Veritas NetBackup™ Release Notes

Release 8.1.2

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VERITAS™

Veritas NetBackup™ Release Notes

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Veritas Services and Operations Readiness Tools (SORT)

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

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

Contents

Chapter 1

About NetBackup 8.1.2

This chapter includes the following topics:

About the NetBackup 8.1.2 release

The *NetBackup Release Notes* document is meant to act as a snapshot of information about a version of NetBackup at the time of its release. Old information and any information that no longer applies to a release is either removed from the release notes or migrated elsewhere in the NetBackup documentation set.

See "About new enhancements and changes in NetBackup" on page 9.

About EEBs and release content

NetBackup 8.1.2 incorporates fixes to many of the known issues that affected customers in previous versions of NetBackup. Some of these fixes are associated with the customer-specific issues. Several of the customer-related fixes that were incorporated into this release were also made available as emergency engineering binaries (EEBs).

Listings of the EEBs and Etracks that document the known issues that have been fixed in NetBackup 8.1.2 can be found on the Veritas Operations Readiness Tools (SORT) website and in the NetBackup Emergency Engineering Binary Guide.

See "About Veritas Services and Operations Readiness Tools" on page 36.

About NetBackup appliance releases

The NetBackup appliances run a software package that includes a preconfigured version of NetBackup. When a new appliance software release is developed, the

latest version of NetBackup is used as a basis on which the appliance code is built. For example, NetBackup Appliance 3.1 is based on NetBackup 8.1 This development model ensures that all applicable features, enhancements, and fixes that were released within NetBackup are included in the latest release of the appliance.

The NetBackup appliance software is released at the same time as the NetBackup release upon which it is based, or soon thereafter. If you are a NetBackup appliance customer, make sure to review the *NetBackup Release Notes* that correspond to the NetBackup appliance version that you plan to run.

Appliance-specific documentation is available at the following location:

http://www.veritas.com/docs/000002217

About NetBackup Late Breaking News

For the most recent NetBackup news and announcements, visit the NetBackup Late Breaking News website at the following location:

http://www.veritas.com/docs/000040237

Other NetBackup-specific information can be found at the following location:

https://www.veritas.com/support/en_US/15143.html

About NetBackup third-party legal notices

NetBackup products may contain third-party software for which Veritas is required to provide attribution. Some of the third-party programs are available under open source or free software licenses. The license agreement accompanying NetBackup does not alter any rights or obligations that you may have under those open source or free software licenses.

The proprietary notices and the licenses for these third-party programs are documented in the *NetBackup Third-party Legal Notices* document, which is available at the following website:

https://www.veritas.com/about/legal/license-agreements

Chapter 2

New features, enhancements, and changes

This chapter includes the following topics:

About new enhancements and changes in NetBackup

In addition to new features and product fixes, NetBackup releases often contain new customer-facing enhancements and changes. Examples of common enhancements include new platform support, upgraded internal software components, interface changes, and expanded feature support. Most new enhancements and changes are documented in the *NetBackup Release Notes* and the NetBackup compatibility lists.

Note: The *NetBackup Release Notes* only lists the new platform support that begins at a particular NetBackup version level at the time of its release. However, Veritas routinely backdates platform support to previous versions of NetBackup. Refer to the NetBackup compatibility lists for the most up-to-date platform support listings.

See "About the NetBackup 8.1.2 release" on page 7.

See "About NetBackup compatibility lists and information" on page 52.

NetBackup 8.1.2 new features, changes, and enhancements

New features, changes, and enhancements in NetBackup 8.1.2 are grouped below by category. Select a link to read more information about the topic.

New features

- NetBackup 8.1.2 introduces a new web user interface
- Veritas Smart Meter helps you manage deployment more efficiently
- Veritas offers the NetBackup Parallel Streaming Framework SDK
- RESTful APIs included in NetBackup 8.1.2

Secure communication features, changes, and enhancements

- **Note:** Before you install or upgrade to NetBackup 8.1.2 from a release earlier than 8.1, make sure that you read and understand the *NetBackup Read This First for Secure Communications* document. NetBackup 8.1 includes many enhancements that improve the secure communications of NetBackup components. The *NetBackup Read This First for Secure Communications* document describes the features and benefits of these enhancements:

  NetBackup Read This First for Secure Communications

- About secure communications in MSDP for Auto Image Replication
- BMR introduces secure communication support on AIX and HP-UX

Support changes and enhancements

- NetBackup 8.1.2 support additions and changes
- VxUpdate replaces LiveUpdate
- NetBackup no longer supports HP-UX and AIX platforms for master and media servers
- Newer Red Hat Linux compilers used with NetBackup 8.1.2
- Linux device persistent binding changes
- Several shutdown commands to be deprecated in a future release

Cloud-related changes and enhancements

- Update cloud configuration file on the master server immediately after install or upgrade to NetBackup 8.1.2
- Support added for Amazon GLACIER_VAULT storage class

Other announcements

- Auditing enhancements
- NetBackup integration with Vnomic
- NetBackup's BigData policy now protects Microsoft Azure Stack and HBase workloads

NetBackup 8.1.2 introduces a new web user interface

NetBackup 8.1.2 lets you manage NetBackup with a new web user interface (UI). Additional features and workloads will be added in each upcoming release. Currently with this interface you can:

- View jobs
- Configure protection plans
- Manage security settings and host management
- Manage role-based access control for the web UI
- Protect and recover the VMware and Cloud workloads (using CloudPoint integration)
- Configure email notifications for alerting

To start the NetBackup web UI:

- Open a web browser and go to **https://*masterserver*/webui/login**.

Note: Users must be root or an administrator or have a role that is configured for them in NetBackup RBAC.

For more information, see one of the following guides:

- NetBackup Web UI Backup Administrator's Guide
- NetBackup Web UI Security Administrator's Guide
- NetBackup Web UI VMware Administrator's Guide
- NetBackup Web UI Cloud Workload Administrator's Guide

Veritas Smart Meter helps you manage deployment more efficiently

Veritas Smart Meter helps you to 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. Smart Meter alerts you if you are close to exceeding your licensed capacity limits. Customers must be at NetBackup 8.1.2 and later to use Smart Meter.

Caution: Smart Meter is compatible with Google Chrome, Mozilla Firefox, and Microsoft Edge. Veritas does not recommend using Microsoft Internet Explorer, as it does not render all information correctly.

See the following documentation for more information about Veritas Smart Meter:

Veritas Smart Meter Getting Started Guide

RESTful APIs included in NetBackup 8.1.2

NetBackup 8.1.2 includes both updated and new RESTful application programming interfaces (APIs). These APIs provide a web-service-based interface that lets you configure and administer NetBackup in your environments.

The NetBackup APIs are built on the Representational State Transfer (REST) architecture, which is the most widely used style for building APIs. They use the HTTP protocol to communicate with NetBackup. The NetBackup APIs are therefore easy to use in cloud-based applications, as well as across multiple platforms and programming languages. The APIs use JavaScript Object Notation (JSON) as the message format for request and response messages. They employ client-server communication in the form of HTTP requests and responses. The API client (that is, your program) uses the HTTP protocol to make an API request to the NetBackup server. The NetBackup server processes the request. The server responds to the client with an appropriate HTTP status code indicating either success or failure. The client then extracts the required information from the server's response.

Note: The NetBackup APIs are not supported on environments where NetBackup Access Control (NBAC) is enabled.

NetBackup 8.1.2 includes the following APIs:

- NetBackup Authentication API
  Provides authentication by means of a JSON Web Token (JWT) that is used when making the API requests. The JWT is acquired by executing a login API request and can be invalidated by executing a logout API request.

- NetBackup Administration API
  Provides access to administrative operations in NetBackup. The APIs can get job details for a specific job or get a list of jobs based on filter criteria; restart or resume a job; suspend, cancel; or delete a job; get a job's file list; and get the job logs.
- NetBackup Asset API (new)
  Provides access to NetBackup asset information.
- NetBackup Catalog API
  Provides access to the NetBackup catalog to get details about backup images. The APIs can list backup images based on filters or get details for a specific backup image ID.
- NetBackup Configuration API
  Provides configuration and management controls for NetBackup hosts, NetBackup policies, WebSocket servers, and VM server credentials.
- NetBackup Licensing API (new)
  Provides details of FEDS consumption. The Front-end Terabytes (FETBs) consumption is provided for a single master server or for multiple trusted master servers. Details include consumption by policy type and the trend of capacity consumption.
- NetBackup Manage API (new)
  Provides access to the alerting operations. It can generate alerts, fetch alert details, and send alert notifications. The APIs also provide a facility to exclude the status codes for which you do not want to send alert notifications.
- NetBackup Recovery API
  Provides the ability to perform a recovery from previous backups.
- NetBackup Role-based Access Control Administration API (new)
  Provides access to NetBackup role-based access control (RBAC) configuration.
- NetBackup Security API
  Provides access to the security resources of NetBackup. The APIs manage authorization tokens, host ID-based certificates, security configuration options, and auditing.
- NetBackup Storage API (new)
  Provides access to the backup storage of the NetBackup master servers.

See the *NetBackup API Reference* documentation on SORT for more information. This HTML document is a reference tool that describes each API and its options.

Note: Make sure to read the Getting Started section of the document.

To locate the NetBackup 8.1.2 API Reference on SORT

1. From the SORT Home page, select **KNOWLEDGE BASE > Documents**.
2. From the categories under **Show documents for**, select the following values:
   - Product: NetBackup
   - Platform: Windows and UNIX
   - Document categories: All
   - Document languages: ALL
3. Find NetBackup 8.1.2 in the list of NetBackup product versions and select **Product guides**.
4. Select **NetBackup 8.1.2 API Reference**.

Versioned APIs

The following APIs that have been versioned in NetBackup 8.1.2. The previous version of these APIs is still supported if you specify the correct version.

- `GET /config/policies/{policyName}`
- `PUT /config/policies/{policyName}/schedules/{scheduleName}`
- `GET /config/servers/vmservers`
- `GET /security/cacert`

Note: See the NetBackup 8.1.2 API Reference on SORT for more information. Make sure to review the Versioning topic and the What's New topic in the Getting Started section.

Veritas offers the NetBackup Parallel Streaming Framework SDK

Veritas offers an SDK to develop Parallel Streaming Framework plug-ins to protect scale-out modern workloads using NetBackup.

Using the NetBackup Parallel Streaming Framework SDK you can:

- Build plug-ins to provide a new value-added service as partners.
- Develop plug-ins for workloads that are not available with NetBackup.

To obtain the SDK, you need to be part of the Veritas Technology Ecosystem Program (VTE). Refer to following link for more details:

https://partnernet.veritas.com/portal/faces/programs/technology-tracks-overview

About secure communications in MSDP for Auto Image Replication

Starting from NetBackup 8.1.2, MSDP supports secure communications in Auto Image Replication (AIR). When you run AIR, MSDP secure communication is set up between two media servers from two NetBackup domains. There must be a common CA and the two media servers must use the same CA to verify the certificate security. The source MSDP server uses the CA of the target NetBackup domain and the certificate that is authorized by the target NetBackup domain. You must manually deploy CA and the certificate at the source side MSDP server before using AIR.

For more information on configuration of the certificates for secure communication, refer to the following topic:

Configuring CA and certificate for secure communication between source MSDP storage server and target MSDP storage server

NetBackup 8.1.2 support additions and changes

Note: These lists are subject to change. See the NetBackup Master Compatibility Lists for the most recent product and services support additions and changes.

The following products and services are supported starting with NetBackup 8.1.2:

- Individual file recovery from the Linux XFS file system in VMware and Hyper-V VMs
- Ubuntu Deduplication support
- BTRFS support for sub-volumes and snapshots
- Instant Access for Virtual Machines
- Red Hat Enterprise Linux (RHEL) 7.2, NetBackup client support on IBM Power8 hardware architecture. For Little Endian platforms only.
- SUSE Linux Enterprise Server (SLES) 12 SP2, NetBackup client support on IBM Power8 hardware architecture. For Little Endian platforms only.
- BMR client support with Secure Comms:
  - HP-UX 11.31
  - IBM AIX 6.9 (TL9), 7.1 (TL3), 7.2 (TL1)
  - Red Hat Enterprise Linux (RHEL) (x86-64) version 7.4 and 7.5
  - Solaris 11.2 (x86-64) and Solaris 11.3 (x86-64)
  - SUSE Linux Enterprise Server (x86-64) version 12 SP2 and 12 SP3

With this release of NetBackup, support is added for the following cloud vendors:

- Huawei Cloud Storage (S3)
- NEC HYDRAstor (S3)
- NEC Cloud Iaas (S3)
- Infoniqa SWISS3CLOUD (S3)
- Telefonica Open Cloud (S3)

Support is also added for Amazon OneZone storage class.

Support is removed for the following cloud vendor:

- Telefonica Cloud Storage (S3)

For more information about cloud vendor support, see the NetBackup Cloud Administrator's Guide .

VxUpdate replaces LiveUpdate

VxUpdate replaces LiveUpdate in NetBackup 8.1.2. With this release of VxUpdate, you can now:

- Upgrade any client platform from any master server platform.
- Install client EEBs.
- Schedule upgrades, pre-check, and staging (download packages) separately.
- Run ad-hoc upgrades using the GUI or from the client itself.
- Track upgrades through parent and child jobs in the Activity Monitor.

VxUpdate also includes a package repository on the master server and improved signing and verification of packages.

For more information about VxUpdate, see the NetBackup Upgrade Guide.

NetBackup no longer supports HP-UX and AIX platforms for master and media servers

Starting with version 8.1.2, NetBackup no longer supports HP-UX and AIX platforms for master and media servers. However, NetBackup still supports clients that run on HP-UX and AIX platforms.

Veritas has developed the `NbServerMigrator` tool to help you migrate your master servers that run on HP-UX or AIX platforms to a NetBackup Appliance or to any supported NetBackup master server platform except Windows. See the NetBackup Master Server Migration Guide.

You can download the `NbServerMigrator` tool from the following link:

https://www.veritas.com/support/en_US/article.100043116

Media server migration is a manual procedure. To migrate the media server from HP-UX or AIX platform to a NetBackup Appliance or to any supported NetBackup media server platform except Windows, see the NetBackup Media Server Migration Guide.

Newer Red Hat Linux compilers used with NetBackup 8.1.2

The following platforms now use Red Hat Linux 6, update 8:

- Linux Red Hat x86_64
- Linux zSeries Red Hat 64-bit
- Debian Linux x86_64

Note: NetBackup 8.1.2 cannot be installed on these systems if the OS kernel is older than 2.6.32. The client names are now RedHat2.6.32, IBMzSeriesRedHat2.6.32, and Debian2.6.32.

Linux device persistent binding changes

Starting with NetBackup 8.1.2, the NetBackup Device Manager (`ltid`) uses persistent device paths for tape drives. Instead of `/dev/nstXXX` device paths, NetBackup uses `/dev/tape/by-path/YYY-nst` device paths. The paths persist across SAN interruptions. Upon NetBackup Device Manager (`ltid`) startup, `/dev/nstXXX` paths are converted to the equivalent `/dev/tape/by-path/YYY-nst path`. For more information, see the NetBackup Device Configuration Guide – Operating Systems – Linux chapter.

BMR introduces secure communication support on AIX and HP-UX

Starting with NetBackup 8.1.2, Bare Metal Restore (BMR) introduces secure communication support on AIX and HP-UX platforms. For more information, see NetBackup Bare Metal Restore Administrator's Guide.

To learn more about the NetBackup BMR supported configurations details, see https://www.veritas.com/support/en_US/article.000127612.

Supported NetBackup BMR configurations based on operating system and patch release

Veritas provides information about supported operating systems and patch levels for BMR. To see details about supported NetBackup BMR configurations, see:

https://www.veritas.com/support/en_US/article.000127612

Several shutdown commands to be deprecated in a future release

A new, fully documented command for shutting down NetBackup processes and daemons will be provided in an upcoming release. At that point, the following commands will no longer be available:

- `bp.kill_all`
- `bpdown`
- `bpclusterkill`

Please plan accordingly. The new command will be announced in future release notes and in the *NetBackup Commands Reference Guide*.

Update cloud configuration file on the master server immediately after install or upgrade to NetBackup 8.1.2

If you use cloud storage in your NetBackup environment, you may need to update your cloud configuration file on the NetBackup master server immediately after you install or upgrade to NetBackup 8.1.2. If a cloud provider or related enhancement is not available in the cloud configuration file after upgrading to NetBackup 8.1.2, related operations will fail.

Veritas continuously adds new cloud support to the cloud configuration files between releases. The cloud storage support included in the NetBackup 8.1.2 final build matches that which is contained in the cloud configuration package version 2.4.3.

Updating your cloud configuration files is necessary only if your cloud storage provider was added to the cloud configuration package version 2.4.4 or newer. The following cloud support has been added to version 2.4.4 and later but was not included in the NetBackup 8.1.2 final build:

- Amazon (S3) – China (Ningxia) region
- Kingsoft Standard Storage Service (KS3) – Standard (S3)
- Kingsoft Standard Storage Service (KS3) – Standard IA (S3)
- Veritas Cognitive Object Storage (S3)

For the latest cloud configuration package, see the following tech note:

http://www.veritas.com/docs/100033434

For additional information on adding cloud storage configuration files, refer to the following tech note:

http://www.veritas.com/docs/100039095

Support added for Amazon GLACIER_VAULT storage class

Starting with version 8.1.2, NetBackup supports backup to the Amazon GLACIER_VAULT storage class. You can protect your data for long-term retention and compliance by backing up data to a vault in Amazon (AWS) Glacier using NetBackup. You can use the AWS vault lock policy to enforce compliance control on the vault or to make the vault a Write-Once-Read-Many (WORM) device.

For more information, see About protecting data in Amazon Glacier vault in the *NetBackup Cloud Administrator's Guide*.

Auditing enhancements

This release of NetBackup includes several auditing operation enhancements. You can view the audit records using the `nbauditreport` command with an appropriate `-ctgy` option value on a NetBackup master server. You can also view audit records using NetBackup OpsCenter.

For more details about the `nbauditreport` command, see the NetBackup Commands Reference Guide.

- Restore operations and browse image content operations
  Restore operations and browse image content operations are audited and logged with the appropriate user identity. These operations are those that are initiated through a NetBackup graphical user interface, API, or one of the following commands: `bplist`, `bprestore`, or `nbrestorevm`. Enter the `nbauditreport -ctgy DATAACCESS` command on a NetBackup master server to view these audit records.
- Storage lifecycle policy (SLP) operations
  Successful attempts to create, modify, or delete a storage lifecycle policy (SLP) are audited and logged when they are initiated through a NetBackup graphical user interface, API, or the `nbstl` command. Additionally, attempts to activate or suspend an SLP from the NetBackup Administration Console are audited and logged. Use the command `nbauditreport -ctgy SLP` on a NetBackup master server to view SLP audit records.

Note: Activating and suspending an SLP using the `nbstlutil` command are not audited. These operations are audited only when they are initiated from a NetBackup graphical user interface or API

- Asset and asset group operations
  Deleting an asset, such as a vCenter server or a virtual machine, as part of the POST /asset-cleanup process in the Asset Database API, is audited and logged. Use the command `nbauditreport -ctgy ASSET` on a NetBackup master server to view these audit records.
  Also, creating, modifying, or deleting an asset group as well any action on an asset group for which a user is not authorized is audited and logged. Use the command `nbauditreport -ctgy ASSETGROUP` on a NetBackup master server to view asset group audit records.

NetBackup integration with Vnomic

NetBackup 8.0 and later versions support integration of Vnomic orchestration software to provide data protection for Cisco FlexPod. This protection solution is applicable specifically for SAP HANA environments.

NetBackup's BigData policy now protects Microsoft Azure Stack and HBase workloads

For detailed information about using the BigData policy for Microsoft Azure Stack and HBase, refer to the following guides:

- NetBackup for Microsoft Azure Stack Administrator's Guide
- NetBackup for HBase Administrator's Guide

Note: The NetBackup for HBase plug-in was made available separately after NetBackup 8.1.1. With this release, the plug-in is available as part of NetBackup installation.

Refer to the following topic for information about the relevant NetBackup licenses:

https://www.veritas.com/support/en_US/article.100040155

Chapter 3

Operational notes

This chapter includes the following topics:

About NetBackup 8.1.2 operational notes

NetBackup operational notes describe and explain important aspects of various NetBackup operations that may not be documented elsewhere in the NetBackup documentation set or on the Veritas Support website. The operational notes can be found in the *NetBackup Release Notes* for each version of NetBackup. Typical

operational notes include known issues, compatibility notes, and additional information about installation and upgrade.

Operational notes are often added or updated after a version of NetBackup has been released. As a result, the online versions of the *NetBackup Release Notes* or other NetBackup documents may have been updated post-release. You can access the most up-to-date version of the documentation set for a given release of NetBackup at the following location on the Veritas Support website:

NetBackup Release Notes, Administration, Installation, Troubleshooting, Getting Started, and Solutions Guides

See "About related NetBackup documents" on page 55.

NetBackup installation and upgrade operational notes

NetBackup can be installed and upgraded in heterogeneous environments using a variety of methods. NetBackup is also compatible with a mixture of servers and clients that are at various release levels in the same environment. This topic contains some of the operational notes and known issues that are associated with the installation, upgrade, and software packaging of NetBackup 8.1.2.

Do not install from the menu that appears when the installation DVD is inserted

The operating system may open a user interface window (such as File Manager on Solaris) when the installation DVD is inserted into the disc drive. Veritas recommends that you do not use this window to install NetBackup products because unpredictable results may occur. Make sure to follow the installation instructions that are found in the *NetBackup Installation Guide*.

About support for HP-UX Itanium vPars SRP containers

Hewlett-Packard Enterprise (HPE) introduced a new type of container for HP-UX Virtual Partitions (vPars)-enabled servers called Secure Resource Partitions (SRPs). As part of the security changes introduced by SRPs, native HP-UX install tools such as `swinstall` and `swremove` are disabled from being run within the SRP environment. The `swinstall` and `swremove` tools can only be called from the global host running vPars, which then pushes the native packages to the SRP containers.

NetBackup only supports installing into the global view. NetBackup installation fails if you try to install into an HPE Itanium SRP container (private file system, shared file system, or workload).

NetBackup administration and general operational notes

NetBackup provides a complete, flexible data protection solution for a variety of platforms. The platforms include Windows, UNIX, and Linux systems. In addition to a standard set of data protection features, NetBackup can also utilize several other licensed and non-licensed components to better protect a variety of different systems and environments. This topic contains some of the general operational notes and known issues that are associated with the administration of NetBackup 8.1.2.

The net start command does not start the NetBackup Web Management Console service

Using the `net start` command to start the NetBackup Web Management Console Service fails, as follows:

```
C:\>net start "NetBackup Web Management Console"

The NetBackup Web Management Console service is starting........
The NetBackup Web Management Console service could not be started.

The service did not report an error.

More help is available by typing NET HELPMSG 3534.
```

This error is the result of a time-out, because the NetBackup Web Management Console service takes too long to start. Note that the time-out itself does not report an error. Note also that `NET HELPMSG 3534` does not provide additional help.

As a workaround, use the following command:

```
C:\>sc start "NetBackup Web Management Console"
```

NetBackup limitations when using IPv6 address as client name or image name

The following NetBackup limitations can occur if an IPv6 address is used as a client name or an image name:

- Using IPv6 addresses as client names in a policy do not work with Instant recovery (IR) snapshots on Windows systems. That can cause a backup to fail. Specify a host name instead of an IPv6 address.
  Image names are created automatically in NetBackup, and consist of a combination of the client name and a timestamp. If the client name is configured in the policy as the IPv6 address, the result is an image name (in the image catalog) that includes the IPv6 address. That causes the backup to fail.
- Using IPv6 addresses as image names under the catalog do not work with Instant Recovery (IR) snapshots on Windows systems.

NetBackup administration interface operational notes

The NetBackup administrator has a choice of several interfaces to use to administer NetBackup. All of the interfaces have similar capabilities. This topic contains some of the operational notes and known issues that are associated with these interfaces in NetBackup 8.1.2.

For more information about the specific NetBackup administration interfaces, refer to the *NetBackup Administrator's Guide, Volume I*. For information about how to install the interfaces, refer to the *NetBackup Installation Guide*. For information about platform compatibility with the administration consoles, refer to the various NetBackup compatibility lists available on the Veritas Support website.

See "About NetBackup compatibility lists and information" on page 52.

- NetBackup Web User Interface (UI)
- NetBackup Administration Console
- Remote Administration Console
- Character-based, menu interfaces for device management
- Command line

Access control methods supported in NetBackup 8.1.2

Role-based access control (RBAC) in NetBackup is available only for the web UI and the APIs. Other access control methods for NetBackup are not supported for the web UI and APIs, with the exception of Enhanced Auditing (EA). Users that are configured with EA have full permissions for the web UI and APIs. You cannot use the web UI if you have NetBackup Access Control (NBAC) enabled.

For more information, see the *NetBackup Web UI Security Administrator's Guide*.

NetBackup Administration Console does not show a failure message for incorrect CloudPoint plug-in credentials

For on-premises deployment, when you configure a CloudPoint plug-in using incorrect credentials, the NetBackup Administration Console does not show a failure message. Also, the CloudPoint plug-in will not be listed in the CloudPoint Plug-ins list.

"Operation timed out" message appears when policies are accessed from the Remote Administration Console

When you access policies from the NetBackup Remote Administration Console, a warning message is displayed:

```
The operation timed out. The operation has exceeded the time out
limit, though service or daemon may still be processing the request.
```

The warning appears because the `NBJAVA_CORBA_DEFAULT_TIMEOUT` default value is less than required. However, the policies still can be accessed after you click **OK**.

Workaround: Modify the `NBJAVA_CORBA_DEFAULT_TIMEOUT` value:

- From:
  `SET NBJAVA_CORBA_DEFAULT_TIMEOUT=60`
- To:
  `SET NBJAVA_CORBA_DEFAULT_TIMEOUT=300`

After completing the changes, restart the NetBackup Remote Administration Console. The policies are loaded within maximum 5 minutes (300 seconds).

For more information about setting configuration options for the NetBackup Remote Administration Console, see the NetBackup Administrator's Guide, Volume I for NetBackup 8.1.2.

Using X forwarding to launch the NetBackup Administration Console can fail on certain Linux platforms

Using X forwarding to launch the NetBackup Administration Console can fail on certain Linux platforms, particularly Red Hat Enterprise Linux 6.0 (RHEL 6.0) on VMware. The issue is a result of incompatibilities between the default GNU C Library (`glibc`) and Advanced Vector Extensions (AVX) on newer hardware. The issue should be fixed in a future release of `glibc`.

Workaround: Run the `export LD_BIND_NOW=1` command before you execute `runInstaller`.

Intermittent issues with X forwarding of NetBackup Administration Console

Intermittent issues may occur with X forwarding of the NetBackup Administration Console. This behavior only occurs when you use X forwarding. This issue does not occur at the local console. The issue is most commonly seen on Linux servers, but not exclusively. The issue generally occurs when older versions of X viewers are used, such as Xming and XBrowser.

The use of MobaXterm seems to minimize or eliminate the issue. If you experience issues with X forwarding, consider upgrading your X viewer and retrying the operation or access the server from the local console.

Reduced functionality during the initialization of the NetBackup Administration Console

The following issues occur if one or more of the NetBackup services or daemons on the host that is specified in the logon dialog is not running:

- Reduced functionality (for example, only the Backup, Archive, and Restore component is available).
- **Cannot Connect** errors occur during initialization of the NetBackup Administration Console

NetBackup Administration Console may encounter a core dump issue when the Simplified Chinese UTF-8 locale is used on a Solaris SPARC 64-bit system with Solaris 10 Update 2 or later

The NetBackup Administration Console may encounter a core dump issue when the Simplified Chinese UTF-8 locale is used on a Solaris SPARC 64-bit system with Solaris 10 Update 2 and later installed. For more information, refer to Bug ID 6901233 at the following URL on the Oracle Technology Network website:

http://bugs.sun.com/bugdatabase/view_bug.do?bug_id=6901233

If you encounter this issue, apply the appropriate Solaris patches or upgrades that Oracle provides for this issue.

NetBackup API operational notes

NetBackup includes RESTful application programming interfaces (APIs). These APIs provide a web-service-based interface that lets you configure and administer NetBackup in your environments. This topic contains some of the operational notes and known issues that are associated with NetBackup APIs in NetBackup 8.1.2.

See the *NetBackup API Reference* documentation on SORT for more information. This HTML document is a reference tool that describes each API and its options.

If a restarted backup or snapshot job fails, the job initiator ID no longer appears in the NetBackup Jobs API response

If a backup job or snapshot job is restarted and then fails, the NetBackup Jobs API does not return the initiator ID of the job.

If you attempt to view the list of jobs by initiator ID, the restarted jobs that failed do not appear.

GET Policy API response may return an incorrect ScheduleType for policy schedules

When using the GET Policy API to read a policy with schedules, you may notice that the JSON response may have an incorrect value for `ScheduleType` in the policy schedules. For example:

- If a Full Backup schedule in the policy is of the schedule type *Calendar*, the `ScheduleType` in the API response may be *Frequency*.
- If a Transaction Log Backup schedule in the policy is of type *Calendar*, the `ScheduleType` in the API response may be *null*.

If you use the schedule detail in the JSON response payload as it is returned from the GET API while updating the policy via the PUT Policy API, it may result in an unexpected change in the schedule. For example, it may change from a *Calendar* schedule to a *Frequency* schedule. In certain cases the policy update may result in a validation error.

Note that this issue does not occur in all cases. For example, if a Full Backup schedule in the policy is of type *Frequency*, the GET Policy API returns the correct `ScheduleType`, that is,*Frequency*.

Workaround: If you choose to automate policy updates using the API, Veritas advises that you not use the schedule details from the GET API response in a PUT API request without verifying and modifying the `ScheduleType` to the desired value.

NetBackup Bare Metal Restore operational notes

NetBackup Bare Metal Restore (BMR) automates and streamlines the server recovery process, making it unnecessary to reinstall operating systems or configure hardware manually. This topic contains some of the operational notes and known issues that are associated with BMR in NetBackup 8.1.2.

Media restores of Solaris x86 11.2 or later clients may prompt for maintenance mode user name and password

During a media restore of clients with Solaris x86 11.2 or later versions installed, the restore system may show the following prompt:

```
Enter user name for system maintenance (control-d to bypass):
```

At the same time, BMR prompts you to enter the network adapter name:

```
Enter the network adapter (LINK) name from the above list
corresponding to MAC Address:
```

If you enter the network adapter name, it is received as the user name for system maintenance and system may further prompt you to enter the password. For example, if you have entered the network adapter name as `net0`, the system shows the following prompt:

```
Enter net0 password (control-d to bypass):
```

This issue is observed because one of the Solaris services which is non-critical for restore has fallen into the maintenance mode.

Workaround: To resolve this issue, enter `Ctrl+d` and proceed with BMR restore.

NetBackup with Veritas CloudPoint operational notes

Veritas CloudPoint is a flexible, snapshot-based enterprise cloud backup solution built specifically for dynamic multi-cloud environments. This topic contains some of the operational notes and known issues that are associated with the Veritas CloudPoint and NetBackup 8.1.2.

Image clean-up may fail for Microsoft Azure workloads

For Microsoft Azure workloads, image clean-up fails with following error:

```
30464: invalid error code .
```

Workaround: This error is related to Veritas CloudPoint. Refer to the Veritas CloudPoint release notes for incidents 7253 and 8030.

NetBackup database and application agent operational notes

NetBackup offers several methods of protecting various database and application technologies, such as Oracle, Microsoft SQL Server, and Microsoft Exchange Server. This topic contains some of the operational notes and known issues that are associated with the protection of database technologies in NetBackup 8.1.2.

NetBackup for SharePoint operational notes

NetBackup for SharePoint Server extend the capabilities of NetBackup to include online backups and restores of SharePoint databases. This topic contains some of the operational notes and known issues that are associated with NetBackup for SharePoint in NetBackup 8.1.2.

GRT backup fails for SharePoint if the SharePoint database object path exceeds the Windows maximum path limit

A Granular Recovery Technology (GRT) backup fails for SharePoint if the SharePoint database object path exceeds the Windows maximum path limit.

During GRT backup, SharePoint database objects are temporarily stored as files within a folder hierarchy. This folder name consists of the SQL Server host name, Backup image ID, and Content Database name within the NetBackup temporary directory path. Together this combination should not exceed the Windows path length limitation. For more details, refer to the following Microsoft article:

https://msdn.microsoft.com/en-us/library/windows/desktop/aa365247(v=vs.85).aspx

If the Windows path length limitation is exceeded, then the result can be a failure to capture the backup artifacts for GRT for SharePoint.

Workaround: Ensure that the content database name along with the other parameters mentioned above does not exceed the Windows maximum path limit.

NetBackup internationalization and localization operational notes

This topic contains some of the operational notes and known issues that are associated with internationalization, localization, and non-English locales in NetBackup 8.1.2.

Support for localized environments in database and application agents

Non-ASCII characters are supported in the following fields for NetBackup database and application agents.

- Oracle:
  Datafile path, Tablespace name, TNS path
- DB2:
  Datafile path, Tablespace name
- SAP:
  English SAP runs on localized OS. (No specific SAP fields are localized.)
- Exchange:
  Mailboxes, Mails, Attachment names and contents, Public folders, Contacts, Calendar, Folders and Database paths
- SharePoint:
  Site Collection Names, Libraries and lists within the site collection
- Lotus Notes:
  Emails data /.nsf files
- Enterprise Vault (EV) agent:
  Vault store, Partitions, Data
- VMWare:
  Username, Password, VM display name, DataCenter, Folder, Datastore, Resource pool, VApp, Network name, VM disk path

Certain NetBackup user-defined strings must not contain non-US ASCII characters

Specific NetBackup user-defined strings must not contain non-US ASCII characters.

The following NetBackup user-defined strings must not contain non-US ASCII characters:

- Host name (master server, media server, Enterprise Media Manager (EMM) server, volume database host, media host, client)
- Policy name
- Policy KEYWORD (Windows only)
- Backup, Archive, and Restore KEYWORD (Windows only)
- Storage unit name

- Storage unit disk pathname (Windows only)
- Robot name
- Device name
- Schedule name
- Media ID
- Volume group name
- Volume pool name
- Media description
- Vault policy names
- Vault report names
- BMR Shared Resource Tree (SRT) name
- Token name

NetBackup for NDMP operational notes

NetBackup for NDMP is an optional NetBackup application. It enables NetBackup to use the Network Data Management Protocol (NDMP) to initiate and control backups and restores of Network Attached Storage (NAS) systems. This topic contains some of the operational notes and known issues that are associated with NetBackup for NDMP in NetBackup 8.1.2.

Parent directories in the path of a file may not be present in an NDMP incremental image

An issue can occur if a NetBackup Network Data Management Protocol (NDMP) backup policy is configured with the directive `set type=tar` in the backup selection. Parent directories in the path of a file that an incremental NDMP backup saves may not be present in the backup image. For more information on this issue, refer to the following tech note on the Veritas Support website:

http://www.veritas.com/docs/000095049

NetBackup SAN Client and Fibre Transport operational notes

SAN Client is a NetBackup optional feature that provides high-speed backups and restores of NetBackup clients.

Unable to stop the nbftclnt process on the NetBackup client

The `nbftclnt` process cannot be stopped using the `bp.kill_all` command and or the `kill -9 nbftclnt` command.

Workaround:

Use the `echo "1"` command on the `issue_lip` interface of the corresponding Fibre Channel port to reset the port.

For more information, refer to the following article:

RHEL-storage_administration_guide/scanning-storage-interconnects

NetBackup Snapshot Client operational notes

NetBackup Snapshot Client provides a variety of snapshot-based features for NetBackup. It supports clients on UNIX, Linux, and Windows platforms, on Fibre Channel networks (SANs) or traditional LANs. Each snapshot method relies on the snapshot technology that is built into the storage subsystem where the data is stored. This topic contains some of the operational notes and known issues that are associated with Snapshot Client in NetBackup 8.1.2.

CloudPoint plug-in configuration fails with Status 109

CloudPoint plug-in configuration fails with Status 109. You can safely ignore this error. The CloudPoint plug-in that you are trying to configure is already configured from NetBackup or CloudPoint.

NetBackup virtualization operational notes

NetBackup offers several methods of protecting virtual environments. The two primary virtualization technologies that NetBackup can protect are VMware and Hyper-V, although NetBackup can protect other virtualization technologies as well. This topic contains some of the operational notes and known issues that are associated with the protection of virtualization technologies in NetBackup 8.1.2.

NetBackup for VMware operational notes

NetBackup for VMware provides backup and restore of the VMware virtual machines that run on VMware ESX servers. Additionally, the NetBackup plug-in for VMware vCenter (vCenter plug-in) allows the vSphere Client to monitor virtual machine backups and recover a virtual machine from a backup. This topic contains some of the operational notes and known issues that are associated with NetBackup for VMware and the vCenter plug-in in NetBackup 8.1.2.

The NetBackup web UI cannot restore a VM from a replicated backup image

If a virtual machine backup image was replicated to a different domain, the NetBackup web UI does not support restoring the virtual machine from that image.

As a workaround, use the NetBackup Administration Console to restore the virtual machine from the replicated backup image.

The NetBackup web UI does not validate VMware server entries

Under **VMware servers**, if you click **Add** and enter an invalid name or invalid user name or password for a vCenter server or ESXi server, the invalid server is added. NetBackup does not verify whether it can connect to the server.

As a workaround, select the invalid server and click **Delete**.

NetBackup cannot use the nbd or nbdssl transport mode to connect directly to VMware IPv6 ESXi servers

NetBackup cannot establish nbd or nbdssl connections directly to pure IPv6 ESXi servers. This limitation occurs only for ESXi credentials that have been configured in NetBackup.

This problem is a known VMware issue. For more details, refer to the Known Issues and Workarounds section of the Virtual Disk Development Kit 6.5 Release Notes, which are available on the following site:

VDDK for vSphere 6.5.

Note: This issue does not affect the hotadd and SAN transport modes. Also, this issue does not affect NetBackup connections that are established through IPv6 vCenters (with vCenter credentials).

VMware block-level incremental backups expire when the previous full backup expires

NetBackup VMware block-level incremental backups of a virtual machine are dependent on the previous full backup of the same VM made by the same policy. When a full VMware backup expires, any later block-level incremental backups for the VM that are based on the full backup also expire and are deleted. The expiration occurs without regard to the retention period in the incremental schedule. This issue applies to all versions of NetBackup for VMware.

Note: This issue does not apply to NetBackup Accelerator backups.

A VM restore to a vCenter fails when NetBackup has credentials for a restore ESX server

NetBackup's **VMware Restore ESX Server** option (under **Media and Device Management > Credentials > Virtual Machine Servers**) allows a particular ESXi server to perform the data movement for a VM restore. If the destination for the restore is a vCenter (not the ESXi server), the restore fails with status 2820, "NetBackup VMware policy restore error." The VM is restored but NetBackup cannot revert to the VM snapshot and delete the snapshot.

A NetBackup 8.1 emergency engineering binary (EEB) is available that fixes this issue.

As a workaround, you can use the vSphere interface to revert to the restored VM's snapshot and then remove the snapshot.

To revert to and remove the VM snapshot

1. In vSphere Web Client 6.0, right-click on the restored VM and select **Snapshots > Revert to Latest Snapshot**.
2. Right-click on the VM again and select **Snapshots > Manage Snapshots**. Use the **Manage VM Snapshots** dialog to remove the snapshot.

For details on your version of vSphere and how to remove snapshots, refer to VMware documentation.

Virtual machine alert notification may be incorrect for the VMware policies with specific Replication Director options

Consider the example shown:

You have a VMware policy called `P1` with the options listed:

- The **Replication Director** option is enabled.

- The **Application Consistent Snapshot** option is disabled.

P1 backs up the virtual machines listed:

- VM1 that resides on DS1 NFS datastore
- VM2 that resides on DS2 NFS datastore

The job hierarchy that is shown is displayed when you run P1:

- Job1 - The discovery (parent) backup job for virtual machine discovery.
  - Job2 – The child job that collects the configuration data for VM1 and VM2.
  - Job3 – The child job to take a snapshot of DS1 associated with VM1.
  - Job4 – The child job to take a snapshot of DS2 associated with VM2.

If a datastore snapshot job fails, the alert notification is always sent for the first virtual machine that appears in the job that collects configuration data.

If Job4 in the example fails, an alert notification is sent for VM1 instead of VM2.

To get the correct information about the failed VM snapshot job, go to the **Activity Monitor** in the **NetBackup Administration Console**.

Appendix A

About SORT for NetBackup Users

This appendix includes the following topics:

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 A-1

Procedure	Details
Create a Veritas Account on the SORT webpage	See "To create a Veritas Account on the SORT page" on page 38.
Create generic installation reports	See "To create a generic installation checklist" on page 38.
Create system-specific installation reports	See "To create a system-specific installation report for Windows" on page 39. See "To create a system-specific installation report for UNIX or Linux" on page 40.

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 A-2

Procedure	Details
Create a Veritas Account on the SORT webpage	See "To create a Veritas Account on the SORT page" on page 38.

Table A-2 *(continued)*

Procedure	Details
Create a system-specific upgrade report	See "To create a system-specific installation report for Windows" on page 39. See "To create a system-specific installation report for UNIX or Linux" on page 40.
Review the future platform and feature plans. Review the hot fix and emergency engineering binary release auditor information.	See "To review future platform changes and feature plans" on page 42. See "To review hot fix and emergency engineering binary information" on page 42.

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.

Appendix B

NetBackup installation requirements

This appendix includes the following topics:

About NetBackup installation requirements

This release of NetBackup may contain changes to the minimum system requirements and procedures that are required for installation. These changes affect the minimum system requirements for both Windows and UNIX platforms. Much of the installation instructional information in the *NetBackup Release Notes* is provided for convenience. Detailed installation instructions are found in the *NetBackup Installation Guide*, the *NetBackup Upgrade Guide*, and the *NetBackup Getting Started Guide*.

See "NetBackup installation and upgrade operational notes" on page 22.

- Before you upgrade the NetBackup server software, you must back up your NetBackup catalogs and verify that the catalog backup was successful.
- Database rebuilds are likely to occur in each major, minor (single-dot), and release update (double-dot) version of NetBackup. Therefore, before upgrading to NetBackup 8.1.2, you must ensure that you have an amount of free disk space available that is equal to or greater than the size of the NetBackup database. That means for default installations, you are required to have that amount of free space on the file system containing the `/usr/openv/db/data` (UNIX) or `<install_path>\Veritas\NetBackupDB\data` (Windows) directories. If you

have changed the location of some of the files in either of these directories, free space is required in those locations equal to or greater than the size of the files in those locations. Refer to the *NetBackup Administrator's Guide, Volume I* for more information about storing NBDB database files in alternate locations.

Note: This free disk space requirement assumes that you have already performed the best practice of completing a successful catalog backup before you begin the upgrade.

- Master and media servers must have a minimum soft limit of 8000 file descriptors per process for NetBackup to run correctly.
  For more information about the effects of an insufficient number of file descriptors, refer to the following tech note on the Veritas Support website:
  http://www.veritas.com/docs/000013512
- To install NetBackup on Windows 2008/Vista/2008 R2/ UAC-enabled 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.
- NetBackup master and media servers exchange server version information at startup, and every 24 hours. This exchange occurs automatically. During startup after an upgrade, the upgraded media server uses the `vmd` service to push its version information to all of the servers that are listed in its server list.
- Veritas recommends that you have the master server services up and available during a media server upgrade.
- All compressed files are compressed using gzip. The installation of these files requires gunzip and gzip, so make sure that they are installed on the computer before you attempt to install NetBackup. For all UNIX platforms except HP-UX, the binaries are expected to be in `/bin` or `/usr/bin` and that directory is a part of the root user's `PATH` variable. On HP-UX systems, the `gzip` and `gunzip` commands are expected to be in `/usr/contrib/bin`. Installation scripts add that directory to the `PATH` variable. These commands must be present to have successful UNIX installations.

Required operating system patches and updates for NetBackup

NetBackup server and client installations are only supported on a defined set of operating systems (OSs) that are listed in the NetBackup compatibility lists. Most OS vendors provide patches, updates, and service packs (SPs) for their products. The best practice of NetBackup Quality Engineering is to test with the latest SP or update level of the OS when a platform is tested. Therefore, NetBackup is supported on all vendor GA updates (n.1, n.2, etc.) or SPs (SP1, SP2, and so on). However, if a known compatibility issue exists on a specific SP or updated OS level, this information is identified in the compatibility lists. If no such compatibility issues are noted, Veritas recommends that you install the latest OS updates on your servers and clients before you install or upgrade NetBackup.

The compatibility lists include information about the minimum OS level that is required to support a minimum NetBackup version in the latest major release line. In some cases, new releases of NetBackup may require specific vendor OS updates or patches. Table B-1 includes the OS updates and patches that are required for NetBackup 8.1.2. However, this information may sometimes change in between releases. The most up-to-date required OS patch information for NetBackup 8.1.2 and other NetBackup releases can be found on the Veritas Services and Operational Readiness Tools (SORT) website and in the NetBackup compatibility lists.

See "About NetBackup compatibility lists and information" on page 52.

See "About Veritas Services and Operations Readiness Tools" on page 36.

Note: An OS vendor may have released a more recent update or patch that supersedes or replaces a patch that is listed in Table B-1. The OS patches that are listed here and in SORT should be considered at the minimum patch level that is required to install and run NetBackup. Any OS updates, patches, or patch bundles that supersede or replace those listed in Table B-1 are supported unless otherwise specified. Veritas recommends that you visit the Support website of your particular OS vendor for their latest patch information.

Note: Any required patch that is listed in Table B-1 for the NetBackup client should also be installed on your master servers and media servers to ensure proper client functionality.

Table B-1 Required operating system patches and updates for NetBackup 8.1.2

Operating system type and version	NetBackup role	Patch	Notes
AIX 6.1	Client only	AIX run-time libraries 9.0.0.3 or later	The run-time libraries need to be at 9.0.0.3 or later. You may need to restart after you change to version 9.0.0.3.
Beijing Linx Software Corp Linx OS	Master, media, client	Kernel 2.6.32.26 or later	
CentOS 6.x	Master, media, client	Kernel 2.6.32-608.el6 or later	
CentOS 7.x	Master, media, client	Kernel 3.10.0-241.el7 or later	
Debian 8	Master, media, client	Kernel 3.16.7-1 or later	More information is available: Debian 8 release notes
HP-UX	Client only	COMPLIBS.LIBM-PS32	If you install AT on an HP-UX platform, this patch is required.
HP-UX IA-64	Client only	Networking.NET-RUN: /usr/lib/libipv6.sl	
	Client only	Networking.NET-RUN-64: /usr/lib/pa20_64/libipv6.1	
	Client only	Networking.NET-RUN-64: /usr/lib/pa20_64/libipv6.sl	
	Client only	Networking.NET2-RUN: /usr/lib/hpux32/libipv6.so	
	Client only	Networking.NET2-RUN: /usr/lib/hpux32/libipv6.so.1	
	Client only	Networking.NET2-RUN: /usr/lib/hpux64/libipv6.so	
	Client only	Networking.NET2-RUN: /usr/lib/hpux64/libipv6.so.1	
	Client only	Networking.NET2-RUN: /usr/lib/libipv6.1	

Table B-1 Required operating system patches and updates for NetBackup 8.1.2 *(continued)*

Operating system type and version	NetBackup role	Patch	Notes
Oracle Linux 6	Master, media, client	Kernel 2.6.32-504.14.1 or later	More information is available: Kernel security and bug fix update
Oracle Linux 7	Master, media, client	Kernel 3.10.0-229.7.1 or later	More information is available: Kernel security and bug fix update
Red Hat Enterprise Linux 6	Master, media, client	Kernel 2.6.32-504.16.2.el6 or later	More information is available: Red Hat tech note RHSA-2015:0864 - Security Advisory
Red Hat Enterprise Linux 7	Master, media, client	Kernel 3.10.0-229.7.2.el7 or later	More information is available: Red Hat tech note RHSA-2015:1137 - Security Advisory
SUSE Linux 11	Master, media, client	SUSE Linux Enterprise 11 Service Pack 3 or later	More information is available: Security update for Linux kernel:SUSE-SU-2014:1695-1
SUSE Linux 12	Master, media, client	Kernel 3.12.31 or later	More information is available: Security update for the Linux Kernel: SUSE-SU-2015:0068-1
Windows Vista x86-64	Client	KB936357	Microsoft microcode reliability update (suggested)
	Client	KB952696	Contains the necessary updates to ensure that you can back up encrypted files.
Windows Server 2008 x86-64	Client	KB952696	Contains the necessary updates to ensure that you can back up encrypted files.
Windows Server 2008 x86-64 (SP2)	Master, media, client	KB979612	Hot fix to improve TCP loopback latency and UDP latency

Table B-1 Required operating system patches and updates for NetBackup 8.1.2 *(continued)*

Operating system type and version	NetBackup role	Patch	Notes
Windows Server 2008 x86-64 R2	Master, media, client	KB2265716	Hot fix for when a computer randomly stops responding. Note that this patch is also contained in Windows Server 2008 R2 SP1.
	Master, media, client	KB982383	Hot fix for a decrease in I/O performance under a heavy disk I/O load. Note that this patch is also contained in Windows Server 2008 R2 SP1.
	Master, media, client	KB983544	Update for the "Modified time" file attribute of a registry hive file. Note that this patch is also contained in Windows Server 2008 R2 SP1.
	Master, media, client	KB979612	Hot fix to improve TCP loopback latency and UDP latency Note that this patch is also contained in Windows Server 2008 R2 SP1.

Veritas recommends the following updates when you run NetBackup on Windows operating systems:

- Microsoft `storport` hot fix. This fix applies to Windows x86 and x64, on both SP1 and SP2: (required) http://support.microsoft.com/?id=932755
- Symantec AntiVirus. Update to latest version and latest update (required).
- The `Symevent` driver updates (required). Update to latest driver version.

NetBackup 8.1.2 binary sizes

Table B-2 contains the approximate binary sizes of the NetBackup 8.1.2 master server, media server, and client software for the various supported operating

systems. These binary size indicate the amount of disk space occupied by the product after an initial installation.

Note: Table B-2 and Table B-3 only list the supported operating systems. For up-to-date information about the specific operating system versions that NetBackup currently supports, check the Installation and Upgrade Checklist on the Symantec Operations Readiness Tools (SORT) website, or the *NetBackup Operating System Compatibility List* document at http://www.netbackup.com/compatibility.

See "About Veritas Services and Operations Readiness Tools" on page 36.

Table B-2 NetBackup binary sizes for compatible platforms

OS	CPU Architecture	32-bit client	64-bit client	64-bit server	Notes
AIX	POWER		1737 MB	No longer supported	
Canonical Ubuntu	x86-64		1872 MB		
CentOS	x86-64		1170 MB	7299 MB	Media server or client compatibility only.
Debian GNU/Linux	x86-64		1872 MB		
HP-UX	IA-64		2263 MB	No longer supported	
OpenVMS	IA-64		128 MB		The listed sizes are for the NetBackup 7.5 binaries. No NetBackup 8.1.2 binaries for OpenVMS are provided.
Oracle Linux	x86-64		1171 MB	7300 MB	
Red Hat Enterprise Linux Server	POWER		298 MB		
Red Hat Enterprise Linux Server	x86-64		1171 MB	7300 MB	

Table B-2 NetBackup binary sizes for compatible platforms *(continued)*

OS	CPU Architecture	32-bit client	64-bit client	64-bit server	Notes
Red Hat Enterprise Linux Server	z/Architecture		916 MB	4046 MB	Media server or client compatibility only.
Solaris	SPARC		1263 MB	6749 MB	
Solaris	x86-64		1271 MB	6892 MB	
SUSE Linux Enterprise Server	POWER		321 MB		
SUSE Linux Enterprise Server	x86-64		1117 MB	7079 MB	
SUSE Linux Enterprise Server	z/Architecture		928 MB	4053 MB	Media server or client compatibility only.
Windows	x86-64		454.2 MB	2391.6 MB	Covers all compatible Windows x64 platforms.

The following space requirements also apply to some NetBackup installations on Windows:

- If you install NetBackup in a custom location on a Windows system, some portions of the software are installed on the system drive regardless of the primary application folder location. The space that is required on the system drive generally accounts for 40 to 50 percent of the total binary size that is listed in Table B-2.
- If you install NetBackup server on a Windows cluster, some portions of the software are installed on the cluster shared disk. Note, the space that is required on the cluster shared disk is in addition to the binary size that is listed in Table B-2. The additional required space is equivalent to 15 to 20 percent of the total binary size.

NetBackup OpsCenter

Table B-3 contains the approximate binary sizes of the OpsCenter Agent, Server, and **ViewBuilder** for the various operating systems that are compatible with NetBackup OpsCenter 8.1.2.

Table B-3 NetBackup OpsCenter binary sizes for compatible platforms

OS	CPU Architecture	Agent	Server	ViewBuilder
Oracle Linux	x86-64		717 MB	
Red Hat Enterprise Linux Server	x86-64		737 MB	
SUSE Linux Enterprise Server	x86-64		832 MB	
Windows Server	x86-64	255 MB	698 MB	223 MB

NetBackup plug-ins

Disk space requirements for the NetBackup vCenter Web Client Plug-in and the NetBackup System Center Virtual Machine Manager Add-in can be found in the *NetBackup Plug-in for VMware vSphere Web Client Guide* and the *NetBackup Add-in for Microsoft SCVMM Console Guide*, respectively.

Appendix C

NetBackup compatibility requirements

This appendix includes the following topics:

About NetBackup compatibility lists and information

The *NetBackup Release Notes* document contains a great deal of the compatibility changes that are made between NetBackup versions. However, the most up-to-date compatibility information on platforms, peripherals, drives, and libraries can be found on the Veritas Operations Readiness Tools (SORT) for NetBackup website.

See "About Veritas Services and Operations Readiness Tools" on page 36.

For NetBackup, SORT provides an Installation and Upgrade Checklist report as well as the ability to collect, analyze, and report on host configurations across your environments. In addition, you can determine which release contains the hot fixes or EEBs that you may have installed in your environment. You can use this data to assess whether your systems are ready to install or upgrade to a given release.

NetBackup compatibility lists

In addition to SORT, Veritas has made available a variety of compatibility lists to help customers quickly reference up-to-date compatibility information for NetBackup. These compatibility lists can be found on the Veritas Support website at the following location:

http://www.netbackup.com/compatibility

Note: Select "Compatibility Between NetBackup Versions" from the compatibility lists for information about which versions of NetBackup are compatible with each other.

About NetBackup end-of-life notifications

Veritas is committed to providing the best possible data protection experience for the widest variety of systems: platforms, operating systems, CPU architecture, databases, applications, and hardware. Veritas continuously reviews NetBackup system support. This review ensures that the proper balance is made between maintaining support for existing versions of products, while also introducing new support for the following:

- General availability releases
- Latest versions of new software and hardware
- New NetBackup features and functionality

While Veritas continually adds support for new features and systems, it may be necessary to improve, replace, or remove certain support in NetBackup. These support actions may affect older and lesser-used features and functionality. The affected features and functionality may include support for software, OS, databases, applications, hardware, and 3rd-party product integration. Other affected items may include the products that are no longer supported or nearing their end-of-support life with their manufacturer.

Veritas provides advance notification to better help its customers to plan for upcoming changes to the support status of the various features in NetBackup. Veritas intends to list older product functionality, features, systems, and the 3rd-party software products that are no longer supported in the next release of NetBackup. Veritas makes these support listings available as soon as possible with a minimum of 6 months where feasible before major releases.

Using SORT

Advance notification of future platform and feature support including end-of-life (EOL) information is available through a widget on the Veritas Services and Operations Readiness Tools (SORT) for NetBackup home page. The NetBackup Future Platform and Feature Plans widget on the SORT for NetBackup home page can be found directly at the following location:

https://sort.veritas.com/nbufutureplans

NetBackup end-of-support-life (EOSL) information is also available at the following location:

https://sort.veritas.com/eosl/show_matrix

See "About Veritas Services and Operations Readiness Tools" on page 36.

About changes in platform compatibility

The NetBackup 8.1.2 release may contain changes in support for various systems. In addition to using SORT, you should make sure to review the *NetBackup Release Notes* document and the NetBackup compatibility lists before installing or upgrading NetBackup software.

See "About new enhancements and changes in NetBackup" on page 9.

http://www.netbackup.com/compatibility

End-of-life for NetBackup supported cloud connectors

Starting with the release of NetBackup 8.1.2, support is discontinued for the following cloud connectors:

- AT&T (Atmos API-compliant connector)
- Rackspace (Swift API-compliant connector)

After you upgrade to NetBackup 8.1.2, you might experience failures while backing up or restoring data to AT&T or Rackspace cloud storage servers.

Scheduled deprecation of the update_clients script

The `update_clients` script is scheduled for deprecation in the next NetBackup release. Upgrades to NetBackup 8.1.2 clients using this script continue to work. This script is, however, disabled for upgrades to any releases that follow NetBackup 8.1.2. Use VxUpdate to perform this function for all releases after NetBackup 8.1.2.

Appendix D

Other NetBackup documentation and related documents

This appendix includes the following topics:

About related NetBackup documents

Note: All references to UNIX also apply to Linux platforms unless otherwise specified.

Veritas releases various guides and technical manuals that relate to NetBackup software. These documents are published for new versions of NetBackup based on release type.

Unless otherwise specified, the NetBackup documents can be downloaded in PDF format from the following location:

http://www.veritas.com/docs/000003214

Note: Veritas assumes no responsibility for the correct installation or use of PDF reader software.

About NetBackup release notes documents

The following release notes documents are published for NetBackup software:

- *NetBackup Release Notes*
  This document contains a great deal of assorted information about particular releases of NetBackup for both UNIX and Windows platforms. This information includes, but is not limited to, new features, platform compatibility changes, patch requirements, documentation corrections, and known issues. This document also contains any operational notes that may not be found elsewhere in the NetBackup manuals or the online Help.
- *NetBackup Emergency Engineering Binary Guide*
  This document contains listings of some of the known issues that were identified, fixed, and available to NetBackup customers in the form of an Emergency Engineering Binary (EEB). It also lists a certain number of the issues that were fixed in a given release, but that may not have resulted in an EEB.

About NetBackup administration documents

The following administrator guides are published for NetBackup software:

- *NetBackup Administrator's Guide, Volume I*
  This guide explains how to configure and manage NetBackup on a UNIX or Windows server. This guide describes the NetBackup interfaces and how to configure hosts, storage devices and media, storage lifecycle policies (SLPs), backups, replication, and monitoring and reporting.
- *NetBackup Administrator's Guide, Volume II*
  This guide explains additional configuration and interface options for NetBackup. This guide also contains reference topics and information about NetBackup licensing.
- *NetBackup Web UI Backup Administrator's Guide*
  This guide is written for the backup administrator who uses the NetBackup web user interface (UI). It describes how to create and manage protection plans and jobs as well as how to configure email notifications for alerting, usage reporting, and capacity licensing. It also introduces the NetBackup web user interface (UI).

- *NetBackup Web UI Cloud Administrator's Guide*
  This guide is written for the cloud asset administrator who uses the NetBackup web user interface (UI). It describes how to manage cloud assets. It also introduces the NetBackup web user interface (UI).
- *NetBackup Web UI Security Administrator's Guide*
  This guide is written for the security administrator who uses the NetBackup web user interface (UI). It explains how to manage role-based access controls, host mappings and certificates, and global security settings as well as how to view security events and audit logs. It also introduces the NetBackup web user interface (UI) and provides some troubleshooting tips.
- *NetBackup Web UI VMware Administrator's Guide*
  This guide is written for the VMware administrator who uses the NetBackup web user interface (UI). It explains how to protect VMware assets. It also introduces the NetBackup web user interface (UI) and provides some error recovery tips.

About administration of NetBackup options

The following administrator guides for NetBackup options are published for NetBackup software:

- *NetBackup Add-in for Microsoft SCVMM Console Guide*
  This guide describes how to install and troubleshoot the NetBackup Add-in for System Center Virtual Machine Manager (SCVMM), and how to use it to recover virtual machines from NetBackup backup images.
- *NetBackup AdvancedDisk Storage Solutions Guide*
  This guide explains how to configure, manage, and troubleshoot the NetBackup AdvancedDisk storage option. This guide describes how to use the disk storage that is exposed to NetBackup as a file system for backups.
- *NetBackup Bare Metal Restore Administrator's Guide*
  This guide explains how to install, configure, and manage NetBackup Bare Metal Restore (BMR) boot servers and clients to automate and streamline the server recovery process.
- *NetBackup Cloud Administrator's Guide*
  This guide explains how to configure and manage NetBackup to back up and restore data from cloud Storage as a Service (STaaS) vendors through Veritas OpenStorage.
- *NetBackup DataStore SDK Programmer's Guide for XBSA*
  This guide explains how to set up and use the XBSA Application Programming Interface to create a backup or archive application that communicates with NetBackup.

- *NetBackup Deduplication Guide*
  This guide explains how to plan, configure, migrate, monitor, and manage data deduplication in a NetBackup environment using the NetBackup Media Server Deduplication Option.
- *NetBackup for Acropolis Hypervisor (AHV) Administrator's Guide*
  This guide explains how to protect Acropolis Hypervisor (AHV) with NetBackup.
- *NetBackup for Hadoop Administrator's Guide*
  This guide explains how to protect Hadoop data using NetBackup, as well as how to deploy the Hadoop plug-in and configure NetBackup for Hadoop.
- *NetBackup for Hyper-V Administrator's Guide*
  This guide explains how to configure and manage snapshot-based backup policies for the virtual machines that run on Windows Hyper-V servers.
- *NetBackup for NDMP Administrator's Guide*
  This guide explains how to install, configure, and use NetBackup for Network Data Management Protocol (NDMP) to initiate and control backups and restores of Network Attached Storage (NAS) systems.
- *NetBackup for VMware Administrator's Guide*
  This guide describes how to configure NetBackup to perform such functions as off-host backups of VMware virtual machines that run on VMware ESX servers.
- *NetBackup Logging Reference Guide*
  This guide explains the various NetBackup logs and reports which can help you troubleshoot any problems that you encounter, including how to run reports from the NetBackup Administration Console and where logs are stored on your system.
- *NetBackup OpenStorage Solutions Guide for Disk*
  This guide describes how to configure and use an intelligent disk appliance in NetBackup for backups.
- *NetBackup OpsCenter Administrator's Guide*
  This guide describes how to use the NetBackup OpsCenter user interface to provide reporting, monitoring, and alerts for NetBackup and its agents and options.
- *NetBackup OpsCenter Reporting Guide*
  This guide explains how to use NetBackup OpsCenter to generate and use comprehensive business-level reports to track the effectiveness of data backup and archive operations.
- *NetBackup OpsCenter Performance and Tuning Guide*
  This performance and tuning guide is for administrators who want to analyze, evaluate, and tune OpsCenter performance. This document is intended to provide

guidance on how to tune OpsCenter for maximum performance, which system configurations you should use for OpsCenter depending on your backup environment, and best practices to follow for increased OpsCenter performance.

- *NetBackup Plug-in for VMware vSphere Web Client*
  This guide describes how to install and troubleshoot the vSphere Web Client plug-in for NetBackup. The vSphere Web Client plug-in allows you to monitor backups of virtual machines which are managed by vCenter servers, recover virtual machines from backups, and monitor VM backup status and related messages.
- *NetBackup Replication Director Solutions Guide*
  This guide describes how to implement NetBackup OpenStorage-managed snapshots and snapshot replication, where the snapshots are stored on the storage systems of partnering companies.
- *NetBackup SAN Client and Fibre Transport Guide*
  This guide describes how to set up, configure, and manage the NetBackup SAN Client feature to use the Fibre Transport method for high-speed client backups.
- *NetBackup Snapshot Client Administrator's Guide*
  This guide explains how to install, configure, and use NetBackup Snapshot Client to enable a variety of snapshot-based features, including integration with VMware, Hyper-V, and Replication Director.
- *NetBackup Vault Administrator's Guide*
  This guide explains how to install, configure, and use NetBackup Vault to automate selection and duplication of backup images for off-site media storage.
- *NetBackup Vault Operator's Guide*
  This guide explains how to use NetBackup Vault to vault media as part of two major task areas: Administration and operation. Some of the described tasks include procedures for sending tapes off site, receiving tapes on site, and running reports on off-site media and vault jobs.
- *WebSocket Service (NBWSS) Reference Guide*
  This guide explains how to use the NetBackup WebSocket Service (NBWSS) for communication with a cloud application and how to configure WebSocket endpoints for NBWSS.

About administration of NetBackup database agents

The following administrator guides for NetBackup database agents are published for NetBackup software:

- *NetBackup for DB2 Administrator's Guide*

This guide explains how to install, configure, and use the NetBackup for DB2 database agent.

- *NetBackup for Enterprise Vault Agent Administrator's Guide*
  This guide explains how to install, configure, and use the NetBackup for Enterprise Vault agent to protect Veritas Enterprise Vault configuration information and archived data.
- *NetBackup for Informix Administrator's Guide*
  This guide explains how to install, configure, and use the NetBackup for Informix agent to back up and restore the Informix databases that are on a UNIX NetBackup client.
- *NetBackup for Lotus Notes Administrator's Guide*
  This guide explains how to configure and use the NetBackup for Lotus Notes agent to back up and restore Lotus Notes databases and transaction logs on NetBackup clients.
- *NetBackup for MariaDB Administrator's Guide*
  This guide describes how to install, configure, and manage the NetBackup for MariaDB agent.
- *NetBackup for Microsoft Exchange Server Administrator's Guide*
  This guide explains how to configure and use the NetBackup for Exchange Server agent to perform online backups and restores of Microsoft Exchange Server.
- *NetBackup for Microsoft SharePoint Server Administrator's Guide*
  This guide explains how to configure and use the NetBackup for SharePoint Server agent to back up and restore the SharePoint databases that are on a Windows NetBackup client.
- *NetBackup for Microsoft SQL Server Administrator's Guide*
  This guide explains how to configure and use the NetBackup for Microsoft SQL Server agent to back up and restore Microsoft SQL Server databases and transaction logs.
- *NetBackup for Oracle Administrator's Guide*
  This guide explains how to configure and use the NetBackup for Oracle agent to back up and restore the Oracle databases that are on a NetBackup client.
- *NetBackup for PostgreSQL Administrator's Guide*
  This guide describes how to install, configure, and manage the NetBackup for PostgreSQL agent.
- *NetBackup for SAP Administrator's Guide*

This guide explains how to configure and use the NetBackup for SAP agent to back up and restore SAP and SAP HANA databases that are on a NetBackup client.

- *NetBackup for SQLite Administrator's Guide*
  This guide describes how to install, configure, and manage the NetBackup for SQLite agent.
- *NetBackup for Sybase Administrator's Guide*
  This guide explains how to configure and use the NetBackup for Sybase agent to back up and restore Sybase databases that are on a NetBackup client.

About NetBackup installation documents

The following installation documents are published for NetBackup software:

- *NetBackup Installation Guide*
  This guide explains how to install NetBackup server, client, and administrative software on UNIX and Windows platforms.
- *NetBackup Quick-Start Upgrade Guide*
  This guide is designed as a supplement to the *NetBackup Upgrade Guide* for the experienced user. The information in this guide assumes that you have already read and understand the upgrade prerequisites. (Use of this guide by novice or inexperienced NetBackup administrators is not recommended. These administrators should use the *NetBackup Upgrade Guide*.)
- *NetBackup Upgrade Guide*
  This guide is provided to help assist you plan and accomplish your upgrade of NetBackup software. This guide is updated periodically to provide you with the most up-to-date information.

About NetBackup configuration documents

The following configuration guides for NetBackup options are published for NetBackup software:

- *NetBackup Device Configuration Guide*
  This guide describes how to set up and configure the operating systems of the storage device hosts you use for NetBackup servers.

About NetBackup troubleshooting documents

The following troubleshooting guides are published for NetBackup software:

- *NetBackup Status Codes Reference Guide*
  This guide provides a complete list of the status codes for NetBackup, Media Manager, device configuration, device management, and robotic errors. Each status code listing includes an explanation and the recommended actions.
- *NetBackup Troubleshooting Guide*
  This guide provides general troubleshooting information and explains the various troubleshooting methods that can be used for NetBackup products and features.

About other NetBackup documents

The following documents are published for NetBackup software:

- *NetBackup Backup, Archive, and Restore Getting Started Guide*
  This guide provides basic information about backup and restore procedures for new users of NetBackup. These procedures include how to back up, archive, and restore files, folders or directories, and volumes or partitions that reside on a computer.
- *NetBackup Commands Reference Guide*
  This guide contains detailed information on the commands that run on UNIX systems and Windows systems, including all of the NetBackup man page commands.
- *NetBackup Clustered Master Server Administrator's Guide*
  This guide provides information on how to install and configure a NetBackup master server in a cluster.
- *NetBackup Getting Started Guide*
  This guide provides a high-level description of preinstallation information that is related to this release of NetBackup. The guide also includes descriptions of the NetBackup media kit, the NetBackup Electronic Software Distribution (ESD) images, and the NetBackup license key requirements.
- *NetBackup in Highly Available Environments Guide*
  This guide discusses various methods for using NetBackup in highly available environments and provides guidelines for protecting NetBackup against single points of failure.
- *NetBackup Network Ports Reference Guide*
  This guide provides a reference to NetBackup network ports, including master server and media server ports, client ports, default ports, and other ports that NetBackup uses.
- *NetBackup Security and Encryption Guide*

This guide provides information about on how to secure NetBackup using access control, enhanced authorization and authentication, and encryption.

- *NetBackup Third-party Legal Notices*
  This document contains proprietary notices for the Third-Party Programs and the licenses for the Third-Party Programs, where applicable, that pertain to the Veritas NetBackup and OpsCenter products.