.pkg`

8 Extract the client binaries and copy them to the media server:

Extract the client binaries:

```
tar -xzvf client_dist.tar.gz
```

Change directory to your desired operating system:

- RedHat: `openv/netbackup/client/Linux/RedHat2.6.32`
- SuSE: `openv/netbackup/client/Linux/SuSE3.0.76`

- SPARC: `openv/netbackup/client/Solaris/Solaris10`
- Solaris_x86: `openv/netbackup/client/Solaris/Solaris_x86`

Copy the files that are shown to the media server.

---

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

---

Linux

```
VRTSnbpck.rpm
VRTSpbx.rpm
VRTSnbclt.rpm
VRTSnbjre.rpm
VRTSnbjava.rpm
VRTSpddea.rpm
VRTSnbcfg.rpm
```

Solaris

```
.pkg_defaults
VRTSnbpck.pkg.gz
VRTSpbx.pkg.gz
VRTSnbclt.pkg.gz
VRTSnbjre.pkg.gz
VRTSnbjava.pkg.gz
VRTSpddea.pkg.gz
VRTSnbcfg.pkg.gz
```

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

**9** (Conditional) For Solaris, extract the compressed package files with the command shown:

```
gunzip VRTS*.*
```

This action extracts all the package files as shown:

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

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

Linux

```
rpm –U VRTSnbpck.rpm
rpm –U VRTSpbx.rpm
rpm –U VRTSnbclt.rpm
rpm –U VRTSnbjre.rpm
rpm –U VRTSnbjava.rpm
rpm –U VRTSpddea.rpm
rpm –U VRTSpddes.rpm
rpm –U VRTSpddei.rpm
rpm –U VRTSnbcfg.rpm
rpm –U VRTSnetbp.rpm
```

Note that `VRTSpddei.rpm` is for Linux RedHat only.

Solaris

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

```
pkgadd -a .pkg_defaults -d VRTSnbpck.pkg VRTSnbpck
pkgadd -a .pkg_defaults -d VRTSpbx.pkg VRTSpbx
pkgadd -a .pkg_defaults -d VRTSnbclt.pkg VRTSnbclt
pkgadd -a .pkg_defaults -d VRTSnbjre.pkg VRTSnbjre
pkgadd -a .pkg_defaults -d VRTSnbjava.pkg VRTSnbjava
pkgadd -a .pkg_defaults -d VRTSpddea.pkg VRTSpddea
pkgadd -a .pkg_defaults -d VRTSpddes.pkg VRTSpddes
pkgadd -a .pkg_defaults -d VRTSnbcfg.pkg VRTSnbcfg
pkgadd -a .pkg_defaults -d VVRTSnetbp.pkg VRTSnetbp
```

- 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** If you decide to install the Java GUI or the JRE after the installation completes, additional information is available.

See "Add or Remove Java GUI and JRE after install" on page 196.

# About pushing client software from a master server to clients

You can increase the speed of client installation by pushing the software from the master 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 master server.

- Install the client type software on the master server. Be sure to install all of the client types that pertain to your NetBackup configuration.
  See "Installing client type software on a master server" on page 62.
- Before you can push client software from the master server, each client name must be assigned to a NetBackup policy. Policies are created on the master server.
  When you create a policy, you must identify the policy type, which indicates the operating system on the clients that are assigned to that policy. Without a policy, the remote installation (or push) fails because the master server does not know the operating system of the client.
  For information on how to create NetBackup policies, refer to the NetBackup Administrator's Guide, Volume I.
- After the required policies are created, you can push client software from the master server to the clients.
  See "About remote installation methods for UNIX/Linux clients" on page 134.

## Installing client type software on a master server

Client type software must be installed on the master 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 master server to clients.
  For each UNIX client type, the client installation script lets you install the client software onto the master server. You can then install (or push) the client software from the master server to the clients.

**To install client type software on a master 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:

```
Veritas Installation Script
Copyright 1993 - 2016 Veritas Corporation, All Rights Reserved.


        Installing NetBackup Client Software


Please review the VERITAS SOFTWARE LICENSE AGREEMENT 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 Veritas 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.

Chapter 4

# Installing server software on Windows systems

This chapter includes the following topics:



## Installation and upgrade requirements for Windows and Windows clusters

Table 4-1 describes the requirements to prepare your Windows systems for NetBackup installation. Use this table as a checklist to address each item.

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

See “About Veritas Services and Operations Readiness Tools” on page 20.

**Caution:** Veritas supports moving the NetBackup catalog with the `nbdb_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. You master server is rendered unusable if you fail to move the database back to the default location before upgrade. More information about the nbdb_move is available.

NetBackup Commands Reference Guide

**Table 4-1** NetBackup installation and upgrade 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. If you are not certain that your operating system is current, contact your operating system vendor and request the latest patches and upgrades.<br>■ For a complete list of compatible Windows operating systems, refer to the *Software Compatibility List (SCL)* at the following website:<br>http://www.netbackup.com/compatibility |
| | Memory | ■ NetBackup does not enforce minimum memory requirements. Veritas does, however, recommend using at least the minimum recommended memory. Failure to use the minimum recommended memory amounts can result in unacceptable performance.<br>■ Media servers in a production environment with several database agents enabled should have a minimum of 4 GB of memory each. |

**Table 4-1** NetBackup installation and upgrade requirements for Windows and Windows clusters *(continued)*

| Check | Requirement | Details |
|---|---|---|
| | Disk space | ■ An NTFS partition.<br>■ 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.<br>NetBackup Release Notes for 9.0<br>■ Upgrades require additional space on the primary drive, even if NetBackup is installed to an alterative location. The primary drive is the drive where Windows is installed.<br>■ For server upgrades Veritas requires 2.8 GB of free space on the primary Windows drive when you install NetBackup to an alternative drive location.<br>■ For client upgrades Veritas requires 1.7 GB of free space on the primary Windows drive when you install NetBackup to an alternative drive location.<br>■ 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:<br>■ The number of files that are backed up.<br>■ The frequency of your backups.<br>■ The amount of time that you set to retain your backup data.<br>■ Veritas recommends that you have a minimum available disk space of 5% in any Disk Storage Unit volume or file system.<br>**Note:** The value for disk space is for initial installation only. The NetBackup catalog requires considerably more space once the master server is placed in a production environment. |
| | General requirements | Make sure that you have all of the following items:<br>■ NetBackup installation ESD images<br>■ Appropriate license keys<br>■ Administrator account and password for all servers<br>■ Screen resolution configured for at least 1024x768, 256 colors.<br>**Note:** To install NetBackup on Windows 2012 R2, Windows 2012 UAC-enabled, and Windows Server 2016 environments, you must log on as the official administrator. Users that are assigned to the Administrators Group and are not the official administrator cannot install NetBackup in UAC-enabled environments. To allow users in the Administrators Group to install NetBackup, disable UAC. |

**Table 4-1** NetBackup installation and upgrade requirements for Windows and Windows clusters *(continued)*

| Check | Requirement | Details |
|---|---|---|
| | Remote and cluster installations | |

**Table 4-1** NetBackup installation and upgrade requirements for Windows and Windows clusters *(continued)*

| Check | Requirement | Details |
|---|---|---|
| | | In addition to all previously stated installation requirements, the following guidelines apply to remote installations and cluster installations:<br>■ 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.<br>■ The installation account must have administrator privileges on all remote systems or on all nodes in the cluster.<br>■ The source system (or primary node) must run Windows 2012/2012 R2/Windows 2016.<br>■ The destination PC (or clustered nodes) must have Windows 2012/2012 R2/Windows 2016.<br>■ The Remote Registry service must be started on the remote system.<br>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:<br>`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.`<br>■ NetBackup virtual name and IP address<br>Have the virtual name and IP address for NetBackup available. You must provide this information during installation.<br>■ Cluster support changes for media servers<br>You cannot perform a new installation of a clustered media server.<br>■ Windows Server Failover Clusters (WSFC)<br>■ The shared disk that the NetBackup Group uses must already be configured in the cluster and online on the active node.<br>■ Install NetBackup from the node with the shared disk (that is, the active node).<br>■ Computer or host names cannot be longer than 15 characters.<br>■ Cluster server (VCS) clusters:<br>All NetBackup disk resources must be configured in Veritas Enterprise Administrator (VEA) before you install NetBackup.<br>■ Cluster node device configuration and upgrades<br>When you upgrade clusters, the `ltid` and the robotic daemons retrieve the device configuration for a particular cluster node from the EMM database. The cluster node name (provided by `gethostname`) 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 `ltid` updates the drive status. The cluster node name is only used to indicate where a device is connected. The NetBackup virtual |

**Table 4-1** NetBackup installation and upgrade requirements for Windows and Windows clusters *(continued)*

| Check | Requirement | Details |
|---|---|---|
| | | name is employed for other uses, such as the robot control host.<br>More information about cluster requirements is available.<br>NetBackup Clustered Master Server Administrator's Guide |
| | Remote Administration Console host names | You must provide the names of the Remote Administration Console hosts during master server installation. |
| | NetBackup communication | Make sure that your network configuration allows all servers and clients to recognize and communicate with one another.<br>Generally, if you can reach the clients from a server by using the ping command, the setup works with NetBackup.<br>■ NetBackup services and port numbers must be the same across the network.<br>■ Veritas suggests that you use the default port settings for NetBackup services and Internet service ports. If you modify the port numbers, they must be the same for all master servers, media servers, and clients. The port entries are in the following file: `%SYSTEMROOT%\system32\drivers\etc\services`. To change the default settings, you must perform a custom installation of NetBackup or manually edit the `services` file. |
| | CIFS-mounted file systems | Veritas does not support installation of NetBackup in a CIFS-mounted directory. File locking in CIFS-mounted file systems can be unreliable. |
| | Storage devices | Devices such as robots and standalone tape drives must be installed according to the manufacturers' instructions and recognized by the Windows software. |
| | Server names | When you are prompted for server names, always enter the appropriate host names. Do not enter IP addresses. |
| | Mixed versions | 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.<br>See "About compatibility between NetBackup versions" on page 10. |
| | Installations on Windows 2012/2012 R2 Server Core/Windows 2016 | You can only install NetBackup on these computers with the silent installation method.<br>See "Installing NetBackup servers silently on Windows systems" on page 90. |

**Table 4-1** NetBackup installation and upgrade requirements for Windows and Windows clusters *(continued)*

| Check | Requirement | Details |
|---|---|---|
| | Other backup software | Remove any other vendor's backup software currently configured on your system. The backup software of another vendor can negatively affect how NetBackup installs and functions. |
| | Web Services | Beginning with NetBackup 8.0, the NetBackup master server includes a configured Tomcat web server to support critical backup operations. This web server operates under user account elements with limited privileges. These user account elements must be available on each master server (or each node of a clustered master server). More information is available:<br><br>See "NetBackup master server web server user and group creation" on page 192.<br><br>**Note:** Veritas recommends that you save the details of the user account that you use for the NetBackup Web Services. A master server recovery requires the same NetBackup Web Services user account and credentials that were used when the NetBackup catalog was backed up.<br><br>**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.<br><br>http://www.veritas.com/docs/000115774 |
| | CA Certificate fingerprint | (Conditional) For media servers and clients only:<br><br>If you use a NetBackup Certificate Authority, you must know the CA Certificate fingerprint of the master 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.<br><br>https://www.veritas.com/support/en_US/article.000127129 |
| | Authorization Token | (Conditional) For media servers and clients only:<br><br>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.<br><br>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.<br><br>https://www.veritas.com/support/en_US/article.000127129 |

**Table 4-1** NetBackup installation and upgrade requirements for Windows and Windows clusters *(continued)*

| Check | Requirement | Details |
|---|---|---|
| | External certificate authority | For master servers (including cluster): The configuration of an external certificate authority is a post-installation activity.<br>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:<br>https://www.veritas.com/support/en_US/article.100044300 |
| | Customer Registration Key for Veritas Usage Insights | Beginning with NetBackup 8.1.2, you must specify a Customer Registration Key for Veritas Usage Insights. More information about Veritas Usage Insights is available:<br>See "About Veritas Usage Insights" on page 27.<br>During install and upgrade to NetBackup 8.1.2, please allow the installer to copy the `veritas_customer_registration_key.json` file to its final destination. NetBackup can set the file permission and ownership correctly through this process. If you place the file onto your systems outside of the install or the upgrade process, the process may not work correctly.<br>**Note:** Be aware that NetBackup does not support the short file name format (8.3 format) for the customer registration key file name. |

See "Installation requirements for UNIX and Linux" on page 34.

# Requirements for Windows cluster installations and upgrades

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

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

**Table 4-2** Windows cluster requirements for installation and upgrade

| Item | Requirement |
|---|---|
| Server operating system | |
| Privileges | To perform clustered installations, you must have administrator privileges on all of the remote nodes in the cluster. Veritas recommends that you keep a record of all nodes in the cluster and what software exists on each node. |

**Table 4-2** Windows cluster requirements for installation and upgrade *(continued)*

| Item | Requirement |
|---|---|
| NetBackup virtual name and IP address | Have the virtual name and IP address for NetBackup available. You must provide this information during installation. |
| Operating system on nodes | All clustered nodes must use the same operating system version, service pack level, and NetBackup version. You cannot run mixed server versions in a clustered environment. |
| Cluster support changes for media servers | Clustered media servers are not supported. |
| Windows Server Failover Clusters (WSFC) | |
| 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 `ltid` and the robotic daemons retrieve the device configuration for a particular cluster node from the EMM database. The cluster node name (provided by `gethostname`) 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 `ltid` 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. |

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

Use the following procedure to perform a local, a remote, or a clustered install of NetBackup on a Windows computer.

**To install NetBackup 9.0 server software on a local, remote, or clustered Windows server**

1 Log on to the system. Be sure to log on with administrator privileges.

- For local installations, log on to the system where you want to install NetBackup.

- For remote installations, log on to a system with network access to all of the hosts where you want to install NetBackup.
- For cluster installations, log on to the active node (the node with the shared disk).

2. Navigate to the directory where the images reside and run `Browser.exe` to start the NetBackup Installation Wizard .
3. On the initial browser screen (**Home**), click **Installation**.
4. On the **Installation** screen, click **NetBackup Server Software Installation**.
5. On the **Welcome** screen, review the content and click **Next**.
6. (Conditional) If you previously installed NetBackup 9.0 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 9.0 to its original state on the local host.
   - Select **Remove** to remove NetBackup 9.0 from the local host.
7. On the **License Agreement** screen, do the following and click **Next**:

   **I agree to and accept the terms of the license agreement**.

   You must select this item to install the software.
8. On the **Veritas NetBackup Installation Type** screen, provide the following information:

| | |
|---|---|
| **Where to install** | ■ For a local installation, select **Install to this computer only**.<br>■ For a remote installation, select **Install to multiple computers on your network**.<br>■ For a cluster installation, select **Install a clustered Master Server**.<br>This option is available only if the installation process determines that your system is configured for a Windows Server Failover Cluster (WSFC) or VCS clustered environment. |

| | |
|---|---|
| **Typical** | Select this option to install NetBackup with the default settings.<br><br>**Note:** The **Typical** installation does not install the Java GUI or the JRE on Windows media servers. You must select **Custom** if you want the Java GUI and the JRE installed on Windows media servers. |
| **Custom** | Select this option to install NetBackup with the settings that you want. |

Click **Next**.

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

| | |
|---|---|
| **License Key** | Enter the product license that you received with your product.<br><br>The license that you provide determines which components you can select. For example, you can click the icon next to **NetBackup Master Server** only if you enter a master server license.<br><br>For remote and cluster installations:<br><br>**Note:** 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).<br><br>During this installation process, the following occurs to verify that you have proper credentials to perform remote installations:<br><br>■ When you select a clustered system for installation, 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.<br>■ If you have the proper credentials, NetBackup performs a second check to determine if a license is needed. If a license is needed and one was not entered, the system cannot be added to the list. You must enter a valid license to install on that node. If you enter an invalid license, this screen remains visible until a valid license is entered. |

| | |
|---|---|
| **NetBackup Master Server** | Click this icon to install master server software. |
| **NetBackup Media Server** | For local or remote installations, click this icon to install media server software. |
| **Disaster Recovery Master Server** | Select this option to perform a disaster recovery of your master server. The disaster recovery process requires additional steps and information that is not covered in this manual. More information is available.<br>NetBackup Troubleshooting Guide |

10 On the **Customer Registration Key** screen, enter the location of the Customer Registration Key. You download this file from the Veritas Usage Insights site and place the file on the appropriate master server. More information about Veritas Usage Insights is available.

See "About Veritas Usage Insights" on page 27.

During install and upgrade to NetBackup 8.1.2, please allow the installer to copy the `veritas_customer_registration_key.json` file to its final destination. NetBackup can set the file permission and ownership correctly through this process. If you place the file onto your systems outside of the install or the upgrade process, the process may not work correctly.

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

| | |
|---|---|
| **What types of acccounts should we use?** | Select either **Local** or **Domain (Active Directory)**.<br>Select **Local** if you want to associate the web server with a user and a group account that exist on the local host.<br>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:<br>■ **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.<br>■ **Group** - Specify the name of the group account to associate with the web server.<br>■ **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.<br>■ **Password** - Specify the password of the user account in the **User** field.<br>**Note:** After installation, you cannot change the user account for the NetBackup web server. Do not delete this account, as you cannot reconfigure the account for the web server after installation. |

More information is available.

See "Installation and upgrade requirements for Windows and Windows clusters" on page 64.

**12** (Conditional) This step applies only to the local installations that are **Custom**. For **Typical** installations, skip to the next step.

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

- **NetBackup Installation Folder**
  On this screen, you can select where the NetBackup files are installed.

| | |
|---|---|
| **Destination Folder** | By default, NetBackup files are installed to the following location:<br>`C:\Program Files\VERITAS`<br>To change the folder destination where NetBackup is installed:<br>■ Click **Change**.<br>■ Browse to the preferred location and designate a new or an existing folder.<br>■ Click **Next**.<br>Additional information about installation folder restrictions is available.<br>See "Restrictions on the NetBackup installation directory" on page 17. |

Click **Next**.

- **Java GUI and JRE Options**
  The options that are provided are:
  - **Include Java GUI and JRE**: Install the Java GUI and the JRE to the specified computer.
  - **Exclude Java GUI and JRE**: Exclude the Java GUI and the JRE from the specified computer.
  - **Match Existing Configuration** (remote installs only): Preserve the current state of the Java GUI and JRE components. If the Java GUI and JRE are present, they are upgraded. If they are not present, they are not upgraded. If you specify this option on an initial installation, the packages are not installed.
- **NetBackup Port Numbers**
  On this screen, you can change port numbers, if it is necessary in your configuration.
  You may need to change a port number if you encounter conflicts when NetBackup and another industry product try to share the same port. Another example is if a port conflict occurs with a firewall, which may cause security issues.
  To change a port number, select the port number that you want to replace and type the new number.
  Click **Next**.
- **NetBackup Services**
  On this screen, provide the following startup account and startup type information for NetBackup services:

| | |
|---|---|
| **Log On** | Specify either **Local System account** or **This account**.<br><br>By default, the **Local System account** is selected, so that NetBackup uses the built-in system account. When this option is selected, the fields below it are disabled.<br><br>To specify a different account:<br>■ Select **This account**.<br>■ Enter the account information in the following fields:<br>**Domain**<br>**Username**<br>**Password** |
| **Startup Type** | This option determines whether NetBackup services start automatically if you need to restart the NetBackup host. The default is **Automatic**.<br><br>To start NetBackup services manually after a restart, select **Manual**. |
| **Start job-related NetBackup services following installation** | By default, job-related services are set to start automatically after the installation has completed.<br><br>To prevent job-related services from starting automatically, click on the box to clear the check mark. |
| **Safe Abort Option** | This option determines how the installation proceeds if a restart is required as part of the installation.<br><br>If you select this option and the installation process determines that a restart is required, the installation stops. The system is then rolled back to its original state.<br><br>If you do not select this option, the installation proceeds even if the installation process determines that a restart is required. |

Click **Next**.

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

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

Click **Next**.

14 After you provide the required computer names, the installer determines your security configuration.

- If the installer finds your environment uses an external certificate authority, you are presented with the **External Certificate** screen. Proceed to step 15.
- If the installer finds your environment uses NetBackup Certificate Authority, you are presented with the **NetBackup Certificate** screen. Proceed to step16 .

15 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. Go to step 20 in this procedure.

**16** After you confirm you want to continue, the installer fetches the certificate authority certificate details. You have the option to click **Cancel** to halt this action. Be aware if you click **Cancel**, 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.

**17** Enter the Certificate Authority Fingerprint as prompted.

After you confirm the fingerprint information, the installer stores the certificate authority certificate details. You have the option to click **Cancel** to halt this action. Be aware if you click **Cancel**, 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.

**18** After the Certificate Authority certificate is stored, the installer fetches the host certificate. You have the option to click **Cancel** to halt this action. Be aware if you click **Cancel**, 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.

**19** (Conditional) If prompted by the **Security Token** screen, enter the security token.

**If you were issued a security token, enter it below.**

The token format is 16 upper case letters. Alternatively, you can also select the **Proceed without providing a security token** option. When the option is selected, this warning is shown:

**In some environments, failure to provide a security token can result in failed backups. Contact your backup administrator if you have questions.**

After you enter a security token, you have the option to click **Cancel** to halt the deployment of the host certificate. Be aware if you click **Cancel**, 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.

**20** After you enter all the security information, you are prompted with the certificate status screen. If the screen indicates there are no issues, click **Next** to continue. If the screen **Security Certificate Status** indicates there are issues, click **Back** to reenter the required security information.

If this install is a push install or if you selected **Proceed without security**, this dialog is skipped.

**21** (Conditional) For remote installations only:

On the **Veritas NetBackup Remote Hosts** screen, specify the hosts where you want NetBackup installed.

- **Windows Destination Systems**
  Right-click **Windows Destination Computers** and select from the drop-down menu, or use the following methods:

| | |
|---|---|
| **Browse** | Click here to search the network for the hosts where you want to install NetBackup.<br>■ On the **Available Systems** dialog box, select the computer to add and click **Next**.<br>■ On the **Remote Computer Login Credentials** dialog box, enter the **User Name** and the **Password** of the account to be used to perform the installation on the remote computers.<br>■ If you plan to install to 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.<br>■ Click **OK**.<br>■ On the **Remote Destination Folder** dialog box, verify or change the **Destination Folder** where NetBackup is installed.<br>The default location is `C:\Program Files\Veritas`.<br>If you plan to install to multiple remote computers and you want to use the same location, click the box next to **Use this folder for subsequent systems**. Selecting this option prevents the need to enter the location for each remote computer. |
| **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:<br>`Domain\ComputerName` |

| | |
|---|---|
| **Add** | Click here to add a host manually.<br>■ On the **Manual Remote Computer Selection** dialog box appears, enter the **Domain** and the **Computer Name**, then click **OK**.<br>■ On the **Remote Computer Login Credentials** dialog box, enter the **User Name** and the **Password** of the account to be used to perform the installation on the remote computers.<br>If you plan to add and install to 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.<br>■ Click **OK**.<br>■ On the **Remote Destination Folder** dialog box, verify or change the **Destination Folder** where NetBackup is installed.<br>The default location is `C:\Program Files\Veritas\`.<br>If you plan to install to multiple remote computers and you want to use the same location, click the box next to **Use this folder for subsequent systems**. Selecting this option prevents the need to enter the location for each remote computer.<br>■ 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**.

**22** (Conditional) For cluster installations only:

On the **NetBackup Remote Hosts** screen, specify the remote system information for installation on those computers.

- On the initial screen, right-click **Browse**.
- On the **Available Systems** dialog box, select the computer that you want to add. Control-click to select multiple computers.
  Click **Next**.

- On the **Remote Computer Login Credentials** dialog box, enter the user name, password, and domain that NetBackup is to use on the remote system(s).

  If you intend to add more remote computers, click the check box next to **Remember user name and password**.

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

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

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

  The installation 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 install 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 installed with the push method. Add-on products must be installed on each individual node in the cluster group. For instructions on how to install these products, refer to the NetBackup documentation that supports each product.

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

Click **Next**.

**23** (Conditional) For cluster installations only:

On the **Cluster Settings** screen, you provide the virtual and the physical network information.

---

**Note:** You can add only one virtual IP address during installation. If your virtual name can resolve into more than one IP address, you can add multiple IP addresses after the installation using the `bpclusterutil -addIP` option. More information about the `bpclusterutil` command is available.

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For new installations, the following configuration settings that you enter apply to all nodes:

| | |
|---|---|
| **Create a new Cluster Group** | For new cluster installations, select this option. |
| **IPv4 Clusters** | The default cluster setting is IPv4.<br>Enter the following addresses:<br>■ **Virtual IPv4 Address**<br>The IP address to which the virtual server name should resolve.<br>For new cluster installations, you must enter the address manually.<br>■ **IPv4 Subnet Mask**<br>Identifies a subnetwork so that IP addresses can be shared on a local area network. This number correlates directly to the virtual IP address of the cluster. |
| **IPv6 Clusters** | To enable IPv6 clusters, select this option.<br>Enter the following IP address:<br>■ **Virtual IPv6 Address**<br>The IPv6 address must be entered in CIDR format. |
| **NB Cluster Group Name** | The name that is used to identify a NetBackup service group or resource group. The resources in any resource group are related and interdependent. |

| | |
|---|---|
| **Virtual Host Name** | The name by which NetBackup is known in the cluster.<br><br>When you install the client software, this host name must be added to the **Additional Servers** field on the **NetBackup System Names** screen.<br><br>The server uses this name when it communicates with the client nodes. |
| **Path to Shared Data** | A directory on one of the shared disks in the cluster where NetBackup stores configuration information. If the letter for the disk (or drive) does not appear in the pull-down list, enter only the letter. |
| **Public Network** | For NetBackup clustered environments, select a public network that is assigned to the node of the cluster.<br><br>**Warning:** You must not select a private network that is assigned to this cluster. |
| **Cluster Configuration** | After you set all of the parameters, click this icon to configure the cluster for use with NetBackup. The **Next** icon is not available until after successful cluster configuration.<br><br>The text box provides the following information about the configuration:<br><br>■ Identifies any existing clusters or NetBackup cluster groups.<br>■ Indicates a successful configuration.<br>■ Identifies any problems or errors that occurred during the configuration (configuration failure).<br><br>**Note:** If you click **Cancel** after a successful cluster configuration for new installations, a pop-up message appears. The message asks if you are sure that you want to proceed with the cancelation. To cancel the installation and remove the new cluster group, click **Yes**. To continue with the installation and retain the new cluster group, click **No** and then click **Next**.<br><br>If the cluster configuration fails, see the NetBackup Clustered Master Server Administrator's Guide for information about how to resolve the problem. |

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

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

**Note:** Veritas recommends that you review the summary screen for any warning messages. You can prevent installation and upgrade issues if you resolve any problems before you continue the installation.

Then select one of the following options:

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

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

For remote and cluster installations, up to five installations occur simultaneously. When an installation is completed, another one begins so that a maximum of five installations are in progress.

**25** On the **Installation Complete** screen, select from the following options:

**View installation log file**

The installation log file provides detailed installation information and shows whether any errors occurred. This log includes information about the optional installation of the Java GUI and the JRE.

Examine the installation log at the following location:

```
%ALLUSERSPROFILE%\Veritas\
NetBackup\InstallLogs\
```

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

Search the installation log for the following error indications:

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

| | |
|---|---|
| **Finish** | Select one of the following to complete the installation:<br>■ If you are done installing software on all servers, click the box next to **Launch NetBackup Administration Console now** and click **Finish**.<br>The NetBackup Administration Console starts a Configuration Wizard so that you can configure your NetBackup environment.<br>■ If you have more server software to install, click **Finish**.<br>You can move on to the next computer and install the necessary server software. |

**26** (Conditional) On a clustered NetBackup master server, you must copy the Certificate Authority certificate and the host certificate to the inactive node. More information is available:

See "Generate a certificate on the inactive nodes of a clustered master server" on page 170.

If you performed a disaster recovery of the master server, you must first generate the token and then copy it to each of the inactive nodes. More information about how to handle disaster recoveries is available.

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**27** (Conditional) If you plan to configure customized settings for your Tomcat web server, determine if those settings can persist across upgrades. More information is available:

See "Persistent Java Virtual Machine options" on page 189.

**28** Repeat the steps in this procedure for any other servers.

**29** After all server software is installed, you are ready to install client software.

See "About NetBackup client installation" on page 99.

See "Post-installation tasks for NetBackup cluster environments" on page 88.

See "Verifying Windows cluster installations or upgrades" on page 89.

# Post-installation tasks for NetBackup cluster environments

You may need to take one or more of the following actions after the NetBackup server software is installed in a cluster:

| | |
|---|---|
| Obtain certificates | You must obtain the Certificate Authority certificate and the host certificate for each inactive node. More information is available:<br><br>See "Generate a certificate on the inactive nodes of a clustered master server" on page 170. |
| External certificate authority | Configure your external certificate authority. If you opted to skip the security configuration or if you have a master server, you may need to configure an ECA. More information about configuring ECAs is available:<br><br>https://www.veritas.com/support/en_US/article.100044300 |
| Restart | You may need to restart each of the cluster nodes after the installation is complete. |
| WSFC and VCS clusters | Under normal circumstances, cluster configuration is one of the final steps when you install NetBackup in a cluster. If this step is not done or does not complete successfully, you can use the `bpclusterutil` command from the active node to perform this step.<br><br>For information on how to run `bpclusterutil`, see the NetBackup Commands Reference Guide. |
| WSFC clusters | Any NetBackup resources that you took offline come back online automatically. |

See "Verifying Windows cluster installations or upgrades" on page 89.

# Verifying Windows cluster installations or upgrades

The Cluster Administration console lets you verify the installation or upgrade and view your current system structure.

**To verify a successful WSFC cluster installation or upgrade through the Cluster Administration console**

1. During a cluster installation, you can open the Cluster Administration console to see your current structure.
2. After you have completed the installation and the configuration process, the console shows the new cluster group configuration.

**To verify a successful VCS cluster installation or upgrade through the Cluster Manager console**

1. During a cluster installation, you can open the Cluster Administration console to see your current structure.
2. After you have completed the installation and the configuration process, the console shows the new cluster group configuration.

See "About NetBackup server configuration" on page 141.

# Installing NetBackup servers silently on Windows systems

A silent installation avoids the need for interactive input in the same manner as performing a remote installation.

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

**To install NetBackup server software silently**

1. Log on as administrator to the system where you want to install NetBackup.
2. Navigate to the location where the ESD images (downloaded files) reside.
3. Open Windows Explorer and copy the contents of the X86 or the X64 directory to a temporary directory on your hard drive. Choose the directory that is associated with the platform type that you want to install.
4. Since the source files are read-only, you must change the permissions for the copied files to allow the installation or the update.
5. In the temporary directory where the copied files reside, select the appropriate script to modify:
   - To install a master server, edit `silentmaster.cmd`
   - To install a media server, edit `silentmedia.cmd`
6. Edit the following lines as needed for your installation:
   - `SET ADDITIONALSERVERS=`*`media1,media2,media3`*
     Enter the names of any additional NetBackup master servers and media servers that you want to communicate with this host. Include the names of servers where you plan to install NetBackup later.
     If no other servers are to communicate with this host, remove this line from the script.
   - `SET ABORT_REBOOT_INSTALL=`*`num`*

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

0 (zero, default)

By default, a silent installation 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 installation 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 installation 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 installation or roll back the system to its original state.

1 (one)

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

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

- `SET CA_CERTIFICATE_FINGERPRINT=`*`fingerprint`*
  If you use a NetBackup Certificate Authority, you must know the CA Certificate fingerprint of the master server at time of installation. More information is available about the details on the CA Certificate fingerprint and its role in generation of security certificates.
  https://www.veritas.com/support/en_US/article.000127129
- `SET AUTHORIZATION_TOKEN=`*`token`*
  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

**Caution:** Because providing the authorization token in plain text presents a security risk, restrict access to the `silentmedia.cmd` file to read access. Grant read access to NetBackup administrators and system administrators only. Delete the `silentmedia.cmd` file after successful installation.

- `SET SET USAGE_INSIGHTS_FILE_PATH=`*`path`*
  You must specify the path to the Veritas Usage Insights customer registration key. More information is available. See "About Veritas Usage Insights" on page 27.
- `SET ECA_CERT_STORE=`*`cert_store_string`*
  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`*
  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_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 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`*

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_AND_JRE=`*`value`*

  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 NetBackup.
  - EXCLUDE: Exclude the Java GUI and JRE when installing NetBackup.
  - MATCH: Match the existing configuration on the host. If you specify this option on an initial installation, the packages are not installed.

**7** Save the script and run it.

**8** Examine the installation log at the following location:

`%ALLUSERSPROFILE%\Veritas\NetBackup\InstallLogs\`

This log includes information about the optional installation of the Java GUI and the JRE.

Search the installation log for the following error indications:

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

**9** (Conditional) If you plan to configure customized settings for your Tomcat web server, determine if those settings can persist across upgrades. More information is available:

See "Persistent Java Virtual Machine options" on page 189.

After all server software is installed, you are ready to install client software.

See "About NetBackup client installation" on page 99.

Chapter 5

# About the administrative interfaces

This chapter includes the following topics:



## About the NetBackup web user interface

In version 8.1.2, Veritas introduces a new web user interface for use with NetBackup. The new 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 the new 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 Security Administrator's Guide for more information.

### First-time sign in to a NetBackup master server from the NetBackup web UI

After the installation of NetBackup, a root user or an administrator must sign into the NetBackup web UI from a web browser and create RBAC access rules for users. An access rule 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 Security Administrator's Guide for details on authorized users, creating access rules, and signing in and out of the web UI.

# About the NetBackup Administration Console

The NetBackup Administration Console can be used to administer one or more UNIX or Windows NetBackup servers. It provides all of the standard NetBackup server interfaces. The console can be used to create backup policies, manage volumes, view status, monitor tape drives, and other operations.

The NetBackup Administration Console is always installed when you install or upgrade NetBackup master server packages. The NetBackup Administration Console may be installed when you install or upgrade NetBackup media server packages.

# Installing the NetBackup Administration Console

You do not need to install the NetBackup Administration Console separately. 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

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

---

A NetBackup environment may contain multiple servers with multiple NetBackup versions. You can install and remove multiple versions of the NetBackup Administration Console. More information is available.

See "Installing multiple versions of the NetBackup Administration Console on Windows" on page 96.

See "Removing earlier versions of the NetBackup Administration Console on Windows" on page 97.

# Installing multiple versions of the NetBackup Administration Console on Windows

To install multiple versions of the NetBackup Administration Console in a mixed version environment, note the following restrictions and guidelines:

| | |
|---|---|
| Updates | Only the most recent version of the NetBackup Administration Console can be updated (or patched). |
| `auth.conf` file | The NetBackup-Java Capabilities Authorization configuration file (`auth.conf`), must always be located in *`install_path`*`\java`. For example, `C:\Program Files\Veritas\java`. The file must exist there regardless of how many versions of the console are installed, or in which directories they are installed.<br><br>The file is only used for administering NetBackup on this Windows host, and default settings exist if the file is not present. For more information about these defaults, see the section "Authorizing NetBackup users" in the NetBackup Administrator's Guide, Volume I. |
| Console version location | You must install each console version to a different folder. |

**To install earlier versions of the NetBackup-Java Administration Console**

1. Insert the appropriate version NetBackup Windows installation media with the NetBackup-Java Administration Console that you want to install.
2. For NetBackup 7.0 and 7.1 versions, select **Installation** and click **Java Windows Administration Console Installation**.
3. If a different version of the Java console has already been installed, specify a new folder location to prevent overwriting the earlier installation.

   For example, specify `C:\Program Files\Veritas\nbjava65` for version 6.5 Java consoles.
4. To complete the installation, click **Finish**.

See "Removing earlier versions of the NetBackup Administration Console on Windows" on page 97.

See "Installing the NetBackup Administration Console" on page 95.

# Removing earlier versions of the NetBackup Administration Console on Windows

In some cases, you can remove earlier versions of the NetBackup Administration Console by using the **Add/Remove Programs** feature. You can use this method if the version that you want to remove appears in the list of programs.

If the version that you want to remove does not appear in the list of programs, you must manually remove it. Use the following procedure.

**To manually remove earlier versions of the NetBackup Administration Console**

1. Remove the folder where the earlier version NetBackup Administration Console is installed.
2. Remove the appropriate menu item from the **Start > Programs > NetBackup** menu.
3. Remove any relevant desktop shortcuts.

# About the NetBackup Remote Administration Console

The NetBackup Remote Administration Console is an interface-only version of NetBackup that you can use to administer NetBackup servers from another computer. The computer that runs the NetBackup Remote Administration Console does not require NetBackup software.

The following is a brief description of the NetBackup Remote Administration Console operation:

- The console lets you perform all NetBackup operations exactly like the NetBackup Administration Console on a local NetBackup server. You can create backup policies, manage volumes, view status, monitor tape drives, and perform other operations.
- The console displays the name of the server it administers, rather than a local host name.
- The console can only administer other NetBackup servers. It cannot act as a master or a media server.

# Installing the NetBackup Remote Administration Console

The procedure shown details how to install the NetBackup Remote Administration Console on a non-NetBackup computer.

**To install the NetBackup Remote Administration Console**

1. Navigate to the location where the downloaded files reside and run `Browser.exe`.

   **Note:** You cannot install NetBackup Remote Administration Console on a computer where NetBackup server software is already installed.

2. On the initial screen, select **Installation**.
3. On the **Installation** screen, click **NetBackup Java Remote Administration Console Installation**.
4. On the **Welcome** screen, review the content and click **Next**.
5. On the **License Agreement** screen, accept the agreement and click **Next**.
6. On the **NetBackup Installation Type** screen, select **Install to this computer only** and **Typical Installation** and then click **Next**.

   If an earlier version of the console already exists, you have the following options:

   - Cancel the installation and remove the earlier version of the console. Then run the new console installation again.
   - Specify an alternate installation location for the new version of the console.
7. On the **Ready to Install the Program** screen, review the Installation Summary and click **Install**.
8. On the **Installation Complete** screen, click **Finish**.
9. To open the console, click **Start > Programs > Veritas NetBackup > NetBackup *Version* Administration Console**.

**Note:** 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

See "About the NetBackup Remote Administration Console" on page 97.

Chapter 6

# Installing NetBackup client software

This chapter includes the following topics:



## About NetBackup client installation

By definition, NetBackup servers are also clients. When you install NetBackup server software, client software is also installed.

When you install client software, you perform a true client installation since no server software is installed.

Client software can be installed locally at each individual computer or remotely. The operating system determines which clients can be installed remotely.

| | |
|---|---|
| Windows | A Windows host can only push client software to Windows clients.<br><br>NetBackup does not need to be installed on the host that is used to perform the remote client installation. |
| UNIX or Linux | A NetBackup UNIX or Linux server can only push client software to UNIX or Linux clients.<br><br>NetBackup software and client type software must be installed on the server that is used to perform the remote client installation. |

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

**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

# About NetBackup client installation on Windows

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

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

Note the following when you install NetBackup client software on Windows systems:

| | |
|---|---|
| Client installation restrictions | You cannot install NetBackup client software on the computers that currently have NetBackup server software. In these cases, you must first remove the NetBackup server software.<br><br>See "Removing NetBackup server and client software from Windows servers, clusters, and clients" on page 165. |

| | |
|---|---|
| User permissions | ■ By default on Windows 2012, 2012 R2, and 2016 Server systems, only administrators have write permission to the `Program Files` directory.<br>■ NetBackup writes log files and progress files to the following location:<br>`Program Files\Veritas\NetBackup\Logs`<br>To perform backups and restores with the Backup, Archive, and Restore interface, users must have write permission to the `Logs` directory. Users without write permission to this directory receive an error message, and the backup or restore is canceled. The administrator account has write permission by default, but you must ensure that other users also have write permission. |

# About Windows client installation methods and requirements

You can install NetBackup clients on Windows systems with the following methods:

**Table 6-1** Installation methods and requirements

| Method | Requirements | Details |
|---|---|---|
| Local installation | To install NetBackup client software locally, the system must meet the following configuration requirements:<br>■ Microsoft 2012/2012 R2/Windows 8, or Windows 2016<br>■ Any TCP/IP transport that is Windows Sockets compliant. (Use of the TCP/IP transport that comes with the server or the operating system is recommended.)<br>■ A network adapter that your TCP/IP transport supports | The installation wizard installs the client software only on the computer where you run the installation.<br>See "Installing NetBackup Windows clients locally or remotely" on page 103. |

**Table 6-1** Installation methods and requirements *(continued)*

| Method | Requirements | Details |
|---|---|---|
| Remote installation | To install NetBackup client software remotely, the system must meet the following configuration requirements:<br>■ All the requirements for local installations must be met.<br>■ The source system must run Windows 2012, 2012 R2, or 2016 Server.<br>■ Administrator privileges are required for the user that performs remote installations.<br>■ Remote Registry service must be started on the remote system.<br>If the Remote Registry service is not started, the installation receives this error message:<br>`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.` | The installation wizard scans the network for available clients where you can install the client software.<br>The source computer must run Windows 2012, or 2016 Server.<br>Also, a remote installation requires system administrator privileges.<br>**Note:** You cannot install clients remotely from NetBackup Windows servers to UNIX computers.<br>See "Installing NetBackup Windows clients locally or remotely" on page 103. |
| Silent installation | The requirements for silent installation are the same as the requirements for a local installation. | A silent installation is a process that does not require interactive input. However, you must edit the `silentclient.cmd` file before you run it.<br>See "Installing NetBackup Windows clients silently" on page 112. |

An NTFS disk partition is required for all installation types.

The NetBackup client version that you install must be the same or earlier than the installed version of NetBackup server software. Later client versions cannot be used with earlier server versions.

See "About compatibility between NetBackup versions" on page 10.

See "About NetBackup client installation" on page 99.

# Installing NetBackup Windows clients locally or remotely

Use this procedure to install NetBackup on your local computer or on multiple computers on your network. You can stop the installation process at any time by clicking **Cancel** or by clicking **Back** to return to the previous window.

When you install Windows clients remotely, note the following:

| | |
|---|---|
| Requirements | Review the requirements for Windows client installation.<br><br>See "About Windows client installation methods and requirements" on page 101. |
| Privileges | You must have administrator privileges on the remote clients for the NetBackup installation to complete successfully. |
| Client name entries | During installation, the client name is written to the registry in lowercase. For backups to work, the policies on the NetBackup server must specify the client names in lowercase. |

**Note:** After client installation, you may need to restart the system for the changes to take effect. A message appears to alert you if a restart is necessary.

**To install NetBackup client software locally or remotely on Windows systems**

1. Log on as administrator on the host where you want to install the client software.
2. Navigate to the directory where the images reside and run `Browser.exe` to start the NetBackup Installation Wizard.
3. On the initial screen, select **Installation**.
4. On the **Installation** screen, select **NetBackup Client Software Installation**.
5. On the **Welcome** screen, review the content and click **Next**.
6. (Conditional) If you previously installed NetBackup 9.0 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 9.0 to its original state on the local host.
- Select **Remove** to remove NetBackup 9.0 from the local host.

**7** On the **License Agreement** screen, accept the terms of the agreement and click **Next**.

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

| | |
|---|---|
| **Where to install** | For a local installation, select **Install to this computer only**.<br>For remote installation, select **Install to multiple computers on your network**.<br>The procedure does not install the client on the local host unless you add it to the list of systems that you want to install. |
| **Typical** | Select this option to install NetBackup with the default settings. |
| **Custom** | Select this option to install NetBackup with the settings that you want. |

Click **Next**.

**9** (Conditional) This step applies only to local **Custom** installations.

On the **Veritas NetBackup Client Destination Folder** screen, you can select where the NetBackup files are installed.

**Destination Folder**

By default, NetBackup files are installed to the following location:

```
C:\Program Files\VERITAS
```

To change the folder destination where NetBackup is installed:

- Click **Change**.
- Browse to the preferred location and designate a new or an existing folder.
- Click **Next**.

Additional information about installation folder restrictions is available.

See "Restrictions on the NetBackup installation directory" on page 17.

**Note:** For upgrades, you cannot change the destination.

**10** (Conditional) This step applies only to **Custom** installations.

On the **NetBackup Options** screen, select from the following options:

**At System Startup**

Enable or disable the following options:

- **Start NetBackup Client Service Automatically**
  By default, this option is enabled so that NetBackup services are available immediately after system startup.
- **Start NetBackup Client Job Tracker Automatically**
  By default, this option is disabled. To start this option manually after installation, click **Start > All Programs > Veritas NetBackup > NetBackup Client Job Tracker**.

**Ports**

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**.

**11** (Conditional) This step applies only to **Custom** installations.

On the **NetBackup Services** screen, provide the following startup account and startup type information for NetBackup client services:

| | |
|---|---|
| **Log On** | Specify either **Local System account** or **This account**.<br><br>By default, the **Local System account** is selected, so that NetBackup uses the built-in system account. When this option is selected, the fields below it are disabled.<br><br>To specify a different system account:<br><br>■ Select this option.<br>■ Enter the account information in the following fields:<br>**Domain**<br>**Username**<br>**Password** |
| **Safe Abort Option** | This option determines how the installation proceeds if a restart is required as part of the installation or upgrade.<br><br>If you select this option and the installation process determines that a restart is required, the installation (or upgrade) stops. The system is then rolled back to its original state.<br><br>If you do not select this option, the installation (or upgrade) proceeds even if the installation process determines that a restart is required. |

**12** On the **NetBackup System Names** screen, the following fields are populated automatically. Changes are not normally required. Except for the **Client Name**, you can make changes as needed for your configuration.

| | |
|---|---|
| **Client Name** | Do not change this name. |
| **Master Server Name** | If necessary, change this name to the appropriate master server where the client backup images are to be stored. |
| **Additional Servers** | Enter all of the master server and media server names that you want this client to access. |

**13** After you provide the required computer names, the installer determines your security configuration.

- If the installer finds your environment uses an external certificate authority, you are presented with the **External Certificate** screen. Proceed to step 14.
- If the installer finds your environment uses NetBackup Certificate Authority, you are presented with the **NetBackup Certificate** screen. Proceed to step 15.

**14** 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. Go to step 19 in this procedure.

**15** After you confirm you want to continue, the installer fetches the certificate authority certificate details. You have the option to click **Cancel** to halt this action. Be aware if you click **Cancel**, 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.

**16** On the **Confirm the CA fingerprint** screen, select **I recognize the fingerprint for this host. Proceed with the certificate deployment.** if the fingerprint displayed is one you recognize and trust. Click **Next** to continue.

If you do not recognize or trust the displayed fingerprint, select **Proceed without the certificate deployment**.

After you confirm the fingerprint information, the installer stores the certificate authority certificate details. You have the option to click **Cancel** to halt this action. Be aware if you click **Cancel**, 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.

**17** After the Certificate Authority certificate is stored, the installer deploys the host certificate. You have the option to click **Cancel** to halt this action. Be aware if you click **Cancel**, 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.

18 (Conditional) If prompted by the **Authorization Token** screen, enter the security token.

**Please enter an authorization token**

The token format is 16 upper case letters. Alternatively, you can also select the **Proceed without providing a security token** option. When the option is selected, this warning is shown:

**In some environments, failure to provide a security token can result in failed backups. Contact your backup administrator if you have questions.**

After you enter a security token, you have the option to click **Cancel** to halt the deployment of the host certificate. Be aware if you click **Cancel**, 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 this installation is a remote installation, the specification of an authorization token is optional. Contact your backup administrator to determine if authorization tokens are required for your environment.

19 After you enter all the security information, you are prompted with the certificate status screen. If the screen indicates there are no issues, click **Next** to continue. If the screen **Security Certificate Status** indicates there are issues, click **Back** to reenter the required security information.

If this install is a push install or if you selected **Proceed without security**, this dialog is skipped.

20 On the **Veritas NetBackup Remote Hosts** screen, specify the hosts where you want NetBackup installed.

- **Destination Systems**
  Right-click the **Windows Destination Computers** icon and select from the drop-down menu , or use the following icons:

**Browse**

Click here to search the network for the hosts where you want to install 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** and the **Password** of the account to be used to perform the installation on the remote computers.
- If you plan to install to 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**.
- On the **Remote Destination Folder** dialog box, verify or change the **Destination Folder** where NetBackup is installed.

  The default location is `C:\Program Files\Veritas`.

  If you plan to install to multiple remote computers and you want to use the same location, click the box next to **Use this folder for subsequent systems**. Selecting this option prevents the need to enter the location for each remote computer.

**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.<br>■ On the **Manual Remote Computer Selection** dialog box appears, enter the **Domain** and the **Computer Name**, then click **OK**.<br>■ On the **Remote Computer Login Credentials** dialog box, enter the **User Name** and the **Password** of the account to be used to perform the installation on the remote computers.<br>If you plan to add and install to 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.<br>■ Click **OK**.<br>■ On the **Remote Destination Folder** dialog box, verify or change the **Destination Folder** where NetBackup is installed.<br>The default location is `C:\Program Files\Veritas`.<br>If you plan to install to multiple remote computers and you want to use the same location, click the box next to **Use this folder for subsequent systems**. Selecting this option prevents the need to enter the location for each remote computer.<br>■ 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**.

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

---

**Note:** Veritas recommends that you review the summary screen for any warning messages. You can prevent installation and upgrade issues if you resolve any problems before you continue the installation.

---

Then select one of the following options:

- Click **Install** to start the installation.

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

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

Up to five remote installations occur simultaneously. When a remote installation is completed, another one begins so that a maximum of five installations are in progress.

If you click **Cancel** after you click **Install**, the installation does not stop immediately. Installation continues on all remote hosts where the installation has already started. Any specified hosts after that point do not get client software installed.

NetBackup considers any remote installations that were completed when you clicked **Cancel** to be successful.

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

Examine the installation log on the following location:

`%ALLUSERSPROFILE%\Veritas\NetBackup\InstallLogs\`

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

---

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

---

Search the installation log for the following error indications:

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

# Installing NetBackup Windows clients silently

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

Silent installations of NetBackup clients are not supported if you want to run the NetBackup services as a user instead of a local administrator.

To install NetBackup with a custom services account, refer to the following topics:

See "Installing NetBackup Windows clients locally or remotely" on page 103.

Use the following procedure to perform a silent installation of a local NetBackup client.

**To perform a silent installation of NetBackup client software on Windows**

1. Navigate to the location where the ESD images (downloaded files) reside.
2. Copy the contents of the directory shown to a temporary folder on your hard drive. For example, C:\temp.

   `x64`
3. Since the original source files are read-only, change the permissions for the copied files on the hard drive to allow the update.
4. In the temporary directory, use a text editor to edit the `silentclient.cmd` file so the script installs the client software as needed.
5. Run the `silentclient.cmd` script.
6. To verify that the installation was successful, check the installation log file in the following directory:

   `%ALLUSERSPROFILE%\Veritas\NetBackup\InstallLogs`

# How to configure NetBackup clients

You can configure NetBackup clients by performing one of the following actions:

| | |
|---|---|
| To add servers or media servers: | ■ Start the Backup, Archive, and Restore interface.<br>■ Click **File > Specify NetBackup Machines**. |
| To display and change the client properties: | ■ Start the Backup, Archive, and Restore interface.<br>■ Click **File > NetBackup Client Properties**. |
| To display and change the server properties: | ■ Open the NetBackup Administration Console.<br>■ Expand **Host Properties** and click **Clients**.<br>■ In the right pane, right-click on the client and choose **Properties**.<br>In the dialog box that appears, on the **Servers** tab, all NetBackup servers that require access to your Windows client must be listed. |

For complete information on client configuration, see the NetBackup Administrator's Guide, Volume I.

# About NetBackup client installation on UNIX and Linux

You can install UNIX/Linux clients either locally at the client computer or remotely from your UNIX/Linux NetBackup server. To install client software remotely from a UNIX/Linux NetBackup server, the client type software must first be installed on the UNIX/Linux server.

Note the following when you install NetBackup client software on UNIX/Linux systems:

UNIX/Linux package consolidation

Many of the add-on products and database agents are now installed with the NetBackup client package. Separate installation for these products is no longer needed.

The following products are now included in the NetBackup 9.0 client package (if the platform supports the product):

- BMR Boot server
- DB2
- Encryption
- Informix
- Lotus Notes
- Oracle
- SAP
- Snapshot Client
- Sybase

The binaries for the listed products are laid down with the client package. A valid license is still required to enable the product. If product configuration was required previously (such as `db2_config`), configuration is still required.

The French, Japanese, and Chinese language packages remain as separate add-ons. The process to install and upgrade these products remains the same.

`gzip` and `gunzip` commands

The `gzip` and the `gunzip` commands must be installed on each system. The directories where the commands are installed must be part of the root user's `PATH` environment variable setting.

NetBackup-Java compatibility

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

- Clients that are compatible with NetBackup-Java may use the NetBackup-Java interface (jbpSA). Several versions of the interface exist. Use the `-h` option and review the `-r` options to find out which versions are supported.
- Clients that are not compatible with NetBackup-Java can use the `bp` interface.

More information about compatibility with graphical interfaces is available. Refer to the NetBackup Software Compatibility List (SCL).

http://www.netbackup.com/compatibility

**Note:** If a client is listed in the *Client Selections for Backup Policies* section of the SCL but not in the *NetBackup Administration Consoles* section, the client is supported for backup and restore, but it does not support any of the available graphical interfaces.

# About UNIX and Linux client installation methods

You can install NetBackup clients on UNIX/Linux systems with the following methods:

Local installations

- This method installs the client software on the computer where you run the installation script.
- To install clients to a location other than the default, you must create and link a directory before you install the client software. First create the directory where you want the software to reside, then create `/usr/openv` as a link to that directory.
- On IBM zSeries and IBM pSeries Linux clients, you must transfer the NetBackup ESD image contents to a location that is readable by the virtual Linux environment. You can transfer the image with NFS mounting commands.

See "Installing UNIX clients locally" on page 116.

| | |
|---|---|
| Remote (push) installations | ■ You can "push" the client software from your UNIX/Linux NetBackup server to your UNIX/Linux client computers. The UNIX/Linux client must be a true client and not a media server or a master server. The preferred installation method is to push the client software.<br>■ Before you can push to a UNIX/Linux client, you must first install the NetBackup client type software on the server. Then, you must create a policy that includes the client name.<br>NetBackup Administrator's Guide, Volume I<br>See "Installing client type software on a master server" on page 62.<br>■ You cannot install Windows client software remotely from a NetBackup UNIX/Linux server.<br>■ Firewalls can prevent remote client installation.<br>■ Clients such as the IBM zSeries and the IBM pSeries Linux may not have access to the ESD images. In these cases, you must push the client software from a UNIX/Linux master server or a media server.<br>■ The following remote installation methods are available:<br>See "Installing client software with the ssh method" on page 135.<br>See "Installing client software with the sftp method" on page 136. |
| Native UNIX and Linux installer | You can install and upgrade NetBackup UNIX and Linux clients with native installers. You can use either the NetBackup install script or your preferred installer method. This change does not include those clients that use the Debian package. Those clients must be installed or upgraded with the NetBackup install script. More information is available:<br>See "Install of the UNIX and Linux client binaries with native installers" on page 122. |

See "About NetBackup client installation" on page 99.

# Installing UNIX clients locally

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

**To install client software locally on a UNIX client**

**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.<br>■ Enter the following command:<br>`./install` |
| Native install tools | NetBackup supports the install and upgrade of the UNIX and Linux client binaries with native installers. More information is available.<br>See "Install of the UNIX and Linux client binaries with native installers" on page 122. |

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

```
Veritas Installation Script
Copyright 1993 - 2016 Veritas Corporation, All Rights Reserved.


        Installing NetBackup Client Software


Please review the VERITAS SOFTWARE LICENSE AGREEMENT 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 Veritas 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)
```

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. The installation procedure attempts to load the appropriate binaries for your system. If the script does not recognize the local operating system, it presents choices.

**3** Type **y** and press **Enter** to continue with the software installation.

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

4 Type the name of your NetBackup master server and press **Enter** to continue.

```
Enter the name of the NetBackup master server:
```

5 Confirm the NetBackup client name and press **Enter** to continue.

```
Would you like to use "client_name" as the configured name of the
NetBackup client? [y,n] (y)
```

6 (Conditional) Enter one or more media servers if prompted:

```
This host cannot connect directly to the master server; therefore,
one or more media servers are required in order to contact the
master server for security information.  Enter the media servers
(one per line) or X to skip the question.  Enter Q to indicate all
media servers have been entered.

Enter a media server for host master.domain, Q to quit, or X to
skip this question:
media.domain
q
```

7 After you confirm you want to continue, the installer fetches 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.

8 The installer then looks to see what certificate authority the local system is configured to use. The options for certificate authority on the local system are: NetBackup Certificate Authority, external certificate authority, or indeterminate.

The installer then uses a combination of the master server certificate authority mode and the local system certificate authority configuration to determine the next steps.

9 If the installer prompts you for a certificate file path, your environment uses an external certificate authority. Proceed to step 10.

If the installer prompts you for fingerprint information, your environment uses a NetBackup Certificate Authority. Proceed to step 16.

If the installer cannot determine the configuration of the certificate authority on the master server, you are presented with two options:

- Skip the security configuration and configure your certificate authority after installation. More information about post-installation certificate authority configuration is available:
  https://www.veritas.com/support/en_US/article.100044300
  Proceed to step 20.
- Exit the installation and restart the installation once you configure your certificate authority.

**10** 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.

**11** 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):
```

**12** (Conditional) If you specify 2, you must enter the path to the CRL location:

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

**13** 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=Veritas,OU=iitf
      Subject Name : CN=cuomovm04,O=Veritas,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.
```

**14** (Conditional) 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 master server name
How do you want to proceed?
1) Continue the installation using this certificate.
2) Update external certificate values.
3) Abort the installation.
Default option (1):
```

Proceed to step 20.

**15** (Conditional) 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 master 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):
```

Proceed to step 20.

**16** When prompted, review the fingerprint information and confirm that it is accurate.

```
Master server [master_name] reports CA Certificate fingerprint
[fingerprint]. Is this correct? [y/n] (y)
```

After you confirm the fingerprint information, the installer stores the certificate authority certificate details.

```
Storing CA certificate.
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.

**17** After the Certificate Authority certificate is stored, the installer fetches the host certificate.

```
Getting host certificate.
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.

18 (Conditional) If prompted for the Authorization Token, please enter it.

```
An authorization token is required in order to get the host
certificate for this host. At the prompt, enter the authorization
token or q to skip the question. NOTE: The answer entered will
not be displayed to the terminal.

Enter the authorization token for master_server_FQDN or q to skip:
```

The token format is 16 upper case letters. 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.

19 When prompted, specify if you want Java and the JRE packages installed.

```
The Java GUI and JRE packages are currently not installed 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) Include the Java GUI and JRE.

2) Exclude the Java GUI and JRE.
```

If you specify `1`, you see: `Including the installation of Java GUI and JRE packages`. If you specify 2, you see: `Excluding the installation of Java GUI and JRE packages`.

20 Follow the prompts to complete the installation.

Additional information about installation folder restrictions is available.

See "Restrictions on the NetBackup installation directory" on page 17.

21 After the installation is complete, select **Exit from this Script**.

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

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

- For AIX: `lslpp`, `installp`
- For HP-UX: `swlist`, `swinstall`

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

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

**To install 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 171.

2. (Conditional) If your environment uses a NetBackup Certificate Authority, 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 171.

3. (Conditional) If your environment uses an external certificate authority, 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.
  - `SKIP`: Used to skip setting up the certificate authority. To skip the ECA configuration, you must set all required `ECA_` values to `SKIP`. Be aware that if you continue with the installation without a certificate authority, the backups and restores fail.
- `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 master 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 171.

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

- `SERVICES=no`
- `INSTALL_PATH=path`
- `MERGE_SERVER_LIST=value`

More information about each option is available.

See “About the NetBackup answer file” on page 171.

**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 | `gunzip NetBackup_9.0_CLIENTS1.tar.gz; tar -xvf NetBackup_9.0_CLIENTS1.tar` |
| HP-UX | `gunzip -dc NetBackup_9.0_CLIENTS1.tar.gz \| tar -xvf` |
| Linux | `tar -xzvf NetBackup_9.0_CLIENTS2.tar.gz` |
| Solaris | `tar -xzvf NetBackup_9.0_CLIENTS1.tar.gz` |

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

| | |
|---|---|
| AIX | `CLIENTS1/NBClients/anb/Clients/usr/openv/netbackup/client/RS6000/AIX6/` |
| HP-UX | `CLIENTS1/NBClients/anb/Clients/usr/openv/netbackup/client/HP-UX-IA64/HP-UX11.31/` |
| Linux | For Linux RedHat:<br>`CLIENTS2/NBClients/anb/Clients/usr/openv/netbackup/client/Linux/RedHat2.6.18/`<br>For Linux SuSE:<br>`CLIENTS2/NBClients/anb/Clients/usr/openv/netbackup/client/Linux/SuSE3.0.76` |
| Linux - s390x | For Linux-s390x RedHat:<br>`CLIENTS2/NBClients/anb/Clients/usr/openv/netbackup/client/Linux-s390x/IBMzSeriesRedHat2.6.18/`<br>For Linux-s390x SuSE:<br>`CLIENTS2/NBClients/anb/Clients/usr/openv/netbackup/client/Linux-s390x/IBMzSeriesSuSE3.0.76` |
| Linux - ppc64le | For Linux-ppc64le RedHat:<br>`CLIENTS2/NBClients/anb/Clients/usr/openv/netbackup/client/Linux-ppc64le/IBMpSeriesRedHat3.10.0/`<br>For Linux-ppc64le SuSE:<br>`CLIENTS2/NBClients/anb/Clients/usr/openv/netbackup/client/Linux-ppc64le/IBMpSeriesSuSE4.4.21` |

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

  AIX

  ```
  VRTSnbpck.image
  VRTSpbx.image.gz
  VRTSnbclt.image.gz
  VRTSnbjre.image.gz
  VRTSnbjava.image.gz
  VRTSpddea.image.gz
  VRTSnbcfg.image.gz
  ```

  HP-UX

  ```
  VRTSnbpck.depot
  VRTSpbx.depot.gz
  VRTSnbclt.depot.gz
  VRTSnbjre.depot.gz
  VRTSnbjava.depot.gz
  VRTSpddea.depot.gz
  VRTSnbcfg.depot.gz
  ```

  Linux

  ```
  VRTSnbpck.rpm
  VRTSpbx.rpm
  VRTSnbclt.rpm
  VRTSnbjre.rpm
  VRTSnbjava.rpm
  VRTSpddea.rpm
  VRTSnbcfg.rpm
  ```

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

| | |
|---|---|
| Solaris | `.pkg_defaults`<br>`VRTSnbpck.pkg.gz`<br>`VRTSpbx.pkg.gz`<br>`VRTSnbclt.pkg.gz`<br>`VRTSnbjre.pkg.gz`<br>`VRTSnbjava.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 there is no `VRTSpddea.rpm` for the **z/Architecture** client.

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

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

```
gunzip VRTS*.*
```

This action extracts all the package files as shown:

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

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

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

AIX

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

Alternatively use a single command to install all packages:

```
installp -ad folder_name all
```

HP-UX

```
swinstall -s VRTSnbpck.depot \*
swinstall -s VRTSpbx.depot \*
swinstall -s VRTSnbclt.depot \*
swinstall -s VRTSnbjre.depot \*
swinstall -s VRTSnbjava.depot \*
swinstall -s VRTSpddea.depot \*
swinstall -s VRTSnbcfg.depot \*
```

Alternatively use a single command to install all packages:

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

Linux

```
rpm -U VRTSnbpck.rpm
rpm -U VRTSpbx.rpm
rpm -U VRTSnbclt.rpm
rpm -U VRTSnbjre.rpm
rpm -U VRTSnbjava.rpm
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.

Solaris

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

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

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

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

```
WARNING: There is no answer file present and no valid bp.conf.
Therefore, security configuration is not complete. Manual steps
are required before backups and restores can occur. For more
information:
https://www.veritas.com/support/en_US/article.000127129
```

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

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

Customers who use the NetBackup installation script for their UNIX and Linux clients only see a single change to the installation behavior. The NetBackup installation script no longer copies the installation package into the `/usr/openv/pack/` directory on the client. A successful installation or upgrade is recorded in the `/usr/openv/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 6-2 shows some of the actions and the message that is generated.

**Table 6-2** 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 `lslpp -L package_name` 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 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>See "To install the UNIX or Linux client binaries using native installers:" on page 123. |
| User attempts to install an older version of a binary over the top of a newer version of the binary. | `# installp -d VRTSnbclt.image all`<br>`WARNING:`<br>`file /usr/openv/lib/java/nbvmwaretags.jar from install of VRTSnbclt-version-platform conflicts with file from package VRTSnbclt-version-platform` | Use the `lslpp -L package_name` command to determine the name of the installed package. Uninstall this package and then retry the operation. |
| For HP-UX | | |
| User attempts to install the binaries on top of the same version of the binaries. | `# swinstall -s ./VRTSnbpck.depot`<br>`1 filesets have the selected revision already installed.` | Use the `swlist` 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. | `# swinstall -s ./VRTSnbcfg.depot`<br>`ERROR: "hostname:/": The software dependencies for 1 products or filesets cannot be resolved.` | Refer to the documentation for the correct depot package installation order. More information is also available in the error which lists the dependent packages.<br>See "To install the UNIX or Linux client binaries using native installers:" on page 123. |
| User attempts to install an older version of a binary over the top of a newer version of the binary. | `# swinstall -s ./VRTSnbclt.depot`<br>`WARNING: "hostname:/": 1 filesets have a version with a higher revision number already installed.` | Use the `swlist` command to determine the name of the installed package. Uninstall this package and then retry the operation. |

**Table 6-2** Installation error messages and solutions *(continued)*

| Install action | Error message | Solution |
|---|---|---|
| For Linux | | |
| User attempts to install the binaries on top of the same version of the binaries. | `# rpm -U VRTSnbpck.rpm`<br>`package VRTSnbpck.rpm-`*`version-platform`* `is already installed` | Use the `rpm` 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. | `# rpm -U VRTSnbcfg.rpm`<br>`error: Failed dependencies:`<br>`VRTSnbclt >= 8.1.0.0 is needed by VRTSnbcfg-`*`version-platform`* | Refer to the documentation for the correct RPM installation order. More information is available.<br>See "To install the UNIX or Linux client binaries using native installers:" on page 123. |
| User attempts to install an older version of a binary over the top of a newer version of the binary. | `# rpm -U VRTSnbclt.rpm`<br>`file /usr/openv/lib/java/nbvmwaretags.jar from install of VRTSnbclt-`*`version-platform`*<br>`conflicts with file from package VRTSnbclt-`*`version-platform`* | Use the `rpm` command to determine the name of the installed package. Uninstall this package and then retry the operation. |
| For Solaris | | |

**Table 6-2** 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 | | Use the `pkginfo` command to determine the name of the package that is currently installed. Uninstall this package and then retry the operation.<br><br>Alternatively, use the admin file that is provided with the package to reinstall the package. |

**Table 6-2** Installation error messages and solutions *(continued)*

| Install action | Error message | Solution |
|---|---|---|
| | pkgadd -a .pkg_defaults -d VRTSnbpck.pkg VRTSnbpck<br><br>Processing package instance <VRTSnbpck> from </root/packages/Solaris/ Solaris_x86_10_64/VRTSnbpck.pkg><br><br>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.<br><br>Copyright 2017 Veritas Technologies LLC. All rights reserved.<br><br>## Executing checkinstall script.<br><br>Using </> as the package base directory.<br><br>## Processing package information.<br><br>## Processing system information.<br><br>6 package pathnames are already properly installed.<br><br>## Verifying disk space requirements.<br><br>Installing NetBackup Pre-Check as <VRTSnbpck><br><br>## Executing preinstall script.<br><br>Wednesday, May 10, 2017 03:15:44 PM IST: Installing package VRTSnbpck. | |

**Table 6-2** Installation error messages and solutions *(continued)*

| Install action | Error message | Solution |
|---|---|---|
| | `Installing NB-Pck.`<br><br>`## Installing part 1 of 1.`<br><br>`[ verifying class <NBclass> ]`<br><br>`## Executing postinstall script.`<br><br>`Wednesday, May 10, 2017 03:15:45 PM IST: Install of package VRTSnbpck was successful.` | |
| User attempts to install the binaries in the incorrect order. | `# pkgadd -a .pkg_defaults -d VRTSnbclt.pkg VRTSnbclt`<br><br>`ERROR: VRTSnbpck >=8.1.0.0 is required by VRTSnbclt. checkinstall script suspends` | Refer to the documentation for the correct package installation order. More information is available.<br><br>See "To install the UNIX or Linux client binaries using native installers:" on page 123. |
| User attempts to install an older version of a binary over the top of a newer version of the binary. | `# pkgadd -a .pkg_defaults -d VRTSnbclt.pkg VRTSnbclt`<br><br>`Processing package instance <VRTSnbclt> from </root/80packages/Solaris/Solaris_x86_10_64/VRTSnbclt.pkg>`<br><br>`NetBackup Client(i386) 8.0.0.0`<br><br>`The following instance(s) of the <VRTSnbclt> package are already installed on this machine:`<br><br>`1 VRTSnbclt NetBackup Client`<br><br>`(i386) 8.1.0.0`<br><br>`Do you want to overwrite this installed instance [y,n,?,q]` | Use the `pkginfo` command to determine the name of the package that is currently installed. Uninstall this package and then retry the operation. |

# About remote installation methods for UNIX/Linux clients

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

- `ssh`
  See "Installing client software with the ssh method" on page 135.
- `sftp`
  See "Installing client software with the sftp method" on page 136.

**Note:** For installation in clustered environments, enter the virtual name for the NetBackup server and not the actual local host name. You can only push client software from the active node.

## Installing client software with the ssh method

This client installation method is based on the usage of the SunSSH and the OpenSSH products, which must be at specific version and patch levels. For more information about these patches, please refer to the NetBackup 9.0 Release Notes.

Before you perform this procedure, read the following guidelines:

| | |
|---|---|
| SSH daemon (`sshd`) | To use the ssh method, the UNIX client must have `sshd` enabled and configured to allow root user logins. |
| Client software location | If you want to install client software to a location other than the default, you must first create and link the desired directory. Create the directory where you want the client software to reside, and then create `/usr/openv` as a link to that directory.<br>Additional information about installation folder restrictions is available.<br>See "Restrictions on the NetBackup installation directory" on page 17. |
| Backup policies | Make sure that the clients are assigned to a backup policy. |
| Security configuration | The `install_client_files` scripts may prompt you for security information based on your environment. The information that is required is based on the master server security mode and the target host security configuration. For details on how to respond to these prompts, refer to the NetBackup Security and Encryption Guide. |

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

- On the NetBackup server, run the `install_client_files` script.
  Use one of the following commands:

- To move software to only one client at a time:
  `/usr/openv/netbackup/bin/install_client_files ssh client`
  The *client* is the host name of the client.
- To move software to all clients at once:
  `/usr/openv/netbackup/bin/install_client_files ssh ALL`
  The *ALL* option specifies that you want to install all clients that are configured in any backup policy on the server.

## Installing client software with the sftp method

This client installation method is based on the usage of the SunSSH and the OpenSSH products, which must be at specific version and patch levels. For more information about these patches, please refer to the NetBackup 9.0 Release Notes.

Before you perform this procedure, read the following guidelines:

| | |
|---|---|
| SSH daemon (`sshd`) | To use this method, the UNIX client must have `sshd` enabled and configured to allow root or non-root user logins. |
| Client file location | If you want to install client software to a location other than the default, you must first create and link the desired directory. Create the directory where you want the software to reside, and then create `/usr/openv` as a link to that directory.<br>Additional information about installation folder restrictions is available.<br>See "Restrictions on the NetBackup installation directory" on page 17. |
| Backup policies | Make sure that the clients are assigned to a backup policy. |
| Security configuration | The `install_client_files` scripts may prompt you for security information based on your environment. The information that is required is based on the master server security mode and the target host security configuration. For details on how to respond to these prompts, refer to the NetBackup Security and Encryption Guide. |

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

1. To move the client software from the server to the `/tmp` directory on the client, run the `install_client_files` script on the NetBackup server.

   Use one of the following commands:

   - To move software to one client at a time:

```
/usr/openv/netbackup/bin/install_client_files sftp client user
```

The *client* is the host name of the client.

The *user* is the login ID that SSH requires on the client.

- To move software to all clients at once:

  ```
  /usr/openv/netbackup/bin/install_client_files sftp ALL user
  ```

  The *ALL* option specifies that you want to install all clients that are configured in any backup policy on the server.

  The *user* is the login ID required by the client.

2. After the script runs, the root user on each client computer must run the following script:

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

   The *pid* is the process ID. The `client_config` script installs the binaries.

# Adding a UNIX/Linux client after initial server installation

You may want to add UNIX/Linux clients after the server installation if you forgot to select one during the installation. You may also add a new UNIX/Linux client type to your backup environment.

To install client software later, you must first install the NetBackup client software onto the NetBackup server.

**To add UNIX/Linux client types to servers after initial installation**

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.<br>■ Enter the following command:<br>`./install` |

| | |
|---|---|
| Native install tools | NetBackup supports the install and upgrade of the UNIX and Linux client binaries with native installers. More information is available.<br>See "Install of the UNIX and Linux client binaries with native installers" on page 122. |

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

```
Veritas Installation Script
Copyright 1993 - 2013 Veritas Corporation, All Rights Reserved.


        Installing NetBackup Client Software


Please review the VERITAS SOFTWARE LICENSE AGREEMENT 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 Veritas 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)
```

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. The installation procedure attempts to load the appropriate binaries for your system. If the script does not recognize the local operating system, it presents choices.

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

Make sure that you load the software for all of the UNIX/Linux client types that you intend to install remotely from the server.

**4** Install the NetBackup client software on the clients you specified.

See "About remote installation methods for UNIX/Linux clients" on page 134.

Chapter 7

# Configuring NetBackup

This chapter includes the following topics:



## 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 7-1 lists the links for the startup and the shutdown scripts for the various platforms that are installed during NetBackup installation.

**Table 7-1** NetBackup startup and shutdown script links by platform

| Platform | Links |
|---|---|
| AIX | `/etc/rc.netbackup.aix`<br>■ 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`<br>■ To shut down, add the following line to the `/etc/rc.shutdown` file:<br>`/etc/rc.netbackup.aix stop` |
| HP-UX | `/sbin/rc1.d/K001netbackup ->/sbin/init.d/netbackup`<br>`/sbin/rc2.d/S777netbackup ->/sbin/init.d/netbackup` |
| Linux Debian | `/etc/rc0.d/K01netbackup ->/etc/init.d/netbackup`<br>`/etc/rc1.d/K01netbackup ->/etc/init.d/netbackup`<br>`/etc/rc2.d/S95netbackup ->/etc/init.d/netbackup` |
| Linux Red Hat | `/etc/rc.d/rc0.d/K01netbackup ->/etc/rc.d/init.d/netbackup`<br>`/etc/rc.d/rc1.d/K01netbackup ->/etc/rc.d/init.d/netbackup`<br>`/etc/rc.d/rc2.d/S77netbackup ->/etc/rc.d/init.d/netbackup`<br>`/etc/rc.d/rc3.d/S77netbackup ->/etc/rc.d/init.d/netbackup`<br>`/etc/rc.d/rc5.d/S77netbackup ->/etc/rc.d/init.d/netbackup`<br>`/etc/rc.d/rc6.d/K01netbackup ->/etc/rc.d/init.d/netbackup` |

**Table 7-1** NetBackup startup and shutdown script links by platform *(continued)*

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

# About NetBackup server configuration

After all server software is installed, you are ready to configure NetBackup to work with the robotic and the storage devices in your environment. Remember the operating system must recognize these devices as configured before you can configure them in NetBackup.

See "About storage device configuration" on page 14.

Use the following guidelines when you configure NetBackup:

| | |
|---|---|
| NetBackup Enterprise servers | The procedures for configuring master and media servers are very similar. Veritas recommends, however, that you configure all server information such as storage devices and volumes from the master server. Following this order helps ensure that the master servers properly administer the media servers.<br>**Warning:** Communication problems between the master server and the media server do not prevent you from running the configuration wizards. Therefore, do not run the wizards on the media server until the problems are corrected. If you run any of the wizards when a communication problem exists, the master server cannot recognize the information that you enter. You must first correct the problem. After you correct the problem, run the configuration wizards from the master server. |
| Clustered environments | ■ Configure devices on every node in the cluster.<br>■ Start by configuring all storage devices from the active node so that they work with NetBackup.<br>■ For a NetBackup failover server, attach all of the devices to each node in the cluster on which NetBackup is installed. Refer to the clustering vendor's documentation for information on how to migrate to another node.<br>■ Unless otherwise noted, configure NetBackup to use the virtual host names of master servers and media servers in the cluster.<br>For complete information on to how to configure an add-on product to fail over, see the NetBackup Clustered Master Server Administrator's Guide. |

For initial NetBackup server configuration, Veritas recommends that you launch the NetBackup Administration Console and click the **Getting Started** icon. A series of wizards guide you through the following configuration procedures:

- **Configure Storage Devices**
  See "About the Device Configuration Wizard" on page 144.
- **Configure Volumes**
  See "About the Volume Configuration Wizard" on page 146.
- **Configure the Catalog Backup**
  See "About the Catalog Backup Wizard" on page 147.
- **Create a Backup Policy**
  See "About the Backup Policy Configuration Wizard" on page 148.

If NetBackup is already configured and you want to change a specific area, click the appropriate wizard on the NetBackup Administration Console.

For complete information on all of the NetBackup wizards and how to configure NetBackup, see the NetBackup Administrator's Guide, Volume I.

See "About storage device configuration" on page 14.

## Starting the NetBackup Administration Console

Use the following procedures to open the NetBackup Administration Console to configure NetBackup. The **Getting Started** wizard guides you through the primary configuration steps to make NetBackup function.

---

**Note:** Other wizards are available from the initial NetBackup Administration Console window that are not part of the **Getting Started** wizard. For example, you can configure disk pools or create a snapshot backup policy. See the NetBackup Administrator's Guide, Volume I for complete information about all NetBackup wizards.

---

On Windows systems, if you clicked the check box **Launch Administration Console** that appears at the end of NetBackup installation, you can skip this procedure.

**To start the NetBackup Administration Console on Windows**

1. Log on to the NetBackup server as the Administrator.
2. Click **Start > Programs > Veritas NetBackup > NetBackup Administration Console**.
3. To begin configuration, on the Administration Console, click **Getting Started**.

   The **Getting Started** screen appears and prompts you to begin device configuration.

   ---

   **Note:** If you still need to configure devices to work with the operating system, close the wizard. You must first configure those devices as specified by the device and the operating system vendors.

   ---

**To start the NetBackup Administration Console on UNIX**

1. Log in to the NetBackup server as root.

   For clustered environments, log in to the active node as root.

   If you need to run the user interface on a computer other than the NetBackup server, log on to that computer. For UNIX systems, log in as root.

2. Enter the following command:

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

3. Enter the password for root.

   For clustered environments, when you log in to the NetBackup Administration Console, specify the virtual host name in the **Host** field.

4. Click **Login**.

5. To begin configuration, on the Administration Console, click **Getting Started**.

6. On the initial **Getting Started** screen, review the content and click **Next**.

   The following screen prompts you to **Configure Storage Devices**.

   **Note:** If you still need to configure devices to work with the operating system, close the wizard. You must first configure those devices as specified by the device and the operating system vendors.

# About the Device Configuration Wizard

Before you can run backups, you must define your storage devices for NetBackup. This wizard guides you through this process. You must, however, be certain that you have configured your storage devices correctly for your operating system. NetBackup cannot function reliably unless devices are installed and configured correctly.

See “About storage device configuration” on page 14.

For clustered environments, begin configuring all storage devices from the active node. For a NetBackup failover server, Veritas recommends that you attach all of the devices to every node on which NetBackup is installed.

For complete instructions, refer to the NetBackup Clustered Master Server Administrator's Guide.

This wizard takes you through the following processes:

- Scans the hosts for backup devices

- Verifies the devices that were automatically detected
- Verifies and corrects the drive configuration
- Updates the device configuration

The wizard presents the following information when you configure devices:

| | |
|---|---|
| Device configuration | ■ When the wizard displays the **Device Hosts** screen, you must specify the hosts on which to auto-discover and configure devices (NetBackup Enterprise servers only).<br>■ When the wizard displays the **Backup Devices** screen, confirm that the list of devices is complete and accurate. If a known backup device does not appear in this list, take the following action:<br>■ Verify that the backup device is physically attached to the host.<br>■ Verify that all that specified device and operating system vendor installation procedures are performed successfully.<br>■ Verify that all drives correspond to the proper device. If you need to move a drive, select the drive and drag it to the correct location.<br>■ For clusters, ensure that you perform storage device configuration on each node. Begin on the active node, then move the NetBackup active node to another node and perform the storage device configuration on that node. Repeat for each node of the cluster on which NetBackup runs.<br>**Note:** By default, robotic daemons and NetBackup add-on products do not cause NetBackup to failover if they fail. You can configure robotic devices and NetBackup add-on products to fail over NetBackup if the robot or the add-on product fails. The operating system must recognize the robots as configured before you can configure NetBackup to failover. For complete details about fail over configuration, refer to the NetBackup Clustered Master Server Administrator's Guide. |

| | |
|---|---|
| Defining storage units | ■ You define storage units from the **Configure Storage Units** screen. If your system does not have a tape device, you can store data on a disk by defining disk storage units.<br>■ When you enter a path for a storage unit, the following rules apply:<br>■ Use the correct path separators (forward slash (/) for UNIX and backward slash (\) for Windows).<br>■ Use a colon (:) to specify a drive separation on Windows platforms.<br>■ Use the following characters only:<br>Alphabetic characters (ASCII A-Z, a-z)<br>Numeric characters (0-9)<br>Miscellaneous characters: plus (+), minus (-), underscore (_), or period (.) |

See "About the Volume Configuration Wizard" on page 146.

# About the Volume Configuration Wizard

After you have configured your storage devices, the Getting Started Wizard starts the Volume Configuration Wizard. However, if you only have disk storage capability, NetBackup skips this wizard.

This wizard lets you initiate an inventory of each configured robot. NetBackup automatically updates the volume database if it finds new robotic media during the inventory. In addition, you can define new volumes for use in standalone drives.

For complete information about volumes or volume configuration for standalone drives, refer to the NetBackup Administrator's Guide, Volume I.

---

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

---

This wizard lets you do the following tasks:

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

The wizard presents the following information when you configure volumes and perform inventory:

| | |
|---|---|
| Robot or device inventory | ■ NetBackup conducts an inventory of the robot or the device that you selected. To view the results after the inventory has completed, see the **Results:** field.<br>■ After the device inventory has completed, the wizard prompts you to identify which device slots contain cleaning media.<br>If you upgraded NetBackup and have pre-existing barcode rules, the barcode reader automatically detects the designated slots for the cleaning media. If you do not designate cleaning slots, NetBackup considers all media (including cleaning media) as typical media and tries to overwrite it.<br>■ After the inventory has completed, you are prompted to identify which device slots contain cleaning media.<br>If you identify one or more slots as cleaning media in the **Identify Cleaning Media** screen, you see the **Robot Inventory (Cleaning Media)** screen. This screen displays the results after the software updates the EMM database.<br>If you do not designate cleaning media, NetBackup considers all media to be typical media (including cleaning media) and tries to overwrite it. |
| Standalone drives | ■ Specify the number of volumes for the device.<br>■ The wizard does not let you configure cleaning tapes for standalone drives. |
| Multiple drive types | When you specify multiple drive types, the following are true:<br>■ Media that is written by one robot drive may not work in any other drive. If this situation occurs, NetBackup considers the robot to have more than one type of drive.<br>■ If the robot has more than one type of drive, the wizard cannot inventory the robot. |

See "About the Catalog Backup Wizard" on page 147.

# About the Catalog Backup Wizard

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

Therefore, you must configure a catalog backup policy before any data gets backed up.

This wizard lets you create a policy for an online, hot catalog backup. Online, hot catalog backups can back up the catalog while normal client backups are in progress.

A catalog backup policy lets you specify the following information:

- The destinations for the catalog backup
  A backup destination can be any configured storage device. For additional disaster recovery protection, you can specify a second location for your catalog backup.

  **Note:** Although NetBackup supports catalog backup to disk, Veritas recommends that you back up the catalog to a removable media that gets stored off-site.

- The disaster recovery passphrase. More information about the passphrase is available. See the NetBackup Troubleshooting Guide.
- When the catalog backup occurs
- The location of the disaster recovery file that is needed to recover from the catalog backup

Use the following guidelines to configure a catalog backup:

- Configure a catalog backup policy before any other files or data are backed up.
- For clustered systems, configure the catalog backup policy from the active node.

For complete details about catalog backups, see the chapter “Protecting the NetBackup catalog” in the NetBackup Administrator's Guide, Volume I.

For instructions on how to configure a catalog backup in clustered environments, see the NetBackup Clustered Master Server Administrator's Guide.

## About the Backup Policy Configuration Wizard

This wizard lets you define a backup policy for a group of one or more clients. For clustered environments, configure the policy from the active node.

The wizard lets you specify the following:

- Policy names and types
- Clients
- Files and directories to back up
- Backup types
- Backup rotations
- Starting times of backups

The wizard prompts you to choose the type of backup that you want a policy to perform.

Table 7-2 describes the available backup types.

**Table 7-2** Backup type descriptions

| Backup type | Description |
|---|---|
| Full backup | Backs up all files that are specified in the file list. |
| Incremental backup | Backs up all the changed files that are specified in the file list. |
| Differential backup | Also referred to as a Differential incremental backup.<br>Backs up the files that have changed since the last successful incremental or full backup. All files are backed up if no previous backup has been done. |
| Cumulative backup | Also referred to as a Cumulative incremental backup .<br>Only the files that changed since the last full backup that was successful are backed up. All files are backed up if no previous backup has been done. |
| User backup | Initiated manually by a user to back up specific files. |

Use the following guidelines when you create backup policies:

- The list that appears on the **Client List** screen of the Backup Policy Wizard is a list of clients that are backed up. You can add, change, or delete clients from the list.
- You can select how often you want a backup policy to run for full or incremental backups. In addition, you can select the retention period for the backups.

After you have completed the Backup Policy Wizard , you are asked if you want to perform an installation verification test. To do this test, click the **Activity Monitor** in the left pane of the NetBackup Administration Console. You can now monitor the progress of the backup job.

Chapter 8

# Upgrading NetBackup software

This chapter includes the following topics:

- About upgrading NetBackup
- About the NetBackup 9.x Upgrade Portal

## About upgrading NetBackup

Complete upgrade information can be found in the *Veritas NetBackup Upgrade Guide* on the NetBackup Upgrade Portal. The portal can be accessed by clicking on the following link:

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

See "About Veritas Services and Operations Readiness Tools" on page 20.

See "About the NetBackup 9.x Upgrade Portal" on page 150.

## About the NetBackup 9.x Upgrade Portal

The NetBackup 9.x Upgrade Portal contains the necessary information and instructions for upgrades to version 9.0. The following is a link to the portal:

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

You must perform an upgrade to NetBackup 9.0 as described in the portal documentation.

To help you plan and prepare for an upgrade to NetBackup 9.0, the following describes the important information that can be found on the portal:

- Catalog backup

Before the upgrade, a catalog backup should be created to provide a backup of the catalog in case of a failed upgrade.

- NetBackup Catalog Check (NBCC) utility for NetBackup 9.0.
  Before the upgrade, the catalog should be checked to make sure that it is free of any inconsistencies that may cause the upgrade to fail. If the NBCC results show any catalog inconsistencies, you must seek assistance from Veritas Enterprise Support for additional guidance.
- Upgrade to NetBackup OpsCenter 9.0
  The NetBackup OpsCenter Administrator's Guide provides important notes for upgrading to NetBackup OpsCenter 9.0. This upgrade must be done before you upgrade to NetBackup 9.0.
- Catalog cleanup.
  Your current NetBackup catalog must be free of any inconsistencies that may prevent a successful upgrade.
- Upgrade to NetBackup 9.0
  After the catalog cleanup and the NBCC results are declared as acceptable and you have upgraded to NetBackup OpsCenter 9.0, begin the NetBackup 9.0 upgrade.

If you have any questions or concerns about the upgrade process for NetBackup 9.0, please contact Veritas Enterprise Support.

See “About Veritas Services and Operations Readiness Tools” on page 20.

Chapter 9

# Removing NetBackup server and client software

This chapter includes the following topics:



## About NetBackup server software removal on UNIX systems

NetBackup removal procedures remove NetBackup completely, along with any installed add-on products. Each procedure gives you the opportunity to save any data that you want and to remove add-on products before you remove NetBackup.

Veritas recommends that you use the following order when you remove NetBackup server software:

- Save any data that you require.
  This task is very important if you plan to reinstall NetBackup at a later date.

- Remove any add-on products before you remove NetBackup server software.
- Remove the NetBackup server software.

---

**Note:** As part of the removal of the NetBackup server software, the security certificates are automatically deleted. If you want to retain the certificates, please save them before removing NetBackup.

More information about this topic is available. Please refer to the information on retaining host ID-based certificates when reinstalling NetBackup in the NetBackupSecurity and Encryption Guide.

---

See "Removing NetBackup from UNIX and Linux servers and clients" on page 154.

See "About NetBackup client software removal on UNIX and Linux systems" on page 153.

# About NetBackup client software removal on UNIX and Linux systems

Use the following guidelines when you remove NetBackup from UNIX/Linux clients:

When you remove NetBackup client software, PBX is not removed. You must remove PBX manually. The client software removal procedure in this document includes a step that describes how to perform this task.

As part of the removal of the NetBackup client software, the security certificates are automatically deleted. If you want to retain the certificates, please save them before removing NetBackup.

More information about this topic is available. Please refer to the information on retaining host ID-based certificates when reinstalling NetBackup in the NetBackupSecurity and Encryption Guide.

---

**Warning:** Do not remove PBX if your client uses other Veritas software products that require PBX to run.

---

# Removing NetBackup from UNIX and Linux servers and clients

Use this procedure to remove NetBackup from UNIX and Linux servers and clients. You may also need to reference other documents for procedures of specific tasks to remove NetBackup successfully.

Use the following guidelines when you remove NetBackup from UNIX and Linux servers and clients:

| | |
|---|---|
| NetBackup relational database (NBDB) location | If you moved the NBDB files in `/usr/openv/db/data` from their default installation location, this procedure includes a step that describes how to remove these files. |
| Clustered environments | Before you begin to remove NetBackup, you must remove NetBackup from the cluster application. Follow the instructions in your cluster documentation on how to remove a group, then you can remove NetBackup.<br>The virtual host name security certificates are automatically removed from the shared drive of the cluster as a part of NetBackup server software removal.<br>You must remove NetBackup from each node in the cluster. |
| PBX | When you remove NetBackup, PBX is not removed. You must remove PBX manually. This procedure includes a step that describes how to perform this task.<br>**Warning:** Do not remove PBX if your server uses other Veritas software products that require PBX to run. |
| NetBackup Administration Console | The NetBackup Administration Console must be closed when you remove NetBackup. Otherwise, NetBackup may cause a failure that forces you to restart the procedure. |

**To remove NetBackup from UNIX servers**

1. Log on as the root user on the server or the client.
2. (Conditional: servers only) Perform a catalog backup.
3. If the NetBackup Administration Console is open, you must close it now.
4. (Conditional: servers only) Save all important data from any add-on products that you have installed.
5. Stop the NetBackup/Media Manager daemons with the following command:

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

**6** Identify any installed add-on products by using the following command:

| | |
|---|---|
| AIX | `lslpp -L` |
| HP-UX | `swlist` |
| Linux | `rpm -qa` |
| Solaris | `pkginfo` |

Look for any of the seven add-on products listed:

```
VRTSfrnb (Applies only to servers)
VRTSfrnbclt
VRTSjanb (Applies only to servers)
VRTSjanbclt
VRTSzhnb (Applies only to servers)
VRTSzhnbclt
VRTSnbsds (Applies only to servers)
```

Remove any add-on products found.

**7** (Conditional: servers only) For Solaris systems only, run the following command:

```
/usr/openv/volmgr/bin/driver/sg.install -deinstall
```

**8** To unregister NetBackup from the VxUL master configuration that is stored in the `/etc/vx/vrtslog.conf` file, run the following command:

```
/usr/openv/netbackup/bin/vxlogcfg -r -p 51216
```

The `-p` option specifies the product ID, which is 51216 for NetBackup.

**9** (Conditional: servers only) If BMR is supported and enabled on the server, remove the associated files with the following command:

```
/usr/openv/netbackup/bin/bmrsetupmaster -undo -f
```

**10** (Conditional: servers only) If you moved the NBDB files from their default installation location, you must delete these files manually as follows:

- Navigate to the following directory where the NBDB files reside:
  `/usr/openv/db/data`
- Open the `vxdbms.conf` file.
  This file contains a list of the database-related files and the path for each file.
- Delete each of the database-related files.

**11** (Conditional: servers only) If NetBackup Fibre Transport is supported and enabled on the server, remove the associated files with the following command:

```
/usr/openv/netbackup/bin/admincmd/nbftsrv_config -d
```

**12** (Conditional: servers only) To remove the NetBackup server package, run the command shown.

---

**Note:** The virtual host name security certificates are automatically removed from the shared drive of the cluster as a part of NetBackup server software removal.

More information about this topic is available. Please refer to the information on retaining host ID-based certificates when reinstalling NetBackup in the NetBackupSecurity and Encryption Guide.

---

| | |
|---|---|
| Linux | `rpm -e VRTSnetbp` |
| Solaris | `pkgrm VRTSnetbp`<br>■ When the script asks if you want to remove the installed package `VRTSnetbp`, enter **`y`** and press **`Enter`**.<br>■ When the script asks if you want to continue with the package removal using superuser permission, enter **`y`** and press **`Enter`**. |

**13** Remove the NetBackup configuration package with the appropriate command as follows:

| | |
|---|---|
| AIX | `installp -u VRTSnbcfg` |
| HP-UX | `swremove VRTSnbcfg` |
| Linux | `rpm -e VRTSnbcfg` |
| Solaris | `pkgrm VRTSnbcfg` |

**14** For the clients that support PureDisk, remove all PureDisk files with the following command:

```
/opt/pdde/pddeuninstall.sh -forceclean
```

**15** (Conditional: servers only) For the clients that support MSDP, remove all MSDP files with the following command:

```
/opt/pdde/pddeuninstall.sh -basedir /usr/openv/pdde/ -ostdir
/usr/openv/lib/ost-plugins/ -forceclean
```

**Note:** Be aware the preceding command is a single command which takes three parameters (`basedir`, `, ostdir`, and `forceclean`), and two directory parameters take paths as input.

**16** Remove the NetBackup-Java Display Console by using the appropriate native command as follows:

| | |
|---|---|
| AIX | `installp -u VRTSnbjava` |
| HP-UX | `swremove VRTSnbjava` |
| Linux | `rpm -e VRTSnbjava` |
| Solaris | `pkgrm VRTSnbjava` |

**17** Remove the NetBackup Java Runtime Environment by using the appropriate native command as follows:

| | |
|---|---|
| AIX | `installp -u VRTSnbjre` |
| HP-UX | `swremove VRTSnbjre` |
| Linux | `rpm -e VRTSnbjre` |
| Solaris | `pkgrm VRTSnbjre` |

**18** Remove the NetBackup client by using the appropriate native command as shown.

---

**Note:** As part of the removal of the NetBackup server software, the security certificates are automatically deleted. If you want to retain the certificates, please save them before removing NetBackup.

More information about this topic is available. Please refer to the information on retaining host ID-based certificates when reinstalling NetBackup in the NetBackupSecurity and Encryption Guide.

---

| | |
|---|---|
| AIX | `installp -u VRTSnbclt` |
| HP-UX | `swremove VRTSnbclt` |
| Linux | `rpm -e VRTSnbclt` |
| Solaris | `pkgrm VRTSnbclt` |

---

**Note:** If there are running NetBackup processes and daemons, terminate them manually for a successful NetBackup removal.

---

**19** Remove PBX with the appropriate native command as follows:

---

**Note:** Remember, you should not remove PBX if your server uses other Veritas software products that require PBX to run.

---

| | |
|---|---|
| AIX | `installp -u VRTSpbx` |
| HP-UX | `swremove VRTSpbx` |
| Linux | `rpm -e VRTSpbx` |
| Solaris | `pkgrm VRTSpbx` |

**20** Remove NetBackup Pre-Check package with the appropriate command as follows:

| | |
|---|---|
| AIX | `installp -u VRTSnbpck` |
| HP-UX | `swremove VRTSnbpck` |
| Linux | `rpm -e VRTSnbpck` |
| Solaris | `pkgrm VRTSnbpck` |

**21** (Conditional: Linux only): Remove the Veritas PDDE package with the command shown:

```
rpm -e VRTSpddei
```

**22** Remove the `/usr/openv` directory.

---

**Warning:** The `rm` commands used remove any add-on products that are installed on the computer where you perform this command.

---

- Determine if `/usr/openv` is a symbolic link with the command shown. If `/usr/openv` is a symbolic link, make note of the actual path. The path is required for a later command.

  ```
  file -h /usr/openv
  /usr/openv: symbolic link to /opt/openv
  ```

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

| | |
|---|---|
| `cd /usr/openv` | This command changes you into the directory that symbolic link points to, such as `/opt/openv`. |
| `ls` | List the contents of the directory. Review this information to confirm what you are about to delete. |

---

**Warning:** Before you continue, make sure that you are at the correct location and verify that the subdirectories are what you expect them to be. To help prevent removing the wrong directories, the previous commands verify your current location and list the files in that directory. After you verify the directory location and its contents, remove the directory with the next commands.

---

| | |
|---|---|
| `cd /` | Change to the root directory. |

| | |
|---|---|
| `rm -rf` *`directory`* | For the *`directory`* value, enter the information from the `file` command. This command deletes the directory that contains the NetBackup binaries.<br>Example: `rm -rf /opt/openv` |
| `rm -f /usr/openv` | Delete the symbolic link. |

- If `/usr/openv` is the actual directory, run the command shown:

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

  **Note:** Depending on your operating system, you may need to use the `rmdir` command to remove the `/usr/openv` directory.

  ```
  rmdir /usr/openv
  ```

**23** For Linux systems only:

If you modified the startup and the shutdown scripts, run the following command:

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

Depending on the distribution of Linux, the startup and the shutdown scripts may already be deleted.

See "About NetBackup startup and shutdown scripts" on page 139.

**24** Remove the scripts shown. Depending on the operating system, the startup and the shutdown scripts may already be deleted.

On AIX systems:

```
/etc/rc.netbackup.aix
```

On HP-UX systems:

```
/sbin/init.d/netbackup
/sbin/rc1.d/K001netbackup
/sbin/rc2.d/S777netbackup
```

On Linux Debian systems:

```
/etc.init.d/netbackup
/etc/rc0.d/K01netbackup
/etc/rc1.d/K01netbackup
/etc/rc2.d/S95netbackup
```

On Linux Red Hat systems:

```
/etc/rc.d/init.d/netbackup
/etc/rc.d/rc0.d/K01netbackup
/etc/rc.d/rc1.d/K01netbackup
/etc/rc.d/rc2.d/S77netbackup
/etc/rc.d/rc3.d/S77netbackup
/etc/rc.d/rc5.d/S77netbackup
/etc/rc.d/rc6.d/K01netbackup
```

The following startup scripts are only on servers and appear only if NetBackup Fiber Transport was enabled on the server:

```
/etc/rc.d/init.d/nbftserver
/etc/rc.d/rc0.d/K03nbftserver
/etc/rc.d/rc1.d/K03nbftserver
/etc/rc.d/rc2.d/S21nbftserver
/etc/rc.d/rc3.d/S21nbftserver
/etc/rc.d/rc5.d/S21nbftserver
/etc/rc.d/rc6.d/K03nbftserver
```

On Linux SUSE systems:

```
/etc/init.d/netbackup
/etc/init.d/rc0.d/K01netbackup
/etc/init.d/rc2.d/S77netbackup
/etc/init.d/rc3.d/S77netbackup
/etc/init.d/rc5.d/S77netbackup
/etc/init.d/rc6.d/K01netbackup
```

The following startup scripts are only on servers and appear only if NetBackup Fiber Transport was enabled on the server:

```
/etc/init.d/nbftserver
/etc/init.d/rc2.d/K01nbftserver
/etc/init.d/rc2.d/S05nbftserver
/etc/init.d/rc3.d/K01nbftserver
/etc/init.d/rc3.d/S05nbftserver
/etc/init.d/rc5.d/K01nbftserver
/etc/init.d/rc5.d/S05nbftserver
```

On other servers and clients:

```
/etc/init.d/netbackup
/etc/rc0.d/K01netbackup
/etc/rc1.d/K01netbackup
/etc/rc2.d/S77netbackup
```

The following startup scripts are only on servers and appear only if NetBackup Fiber Transport was enabled on the server:

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

**25** For AIX systems only:

- In the `/etc/inittab` file, remove the following NetBackup entry:

  ```
  /etc/rc.netbackup.aix
  ```

- In the `/etc/rc.shutdown` file, remove the following line:

  ```
  /etc/rc.netbackup.aix stop
  ```

**26** Remove the LiveUpdate components as follows:

- First, examine the following file to see if NetBackup is the only product that uses LiveUpdate:

  `/etc/Product.Catalog.JavaLiveUpdate`

- If NetBackup is the only product that currently uses LiveUpdate, run the following command:

  `/opt/Symantec/LiveUpdate/uninstall.sh -a`

- If LiveUpdate is the only product installed in the `/opt/Symantec` directory, remove the following files:

  `rm -f /etc/Symantec.conf`

  **Note:** Before you remove the following product catalog file, make sure that it is empty. The empty file size is equal to 0 bytes. If the product catalog file is not empty, do not remove it because other products still require it.

  `rm -f /etc/Product.Catalog.JavaLiveUpdate`

**27** To remove the NetBackup-Java application state data for the root account, run the appropriate command as follows:

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

- To remove the NetBackup-Java application state data for the root account for all releases, run the following command:

  `/bin/rm -rf /.veritas`

- To remove the NetBackup-Java application state data for the root account for a specific release, run the following command:

  `/bin/rm -rf /.veritas/java/`*`version`*

  Where *version* is the six-digit NetBackup version number. For example, NetBackup version 8.0 with no upgrades applied would be entered as **800000**.

**28** Inform NetBackup-Java users that they can remove their `$HOME/.veritas` directory.

The `$HOME/.veritas` and the `$HOME/.veritas/java` directories contain application state information, that is saved when the user exits NetBackup-Java applications. The saved information includes table column order and size. The process removes this directory for the root user only.

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

**29** If you enabled NetBackup Access Control, NetBackup placed several files on clients and servers. These files can be divided into the following categories:

- NetBackup application temporary files
  These files are removed with NetBackup.
- Individual user (cache) files
  These cache files reside in the `$HOME/.vxss` directory. Inform all users that they can remove this directory.
  Files are generated in the `/.vxss` directory by a Single Sign-On operation of the NetBackup Administration Console on the host where the console runs. The NetBackup Administration Console cleans these files when an exit function is performed, so the directory does not always contain temporary files. However, if a system crash were to occur, any files in the directory may be left behind. With the console shutdown , you can delete these files safely with no data loss.
  NetBackup also creates cached certificates for client and server NetBackup applications. These files reside within the `/.vxss` directory. These files typically have a name that is consistent with a DNS entry for a network interface, as in `machine.company.com`. Example directory entries are as follows:

  ```
  /usr/openv/var/vxss/credentials/machine.company.com
  /usr/openv/var/vxss/credentials/dhcp
  ```

  These files are created with the command `bpnbat -LoginMachine`. If you plan to reinstall NetBackup on the same computer at a later date, do one of the following:

  - Preserve the certificates in the `vxss/credentials` directory.
  - If you do not preserve the certificates, you must provide the computer identity password as originally set on the Root+AB broker. As an alternative, you can reset the password on the Root+AB broker when you reinstall.

  For more information on Root+AB brokers, see the .NetBackup Security and Encryption Guide

For more information on NetBackup Access Control and how to remove it, see the NetBackup Security and Encryption Guide.

# About NetBackup server software removal on Windows systems

When you remove NetBackup server software, the process deletes the `VERITAS/NetBackup` directories from the server.

You can remove NetBackup server software in the following ways:

- Remove server software, configuration, and catalog information.
- Remove server software and save NetBackup configuration and catalog information.
  If you intend to reinstall NetBackup, use this procedure to save the configuration, catalog, and log file information before you remove NetBackup.

---

**Note:** As part of the removal of the NetBackup server software, the security certificates are automatically deleted. If you want to retain the certificates, please save them before removing NetBackup.

More information about this topic is available. Please refer to the information on retaining host ID-based certificates when reinstalling NetBackup in the NetBackupSecurity and Encryption Guide.

---

**Note:** After an uninstall, some registry and some directory information remain on a Windows computer. This behavior is by design, as these files may be in use by either the NetBackup Authentication Service or the NetBackup Authorization Service.

---

See "Removing NetBackup server and client software from Windows servers, clusters, and clients" on page 165.

# Removing NetBackup server and client software from Windows servers, clusters, and clients

Use the following procedures to remove NetBackup software and NetBackup configuration and catalog information.

**To remove NetBackup server and client software**

1. (Conditional: cluster only) Follow the instructions in your cluster documentation for removing a group.

   No method exists to remove NetBackup from multiple nodes at the same time.

2. (Conditional: server and cluster only) If the NetBackup Administration Console is open, close it.

   (Conditional: client only) If the NetBackup Backup, Archive, and Restore interface is open, close it.

   If either of these interfaces is open when you try to remove NetBackup, a failure may occur that forces you to restart this procedure.

3. Select **Start > Settings > Control Panel**.

4. On the **Control Panel** window, select the appropriate utility for installed programs and applications.

5. On the **Currently Installed Programs** list, click **Veritas NetBackup** for servers and clusters. Select **Veritas NetBackup Client** for clients.

   **Note:** Be aware that the removal of the **Veritas NetBackup** item for servers and clusters removes the Veritas NetBackup Java GUI and the Veritas NetBackup JRE packages.

6. Click **Remove**.

   For Windows, after you click **Yes** to continue, another dialog box appears to inform you that PBX is still running.

   Veritas recommends that you click **Do not close applications. (A reboot will be required.)** to continue with NetBackup removal. PBX is stopped and restarted automatically as needed for removal.

7. (Conditional: server and cluster only) Remove the NetBackup deduplication user directory as follows:

   In the **Documents and Settings** directory, delete the **puredisk dbuser** directory.

   The virtual host name security certificates are automatically removed from the shared drive of the cluster as a part of NetBackup server software removal.

Use the following procedure to remove NetBackup server software and save NetBackup configuration and catalog information.

**To remove and save NetBackup configuration and catalog information**

1. If the NetBackup Administration Console is open, close it.

   If a console session is open when you try to remove NetBackup, a failure may occur that forces you to restart this procedure.

2. Select **Start > Settings > Control Panel**.
3. On the **Control Panel** window, select the appropriate utility for installed programs and applications. .
4. In the **Currently Installed Programs** list, click **Veritas NetBackup** .
5. Click **Change**. This action lets you modify, repair, or remove NetBackup.
6. On the **Program Maintenance** dialog box, select **Remove**.
7. Clear the check mark next to **Remove all NetBackup Configuration, Catalog, and Log files** to disable this function. (The box is checked by default.)
8. Click **Next**.
9. If you enabled NetBackup Access Control, NetBackup placed several files on clients and servers. These files can be divided into the following categories:

| | |
|---|---|
| NetBackup application temporary files | These files are removed with NetBackup. |

| | |
|---|---|
| Individual user (cache) files | User cache files exist in their home directories, as follows:<br>`user\Local Settings\Application Data\VERITAS\NetBackup`<br>Files are generated in the `\NetBackup` directory by a Single Sign-On operation of the NetBackup Administration Console on the host where the console runs. The NetBackup Administration Console cleans these files when an exit function is performed, so the directory does not always contain temporary files. If a system crash were to occur, however, any files in the directory may be left behind. With the console shutdown, you can delete these files safely with no data loss.<br>NetBackup also creates cached certificates for client and server NetBackup applications. These files reside within the `\NetBackup` directory. These files typically have a name that is consistent with a DNS entry for a network interface, such as `machine.company.com`. Example directory entries are as follows:<br>`user\Local Settings\Application Data\VERITAS\NetBackup\pc.comp.com`<br>`user\Local Settings\Application Data\VERITAS\NetBackup\dhcp`<br>These files are created with the command `bpnbat -LoginMachine`. If you plan to reinstall NetBackup on the same computer at a later date, do one of the following:<br>■ Preserve the certificates in the `\NetBackup` directory.<br>■ If you do not preserve the certificates, you must provide the computer identity password as originally set on the Root+AB broker. As an alternative, you can reset the password on the Root+AB broker when you reinstall. See the NetBackup Security and Encryption Guide. |

10 Remove the NetBackup deduplication user directory as follows:

**Note:** This step is necessary only if you upgraded to version 9.0 from a previous or earlier version of NetBackup.

In the **Documents and Settings** directory, delete the `puredisk\dbuser` directory.

# About removal of the Java Console state data from Windows servers and Windows clients

The NetBackup Java Console stores state data on a per-user basis. This information includes user preferences, toolbar locations, and related settings. After you uninstall the NetBackup Java Console, remove the state data by deleting the following folder:

*USERPROFILE_DIR*\Veritas\Java*JAVA_VERSION*

- For roaming user profiles, *USERPROFILE_DIR* is `%APPDATA%`.
- For local user profiles on Windows, *USERPROFILE_DIR* is `%LOCALAPPDATA%`.
- *JAVA_VERSION* is a six-digit NetBackup version number. For example, NetBackup version 8.0 with no upgrades applied would be `800000`.

# 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.

Chapter 10

# Reference

This chapter includes the following topics:



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

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

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

---

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

---

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

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

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

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

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

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

   ```
   nbcertcmd -getCertificate
   ```

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

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

     ```
     bpnbat -login -loginType WEB
     ```

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

     ```
     nbcertcmd -createToken -name token_name
     ```

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

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

     ```
     nbcertcmd -getCertificate -token
     ```

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

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

# About the NetBackup 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 media and clients are available at the top level of the NetBackup installation image that is downloaded from Veritas. These templates should be modified as needed and placed in `/tmp/NBInstallAnswer.conf` for use during installs and upgrades.

On Windows, templates for master, media, and client are in the `windows_x64` directory at the top level of the NetBackup installation image that is downloaded from Veritas. These templates are called `silentmaster.cmd`, `silentmedia.cmd`, and `silentclient.cmd`.

Templates for media and clients are available at the top level of the NetBackup installation image downloaded from Veritas.

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 10-1** Template options and required computers

| Option | NetBackup role | Platform | Required for install? |
|---|---|---|---|
| ABORT_REBOOT_INSTALL | Master, media, and client | Windows | No |
| ACCEPT_REVERSE_CONNECTION | Client | All | No |
| ADDITIONALSERVERS | Master, media, and client | Windows | No |
| ALLOW_PRE_90_UPGRADE | Master | All | No |
| AUTHORIZATION_TOKEN | Media and client | All | Review About security configuration considerations for details. |
| CA_CERTIFICATE_FINGERPRINT | Media and client | All | Review About security configuration considerations for details. |
| CLIENT | Client | Windows | Yes |
| CLIENT_NAME | Media and client | UNIX and Linux | Yes |
| ECA_CERT_PATH | Media and client | All | Review About security configuration considerations for details. |
| ECA_CERT_STORE | Media and client | Windows | Review About security configuration considerations for details. |

**Table 10-1** Template options and required computers *(continued)*

| Option | NetBackup role | Platform | Required for install? |
|---|---|---|---|
| ECA_CRL_CHECK_LEVEL | Media and client | All | Review About security configuration considerations for details. |
| ECA_CRL_PATH | Media and client | All | Only when ECA_CRL_CHECK_LEVEL=USE_PATH is specified. |
| ECA_KEY_PASSPHRASEFILE | Media and client | All | No |
| ECA_PRIVATE_KEY_PATH | Media and client | All | Review About security configuration considerations for details. |
| ECA_TRUST_STORE_PATH | Media and client | All | Review About security configuration considerations for details. |
| INCLUDE_JAVA_GUI_AND_JRE | Media servers and clients | All | UNIX and Linux media servers and clients: No<br>Windows media servers: Yes |
| INSTALL_PATH | Media and client | All | No |
| | Master, media, and client | Windows | Yes |
| LICENSE | Media | UNIX and Linux | Yes |
| | Master and media | Windows | Yes |
| MACHINE_ROLE | Media and client | UNIX and Linux | Yes |
| MASTERSERVER | Master, media, and client | Windows | Yes |
| MEDIA_SERVER | Client | UNIX and Linux | No |
| MEDIASERVER | Media | Windows | No |
| MERGE_SERVERS_LIST | Client | UNIX and Linux | No |
| | Master | Windows | No |
| RBAC_DOMAIN_NAME | Master | UNIX and Linux | No |
| RBAC_DOMAIN_TYPE | Master | UNIX and Linux | No |
| RBAC_PRINCIPAL_NAME | Master | UNIX and Linux | No |

**Table 10-1** Template options and required computers *(continued)*

| Option | NetBackup role | Platform | Required for install? |
|---|---|---|---|
| RBAC_PRINCIPAL_TYPE | Master | UNIX and Linux | No |
| SERVER | Media and client | UNIX and Linux | Yes |
| SERVICES | Client | UNIX and Linux | No |
| SERVICESTARTTYPE | Master, media, and client | Windows | No |
| STOP_NBU_PROCESSES | Master, media, and client | Windows | No |
| USAGE_INSIGHTS_FILE_PATH | Master | Windows | Yes |
| VNETD_PORT | Master, media, and client | Windows | No |
| WEBSVC_DOMAIN | Master | Windows | Yes |
| WEBSVC_GROUP | Master | All | Unix and Linux: No<br>Windows: Yes |
| WEBSVC_PASSWORD_PLAIN | Master | Windows | Yes |
| WEBSVC_USER | Master | All | Unix and Linux: No<br>Windows: Yes |

## 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.

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

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.

## 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, specify SKIP for all the required ECA_ options. Be aware the installation or upgrade fails if you don't set all the ECA_ values to SKIP. If you continue the installation or the upgrade without the required certificate authority components, backups and restores fail.

**ABORT_REBOOT_INSTALL**

- Description: This option halts the installation or upgrade if a restart is required. Valid values are 0, don't halt and 1, halt.
- Applicable platforms: Windows only.
- Default value: 0
- Required: No.
- ABORT_REBOOT_INSTALL 0 | 1
- Return to Table 10-1.

**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 10-1.

**ADDITIONALSERVERS**

- Description: Use this option to Include NetBackup media servers that are used to proxy security requests to the master 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 10-1.

**ALLOW_PRE_90_UPGRADE**

- Description: This field is for master 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 master server platform.
  - **Windows**
    This value is required for silent upgrades of Windows master servers. Specify `1` to allow the upgrade to continue, specify `0` to prevent the upgrade. This value is ignored during an interactive Windows master 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.

- **UNIX**
  For UNIX and Linux master 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

- 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 10-1.

**`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 master server.
  - The master 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=*ABCDEFGHIJKLMNOP* | SKIP
- Return to Table 10-1.

**CA_CERTIFICATE_FINGERPRINT**

- Description: This option specifies the Certificate Authority (CA) Certificate Fingerprint. The Certificate Fingerprint is retrieved from the CA during installation or upgrade. The fingerprint format is 59 characters and is a combination of the digits 0-9, the letters A-F, and colons. 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. To continue the installation or upgrade without configuring security, specify CA_CERTIFICATE_FINGERPRINT=SKIP.
  Be aware that CA_CERTIFICATE_FINGERPRINT is ignored under either of these conditions:
  - ECA is in use on the master server.
  - The master 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* | SKIP
- Return to Table 10-1.

**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 master 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 10-1.

**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 master 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: Yes
- CLIENT_NAME=*name* | XLOCALHOSTX
- Return to Table 10-1.

**ECA_CERT_PATH**

- Description: This option specifies the path and the file name of the external certificate file.
  To skip setting up the certificate authority, set all required ECA_ values to SKIP. Be aware that if you continue with the installation without a certificate authority, the backups and restores fail.
  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 master 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 10-1.

**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 10-1.

**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.
  - SKIP: Used to skip setting up the certificate authority. To skip the ECA configuration, you must set all required ECA_ values to SKIP. Be aware that if you continue with the installation without a certificate authority, the backups and restores fail.
    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 master server.
- Applicable platforms: All.
- Default value: None.
- Required: Review About security configuration considerations for details.
- ECA_CRL_CHECK_LEVEL=*value*
- Return to Table 10-1.

**ECA_CRL_PATH**

- Description: This option specifies the path and the file name of the CRL associated with the external CA certificate.
  To skip setting up the certificate authority, set all required ECA_ values to SKIP. Be aware that if you continue with the installation without a certificate authority, the backups and restores fail.
  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 master 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 10-1.

**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 master server.
- Applicable platforms: All.
- Default value: None.
- Required: No
- `ECA_KEY_PASSPHRASEFILE=`*`path/filename`*
- Return to Table 10-1.

**ECA_PRIVATE_KEY_PATH**

- Description: This option specifies the path and the file name of the file representing the private key.
  To skip setting up the certificate authority, set all required `ECA_` values to `SKIP`. Be aware that if you continue with the installation without a certificate authority, the backups and restores fail.
  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 master server.
- Applicable platforms: All.
- Default value: None.
- Required: Review About security configuration considerations for details.
- `ECA_PRIVATE_KEY_PATH=`*`path/filename`*
- Return to Table 10-1.

**ECA_TRUST_STORE_PATH**

- Description: This option specifies the path and the file name of the file representing the trust store location.
  To skip setting up the certificate authority, set all required `ECA_` values to `SKIP`. Be aware that if you continue with the installation without a certificate authority, the backups and restores fail.
  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 master server.
- Applicable platforms: All.
- Default value: None.

- Required: Review About security configuration considerations for details.
- ECA_TRUST_STORE_PATH=*path/filename*
- Return to Table 10-1.

**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.
  - 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.
- Return to Table 10-1.

**INSTALL_PATH**

- Description: This option specifies the location to install the NetBackup binaries. Only the absolute path to a base directory is required for this option. The installer automatically appends /openv. This option cannot be used to change the location of NetBackup during an upgrade.
  Be aware that the INSTALL_PATH option is ignored on upgrade.
- Applicable platforms: Unix and Linux only.
- Default value: /usr
- Required: No
- INSTALL_PATH = *path*
- Return to Table 10-1.

**INSTALLDIR**

- Description: This option specifies the location to install NetBackup. The fully qualified path to the base directory is required.
- Applicable platforms: Windows only.
- Default value: None.
- Required: Yes

- INSTALLDIR=C:\Program Files\Veritas
- Return to Table 10-1.

**LICENSE**

- Description: This option specifies the license key string to apply to the server. Additional LICENSE = *key_string* lines may be added if more licenses are to be applied. This option only adds additional keys - no existing keys are removed.
- Applicable platforms: Unix and Linux only.
- Default value: None.
- Required: Yes, for media servers. Not required for clients.
- LICENSE = *key_string*
- Return to Table 10-1.

**LICENSEKEY**

- Description: This option specifies the NetBackup license key for the installation.
- Applicable platforms: Windows only.
- Default value: None.
- Required: Yes for master and media servers. Not required for clients.
- LICENSEKEY=*NetBackup_license_key*
- Return to Table 10-1.

**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 MASTER, MEDIA, and CLIENT.
- Applicable platforms: Unix and Linux only.
- Required: Yes.
- MACHINE_ROLE = MASTER | MEDIA | CLIENT
- Return to Table 10-1.

**MASTERSERVER**

- Description: This option specifies the server name this computer recognizes as the current NetBackup master server. If this host is the master server,

%COMPUTERNAME% can be used for the value. The use of IP addresses is not supported. Additional master servers can be specified with the ADDITIONALSERVERS option.

- Applicable platforms: Windows only.
- Default value: None.
- Required: Yes.
- MASTERSERVER=*master_server_name*
- Return to Table 10-1.

**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 master server is blocked. This communication is required to obtain a host certificate during the NetBackup installation or upgrade. Multiple MEDIA_SERVER entries may exist in the answer file. Each one is used as a candidate to tunnel https requests. These entries are added to the bp.conf file.
- Applicable platforms: Unix and Linux only.
- Default value: None.
- Required: No.
- MEDIA_SERVER=*media_server_name*
- Return to Table 10-1.

**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 10-1.

**MERGE_SERVERS_LIST**

- Description: Merge the servers present in bp.conf on the master 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 10-1.

**OPSCENTER_SERVER_NAME**

- Description: This option specifies the name of the server that runs the OpsCenter. Leave this option empty if you don't use OpsCenter. You can also configure OpsCenter after install.
- Applicable platforms: Windows only.
- Default value: None.
- Required: No.
- OPSCENTER_SERVER_NAME=*OpsCenter_server_name*
- Return to Table 10-1.

**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 security administrator and backup administrator roles.
- Default value: None.
- Applicable platforms: Unix and Linux only.
- Required: No
- RBAC_DOMAIN_NAME = *domain_name*
- Return to Table 10-1.

**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 security administrator and backup administrator roles.
- Applicable platforms: Unix and Linux only.
- Default value: None.
- Required: No
- RBAC_DOMAIN_TYPE = *domain_type*

- Return to Table 10-1.

**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 security administrator and backup administrator roles. 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 10-1.

**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 security administrator and backup administrator roles.
- Applicable platforms: Unix and Linux only.
- Default value: None.
- Required: No
- `RBAC_PRINCIPAL_TYPE = USER | USERGROUP`
- Return to Table 10-1.

**SERVER**

- Description: This option specifies the server name this computer recognizes as the current NetBackup master 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 master server. These entries are added to the `bp.conf` file.
- Applicable platforms: Unix and Linux only.
- Default value: None.
- Required: Yes.
- `SERVER=master_server_name`
- Return to Table 10-1.

**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 10-1.

**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 10-1.

**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 10-1.

**USAGE_INSIGHTS_FILE_PATH**

- Description: This option specifies the path and the file name of the Usage Insights customer registration key file.

- Applicable platforms: Windows only.
- Default value: None.
- Required: For master servers, yes
- `USAGE_INSIGHTS_FILE_PATH = path_and_file_name`
- Return to Table 10-1.

**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 10-1.

**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 10-1.

**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.
- Applicable platforms: All.
- Default value: `nbwebgrp`
- Required: UNIX and Linux master servers, no. Windows master servers, yes.
- `WEBSVC_GROUP=custom_group_account_name`
- Return to Table 10-1.

**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 could potentially be a security concern.

- Applicable platforms: Windows only.
- Default value: None.
- `WEBSVC_PASSWORD_PLAIN=`*`password`*
- Return to Table 10-1.

**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.
- Applicable platforms: All.
- Default value: `nbwebsvc`
- Required: UNIX and Linux master servers, no. Windows master servers, yes.
- `WEBSVC_USER=`*`custom_user_account_name`*
- Return to Table 10-1.

# 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, Veritas has defined a set of web server JVM tuning options that persist across upgrades. 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*\Veritas\NetBackup\var\global\wsl\config\wmcConfig.bat

   UNIX and Linux: `/usr/openv/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 UNIX platforms. The UNIX installer uses the `bpnbaz -AddRBACPrincipal` command to grant both security administrator and backup administrator 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 backup administrator role with access to only some object groups. If Tester 1 is specified for RBAC bootstrapping, Tester1 is assigned both the backup administrator and the security administrator roles with access to all objects.

---

After installation or upgrade, you can run the `bpnbaz -AddRBACPrincipal` command standalone on both Windows and UNIX platforms to assign RBAC permissions. The command is available only on the master server. For more information about this command, see the *NetBackup Command Reference Guide*.

## RBAC Bootstrapping during installation and upgrades on UNIX platforms:

Use the answer file template `NBInstallAnswer-master.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 171.

---

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 security administrator and the backup administrator RBAC roles.

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/openv/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/openv/netbackup/logs/admin for more information.
```

After the installation or upgrade completes, the specified user or user group is assigned both the security administrator and the backup administrator roles with their corresponding RBAC access permissions. The user can then access APIs and the Web UI.

# NetBackup master server web server user and group creation

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

---

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

---

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

More information about this topic is available.

See "Installation requirements for UNIX and Linux" on page 34.

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

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

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

---

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

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

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

---

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

**To create the local user account and the local group:**

1. Create a local group.
   - **Linux and UNIX:** `# groupadd nbwebgrp`
   - **Windows:** `C:\>net localgroup nbwebgrp /add`
2. Create a local user.
   - **Linux and UNIX:** `# useradd -g nbwebgrp -c 'NetBackup Web Services account' -d /usr/openv/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**.

# About the NetBackup Java Runtime Environment

Veritas 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 master server, media server, or UNIX and Linux client software
- NetBackup Java Remote Administration Console
- OpsCenter Server, Agent, or View Builder

Starting with NetBackup 8.3, the Java GUI and the JRE packages are optional for UNIX, 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 master 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 GUI and JRE after install" on page 196.

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

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

---

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

---

If your system is running NetBackup 8.0 or later, use Table 10-2 to determine the location of the `nbcomponentupdate` utility.

**Table 10-2** Location of JRE update utility

| Product | Operating system | Path |
|---|---|---|
| NetBackup | Windows | *install_path*\netbackup\java\nbcomponentupdate.exe |
| | UNIX or Linux | /usr/openv/java/nbcomponentupdate |
| OpsCenter Server | Windows | *install_path*\server\bin\nbcomponentupdate.exe |
| | UNIX or Linux | SYMCOpsCenterServer/bin/nbcomponentupdate |
| OpsCenter Agent | Windows | *install_path*\agent\bin\nbcomponentupdate.exe |
| OpsCenter View Builder | Windows | *install_path*\viewbuilder\bin\nbcomponentupdate.exe |
| NetBackup Java Remote Administration Console | Windows | *install_path*\java\nbcomponentupdate.exe |

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

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

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

NetBackup Commands Reference Guide

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

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

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

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

If there are additional versions of the JRE installed on your system for other applications, the NetBackup JRE does not interfere with them. The NetBackup JRE does not provide integration with web browsers and does not allow Java Applets or Web Start to run. For that reason, the NetBackup JRE cannot be used in a browser-based attack that uses Java Applet or Web Start vulnerabilities.

More information about NetBackup JRE alerts is available.

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

# Add or Remove Java GUI and JRE after install

You can add or remove the Java GUI and the JRE packages after the install operation completes.

## Add Java GUI and JRE

To add the packages, use one of the options shown:

- 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 installation media and run the commands shown:

| | |
|---|---|
| Linux | `rpm -U VRTSnbjre.rpm`<br>`rpm -U VRTSnbjava.rpm` |
| Solaris | `pkgadd -a .pkg_defaults -d VRTSnbjre.pkg VRTSnbjre`<br>`pkgadd -a .pkg_defaults -d VRTSnbjava.pkg VRTSnbjava` |
| HP-UX | `swinstall -s VRTSnbjre.depot \*`<br>`swinstall -s VRTSnbjava.depot \*` |
| AIX | `installp -ad VRTSnbjre.image all`<br>`installp -ad VRTSnbjava.image all` |
| 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:
  - `Veritas NetBackup JRE.msi`

- `Veritas NetBackup Java GUI.msi`

### Remove Java GUI and JRE

To remove the packages, use one of the options shown:

- 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 | `rpm -e VRTSnbjava.rpm`<br>`rpm -e VRTSnbjre.rpm` |
| Solaris | `pkgrm VRTSnbjava`<br>`pkgrm VRTSnbjre` |
| HP-UX | `swremove VRTSnbjava`<br>`swremove VRTSnbjre` |
| AIX | `installp –u VRTSnbjre`<br>`installp –u VRTSnbjava` |
| 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 **Veritas NetBackup Java** and click **Remove**.
  - From the **Currently Installed Programs** list, select **Veritas NetBackup JRE** and click **Remove**.

# 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 10-1).
- In cluster-mode: Clustered Data ONTAP (cDOT) is used to replicate snapshots between storage virtual machines (SVMs or vServers). Support is for NAS only. The plug-in must be installed on either a Windows or a Linux computer other than the OCUM server, the master server, or any media servers (Figure 10-2).

Both modes support the same topologies.

Table 10-3 describes the association between NetBackup versions and the NetApp plug-ins.

**Table 10-3** Version compatibility

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

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

**Figure 10-1** Communication between NetBackup and the NBUPlugin for 7-mode

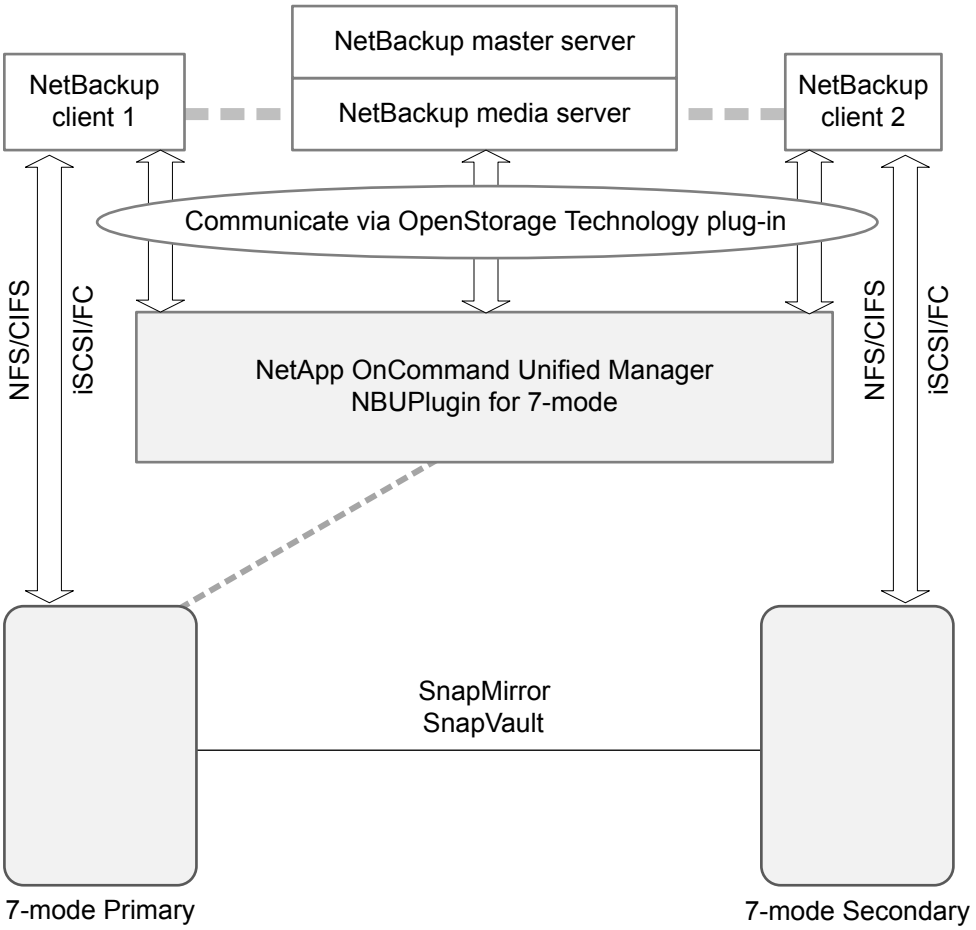
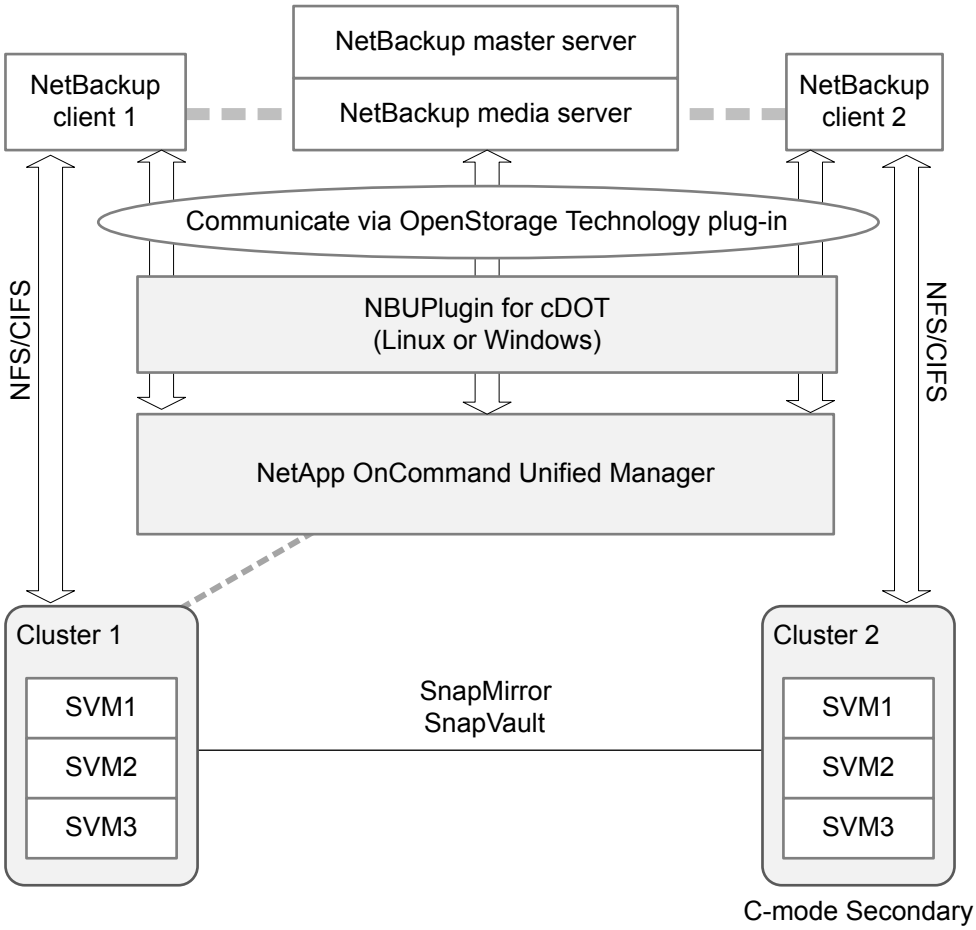


**Figure 10-2** Communication between NetBackup and the NBUPlugin for Clustered Data ONTAP




## Determining the version of the plug-in

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

On Windows: *Install_path*\Program Files\Netapp\NBUPlugin\version.txt

On UNIX: /usr/NetApp/NBUPlugin/version.txt

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

### Upgrading the plug-in

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

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

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

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

# Security updates to the NetBackup database

As a part of security changes in NetBackup, Veritas may make changes to your NetBackup (NBDB) database password. If you changed the password on the NetBackup database from the default value, no changes to the password are made. Any existing NetBackup databases which still have the default password are updated with a new, randomly generated password. All new installations of NetBackup have a randomly generated password assigned to the NetBackup database for improved security. This password is not provided to the user during installation or upgrade. You can use the nbdb_admin command to change this randomly generated password. See the NetBackup Commands Reference Guide for more information about the nbdb_admin command.

# Size guidance for Veritas NetBackup master server and domain

Veritas always recommends a comprehensive data protection assessment to determine the optimal configuration for a NetBackup master and NetBackup domain. The information that is shown is meant as a guideline, not as a hard limit. NetBackup can scale to higher job counts with appropriate resources.

- Catalog size not to exceed 1-3TB
  A key factor in the NetBackup catalog size is based on the data protection approach you plan to use. If your catalog exceeds 3TB please contact your Veritas Account SE for more information.
  The catalog disk needs good read and write performance especially in large environments.
- The number of devices in the EMM database should not exceed 1500.
- The number of media servers should not exceed 100.

- The number of jobs should not exceed 30,000 per 24 hours.
- The number of processors affects how well the master server scales. Table 10-4 provides additional information.

**Table 10-4** Sizing guidelines

| Number of processors | Minimum memory requirement | Maximum number of jobs per day | Maximum number of media servers per master server |
|---|---|---|---|
| 4 | 16GB | 10,000 | 20 |
| 8 | 32GB | 20,000 | 50 |
| 16 | 64GB | 30,000 | 100 |

**Note:** Additional recommendations about processor and memory requirements is available.

See "Installation requirements for UNIX and Linux" on page 34.

See "Installation and upgrade requirements for Windows and Windows clusters" on page 64.

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