

Symantec NetBackup™ Release Notes

Release 7.7.1

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Symantec Corporation
350 Ellis Street
Mountain View, CA 94043

<http://www.symantec.com>

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Symantec Technical Support maintains support centers globally. Technical Support's primary role is to respond to specific queries about product features and functionality. The Technical Support group also creates content for our online Knowledge Base. The Technical Support group works collaboratively with the other functional areas within Symantec to answer your questions in a timely fashion. For example, the Technical Support group works with Product Engineering and Symantec Security Response to provide alerting services and virus definition updates.

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About Symantec Operations Readiness Tools

Symantec Operations Readiness Tools (SORT) is a robust set of standalone and web-based tools that support Symantec 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.symantec.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 Symantec enterprise products.
- NetBackup Future Platform and Feature Plans
Use this tool to get information about what items Symantec intends to replace with newer and improved functionality. The tool also provides insight about what items Symantec intends to discontinue without replacement. Some of these items include certain NetBackup features, functionality, 3rd-party product integration, Symantec 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

Contacting Technical Support

Customers with a current support agreement may access Technical Support information at the following URL:

www.symantec.com/business/support/

Before contacting Technical Support, make sure you have satisfied the system requirements that are listed in your product documentation. Also, you should be at the computer on which the problem occurred, in case it is necessary to replicate the problem.

When you contact Technical Support, please have the following information available:

- Product release level
- Hardware information
- Available memory, disk space, and NIC information
- Operating system

- Version and patch level
- Network topology
- Router, gateway, and IP address information
- Problem description:
 - Error messages and log files
 - Troubleshooting that was performed before contacting Symantec
 - Recent software configuration changes and network changes

Licensing and registration

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www.symantec.com/business/support/

Customer service

Customer service information is available at the following URL:

www.symantec.com/business/support/

Customer Service is available to assist with non-technical questions, such as the following types of issues:

- Questions regarding product licensing or serialization
- Product registration updates, such as address or name changes
- General product information (features, language availability, local dealers)
- Latest information about product updates and upgrades
- Information about upgrade assurance and support contracts
- Information about the Symantec Buying Programs
- Advice about Symantec's technical support options
- Nontechnical presales questions
- Issues that are related to CD-ROMs, DVDs, or manuals

Support agreement resources

If you want to contact Symantec regarding an existing support agreement, please contact the support agreement administration team for your region as follows:

Asia-Pacific and Japan customercare_apac@symantec.com

Europe, Middle-East, and Africa semea@symantec.com

North America and Latin America supportsolutions@symantec.com

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About NetBackup 7.7.1

This chapter includes the following topics:

- [About the NetBackup 7.7.1 release](#)
- [About NetBackup Late Breaking News](#)
- [About NetBackup third-party legal notices](#)

About the NetBackup 7.7.1 release

Symantec is pleased to announce the release of NetBackup 7.7.1. This release introduces significant features, enhancements, and performance improvements to NetBackup and its associated options. These new features and enhancements improve and expand NetBackup's capability to protect mission-critical data and applications in physical and virtualized environments.

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 18.

About EEBs and release content

NetBackup 7.7.1 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 that have been documented in the form of Titan or Salesforce.com (SFDC) cases. 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 7.7.1 can be found on the Symantec Operations Readiness Tools (SORT) website and in the [NetBackup Emergency Engineering Binary Guide](#).

See “[About Symantec Operations Readiness Tools](#)” on page 87.

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 2.6 is based on NetBackup 7.6. 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.symantec.com/docs/DOC2792>

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.symantec.com/docs/TECH74904>

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

go.symantec.com/nb

About NetBackup third-party legal notices

NetBackup products may contain third-party software for which Symantec 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:

<http://www.symantec.com/about/profile/policies/eulas/>

New features, enhancements, and changes

This chapter includes the following topics:

- [About new enhancements and changes in NetBackup](#)
- [NetBackup 7.7.1 new features and enhancements](#)

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, Symantec routinely backdates platform support to previous versions of NetBackup. You should refer to the NetBackup compatibility lists for the most up-to-date platform support listings.

See [“About the NetBackup 7.7.1 release”](#) on page 15.

See [“About NetBackup compatibility lists and information”](#) on page 102.

NetBackup 7.7.1 new features and enhancements

General new features in NetBackup 7.7.1

Added support for incremental backups

NetBackup 7.7.1 adds support for system state incremental backups. You can also restore the system state using a full backup and one or more incremental backups. This feature helps you to save a lot of backup time and storage space.

However, for GRT backups, the system state incremental backups run as full backups. For more information, refer “Restoring the System State” in the NetBackup Administrator’s Guide, Volume I.”

MSDP support for Red Hat Linux

A 96TB Media Server Deduplication Pool (MSDP) is now supported on SUSE and Red Hat Linux platforms. This support was introduced for SUSE in NetBackup 7.6.1, and for Red hat Linux in NB 7.7.1.

For more information regarding how to configure this MSDP, please refer to the following article: https://support.symantec.com/en_US/article.HOWTO111100.html

NetBackup for NDMP

The following list contains some of the new features and enhancements associated with NetBackup for NDMP starting in NetBackup 7.7.1:

Faster full backups for NetApp Filers using NetBackup Accelerator

NetBackup’s Accelerator option makes NDMP backups for NetApp filers run faster than normal NDMP backups. NetBackup Accelerator increases the speed of full backups by using the filer’s change detection techniques to identify the modifications that occurred since the last backup. After an initial full backup that protects all data from the filer, NetBackup Accelerator backs up only the changed data from the filer to the media server. The media server combines the changed data with any previous backup images to create a new full backup image; if a file or portion of a file is already in storage and has not been changed, the media server uses the copy in storage rather than reading it from the filer to complete the backup image. The end result is a faster NetBackup NDMP backup. More information is available in the following guide:

[NetBackup for NDMP Administrator's Guide](#)

NetBackup for Oracle new features

These features pertain to NetBackup for Oracle database agents.

Database backup shares

This feature enhances the Oracle Intelligent Policy by giving you an option for protecting an Oracle database using a database share on a NetBackup appliance.

Note: Note: This feature requires a NetBackup appliance running software version 2.7.1 or later.

Support for container database and pluggable databases

Oracle 12c has introduced container database (CDB) and pluggable databases (PDB). The Oracle Intelligent Policy allows one or more pluggable databases in the instance for whole database, tablespaces, or datafile backups.

NetBackup for SQL Server

Support for AlwaysOn Availability Groups

NetBackup 7.7.1 adds support for AlwaysOn Availability Groups (AGs) with policies that use the option “Clients for use with batch files.” NetBackup does not support AGs with SQL Server Intelligent Policy at this time.

NetBackup virtualization new features

The following topics discuss new or changes features related to virtualization.

Support for VMware tags

NetBackup supports using VMware tags for virtual machine selection. You use this new feature when you configure VMware Intelligent Policies to protect virtual machines. More information about this feature is available in the Symantec NetBackup for VMware Administrator's Guide.

Added support for generating certificates for VM restores from appliance backups

On the NetBackup Appliance version 2.6.1.2 and later, you can generate a certificate for the following: the NetBackup plug-ins for vCenter or vSphere Web Client, and

for the NetBackup add-in for SCVMM. The certificate authorizes the plug-in or add-in to restore VMs that were backed up by the appliance.

To generate the certificate, see the topic on how to manage certificates in the *Symantec NetBackup™ Appliance Administrator's Guide* release 2.7.1.

NetBackup 7.7.1 Support changes

This section covers new or dropped support in NetBackup 7.7.1.

See [“About NetBackup compatibility lists and information”](#) on page 102.

Several shutdown commands will 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*.

NetBackup Bare Metal Restore

New Bare Metal Restore support proliferation

The following products and services are now supported in NetBackup 7.7.1:

- BMR support for Client/Boot Server for AIX 6.1 TL9
- BMR support for Client/Boot Server for AIX 7.1 TL3

NetBackup for cloud storage

Added cloud storage support for Frankfurt (eu-central-1) region

Beginning with NetBackup 7.7.1, you can configure your Amazon S3 cloud storage in the Frankfurt (eu-central-1) region. However, backups that are targeted to the Frankfurt region will fail if the NetBackup media server is older than 7.7.1. To configure the storage backups in the Frankfurt region, select **NetBackup 7.7.1 media server**.

NetBackup for Exchange

Exchange 2016 support

NetBackup is now compatible with Exchange 2016. NetBackup supports all Exchange Server backup methods, including full, cumulative incremental, and differential backups. You can back up standalone servers and Database Availability Groups (DAGs). Restoring individual mailbox and public folder items is supported with the use of Granular Recovery Technology (GRT).

Operational notes

This chapter includes the following topics:

- [About NetBackup 7.7.1 operational notes](#)
- [NetBackup installation and upgrade operational notes](#)
- [NetBackup administration and general operational notes](#)
- [NetBackup administration interface operational notes](#)
- [NetBackup Accelerator operational notes](#)
- [NetBackup Bare Metal Restore operational notes](#)
- [NetBackup Cloud operational notes](#)
- [NetBackup cluster operational notes](#)
- [NetBackup database and application agent operational notes](#)
- [NetBackup deduplication operational notes](#)
- [Internationalization and localization operational notes](#)
- [NetBackup LiveUpdate operational notes](#)
- [NetBackup Logging Assistant operational notes](#)
- [NetBackup for NDMP operational notes](#)
- [NetBackup OpsCenter operational notes](#)
- [NetBackup Replication Director operational notes](#)
- [NetBackup SAN Client and Fibre Transport notes](#)
- [NetBackup Snapshot Client operational notes](#)

- [NetBackup virtualization operational notes](#)

About NetBackup 7.7.1 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 Symantec 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 Symantec Support website:

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

See “[About related NetBackup documents](#)” on page 105.

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 7.7.1.

Appliance host name requires manual update after initial configuration to ensure cloud service functionality

When you assign the appliance host name during the initial configuration, the `nbcssc` service file (NetBackup Cloud Storage Service Container) is not updated and retains the default **nb-appliance** host name. This problem prevents cloud service functionality and the ability to configure cloud storage. To correct this problem, you must change the appliance host name in the `nbcssc` service file. For appliances that are configured as media servers, you must first create a security certificate before you change the appliance host name in the `nbcssc` service file. The following describes how to make these changes to enable cloud service functionality:

- Log on to the master server appliance as a NetBackup CLI Administrator.

- On the master server appliance, run the following command to check whether any `nbcssc` processes are running in the background:

```
ps -eaf | grep nbcssc
```

If any `nbcssc` processes are running in the background, stop every instance by entering the following command:

```
kill -9 <nbcssc pid>
```

- On the master server appliance, run the following command to enter the host name:

```
nbcssc -s -a NetBackup -f -m &lt;master_name
```

- For the appliances that are configured as a media server, perform the following commands from the same master server appliance in the order as shown:

```
bpnbaz -provisioncert media_server_name
```

```
nbcssc -s -a NetBackup -f -m &lt;master_name
```

No appliance upgrade path to NetBackup 7.7 until Appliance 2.7.1 patch is released

At the General Availability of NetBackup 7.7, the NetBackup Appliance has no upgrade path to support NetBackup 7.7 clients or media servers. If you currently have a NetBackup Appliance in your environment, Symantec recommends the following workarounds until the NetBackup Appliance 2.7.1 patch is released:

- Do not upgrade a client to NetBackup 7.7 if the client's media server is an appliance.
- Do not upgrade a media server to NetBackup 7.7 if the master server is an appliance.

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. Symantec 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

HP 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 executed 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.

Starting with version 7.6.1, NetBackup installation aborts if you try to install into an HP Itanium SRP container (private file system, shared file system, or workload). If you install into the global container, a parameter is added to all `swremove` and `swinstall` commands to install only to the global view.

A Java error can occur on AIX 7.1

On AIX 7.1, the following message may appear in the installer:

```
WARNING: Installation of Java LiveUpdate agent failed.  
Refer to file /tmp/JLU-Log/JavaLiveUpdate-Install.log on bmraix57 for more information.
```

If you encounter the message, run the following Java command and verify the error output:

```
# /usr/opensv/java/jre/bin/java  
Error: Port Library failed to initialize: -125  
Error: Could not create the Java Virtual Machine.  
Error: A fatal exception has occurred. Program will exit.
```

If this error output is generated, refer to the following IBM support article to resolve the issue:

<http://www-01.ibm.com/support/docview.wss?uid=swg1IV12285>

Note: Other errors can cause the warning message to appear. The output from the Java command can determine if the fix from IBM can resolve the issue.

Character restrictions for database server name

An upgrade to SQL Anywhere 11.0.1 was made in NetBackup 7.0. However, there is a restriction within that version that requires the database server name to be less or equal to 31 characters. NetBackup has been modified to change the server name, from `VERITAS_NB_hostname.domain_name` to `NB_hostname` in `/usr/opensv/db/bin/servername`. NetBackup also trims the name to 31 characters if necessary.

Considerations for Oracle backup policies when upgrading from NetBackup 7.1 and earlier

For upgrades from NetBackup 7.1 or earlier to NetBackup 7.5 or later, special care may be required for the Oracle backup policies before the upgrade is performed.

Consideration is required if an Oracle policy uses snapshots and directs the backup to a storage lifecycle policy: The SLP processing for all of the images that are associated with that policy must be brought to a complete state before the upgrade.

See the *NetBackup Upgrade Guide* for more information.

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 7.7.1.

Temporary files are created frequently after the size-based log pruning is enabled

On a Windows NetBackup host, if you have enabled the 'Keep logs up to GB' option, the following temporary files are created every 10 minutes in the C:\Temp directory:

- util_stdout_*
- util_stdin_*
- util_stdin_*

Note: The size of the `util_stdin_*` and `util_stderr_*` files is 0 bytes. The size of the `util_stdout_*` file is around 41 bytes.

The **Keep logs up to GB** option specifies the size of the NetBackup logs that you want to retain. When the NetBackup log size grows to this value, the older logs are deleted.

To select the **Keep logs up to GB** option, do the following:

1. In the NetBackup Administration Console, select **NetBackup Management > Host Properties**.
2. Double-click **Master Servers, Media Servers, or Clients** and select a host.
3. Open the **Logging** properties and select **Keep logs up to GB**.

To work around this issue, you need to periodically delete the following temporary files from the C:\Temp directory:

- util_stdout_*
- util_stdin_*
- util_stdin_*

Export file shows incorrect properties while exporting properties of multiple hosts with different versions

While exporting properties of multiple NetBackup hosts with different versions, the export file may show properties that are not applicable for a particular NetBackup version.

Consider the following scenario: You have exported host properties of multiple NetBackup Master Servers with versions 7.5, 7.6.1, and 7.7. The export file may show the NetBackup 7.7-specific property 'Logging for critical processes: YES' also for the 7.6.1 and 7.5 master servers.

Workaround:

To export properties of NetBackup hosts with multiple versions, you need to select the hosts of the same NetBackup version while exporting and create a separate export file for each NetBackup version.

To export host properties, do the following: In the NetBackup Administration Console, expand **NetBackup Management > Host Properties > Master Servers, Media Servers, or Clients**. To select multiple hosts, hold down the SHIFT or CTRL key, select hosts, right-click and click Export.

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`.

Java Windows Administration console throws status code 521 on Windows Vista/Server 2008 and later

Beginning with Windows Vista/Server 2008 and up, you might encounter status code 521 (NB-Java Configuration file *file_name* does not exist) when you run the Java Windows Administration Console. This error occurs in User Access Control (UAC)-enabled environments because of inadequate permissions. If you run the Java Windows Administration Console or its installer (`Setup.exe`) while UAC is enabled, a warning and a prompt to disable UAC is displayed.

To work around this issue, Symantec recommends that you disable UAC before you run the Java Windows Administration Console. If UAC is not disabled adequately, non-built-in administrators are required to launch the Java Windows Administration Console by choosing the **Run as administrator** option.

Although a warning is displayed, you can still run the Java Windows Administration Console installer in a UAC-enabled environment. The error only occurs when you run the console itself.

Note: Starting with Windows 7/Server 2008 R2, UAC cannot be adequately disabled through the use of the slider bar. To disable UAC on these newer Windows platforms, you have to modify a registry key.

Radio buttons may render incorrectly in the NetBackup Administration Console when using Remote Desktop Connection (RDC) on Mac OS X

A rendering issue that affects radio button controls in the NetBackup Administration Console may occur when you use Remote Desktop Connection (RDC) on Mac OS X.

The issue can occur in, but may not be limited to, the **Instance** tab when you create an Oracle Intelligent Policy, and under **Applications Node** in the **Oracle Instance Credentials** dialog.

To work around this issue, disconnect and then re-connect again through RDC.

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

The following two 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.

Intermittent issues with X forwarding of NetBackup Java Administration Console

Intermittent issues may occur with X forwarding of the NetBackup Java 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-Java Administration Console

Reduced functionality during the initialization of the NetBackup-Java Administration Console.

Reduced functionality (only the Backup, Archive, and Restore component available) or **Cannot Connect** errors during initialization of the NetBackup-Java Administration Console occurs if one or more of the NetBackup services or daemons on the host that is specified in the logon dialog is not running.

Memory requirements to run the NetBackup Administration Console

Memory requirements to run the NetBackup Administration Console.

Symantec recommends that you run the console (`jnbSA`, `jbpSA`, or the Remote Administration Console) on a computer with at least 1 gigabyte of physical memory and 256 megabytes of memory available to the application.

Performance issues may occur with NetBackup 7.x master servers on UltraSPARC T-series or SPARC T3 architecture

You might experience performance issues if you use UltraSPARC T-series or SPARC T3 architecture as a NetBackup master server in large environments. These issues include the following problems:

- No response from storage lifecycle policy (SLP) requests (`nbstlutil` stops responding)
- Delays accessing database contents
- Delays with catalog verify and validate queries
This issue occurs when pending database queries take longer than CORBA timeout values.

Additional issues have been reported as well. More information is available:

<http://www.symantec.com/docs/TECH204332>

A multistream backup may fail if DFSR is active on the client

A Windows multistream backup of all locals disks may fail if Microsoft Distributed File System Replication (DFSR) is active on the client.

Workaround: Disable multistreaming for the Windows clients that have DFSR enabled.

Issues with SUSE 11 running on kernel versions later than 2.6

Live browse and backup problems can occur on SUSE 11 operating systems that have a kernel version later than 2.6. The issues occur because the `nbfirescan` process in NetBackup 7.7.1 does not support kernel versions later than 2.6.

To work around this issue, revert to kernel version 2.6 and perform the snapshot.

Certain file names in the Windows system drive root directory prevent NetBackup from functioning properly

If any file named `program` exists in the root directory of the Windows system drive (such as `C:\`), NetBackup does not function properly. Any such file must be removed

or renamed before NetBackup can execute command lines and process creation options.

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 7.7.1.

For more information about the specific NetBackup administration interfaces, refer to the *NetBackup Administrator's Guide, Volume 1*. 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 Symantec Support website.

See [“About NetBackup compatibility lists and information”](#) on page 102.

- NetBackup Administration Console
- Remote Administration Console
- Character-based, menu interfaces for device management
- Command line

Logs are deleted even though the Keep logs up to GB option is enabled

Logging Assistant is a helpful tool that you can use to significantly shorten the time required to set up, collect, and upload debug logs and other information to Symantec Technical Support.

While the Logging Assistant tool collects NetBackup logs, the total NetBackup log size may increase. If you have enabled the new **Keep logs up to GB** option on the **Host Properties > Logging** dialog box and the total NetBackup log size reaches its maximum capacity, logs are deleted. Logs that you want to retain may also be deleted. To avoid the deletion of logs that you want to retain, you must disable the **Keep logs up to GB** option while you collect logs using Logging Assistant. Alternatively, you can set the **Keep logs up to GB** option to a value higher than the current value, so that the important logs are not deleted before the log collection is complete.

Java 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 Java 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 Java user interface may fail to start in HP-UX 11.31 environments

The NetBackup Java user interface may not start in environments that run the HP-UX 11.31 operating system. To start properly, the Java user interface requires up-to-date patches to the HP-UX 11.31 operating system.

Workaround: Before you launch the NetBackup Java user interface, you must install the HP-UX 11.31 patches that are required for Java™ 8.0 for the Quality Pack that you have installed on your system. For more information, see the following HP site:

<ftp://ftp.hp.com/pub/softlib/hpuxjava-patchinfo/index.html>

NetBackup Accelerator operational notes

NetBackup Accelerator increases the speed of full backups. The increase in speed is made possible by change detection techniques on the client. The client uses the change detection techniques and the client's current file system to identify the changes that occurred since the last backup. This topic contains some of the operational notes and known issues that are associated with NetBackup Accelerator in version 7.7.1.

Accelerator version requirements for master, media, client, and media servers

NetBackup Accelerator requires master servers, media servers, and client servers to be at NetBackup 7.5 or higher. NetBackup appliance media servers require NetBackup Appliance 2.5 or higher for Accelerator support.

Accelerator and Replication Director support for virtualized servers cannot be configured together

NetBackup Accelerator and Replication Director support for virtualized servers cannot be configured together. The Block Level incremental backup settings do not currently allow the combination.

The bpverify operation can fail with status code 191 for certain NetBackup Accelerator images

If you use the `bpverify` command to verify an Accelerator image that was taken using NetBackup 7.5.0.4 or earlier, then the verify operation can fail with a status code 191. The failure can occur because the total size of the image in media may not match the size of the image that was recorded in the catalog metadata.

This issue specifically pertains to an incorrect image size in the catalog metadata. It does not mean that the image is corrupt or stop you from restoring the image. The following error can appear in the logs:

```
/usr/openv/netbackup/logs/bpdm/112112_00011.log ---
02:32:36.278 [28530] <2> verify_image_fragmentsizes:
validating abcd12.xxxx.xxx.symantec.com:
wxyz.xxx.xxx.symantec.com_1352283783_C1_F1 imo_size=6130472960
613...
(Kbytes=5986790 remainder=512 diff=-512)

02:32:36.280 [28530] <32> verify_image_fragmentsizes:
The size of backup id wxyz.xxx.xxx.symantec.com_1352283783
fragment 1 for copy 1 does not match the size found on
media (6130473472 6130472960)
```

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 7.7.1.

Other file systems on ZFS volumes are not supported

The other file systems that are on a ZFS volume are not supported. If you create a file system over ZFS volumes, BMR does not support a backup and restore of those file systems over the ZFS volumes.

If the boot server has a base installation of Solaris 10 update 11, the creation of SRTs can fail

If the boot server has a base installation of Solaris 10 update 11, the creation of Bare Metal Restore (BMR) shared resource trees (SRTs) that have a lower OS update can fail due to a kernel patch ID check. The issue occurs because Solaris 10 update 11 has a kernel patch ID that is lower than the ID for previous Solaris 10 updates.

Workaround: Update the kernel patch on the Solaris 10 update 11 BMR boot server. You can update the kernel by applying any of the provided kernel bug fix patches from Oracle Solaris. The kernel bug fix patches to Solaris 10 update 11 correct this issue by modifying the patch number to be higher than the other patches.

A devfsadmd error may occur on Solaris 11 and newer

During a BMR restore on Solaris 11 and newer, the following error message may be displayed:

```
devfsadmd not responding. /dev may not be correct
```

During a BMR restore, the service that is related to the `devfsadmd` daemon is stopped temporarily to manipulate the `/dev` and `/devices` links. As a result, when the operating system wants to do internal communication with the `devfsadmd` daemon it generates the error message.

This message is not for BMR and it does not have any effect on a BMR restore or on the overall system. The message can be ignored. Once the system boots up after the BMR restore, the `devfsadmd` daemon restarts and the message does not display again.

Many services on Solaris 11 print warning messages during a system boot and during BMR first boot

After a BMR restore during first boot on Solaris 11 and newer, error messages that are related to several services are seen.

Many services (such as `sendmail`) print warning messages during a system boot and during BMR first boot, such as:

```
sendmail/filesys_update failed
```

These messages are also seen during normal operating system installation on the system and therefore can be ignored.

Another set of messages that is seen on the console during BMR first boot are related to `zpool` and the Solaris Zones reconfiguration. All of these messages are harmless and have no effect on System Restore, and the `zpool`s and the zones coming to the correct state

These messages come from SMF services and have no effect on system recovery.

Solaris Zone recovery on Solaris 11 and newer takes time to reconfigure after a BMR restore during first boot

During first boot after a Bare Metal Restore (BMR) restore operation, BMR reconfigures the zones using detach-attach commands. These commands may take some time to run if there are a large number of zones that need to be configured. After the BMR first boot command execution completes, the `zpool`, zones, and ZFS configurations may take some time to settle down with the new configuration.

Wait about 10 minutes after first boot (more depending on the number of zones) so that the system returns to the correct configuration state. You should not restart the system or log into any zones until that time to ensure a complete recovery.

A Solaris BMR restore operation fails if the text-installer package is not present in the customized AI ISO

A Solaris Bare Metal Restore (BMR) restore operation fails if the text-installer package is not present in the customized Automated Installer (AI) ISO that was created using the distribution constructor.

For shared resource tree (SRT) creation, if you use a customized AI ISO that was created using distribution constructor, then the text-installer package should not be removed from the AI manifest file.

For Solaris x86, this text-installer package is mandatory because the BMR restore makes use of a file from that package.

The OS takes time for configuration after a client to virtual machine conversion

This issue occurs on Windows when the Bare Metal Restore (BMR) client to virtual machine backup conversion occurs and the converted VM boots up for the first time. During this time, Windows automatically configures OS settings for the new hardware. This auto-configuration activity requires approximately 1-4 minutes.

You should not restart the OS on the VM until after waiting for some time until Windows configuration is complete. This activity can be seen in a Windows dialog or status pane.

BMR restores of encrypted file systems on RHEL are restored without encryption

If a backed-up file system is encrypted for Red Hat Enterprise Linux (RHEL) and then restored with the BMR option, the existing encryption is removed.

When the `/etc/mke2fs.conf` file is restored, the restore task is shown as partially completed in the Activity Monitor

When the `/etc/mke2fs.conf` file is restored, the restore task is shown as partially completed in the **Activity Monitor**. The issue occurs on Red Hat Enterprise Linux (RHEL) 6 Update 2 and later even though the Bare Metal Restore (BMR) recovery of the client completes successfully. The issue occurs because the security properties contain some incorrect settings for the `/etc/mke2fs.conf` file in a BMR environment after the file is restored.

ZFS temporary mount can fail during a BMR restore

During a Bare Metal Restore (BMR) restore, the Zeta file system (ZFS) temporary mount fails. This issue occurs if any ZFS is not mounted or the `canmount` value is set to `OFF` during a backup.

To restrict the disk or the disk pool, edit the BMR configurations. The edits ensure that the disk is not overwritten and the data that it contains is not erased during the restore process.

For more information on how to edit the configurations, refer to the following sections of the *Bare Metal Restore Administrator's Guide*:

- Managing Clients and Configurations
- Client Configuration Properties

Issues may occur after a BMR restore is performed on RHEL 6

After the completion of a Bare Metal Restore (BMR) Linux restore task, the system may display "Kernel Panic" when it looks for a grub menu. The system may also go into maintenance mode during the first restart. These issues occur because the UDEV daemon dynamically detects devices, causing discrepancies with disk names and ordering in various configuration files across restarts.

If you encounter this issue, please contact Symantec Support and have your support representative reference the following tech notes: TECH201332 and TECH179048.

BMR fails to create a media SRT when a Basic Server installation is performed on an RHEL system

A Basic Server installation of Bare Metal Restore (BMR) on a Red Hat Enterprise Linux (RHEL) system fails to create a media shared resource tree (SRT). This issue occurs because the package that contains a command that is used for ISO creation is missing. This issue does not occur with a normal Desktop installation on RHEL clients.

To resolve this issue, you must manually install the missing package. The package should resemble a file similar to `genisoimage-1.1.9-11.el6.x86_64`. After this file is installed, you can use the `bmrstadm` command to create the media SRT.

The system relabels all of the file systems after a BMR restore during the first startup

After a BMR restore and during the first startup, the system relabels all of the file systems and then the Linux operating system restarts the computer again.

That is a necessary process that is related to SELinux:

- The labels are how security contexts are associated with files and are stored as part of a file's extended attributes. If the system is started with SELinux disabled these labels can be inadvertently removed or become out of sync.
- That usually occurs only when you label a file system for SELinux for the first time. During a BMR restore, and as file systems are newly created, it is the first time that the file systems are labeled during the first startup.

The /boot partition must be on a separate partition for a multiple device-based OS configuration

If the client is configured as root (/) under a multi-device, then for a successful BMR restore, the /boot partition must be on a separate partition. That means, if / and /boot are on the same partition, they are not supported for a multiple device-based OS configuration.

Multiple error messages might be displayed during the first boot after the restoration of a client with ZFS storage pools

During the first boot after the restoration of a client with ZFS storage pools, multiple error messages might be displayed. The following is an example:

```
SUNW-MSG-ID: ZFS-8000-D3, TYPE: Fault, VER: 1, SEVERITY: Major
EVENT-TIME: Mon May 23 13:10:09 CDT 2011
PLATFORM: SUNW,Sun-Fire-V215, CSN: -, HOSTNAME: bmrsole101.vxindia.veritas.com
SOURCE: zfs-diagnosis, REV: 1.0
EVENT-ID: c257eb38-495e-cdb6-9a52-a4d9c2ae38be
DESC: A ZFS device failed. Refer to http://sun.com/msg/ZFS-8000-D3 for more information.
AUTO-RESPONSE: No automated response will occur.
IMPACT: Fault tolerance of the pool may be compromised.
REC-ACTION: Run 'zpool status -x' and replace the bad device.
```

For each disk in the computer you may see the error message. However, when you log on and run the `zpool status -x` command, you see the following message:

```
all pools are healthy
```

That is because of the ZFS import operation that is done during the first boot sequence. Bare Metal Restore (BMR) restores storage pools and contents in the BMR restoration environment and later imports to the client environment during first boot. That can cause an error message or a warning message during the first boot operation.

These messages only occur during the first boot operation and you can safely ignore them.

BMR may not format or clear the ZFS metadata

If you opt for the creation of a ZFS storage pool on small number of disks during a dissimilar disk restore (DDR), Bare Metal Restore (BMR) does not format or clear the ZFS metadata on the disks that remain. Because of that, if you attempt to use those disks to create other storage pools, you may see an error message that states a disk is in use under the ZFS storage pool.

To work around this issue, use the `-f` option to create a new storage pool on those disks.

Coexistence of two BMR-supported multi-path solutions can cause issues

Coexistence of two Bare Metal Restore (BMR)-supported multi-path solutions (EMC PowerPath and Linux native multi-path) with both actively configured on a client can cause issues and is not supported by BMR.

A BMR issue can result if a multi-device that is configured over a SAN disk using the EMC PowerPath name, and the SAN disk is under both EMC PowerPath and the Linux Native multi-path. In addition, this configuration is unsupported. However, if the same multi-device is configured over a SAN disk using the Linux native multi-path name then it works with BMR.

A BMR restore may fail during a Linux DDR scenario between internal disk and SAN disk

A Bare Metal Restore (BMR) restore may fail during a Linux dissimilar disk restore (DDR) scenario from internal disk to SAN disk and vice versa.

BMR does not consider the disk ordering in the BIOS. For SAN disk to an internal system disk, the restore may not work as expected because of the disk ordering changes in the BIOS. This issue may be more common in GRUB installations.

If you remove SAN disks before restoration, then the restore may work properly with the existing BIOS ordering.

BMR backups may fail on Citrix XenCenter virtualization due to disk naming

Bare Metal Restore (BMR) can only support disk naming conventions such as `hdX`, `sdX`, `cXDn`, and so forth.

BMR backups can fail on Citrix XenCenter virtualization for the following reasons:

- BMR does not recognize disk names such as `xvdX`, which are newly introduced on Citrix XenCenter virtualization. This issue is due to the Xen para-virtual drivers that are introduced in this type of virtual environment.
- For modern versions of BMR that Linux systems such as SLES 11 SP1 support, the client computers show `hda` and `sda` disk naming conventions at the same time. BMR does not support this behavior.

To work around this issue, make sure that you use the **Other** media install because it is the only template that BMR supports for a Citrix XenCenter virtual machine. Do not use the systems that BMR does not support. For example, BMR does not support SLES 11 SP1 and RHEL6.1 and onwards on Citrix XenCenter virtualization.

A NetBackup system state backup can fail on certain Windows Server 2008 R2 systems with SFW

A NetBackup system state backup can fail on certain Windows Server 2008 R2 systems with Storage Foundation for Windows (SFW) 5.1 SP1. This issue occurred on a system where the System Reserved partition did not have an assigned drive letter. The following SFW 5.1 SP1 hot fix resolves the issue:

sfw-Hotfix_5_1_10064_584_2496270

<https://sort.symantec.com/patch/detail/5438>

This issue is also resolved in SFW 5.1 SP2 CP7.

Specifying the short name of the client to protect with Auto Image Replication and BMR

You must specify the short name of the client when you install NetBackup client packages on the computer that you want to protect with Auto Image Replication and Bare Metal Restore (BMR). You must also specify the short name of the client in the backup policy that you created on the primary domain. That policy backs up all of the client's local drives and gathers the client configuration that BMR requires. The DNS of the secondary or the tertiary domain cannot resolve the fully qualified name during a BMR recovery of that client at the disaster recovery site.

A restore task may remain in a finalized state in the disaster recovery domain even after the client restores successfully

In the case of a dissimilar domain restore where the primary and the disaster recovery domain names are different, the restore task remains in a finalized state in the disaster recovery domain even after the client restores successfully. The Bare Metal Restore (BMR) restore is successful in the disaster recovery domain and only the restore task update fails.

The update fails because of an invalid network configuration in the client. This behavior is expected because the restore does not modify the configuration files that are related to the DNS of the disaster recovery domain.

You must manually modify the following network configuration files to back up and restore the client in a disaster recovery domain:

- Solaris:
 - /etc/hosts
 - /etc/resolv.conf
 - /etc/nodename
 - /etc/bge0.hostname
- AIX:
 - Use `smitty` to modify the network configuration.
- HP-UX:
 - Use the HP System Management home page (SMH) to modify network configuration.
- Linux:
 - /etc/hosts
 - /etc/resolv.conf
 - /etc/sysconfig/network-scripts/ifcfg-eth*
- Windows:
 - See the following URLs to modify the domain name in Windows:
 - <http://windows.microsoft.com/en-US/windows7/Connect-your-computer-to-a-domain>
 - <http://support.microsoft.com/kb/295017>

Patch required to create an SRT on HP-UX 11.31 IA64

The PHCO_40961 patch is required to create a Bare Metal Restore (BMR) shared resource tree (SRT) on an HP-UX11.31 IA64 platform.

The same patch is required to create a BMR SRT on an HP-UX 11.31 IA64 platform with Veritas Storage Foundation packages (VxVM, VxFS).

IPv6 support for BMR

Bare Metal Restore (BMR) provides protection to clients that can communicate over an IPv4-only network, an IPv6-only network, or a dual stack IPv4-IPv6 network. BMR recovery is yet supported only over IPv4 network as many NW boot protocols are not supported over IPv6 channel. In addition, when you configure a BMR database with the `bmrsetupmaster` command, the BMR master server IPv4 address needs to be enabled and able to resolve with the master server host name. Once `bmrsetupmaster` runs successfully, you can bring the IPv4 address down if you only want to use the IPv6 address.

During the BMR restore time, the master server and the media servers need to have IPv4 addresses up.

Example

A `bmrsetupmaster` may fail while BMR resolves its master's IPv4 address during its record creation into BMR database. As the BMR database creation fails, the BMR master does not function.

To resolve this issue, make sure an IPv4-based IP of the master server is enabled and can be resolved using the NetBackup master server name before you run the `bmrsetupmaster` command.

Note, the BMR backup is supported on IPv6 network channel, however, the BMR restore works only with IPv4 channel.

A failure may occur during a VxFS7-based file creation

During a Bare Metal Restore (BMR) restore, a failure can occur during a VxFS7-based file creation process. To work around this issue, use `bmrstrtadm` to patch VxFS version with version 5.0 to edit the SRT. Attempt to restore again and start a client restore.

Automatic boot may fail for HP-UX after a restore

Sometimes after a Bare Metal Restore (BMR) restore and during the first boot of the client computer, the operating system automatic boot may fail. The HP BIOS then fails to identify the boot drive.

To resolve this issue, use the **HPBIOS > EFI** shell and select a hard drive that you can boot from (for example, `fs0:`) by looking at the device mapping table.

Change the directory (`cd`) to `\EFI\HPUX\` and run **HP-UX** to boot the operating system manually.

Note: Refer to the HP EFI manuals for more details on how to handle the EFI shell.

Once the client computer comes up, log on to the computer as `root` and run the following command to enable auto-booting.

```
setboot -p <hardware_path_of_boot_harddrive>
```

Prepare to Restore may not work for a Solaris client

A Bare Metal Restore (BMR) prepare-to-restore of a Solaris client computer may not work because the BMR boot server failed to resolve the IPv4 address of the client computer.

To work around this issue, perform the following:

- Make sure the IPv4 address, `client_host_name` mapping entry exists first in `/etc/hosts` before the IPv6 mapping entry.

On the Solaris BMR boot server, if the `/etc/hosts` directory contains the IPv6 address `client_host_name` entry first, then the BMR boot server fails to identify client IPv4 address.

- Run **Prepare to Restore** again.

The first boot after a successful restore may fail on a Linux client if the disk order in the BIOS is not correct

The first boot after a successful restore may fail on a Linux client if the disk order in the BIOS is not the following:

Primary Master > Primary Slave > Secondary Master > Secondary Slave

For example, the order of the disks on a live client might be the following:

- `/dev/sdd (hd0) [Secondary Slave]`
- `/dev/sda (hd1) [Primary Master]`
- `/dev/sdb (hd2) [Primary Slave]`
- `/dev/sdc (hd3) [Secondary Master]`

However, the disk order in the restore environment may look like the following:

- `/dev/sda (hd0)`
- `/dev/sdb (hd1)`
- `/dev/sdc (hd2)`
- `/dev/sdd (hd3)`

Thus, during a restore, boot loader may be installed on `/dev/sda`, assuming it to be `hd0`. Then during the first boot, `/dev/sdd` would be mapped to `hd0` because of the disk order that is specified in the BIOS and cause the first boot to fail.

To avoid this issue, set the disk order in the BIOS to reflect **Primary Master > Primary Slave > Secondary Master > Secondary Slave** before you attempt a restore.

Restoring back-level clients

You can use a shared resource tree (SRT) that contains a version of the NetBackup client of 7.x or higher to restore back-level NetBackup clients.

NetBackup Cloud operational notes

NetBackup Cloud Storage enables you to back up and restore data from cloud Storage as a Service (STaaS) vendors. NetBackup Cloud Storage is integrated with Symantec OpenStorage. This topic contains some of the operational notes and known issues that are associated with the NetBackup Cloud in NetBackup 7.7.1.

Buckets should not be shared between heterogeneous storage servers

Buckets should not be shared within multiple cloud storage servers even if they are of different storage server types.

Unable to create cloud storage server, disk pool, and storage unit in French-language Windows

If you have installed NetBackup on a French-language Windows operating system, you cannot create a cloud storage server and its associated disk pool and storage unit using the NetBackup Administration Console.

You need to configure the cloud storage server and the associated disk pool and storage unit using NetBackup CLI commands.

For a complete description of the necessary commands, please refer to the *NetBackup Commands Reference Guide*.

Verizon cloud storage servers do not support buckets created in NetBackup

When you configure a disk pool for Verizon cloud storage server, the **Add Volume** option is available to add buckets or volumes. However, Verizon does not support the buckets that are created in NetBackup. For more details about creating buckets through the Verizon portal, contact your Verizon cloud provider.

Synthetic (TIR) backups fail with status code 87 in Hitachi cloud configurations with encryption enabled

In the case of Hitachi cloud configurations, the true image restore (TIR) or synthetic backups do not work if you have enabled the encryption option. To successfully run the TIR or synthetic backups, you need to enable the versioning option for buckets (or namespaces) through the Hitachi cloud portal. For more details on how to enable the versioning option, contact Hitachi cloud provider.

Master server installation on platforms not supported by NetBackup Cloud may result in cloud storage server configuration issues

If the master server is installed on a platform that NetBackup Cloud does not support (such as Solaris x86 or Windows 2008), you may observe the following issues during cloud storage server configuration.

For the operating systems that NetBackup supports for cloud storage, see the NetBackup operating system compatibility list available through the following URL:

<http://www.netbackup.com/compatibility>

- Backup, restores, storage server properties settings, and other operations on existing Amazon S3AT&T, and Rackspace cloud storage servers using NetBackup 7.7 media server are not successful.
However, all NetBackup backups, restores, storage server properties settings, and other operations on the existing Amazon S3, AT&T, and Rackspace cloud storage servers are successful using media servers with the version older than NetBackup 7.7.
- Cloud storage server configuration for any cloud provider is not successful.

In the case of Solaris x86 master server, carry out the following steps to work around this problem:

- Identify one of the NetBackup 7.7 cloud supported media servers as *cloud_master_server_host*.
- Note that going forward, this media server does not hold the master copy of the `CloudProvider.xml` file (contains details of all supported cloud storage providers), which all media servers require while configuring the cloud storage and running operations such as backup, restore, and so on.
- Run the following command on all NetBackup 7.7 cloud supported media servers including the one that is selected as *cloud_master_host*:

```
nbcssc-t-a NetBackup
nbcssc-s-a NetBackup-mcloud_master_host-f
```

- Make sure that the values of `CSSC_PORT` and `CSSC_IS_SECURE` as mentioned in `cloudstore.conf` file from *cloud_master_host* are copied as `CSSC_MASTER_PORT` and `CSSC_MASTER_IS_SECURE` in `cloudstore.conf` file on all other NetBackup 7.7 cloud supported media servers.
- Note that once you select *cloud_master_host*, you should not change the name again to point to another media server. If in certain scenarios, you need to do so, you should contact Symantec Technical Support.

Caution: There is no workaround for Windows 2008 to enable the support for cloud storage. You must choose a master server that has the supported cloud platform.

Network connection issues may occur when the Rackspace plug-in is used on a host running Windows Server 2008 R2 with IPv6 enabled

When the Rackspace plug-in is used on a host running Windows Server 2008 R2 with IPv6 enabled, NetBackup may experience network connection issues. Symantec recommends that you disable IPv6 on Windows Server 2008 R2 hosts that use the Rackspace plug-in.

NetBackup cluster operational notes

Clusters provide high availability of applications and data to users. In a cluster, two or more servers (called nodes) are linked in a network. These servers run the cluster software that allows each node access to the shared disks. This topic contains some of the operational notes and known issues that are associated with cluster technologies in NetBackup 7.7.1.

A virtual name cannot resolve to both IPv4 and IPv6 addresses in clustered environments

If you have a clustered environment, the clustered environment defines a highly available resource with a virtual name that is only a single address. You can make that address an IPv4 address that is highly available or an IPv6 address is highly available. You cannot have a virtual name that resolves to both.

NetBackup cluster installation notes

Log on to server using virtual name

When you launch the NetBackup Administration Console, you should log into the server using the virtual name that is associated with NetBackup.

NetBackup Access Control can be configured in a clustered server environment

NetBackup Access Control (NBAC) can be configured in a clustered server environment. For more information, refer to the following tech note on the Symantec Support website:

<http://www.symantec.com/docs/TECH51483>

Increase resource offline timeout after installing or upgrading on non-Solaris UNIX clusters

After you install or upgrade NetBackup on UNIX clusters other than Solaris Cluster, you should increase the NetBackup resource offline timeout to at least 600 seconds.

Normal error messages when upgrading clustered servers to 7.0

When you upgrade clustered NetBackup servers to version 7.0, you may encounter Windows Event Log messages that indicate the Sybase service (SQLANYs) failed to start. These messages are generated in a short period of time – normally a window of two to three seconds. These messages coincide with the cluster configuration portion of the upgrade. You should expect these messages and know that they do not reflect a problem with the upgrade.

NetBackup resource group tuning parameters for Solaris Cluster

When you install or upgrade NetBackup on Solaris Clusters, make the following changes to the NetBackup resource group tuning parameters to ensure a successful failover:

- Increase the `STOP_TIMEOUT` parameter from the default of 300 seconds to at least 600 seconds.
- Set the `pmf Retry_count` parameter to 0.

To accomplish these changes, use the following commands:

- ```
scrgadm -c -j scnb-hars -y Retry_count=0
```



- # scrgadm -c -j scnb-hars -y STOP\_TIMEOUT=600
- # scswitch -n -j scnb-hars
- # scswitch -e -j scnb-hars

---

**Note:** Running these commands causes shutdown and restart of NetBackup.

---

## 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 7.7.1.

### NetBackup for DB2 operational notes

NetBackup for DB2 integrates the database backup and recovery capabilities of DB2 with the backup and the recovery management capabilities of NetBackup. This topic contains some of the operational notes and known issues that are associated with NetBackup for DB2 in NetBackup 7.7.1.

#### **ROLLFORWARD operation may fail for DB2 version 10 and newer if bprestore log directory does not exist**

If the NetBackup `bprestore` log directory does not exist, a `ROLLFORWARD` operation may fail for DB2 version 10 and newer.

If you use the `USEREXIT` program to protect the DB2 archive logs and attempt to perform a restore and a `ROLLFORWARD` operation, the roll-forward may fail.

Workaround: Manually create the NetBackup `bprestore` log directory (`/usr/opensv/netbackup/logs/bprestore`).

### NetBackup for Exchange operational notes

NetBackup for Exchange Server extends the capabilities of NetBackup to include online backups and restores of Exchange databases. This topic contains some of the operational notes and known issues that are associated with NetBackup for Exchange in NetBackup 7.7.1.

## **The status of a DAG backup can be empty if the restore is initiated from a node in the DAG**

When you restore databases or granular items of a database availability group (DAG) backup, the restore status may appear empty from the Backup, Archive, and Restore (BAR) interface. The status is empty if the restore is initiated from a node in the DAG. You should initiate the restore from the active DAG node or a NetBackup server to properly see the activity status.

## **User-initiated backups in a DAG environment fail if initiated from a node in the DAG that is not currently active**

User-initiated backups in a database availability group (DAG) environment fail if initiated from a node in the DAG that is not currently active for the virtual DAG name.

Workaround: Initiate the user backup from the active DAG node, or manually start the backup from the NetBackup master to properly start the backup.

## **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 7.7.1.

### **Granular restores skip versioned documents or files that are checked out**

With SharePoint 2010 and SharePoint 2013, when a document or file is enabled for versioning and is checked out at the time of backup, granular restore of such documents or files is skipped.

To work around this issue, restore the SharePoint web application content database. For more information, refer to the *NetBackup for Microsoft SharePoint Server Administrator's Guide*.

### **Modified system files or ghosted files are not cataloged or restored during a site collection restore**

Modified system files or modified ghosted files are neither cataloged nor restored during a site collection restore. This issue is observed in SharePoint 2013.

To work around this issue, restore the SharePoint web application content database. For more information, refer to the *NetBackup for Microsoft SharePoint Server Administrator's Guide*.

## Restored wiki pages may not be correct

When you use Granular Recovery Technology (GRT) to restore a page in the wiki site, the restored content may be incorrect.

To work around this issue, restore the SharePoint web application content database. For more information, refer to the *NetBackup for Microsoft SharePoint Server Administrator's Guide*.

## A SharePoint GRT restore of a blog post results in orphaned comments

When you use Granular Recovery Technology (GRT) to restore a blog post on SharePoint 2013, comments are restored, but they are not linked to the appropriate blog post.

To work around this issue, restore the SharePoint web application content database. For more information, refer to the *NetBackup for Microsoft SharePoint Server Administrator's Guide*.

## GRT live browse error of a SharePoint application-aware VMware image

When you perform a live browse of VMware SharePoint application-aware backups where the Primary VM identifier is not a NetBIOS name (for example, display name or UUID), a client name like `client SP2010` becomes `client%20SP2010`. The result is that the SharePoint live browse fails with a database system error because `client%20SP2010` is not recognized as a valid client name.

Use the following workaround for this issue:

- In the NetBackup Administration Console, add an entry to **NetBackup Management > Host Properties > Master Servers > Distributed Application Restore Mapping** where the Primary VM identifier is the name of the application host, and the front-end client name is the name of the component host. If the Primary VM identifier cannot be added under **Distributed Application Restore Mapping** using the NetBackup Administration Console on the master server, then manually add the entry. For UNIX master servers, add the `SPS_REDIRECT_ALLOWED` entry to the `bp.conf` file. For Windows master servers, add an `SPS_REDIRECT_ALLOWED` registry entry.

## NetBackup for Microsoft Active Directory operational notes

NetBackup for Active Directory lets you restore individual objects and attributes in the Active Directory instead of restoring the entire Active Directory. This topic

contains some of the operational notes and known issues that are associated with NetBackup for Active Directory in NetBackup 7.7.1.

## Restoring a deleted Active Directory user account using GRT restores it in a disabled state

If you perform a granular (GRT) restore of a deleted Active Directory user account, the user account is disabled. User accounts in the **Built-in** folder are not affected.

To work around this issue, open **Active Directory Users > Computers** and manually reset the password for the account and then enable the account.

## SQL Server restore fails when you restore a SQL Server compressed backup image as a single stripe or with multiple stripes

This issue occurs when SQL Server is busy with the buffer of compressed data and cannot process all the data that is sent within a certain length of time. By default in Windows Server, TCP connections must close after the TCP connection state has been set to `FIN_WAIT_2` for two minutes. Refer to the following Microsoft article for more information:

<https://support.microsoft.com/en-us/kb/923200/>

---

**Note:** If the `TCPFinWait2Delay` value does not exist, you must create it as a `REG_DWORD` registry value. Otherwise, Windows uses the default value of **240**.

---

### To increase the time that TCP connections may remain in the `FIN_WAIT_2` state

- 1 On the NetBackup media server, open `regedit.exe`.
- 2 Locate and select the following registry subkey:  

```
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters
```
- 3 Double-click on **`TCPFinWait2Delay`**.
- 4 Enter a value of **300**.
- 5 Restart the media server.
- 6 After the restore completes successfully, remove the registry setting or change the setting to its original value.

When you increase the value of this setting it has an adverse effect for all TCP/IP connections. This higher value could cause port exhaustion for other applications that run on the media server.

- 7 Restart the media server.

## NetBackup deduplication operational notes

NetBackup provides several deduplication options that let you deduplicate data everywhere, as close to the source of data as you require. Deduplication everywhere lets you choose at which point in the backup process to perform deduplication. NetBackup can manage the deduplication of environments that use the NetBackup Deduplication Engine. This topic contains some of the operational notes and known issues that are associated with the NetBackup Deduplication Engine in NetBackup 7.7.1.

For the most up-to-date compatibility information for MSDP, see the *NetBackup Enterprise Server and Server OS Software Compatibility List* at the following location:

<http://www.symantec.com/docs/TECH59978>

### New versions of NetBackup may significantly modify MSDP deduplication database

New versions of NetBackup may occasionally introduce significant changes to the underlying MSDP technologies. These types of changes often result in major modifications to the MSDP deduplication database during and after upgrade. Examples of these types of changes include the switch over to LZO compression in NetBackup 7.1 and the database conversions that occurred in NetBackup 7.6 and 7.6.1.

## 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 7.7.1.

### 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

## Restricted support for localized environments in database and application agents for all supported platforms

Database and application agents have restricted support of localized environments for all supported platforms.

When you use any of these agents, the use of non-US ASCII characters is not supported in the following:

- Any database object names. For example, database, tablespace, file group, data files, portals, etc.
- Any path names of database files, directories, transaction logs, or other database storage locations.
- Any path names that are specified in the policy backup selection. For example, notification script, template, or batch file.

## Do not run language packs that are not at the same version level as the English version

Symantec does not recommend running any language packs that are not at the same level as the English version. For example, do not run the NetBackup 7.6

Language Pack with the English version of NetBackup 7.7. Please remove any previously installed language packs before updating the English version.

## NetBackup LiveUpdate operational notes

NetBackup LiveUpdate provides a cross-platform, policy-driven method to distribute NetBackup Release Updates and hot fix downloads to NetBackup hosts at version 6.5 and later. Starting with NetBackup 7.1, NetBackup LiveUpdate also supports upgrades to major releases and minor releases for NetBackup clients. This topic contains some of the operational notes and known issues that are associated with LiveUpdate in NetBackup 7.7.1.

### Attempts to use LiveUpdate to install or upgrade to NetBackup 7.7.1 can fail because the target host has an incompatible version of Java JRE installed

Attempts to use LiveUpdate to install or upgrade to NetBackup 7.7.1 can fail because the target host has an incompatible version of Java JRE installed.

The Java LiveUpdate (JLU) agent requires that a minimum version of Java JRE be installed. For most UNIX platforms, NetBackup delivers a Java JRE version that meets or exceeds this minimum requirement. However, Java is no longer included in the NetBackup installation packages for a few specific UNIX platforms. Upgrading NetBackup with one of these packages results in the removal of Java versions that NetBackup might have been previously installed.

### The push and silent installation methods do not install the LiveUpdate agent as part of the package

The push and silent installation methods do not install the LiveUpdate agent as part of the package. To install the LiveUpdate agent, Symantec recommends that you copy the LiveUpdate binaries to the local host and install the LiveUpdate agent manually. The LiveUpdate binaries are available at the following location:

```
\\< dvd_root > \Addons \< platform > \LiveUpdate
```

For more information about how to install LiveUpdate, refer to the *NetBackup LiveUpdate Guide*.

---

**Note:** If this issue affects a large number of computers, you can use a third-party application such as Altiris to install the LiveUpdate agent.

---

## Error during upgrade of an HP PA-RISC client to NetBackup 7.6 using LiveUpdate

When using NetBackup LiveUpdate to upgrade an HP PA-RISC client to NetBackup 7.6, you can encounter an error if that client has the following configuration:

- The directories `/dev/random` and `/dev/urandom` exist.
- The default system Java JDK/JRE level is between version 1.6.0 and 1.6.0.16. To verify the current JDK/JRE version level, run the following command:

```
java -version
```

If you want to use LiveUpdate to upgrade an HP PA-RISC client to NetBackup 7.6, you can perform either of the following two options to avoid this issue:

- Option 1:  
In the default system java security file (for example, `/opt/java6/jre/lib/security/java.security`), change the following:

```
securerandom.source=file:/dev/urandom
```

To:

```
securerandom.source=file:/dev/random
```

- Option 2:  
Upgrade the default system Java JDK/JRE level to version 1.6.0.16 or later.

If you have encountered this issue, the following error text can exist in the `/opt/Symantec/LiveUpdate/liveupdt.log` file:

```
<date> <time> Attempt to load guard and signature files failed
because initialization of the security libraries failed
<date> <time>
<date> <time> The Java LiveUpdate session did not complete
successfully.
<date> <time> Return code = 233
```

You should make sure that `/usr/opencv/java/jre/bin/java` is a symbolic link to the default system Java binary. Then perform one of the two previous options or rerun the failed NetBackup LiveUpdate job.

## NetBackup Logging Assistant operational notes

This topic contains some of the operational notes and known issues that are associated with the Logging Assistant in this release of NetBackup.



## Modifying logging levels in the NetBackup Administration Console can change the global logging level and VxUL debug levels

Under certain conditions in NetBackup 7.6, modifying logging levels in the NetBackup Administration Console can result in unintentional changes to the global logging level and VxUL debug levels. These changes can cause information not to be logged as expected.

---

**Note:** If you upgrade to NetBackup 7.6, logging continues to work normally. An upgrade by itself does not change logging levels and you should encounter no issues.

---

For more information and workarounds for this issue, see the following tech note on the Symantec Support website:

<http://www.symantec.com/docs/TECH212610>

## 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 7.7.1.

### NDMP multiplexed (MPX) restores may generate excessive log messages and cause Activity Monitor to hang

NetBackup NDMP multiplexed (MPX) restores may generate excessive numbers of messages to the `bptm` log and cause the `bptm` program and the Activity Monitor to hang. This issue can occur when a `NON_MPX_RESTORE` touch file exists on the NetBackup master server. This issue applies only to NDMP MPX restores on both UNIX and Windows platforms.

For information on a workaround for this issue, please see the following tech note on the Symantec Support website:

<http://www.symantec.com/docs/TECH207556>

## 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 Symantec Support website:

<http://www.symantec.com/docs/TECH202412>

## NetBackup OpsCenter operational notes

NetBackup OpsCenter is a web-based software application that helps organizations by providing visibility into their data protection environment. By using NetBackup OpsCenter, you can track the effectiveness of backup operations by generating comprehensive reports. This topic contains some of the operational notes and known issues that are associated with OpsCenter in NetBackup 7.7.1.

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**Note:** OpsCenter is a convergence of NetBackup Operations Manager (NOM) and Veritas Backup Reporter (VBR) and is available in the following two versions: Symantec NetBackup OpsCenter and Symantec NetBackup OpsCenter Analytics. Starting with NetBackup 7.0, NOM has been replaced with OpsCenter. If your current NetBackup environment includes NOM or VBR, you must first upgrade to OpsCenter 7.0 or 7.1 before you can upgrade to a later version of OpsCenter.

For more information about upgrading OpsCenter, refer to the *NetBackup OpsCenter Administrator's Guide*.

---

## database.conf overwritten by non-default installation location

During an upgrade to NetBackup OpsCenter 7.6 or 7.6.1, if you want to use a non-default location for installation, make sure that the installation directory that you choose is different than the backup directory. If both directories are the same, the `database.conf` (a backup file) is overwritten and the OpsCenter services do not start.

## Unable to set different alert.conf water mark thresholds

The water mark threshold in the `alert.conf` file is a global setting and is applicable for all disk pools for all selected NetBackup master servers in Disk Full alert policies. You cannot set up different thresholds for different master servers or different alert policies.

For more information, refer to the following HOWTO article:

<http://www.symantec.com/docs/HOWTO94997>

---

**Note:** Note: If you select individual disk pools when you configure a Disk Pool Full alert policy, no alerts are generated. You should select a master server instead of individual disk pools.

---

## Report export location determined by web browser

The **Settings > Configuration > Report Export Location** determines where scheduled reports are saved. However, when you select **Export Report** in the OpsCenter console, your web browser settings determine the export location. For example: The location that is specified in **Firefox > Options > General > Save files to** determines where non-scheduled reports are saved.

## Ampersand prevents user from being edited

OpsCenter user names that contain an ampersand (&) cannot be edited after an upgrade to version 7.6. After upgrade, user edits such as reset password, enable and disable, and change user role can fail. For fresh installations of version 7.6, the issue only prohibits resetting the user's password. In both cases, the edits fail with the following message:

```
Error performing User action.
```

During a password reset operation, the user name only displays with the characters before the ampersand.

## Unable to log in to OpsCenter on UNIX system if Korn shell is not installed

During OpsCenter 7.6 installation or upgrade on a UNIX system, ensure that the Korn shell (`ksh`) is installed on the host where you want to install or upgrade OpsCenter 7.6 Server.

---

**Warning:** If you fail to install `ksh` before installation or upgrade, you may not be able to log in to the OpsCenter web interface.

---

## Cloud metering data collection failure due to unreachable server

A cloud metering data collection failure can occur if one or more media servers with credentials to access a cloud storage server (data movers) is unreachable for some reason.

Workaround: From the unreachable media server, use `tpconfig` to remove the credentials of that media from all cloud storage servers on the master. Cloud metering data collection should then succeed. All the cloud metering data from the media servers that were missed earlier can now be collected.

## Nodes with attached objects in View Builder temporarily disappear when moved

In the OpsCenter Analytics View Builder, if you move a node that has any objects that are assigned to it within a view, the object may seem to appear missing after the move operation. In this case, the object is temporarily invisible and becomes visible over time.

To work around the issue, Symantec recommends that you wait for some time and then log back in to the view builder to see the updated view.

---

**Note:** Objects may take several hours or a couple of days to reappear in the view builder.

---

## Data collection fails if storage unit path is more than 256 characters

In NetBackup OpsCenter 7.6 and earlier releases, data collection by OpsCenter fails if the specified basic-disk storage unit (STU) path is more than 256 characters. To work around the issue, you must create a storage unit path that has 256 characters or less.

## Blank report when only Include Accelerator Job Only is selected

Certain reports do not show any data when the **Include Accelerator Job Only** filter is applied for a NetBackup master server at Version 7.5 or 7.5.0.x. These reports include any Tabular Backup reports or any Custom reports that include accelerator data-related columns. The reports do not show any data because NetBackup Accelerator support is enabled in NetBackup OpsCenter 7.6.

To work around the issue, do not apply **Include Accelerator Job Only** on NetBackup OpsCenter 7.6 reports for a master server that runs NetBackup 7.5 or NetBackup 7.5.0.x.

## Browse functionality is not supported on IE8

The Browse functionality in Operational Restore is not usable with some variants of the Internet Explorer 8 browser. To use the Browse functionality in Operational Restore, Symantec recommends Internet Explorer 9 or newer, or Firefox.

## Browse and Select client functionality displays NetApp volume as client name for Replication Director VM backups

For OpsCenter restore, the **Browse and Select client** functionality result displays the NetApp volume as the client name for Replication Director VM backups. This selection does not display any files. For browsing the files and directories and for performing an operational restore, it is necessary to select the actual VM client name.

## Report emails fail to deliver if attachments are too large

The reports email may not be received when the reports are scheduled in bulk.

If the size of the attachment in the report email exceeds the SMTP server limit, you cannot receive the report email.

## Cannot assign alerts to new users until they log on

In OpsCenter 7.6, you cannot assign any alerts to a newly added OpsCenter user. The new users are not listed on the **Monitor > Alerts** page in the **Assigned To** column. New users must log on to OpsCenter first before they appear in the **Assigned To** column. Once a user appears in the column, you can then assign the alerts to that specific user.

## New users not visible in Copy User Profile

A newly created user is not listed in the drop-down list for **Copy User Profile**

As a new user, to work around this issue you need to log into OpsCenter with the newly-created user name and then log out. The new user name is registered with **Copy User Profile** after it has logged on at least once. The user name should then appear in the **Copy User Profile** drop-down list.

## Backup Exec data collection fails if server password contains HTML characters

If the Backup Exec server password contains HTML characters such as `&`, `<`, `>`, or `/`, and you make edits to the Backup Exec data collector on OpsCenter, it causes the data collection to fail.

To resolve the issue, you can use one of the following workarounds:

- Change the password of the Backup Exec server to a non-HTML character password.
- Delete the existing entry of the Backup Exec data collector and add a new entry.

## OpsCenter Monitor File List tab shows empty for active jobs

When jobs are viewed from OpsCenter Monitor, the **File List** tab shows up empty for active jobs.

In OpsCenter 7.5 and forward, the **File List** tab appears to be empty when the job is in progress. The **File List** tab gets populated only when the job is successfully completed.

## Special characters in subgroup name prevent users from being authorized

Users that are part of a subgroup with special characters do not get authorized.

If a subgroup name has special characters, then the authorization fails to return the parent or chain-of group names. The parent or chain-of group names are required to determine if any of the parents is an OpsCenter user. Therefore, users who are part of subgroup that contains special characters like "PD\_#QE%" do not get authorized.

## Undefined JAVA\_HOME or JRE\_HOME variables after you run a third-party utility

After you install OpsCenter, if you run a third-party utility, such as `version.sh` in Tomcat, you get the following error message:

'Neither the JAVA\_HOME nor the JRE\_HOME environment variable is defined'

If you encounter this issue, use the following workarounds:

- For Windows: After you install OpsCenter, you have to first execute the command `setEnv.bat` and then run any third-party utility.  
The path for `setEnv.bat` is `INSTALL_PATH\OpsCenter\server\bin`.

- For UNIX: After you install OpsCenter you have to first execute the command `setEnv.sh` and then run any third-party utility.  
The path for `setEnv.sh` is `<INSTALL_PATH>/SYMCopsCenterServer/bin`.

---

**Note:** The `version.sh/bat` file is a Tomcat script and it is advised that you not modify it. You have to run the `setEnv.sh/bat` file and run the `version.sh/bat` file to find the Tomcat and JRE versions.

---

## Duplicate entries in Monitor and Views interfaces

In certain scenarios, duplicate entries of a client are displayed on the **Monitor** and **Views** interfaces.

This issue is seen in any of the following scenarios:

- A NetBackup master server is used as a client in one or more policies.
- Some NetBackup policies refer to a NetBackup master server with a fully qualified domain name (FQDN) while others refer to it with a short name.
- The actual name of the master server does not match its network name or display name that is used in OpsCenter.

The following is an example scenario of the issue:

The actual name of the NetBackup master server is `abc.xyz.com`. The network name or display name that is used in OpsCenter is `xyz`.

In this scenario, if `abc.xyz.com` is used as a client in one or more NetBackup policies, duplicate entries of this client are displayed on the following OpsCenter screens:

- **Monitor > Host > Client**
- **Settings > Views > Manage Nodes and Objects > Objects not in selected view**

## Job collection fails on master server if port 1556 is not open bi-directionally

OpsCenter job collection from master servers could fail if port 1556 is not opened bi-directionally on both the NetBackup and OpsCenter sides.

## Running Capacity Licensing reports

To run a Capacity Licensing report in NetBackup 7.7.1, a user name and password are required for each master server. To successfully run a report for any master

servers that were added to OpsCenter in versions previous to 7.5.0.5, an extra step is required. The user name and password credentials for each master server must be entered manually in the NetBackup configuration settings. If the credentials are not added in the configuration settings, a user name and password error is returned when the report is run.

Additionally, for Capacity Licensing to work correctly, please refer to the following tech note and install the specified EEBs:

<http://www.symantec.com/docs/TECH148678>

## Data format in SFR Timeline shown as "unknown"

In the SFR Timeline View, for the images that are collected in OpsCenter, the data format is shown as `unknown` because of the lack of data.

## OpsCenter does not support creating or editing multiple reports simultaneously for the same user session from different tabs or windows

OpsCenter does not support creating or editing multiple reports simultaneously for the same user session from different tabs or windows. You cannot open the same OpsCenter console in two or more browser tabs or windows and create or edit standard and custom reports simultaneously. That causes an exception to occur.

## Deduplication reports show no data when Report On is set as Storage unit Name

The Deduplication reports do not show any data when you select the **Report On** parameter as **Storage Unit Name**.

## Search and Restore operations in VMware and Hyper-V

For VMware or Hyper-V clients, the search and restore operations work only if the client name is the same as host name. If the client name is the same as display name, UUID, or DNS name then only the Search functionality is available. You cannot perform restore operations in this case. The following table provides details on whether Search and Restore functionality is available when the client name is the host name, display name, etc.:

| Client Name Type | Search | Restore |
|------------------|--------|---------|
| Host Name        | Yes    | Yes     |
| Display Name     | Yes    | No      |



|          |     |    |
|----------|-----|----|
| UUID     | Yes | No |
| DNS Name | Yes | No |

## File selection lists with more than 50 items do not appear in OpsCenter

A file selection list that contains more than 50 items does not appear in OpsCenter.

For a specific job ID in an OpsCenter Analytics custom report, breakup job data is available only for 50 job directories. That is because when a NetBackup policy or job is associated with more than 50 backup selections, data is available for only 50 backup selections. The NetBackup user interface truncates data for the subsequent backup selections (greater than 50).

With VBR, you can view the breakup job information for all of the job directories that are associated with a job or policy. That is because data collection in VBR happened through CLI's (and not through `nbs1`).

## OpsCenter does not provide the option to purge breakup jobs

Unlike VBR, OpsCenter does not provide the option to purge breakup jobs. In the VBR console, you can purge specific breakup jobs from the **Settings > Global Settings > Data Retention** section.

## Some result sets for a stored procedure that has multiple result sets may not appear

When you run a stored procedure that has multiple result sets, the output of only the first result set is displayed on the interface. The output of other result sets is not shown on the interface.

## Character limitation for virtual host names on Windows

The number of characters for a virtual name by the clustering technology on Windows is limited.

The virtual host name must be the short name (not FQDN) and must contain fewer than 15 characters.

## Some reports may only consider Full and Incremental schedule type jobs

When the user applies a Schedule/Level Type filter with value **All**, the following reports consider only Full and Incremental schedule type jobs:

- Advanced Success Rate
- All Failed Backups
- Consecutive Failures Report
- Success Rate Line

## OpsCenter object merger utility fails on master server

The object merger utility in OpsCenter fails on the master server.

The object merger utility in OpsCenter (**Settings > Configuration > Object merger**) does not work (fails) for a master server. The object merger utility works for clients and media servers.

## OpsCenter server stops receiving events from master server after NetBackup upgrade

The OpsCenter server can stop receiving events from the master server after a NetBackup upgrade.

If all following conditions are applicable, add the **OPS\_CENTER\_SERVER\_NAME** entry to the `bp.conf` file on UNIX or the registry on Windows to set OpsCenter's server name. Symantec recommends that you do add the entry before you attempt to upgrade.

- The **REQUIRED\_INTERFACE** is configured on the master server.
- The OpsCenter server monitors the master server.
- The **OPS\_CENTER\_SERVER\_NAME** entry is not configured on the master server.  
If you do not add this entry, the OpsCenter server stops receiving events from the master server after the upgrade.

## Users can now search for clients from the Monitor>Hosts>Clients page (but not by attribute)

An enhancement has been made in OpsCenter to maintain VBR parity.

You can now search for clients from the **Monitor > Hosts > Clients** page. You can use host names or substrings to accomplish that.

However, you can only search for clients and not other attributes such as, **CPU Count**, **CPU Speed**, **Discovered Agent Server**, and others.

## Job Count Workload Analyzer summation rules

An issue occurs in the **Job Count Workload Analyzer**: For each cell, the sum of occurrences differs from the total in the first column when the time basis that is selected is Active. That is expected because a job can be active and span across a multiple-hours time frame. Hence, the same job is counted for all the hours. But the count in the first column shows the exact count of jobs that were active for these 7 days. That is different from the implementation of Time basis=**Start** or **End**. In these cases, the sum of the occurrences in the cell match with the number displayed in first column.

## Daylight Savings Time support for historical reports in OpsCenter

Daylight savings time (DST) support for Historical reports in OpsCenter

If data for the historical reports is synchronized during the hour when daylight savings time begins, it can cause problems in a distributed database system. The user can also lose data.

A workaround is to use Universal Time (UTC) as the time zone, or use a time zone that does not have daylight savings time.

To set the time zone, refer to the *Symantec OpsCenter Administrator's Guide*.

## OpsCenter cannot monitor IPv6-only servers

For this release of NetBackup, OpsCenter cannot monitor an IPv6-only server. Each server must have an available IPv4 address for it to be monitored. However, this release does support a dual-stack server. For a dual stacked server, the available IPv4 address is used.

## The NetBackup Disk Pool Size vs. Percentage Full report may show incorrect data

OpsCenter's NetBackup Disk Pool Size vs. Percentage Full report may show incorrect data when OpsCenter does not have disk pool size data for one or more days.

This issue occurs because the report calculates disk pool sizes every day and shows the average values in report. Missing data for any day that falls within the selected report time frame generates incorrect average data.

## Issues accessing an OpsCenter Server from the remote OpsCenter View Builder on a Windows computer

If you use a remote OpsCenter View Builder on a Windows computer that does not host the OpsCenter database, you may encounter database connection issues.

This problem can arise in any of the following scenarios:

- When the network name and the host name of the OpsCenter Server do not match
- When the OpsCenter Server host and the remote View Builder host are in different domains

To work around this issue, do the following:

1. Add the OpsCenter Server host name to the View Builder's `etc/hosts` file.
2. Add the View Builder host name to the OpsCenter Server's `etc/hosts` file.

---

**Note:** Ensure that you add both the short name and the fully qualified domain name (FQDN) of the host to the `etc/hosts` file.

---

## NetBackup Replication Director operational notes

Replication Director is the implementation of NetBackup OpenStorage-managed snapshots and snapshot replication, where the snapshots are stored on the storage systems of partnering companies. Replication Director uses an OpenStorage plug-in on the media server to communicate with the disk array (through the storage server) and to make requests to move data. The OpenStorage partner also hosts a software plug-in that allows communication between NetBackup and the disk array. This topic contains some of the operational notes and known issues that are associated with Replication Director and its associated plug-ins in NetBackup 7.7.1.

### Replications fail after point-in-time restore with NBUPugin 1.1

Replication Director replications may fail after a Point-in-time restore is performed.

This issue relates to replication job failures for the policies that are configured for Replication Director. This issue occurs when NBUPugin 1.1 is used under the following circumstances:

- First, the Replication Director policy runs successfully. The policy uses an SLP that contains a Snapshot operation of the primary data, as well as a Replication (SnapVault) operation in the topology.

- Next, one or more Point-in-time (PIT) restores are performed successfully from the volumes in the policy with the following option enabled: **Force rollback even if it destroys later snapshots**.

The replication jobs fail the next time that the policy runs. The DataFabric Manager server produces the following error message:

```
DFM Job (On-demand Protection) is failing with Error base
snapshot for transfer no longer exists on the source.
```

The replication jobs fail because the PIT restore deletes the base snapshot (given that the specified option was enabled for the restore). The Replication operation did not have the base snapshot to replicate.

To return to successful replication jobs, resynchronize the relationship between the primary volumes and the target volumes using the NetApp CLI.

## NBUPlugin 1.1 replication fails with error code 84

For NBUPlugin 1.1, replication can fail with error code 84 (media write error) if both of the following conditions are true:

- The NetBackup policy has backup selections that are volumes coming from multiple DFMs (configured in NetBackup as a storage unit group).
- The SLP has a fan-out topology (multiple replications coming from the same source). The following is an example of fan-out topology:

```
Snapshot
|
----- Replication (SnapVault)
|
----- Replication (SnapMirror)
```

Workaround: If you have a fan-out topology, configure policies so that they have volumes from a single DFM (split the policy into multiple policies).

## Database system error when browsing files in "Backup, Archive, and Restore" interface

When you browse the files in the **Backup, Archive, and Restore** user interface, the following error may be reported:

```
ERROR: database system error
```

This message can indicate a variety of issues, such as an unsupported file system, a snapshot mount failure, or other hardware or networking problems.

## Indexing logs grow very large when log level set to 4 or higher

The size of the `ncflbc` and `ncfnbhfr` logs that are generated as a result of an indexing job can be very large. The size of the log files can grow rapidly when the log level is set to 4 or higher.

To work around this issue, you can lower the NCF logging level (to 3 or less). In addition, you can adjust the log file rollover mode, maximum log file size, or number of log files if you want to continue to accommodate a higher NCF logging level.

## Discovery fails on VMs running vCenter 2.5 or ESX 3.5 and older

Discovery can fail on virtual machines running vCenter 2.5 or ESX 3.5 and older. Note that vCenter versions before version 4 are not officially supported.

## Hardware snapshot generated on boot disk even when "Virtual disk selection" is set to "Exclude boot disk"

A hardware snapshot occurs on a boot disk even when **Virtual disk selection** is set to **Exclude boot disk** on the **Advanced** options of the **VMware** policy tab.

This option only applies when a Backup From Snapshot operation is performed and a tar image is created of the VM in the snapshot.

## Backup in SLP using NetBackup Accelerator fails with status code 13 if storage read speed is very slow

A NetBackup Accelerator-enabled Backup operation in an SLP can fail with status code 13 (file read failed) if it encounters very slow storage read speeds. In particular, the issue occurs when NetBackup cannot read at least 500 MB of data in five minutes.

Workaround: Adjust the global client timeout value from the default five minutes (300 seconds) to a larger value, such as 10 minutes (600 seconds). You can make the adjustments in the NetBackup Administration Console (**Host Properties > Timeouts > Client read timeout**) or in the `bp.conf` file (`CLIENT_READ_TIMEOUT = 600`).

## Instance group names cannot be localized for Oracle Intelligent Policy

For Oracle Intelligent Policy, instance group names cannot be localized.

## Volume GUID not supported for VSS

For VSS, the Volume GUID is not supported.

## Activity Monitor may show wrong Kilobytes value for snapshot jobs if policy has alternate client configuration

For policies with alternate client configuration, the Activity Monitor may show the wrong value in the **Kilobytes** column for snapshot jobs.

## Snapshot of NFS mount fails with status code 20 on Linux

A snapshot job of an NFS mount can fail with status code 20 on Linux due to an NFS remount failure. However, subsequent runs of the snapshot job may succeed.

## Test Query option in Query Builder may incorrectly display VMs which will not be selected for backup job

Replication Director for VMware uses automatic selection of VMs based on a query (the **Select automatically through query** option in the policy). In the policy's Query Builder, you can use the **Test Query** option as a pre-test of the selection criteria to see which VMs Replication Director plans to back up.

In some cases, the VMs listed in the test query results may not be identical to the VMs that get selected when the backup runs. If a VM resides on a VMFS datastore rather than an NFS datastore, Replication Director does not select the VMFS VM for backup. The Test Query option may incorrectly indicate that the VMFS VM will be included in the backup. (When the backup runs, the job details show that the VM does not meet hardware requirements.)

Review the Test Query results carefully. Note that only VMs on an NFS datastore get backed up by Replication Director.

## NetApp Plug-in for NetBackup 1.0.1 crashes under certain circumstances

The NetApp Plug-in for Symantec NetBackup version 1.0.1 can crash under the following circumstances:

- Running an NDMP storage lifecycle policy
- Export workflow (indexing, backup, restore, or browse)
- Export for copy 2 or 3 (not for copy 1)

To work around this issue, upgrade to the latest version of the NetApp Plug-in for Symantec NetBackup that contains a fix to this issue.

## Replication may fail on NetApp Plug-in for NetBackup 1.0.1 under certain conditions

You may experience replication failures if you use the NetApp Plug-in for Symantec NetBackup version 1.0.1. Replication can fail if all the following conditions are met:

- Multiple volumes are present in the backup selections
- The destination is SnapMirror
- At least 60% of the volume is full
- NAS storage is used

The following are some of the symptoms that may indicate failures:

- In the NetBackup Activity Monitor:

```
Replicate failed for backup id <backup id>
with status 174 failed waiting for child process (34)
```

- In the `bpdm` logs:

```
Error bpdm (pid=19319) <async> wait failed:
error 2060001: one or more invalid arguments
```

- In the NetApp Management Console:

```
destination volume too small; it must be equal to
or larger than the source volume
```

## Snapshot leaks when cleaning up all images for policies with Primary > Mirror topologies

For NetApp, there is an issue when you clean up **ALL** images for a policy that has a Primary > Mirror topology. You may experience snapshot leaks where the snapshots are deleted from the NetBackup catalog but not deleted from storage.

To delete the snapshots and reclaim storage, execute the following command on the DataFabric Manager (DFM) server:

```
snapmirror release <src_vol> <dst_filer>:<dst_vol>
```



## Incremental backups created with Replication Director may throw error: "unable to obtain list of files using specified search criteria"

You may receive the following warning when you restore from an incremental backup that was created with Replication Director:

```
Warning: unable to obtain list of files using specified search
criteria.
```

NetBackup performs the differential or the cumulative incremental backups that are indicated in a backup policy, even if there are no file changes to back up.

Since there have been no file changes since the last backup, the image for the incremental backup contains no files. However, the Backup, Archive, and Restore interface presents the user with an icon for that empty incremental backup. When the user selects the icon, the message appears. To access images, select the icon for the previous backup.

## If VM and its datastore have identical names, the Backup, Archive, and Restore client interface displays two separate images

Replication Director for virtual machines:

If the virtual machine and its datastore have identical names, the Backup, Archive, and Restore client interface displays two separate images when you browse to restore the virtual machine or its files. The image with an `OST_FIM` image format should not be displayed. If the virtual machine has more than one datastore, this `OST_FIM` image may not present all the data that the virtual machine contains. Do not use the `OST_FIM` image: Select the other image for restore.

This issue will be fixed in a future NetBackup release.

## BAR interface accesses files directly from snapshot if storage lifecycle policy is not configured to index VM (or if indexing does not complete)

If the storage lifecycle policy (SLP) was not configured to index the virtual machine (or indexing is not complete), the BAR interface accesses the files directly from the snapshot. When you browse the files, the message `ERROR: database system error` may appear. This message can indicate a variety of issues, such as an unsupported file system, a snapshot mount failure, or other hardware or networking problems.

## Backups and restores from snapshots on RHEL 5.3 operating systems do not work properly due to lack of support from NetBackup 7.6

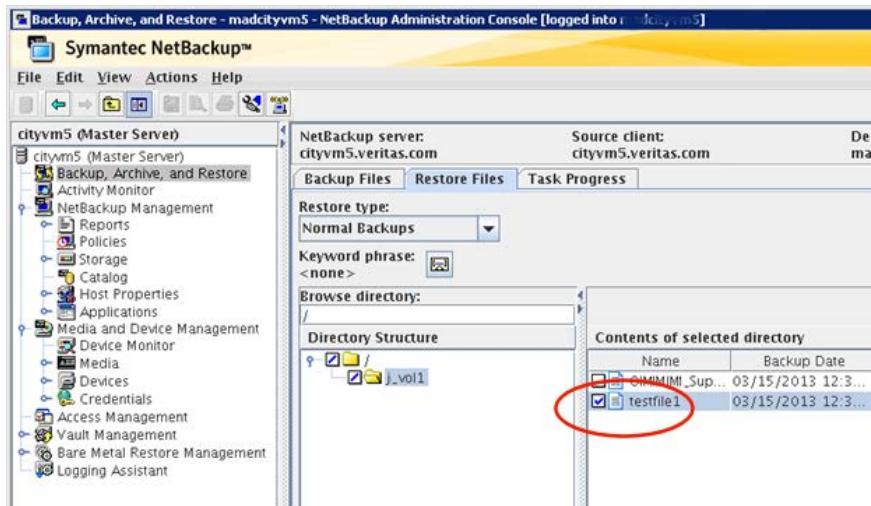
Problems with backups and restores exist on RHEL 5.3 operating systems with kernel version 2.6.18-128.el5. Backups and restores from snapshots do not work properly because of an issue with the `kobject_add` process. The issue occurs because NetBackup 7.6 does not support this kernel version. This kernel version is supported with the release of RHEL 5.9.

For more information, refer to the *NetBackup Replication Director Solutions Guide*.

## Restoring from a differential incremental backup at the volume level can result in data loss

Normally, when a single file is restored from an incremental backup, only the file that is selected from that backup is restored. In certain situations using Replication Director, however, not only is the selected file restored, but all of the other files in the backup are restored as well. The restore can possibly overwrite the files that have changed since the incremental backup was performed, leading to data loss.

To avoid unintentionally overwriting the files that have changed since the last incremental backup, do not select the entire volume in the **Backup, Archive, and Restore** interface. Instead, select only the file that you want to restore. In the following example, `testfile1` is correctly selected for restore.



## SnapVault replication may result in data loss if the qtree has not been updated in the DFM server

A qtree that has been newly added to a volume may not be protected by a Replication Director policy if the storage lifecycle policy indicates a **Snapshot-to-Replication** (SnapVault) topology.

Before the Replication Director policy runs, use the DataFabric Manager server interface to verify that any new qtrees in a volume have been updated. The new qtrees in the volume are not updated frequently due to a restriction on the NetApp DFM server.

The Replication Director policy may run without incident, but the qtree may not appear in the vaulted replica when browsing with the NetBackup **Backup, Archive, and Restore** interface.

For more information, see the *NetApp Plug-in 1.1 for Symantec NetBackup*:

[https://library.netapp.com/ecm/ecm\\_download\\_file/ECMP1140478](https://library.netapp.com/ecm/ecm_download_file/ECMP1140478)

(Access to the NetApp site requires a logon.)

## Replication Director policy validation takes a long time to complete

The Replication Director policy validation can take a long time to complete. You cannot perform other operations until this operation completes. Open a new instance of the NetBackup Administration Console to perform other operations.

## NetBackup SAN Client and Fibre Transport notes

These topics pertain to NetBackup SAN Client and Fibre Transport in NetBackup 7.7.1.

### Alternate SAN Client restores correction

The 7.7 version of the *NetBackup SAN Client and Fibre Transport Guide* incorrectly identifies two uses cases as unsupported:

- Alternate client restores to a LAN-based client.
- Alternate client restores to a SAN-based client.

NetBackup supports both of these use cases for SAN clients.

# 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 7.7.1.

## Logs for legacy processes are less verbose than in previous releases

In NetBackup 7.7, logs for legacy processes will be less verbose than they were in previous releases. The default logging level in NetBackup 7.7 is 0, which is the minimum logging level. To restore the same level of verbosity seen in previous releases, set the logging level higher than 0. This issue does not impact Unified logging processes.

## FlashBackup is not supported with Storage Foundation 6 or greater volume manager

FlashBackup is not currently supported with Storage Foundation 6 or greater volume manager.

## A Standard policy that is configured with certain selections causes the Policy Execution Manager to crash and generate a core dump with an assertion failure

A **Standard** policy that is configured with the following selections causes the NetBackup Policy Execution Manager (`nbpem`) to crash and to core dump with an assertion failure:

```
Policy storage = lifecycle policy with only a Snapshot target
Perform snapshot backups
Retain snapshot for Instant Recovery or SLP management
Perform off-host backup
Use: Data Mover
Machine: Network Attached Storage
Options: Snapshot method for this policy = NAS_Snapshot
```

Although this configuration is normally supported, it is not recommended. SLPs offer no benefit in this configuration because they do not perform any further operations on the snapshot. An NDMP-generated NAS snapshot cannot be converted to a TAR image by an SLP.

To work around this issue, Symantec recommends that you set the policy storage to an actual storage unit.

## Cannot create a disk array snapshot if a VxVM disk group on the array contains a software-based snapshot of the VxVM volume

NetBackup does not support creating a disk array snapshot if a VxVM disk group on the array contains a software-based snapshot of the VxVM volume.

If a software-based snapshot (such as from the VxVM method) already exists of a VxVM volume on the disk array, NetBackup cannot create a disk array snapshot of a file system that is configured on the VxVM volume. Snapshot creation fails (with final status 156), and the `bpfis` log contains a message that reports a `vxmake` command failure.

You must delete the existing VxVM snapshot from the VxVM disk group before you run a backup with a disk array snapshot method.

Examples of disk array snapshot methods are `EMC_CLARiiON_SnapView_Snapshot`, `HP_EVA_Snapshot`, `Hitachi_CopyOnWrite`, and `IBM_StorageManager_FlashCopy`. All disk array methods are described in the *NetBackup Snapshot Client Administrator's Guide*, in the chapter titled "Configuration of snapshot methods for disk arrays."

## Multi-stream policy backups fail due to missing files

When using snapshot backups, if a multi-stream policy backup fails with error code 71 or 227 due to missing files, subsequent retries do not detect the missing files even if they become available during the designated Job Retry Delay period.

## 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 7.7.1.

### 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 7.7.1.

## VDDK 6.0 duplicate BIOS UUIDs cause hotadd transport backup failure

In VDDK 6.0 if the backup host BIOS UUID is the same as any other VM or VMs in the same vCenter, backups fail.

Until VMware resolves this issue, you can do the following:

- Change the BIOS UUID of all of the VMs in the vCenter that have the same BIOS UUID of the backup host VM. Hotadd transport backups then succeed. (You do not need to change the BIOS UUID of the backup host.)
- Use a different backup method.

Symantec has reported this issue to VMware Incorporated. For more information about a resolution, contact your VMware support representative.

## Enter key behavior in vCenter Recovery Wizard

On the **Recovery Wizard Virtual Machine Selection** screen of the NetBackup plug-in for VMware vSphere Web Client, the **Enter** key may not work as expected. When you use the **Enter Display Name or UUID or DNS Name or Host Name** field to search for VMs, the following message may appear when you press **Enter**.

```
No clients found matching given criteria for this vCenter.
```

```
Please verify client selection criteria and master server name.
```

Make sure you have entered the correct VM name or value, and click **Search** instead of pressing **Enter**.

## Restore virtual machine instance UUID in NetBackup 7.7.1

You can restore a virtual machine and retain the instance UUID, as follows:

In the Backup, Archive, and Restore interface

Use the **Restore Instance UUID xxx instead of creating a new UUID** option of the **Virtual Machine Options** dialog box. (xxx is the instance UUID.)

For more information, see the following:

- NetBackup Backup, Archive, and Restore help
- *NetBackup VMware Administrator's Guide* for NetBackup 7.7.1:

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

NetBackup Recovery Wizard in the vSphere Web Client Use the **Restore Instance UUID xxx instead of creating a new UUID** option of the **Virtual Machine Options** screen of the NetBackup Recovery Wizard. (xxx is the instance UUID.)

The Recovery Wizard is an option in the NetBackup plug-in for the vSphere Web Client.

NetBackup `nbrestorevm` command Use the `-vmInstanceId` option of the `nbrestorevm` command.

For more information, see the following:

- The `nbrestorevm` command man page.
- *NetBackup VMware Administrator's Guide* for NetBackup 7.7.1:

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

## VMware web client does not allow SAN restores

The 6.0 release of the Virtual Disk Development Kit (VDDK) introduced an issue with SAN backups and restores and the BIOS UUID. With SAN transport mode, VDDK 6.0 tries to find requested virtual machines by looking up their BIOS UUID. See "SAN mode VDDK 6.0 searches for virtual machines by BIOS UUID" in the Virtual Disk Development Kit 6.0 Release Notes:

<https://www.vmware.com/support/developer/vddk/vddk-600-releasenotes.html>

To prevent data loss because of this VDDK 6.0 issue, NetBackup 7.7 fails the backup and the restore jobs that meet all of the following conditions:

- Use only the SAN transport mode.
- Target a VM for which a duplicate BIOS UUID exists.
- Restore the BIOS UUID.

NetBackup 7.7 also removes the SAN transport mode as an option in this situation when multiple transport modes are selected.

## vCloud Director keywords do not select appropriate computers

For a policy that uses the Query Builder to automatically select VMs in vCloud Director, the `vCDIsExpired` keyword does not operate as expected. The `vCDIsExpired` keyword correctly selects VMs that have expired. However, it also selects VMs in a vApp that has a run-time lease setting of Never Expire. This issue will be fixed in a future release.

## Hotadd or SAN restore may fail if the backup image disk geometry differs from VM default values

A restore of a VM with the hotadd transport mode or the SAN transport mode may not succeed if the VM's disk geometry in the backup image differs from the VM's default values. VM disk geometry refers to the layout of the virtual disk (cylinders, heads, sectors) as specified in the vmdk file.

The NetBackup restore job reports partial success with status code 1 (the requested operation was partially successful). For more information about this issue and available workarounds, see the following tech note on the Symantec Support website:

<http://www.symantec.com/docs/TECH210611>

---

**Note:** The restored VM may not be able to start. VMware has documented the cause of this issue in their VDDK 5.1 release notes, under Known Issues and Workarounds: "Metadata write is not supported for Hot Add and SAN transport."

<http://www.vmware.com/support/developer/vddk/VDDK-510-ReleaseNotes.html>

---

## Virtual Machine restore fails with status code 220 (database system error)

A restore of the virtual machine can fail with status code 220 (database system error) if all of the following are true of the backup:

- The backup was run from an incremental schedule and **Enable block-level incremental backup** was enabled on the policy VMware tab.
- **Enable file recovery from VM backup** was disabled on the policy VMware tab.
- At the time of the incremental backup, the data in the VM had not changed since the previous backup.

To work around this issue, restore from the full image rather than the incremental image. Because there is no change of data since the full backup, a restore from the full image is exactly the same as a restore from the incremental backup.

## Unsupported vSphere VM configuration

The following VMware configuration for High Availability (HA) is not supported for virtual machine backup: vSphere 5.1 with Single Sign On Server in an HA configuration that is behind an F5 load balancer (or any other load balancing software).



## NetBackup recognizes the name case of VMs

In VMware vSphere, virtual machine (VM) display names, resource pool names, and vApp names are case-sensitive. For example, `vm1` is a different virtual machine from one that is named `VM1`. In version 7.5 and earlier, NetBackup does not recognize case when it selects virtual machines for backup automatically through a query. It considers `VM1` and `vm1` to be the same virtual machine.

Starting with version 7.6, NetBackup recognizes case in VM display names, resource pool names, and vApp names. A backup policy that uses automatic selection through a query is now case-sensitive. The same is true of the new **Search Virtual Clients** function in the Backup, Archive, and Restore interface. Now, `vm1` is identified as a different virtual machine than `VM1`.

---

**Note:** When you upgrade to NetBackup 7.6 and later, policies that identify virtual machines through a query may select a different set of virtual machines for backup. You may need to edit the policy query rules to reflect the new case-sensitive behavior.

---

## For a VMware VM with Windows dynamic disks, a restore from incremental backup fails with a Windows restore host and the hotadd transport mode

A restore of a Windows virtual machine by means of the hotadd transfer mode may fail in the following case:

- A backup is taken of a Windows virtual machine that has a dynamic disk group.
- After the backup, another dynamic disk is added to the virtual machine's disk group.
- After the dynamic disk is added, an incremental backup is taken of the virtual machine.
- A Windows restore host is used with the hotadd transport mode to restore the virtual machine from the incremental backup.

For more information and potential workarounds, refer to the following tech note on the Symantec Support website:

<http://www.symantec.com/docs/TECH224707>

## A restored VM may not boot up or its file system(s) may not be accessible

A restored VM may not boot up or its file system(s) may not be accessible in the following case:

- The VM's guest operating system is Windows 8,
- The VM is restored from a block-level incremental backup image,
- And the restore uses the hotadd transport mode.

As a result of a VMware issue in VDDK 5.5.x, the Windows NTFS Master File Table on the restored VM may be corrupted.

As a workaround, use a different transport mode to restore the VM (not hotadd).

## Hotadd transport backups of 2-TB VMDKs on a VVol datastore fail

Backups of a VMware Virtual Machine Disk (vmdk) fail under the following conditions:

- The vmdk is larger than 2 TBs.
- The vmdk resides on a VMware vSphere Virtual Volumes (VVol) datastore.
- The transport method is hotadd.

The NetBackup software functions correctly under these conditions. Symantec advises customers to contact their VMware support representative about this issue.

To back up a larger than 2-TB vmdk on a VVol datastore, use an NBD transport method or an NBDSSL transport method.

If you encounter the problem, errors similar to the following may appear in the **Job Details** for the backup job.

```
Error bpbrm (pid=xxxx) from client <hostname>: ERR - Error opening
 the snapshot disks using given transport mode: hhotadd Status 23
Critical bpbrm (pid=xxxx) from client <hostname>: FTL - cleanup()
 failed, status 6
Error bptm (pid=xxxx) media manager terminated by parent process
```

## Compressed drive inaccessible after hotadd restore of vmdk from a cumulative incremental backup

After a hotadd restore of a VMware Virtual Machine Disk (vmdk) from a NetBackup cumulative incremental backup, the file system of the vmdk may be corrupt.

The NetBackup software functions correctly under these conditions. Symantec advises customers to contact their VMware support representative about this issue.

To avoid potential file system corruption after a restore, use one of the following alternate transport methods: NBD, NBDSSL, or SAN.

If you encounter the problem, errors similar to the following may appear in the **Job Details** for the restore job:

```
Error bpbrm (pid=<xxxx>) from client <hostname>:
ERR - Error opening the snapshot disks using given transport
mode: hotadd Status 23
Error bptm (pid=<xxxx>) cannot write data to socket, 10054
Info bptm (pid=<xxxx>) EXITING with status 24 <-----
Info tar32 (pid=<xxxx>) done. status: 24: socket write failed
Error bpbrm (pid=<xxxx>) client restore EXIT STATUS 24: socket
write failed
```

## VM restore to standalone ESXi 6.0 host fails if virtual machine display name contains a period (.)

A VM restore to a standalone ESXi 6.0 host may fail if the VM's display name contains a period character (.). The restore job reports NetBackup status 2820, and messages similar to the following appear in the Activity Monitor's job details:

```
05/19/2015 10:56:30 - Info bpVMutil (pid=6884) INF - vmwareLogger:
WaitForTaskComplete: SYM_VMC_ERROR: TASK_REACHED_ERROR_STATE
05/19/2015 10:56:30 - Info bpVMutil (pid=6884) INF - vmwareLogger:
WaitForTaskComplete: The file already exists <249>
05/19/2015 10:56:30 - Info bpVMutil (pid=6884) INF - vmwareLogger:
CreateVm: SYM_VMC_ERROR: TASK_REACHED_ERROR_STATE
05/19/2015 10:56:30 - Info bpVMutil (pid=6884) INF - vmwareLogger:
CreateVirtualMachineExAPI: SYM_VMC_ERROR: TASK_REACHED_ERROR_STATE
05/19/2015 10:56:30 - end Restore; elapsed time 0:00:17
NetBackup VMware policy restore error (2820)
```

The ESXi server's **Task** list shows the "Create virtual machine" task failing with status "The file already exists."

As a workaround, restore the VM with a display name that does not contain a period (.).

---

**Note:** This problem occurs only when the VM is restored to a standalone ESXi 6.0 server. It does not occur if the VM is restored through a vCenter server.

---

## NetBackup for Hyper-V operational notes

NetBackup for Hyper-V provides snapshot-based backup of the virtual machines that run on various versions of Windows Server. This topic contains some of the operational notes and known issues that are associated with NetBackup for Hyper-V in NetBackup 7.7.1.

## Hyper-V Intelligent policy can protect VMs under Microsoft SCVMM

A NetBackup Hyper-V Intelligent policy can protect VMs that are managed by Microsoft's System Center Virtual Machine Manager (SCVMM). By means of queries in the policy's Query Builder, a policy can discover and back up the VMs on all the Hyper-V servers that SCVMM manages.

For more details, see the *NetBackup for Hyper-V Administrator's Guide*.

## Some Hyper-V snapshot jobs do not complete in Windows 2012 R2 clustered environments

A clustered environment on Windows 2012 R2 may experience a resource issue that prevents a NetBackup Hyper-V snapshot job from completing. The snapshot job continues to run and never issues a final status. This problem can occur with NetBackup 7.6.1.2 and later.

To confirm this issue, you can run the `vssadmin list writers` command on each node of the cluster. The command does not complete and does not list the VSS writers.

Microsoft has provided two fixes to resolve this issue. Install the following fixes on each node of the Hyper-V cluster:

<https://support.microsoft.com/en-us/kb/3023894>

<https://support.microsoft.com/en-us/kb/2970653>

## NetBackup Add-in for Microsoft System Center Virtual Machine Manager (SCVMM) Console operational notes

NetBackup Add-in for Microsoft System Center Virtual Machine Manager (SCVMM) Console lets you recover virtual machines from NetBackup backup images. This topic contains some of the operational notes and known issues that are associated with the NetBackup Add-in for Microsoft SCVMM Console in NetBackup 7.7.1.

### Next button in Recovery Wizard is enabled even though required input has not been entered

In the Recovery Wizard of the NetBackup Add-in for SCVMM, the Next button is enabled even though required input has not been entered. In the following case, the Recovery Wizard of the NetBackup Add-in for SCVMM enables the Next button prematurely:

- On the Add-in's Manage Master Servers screen, an authentication token was added for an invalid master server. For example: the token was generated for

an existing master server, but the server name was entered incorrectly on the Manage Master Servers screen.

- A second master server and its authentication token are added, and the master server's name is entered correctly.

When you select the second master server in the wizard's Virtual Machine Selection screen, you can click Next without selecting a VM identifier. The wizard lets you progress from screen to screen without completing the input for each screen. If you continue without making the required input, the Recovery button on the wizard's last screen is grayed out.

---

**Note:** The wizard's Next button should remain grayed out until the input for each screen is completed.

---

To run the restore, go back through the wizard and make the required entries. You should also delete the invalid master server.

## VM Identifier field mislabeled as Display Name

On the **Restore Options** screen of the Add-in's **Recovery Wizard**, the **Display Name** field should instead be labeled **VM Identifier**.

## The Recovery Wizard of the NetBackup Add-in for SCVMM does not prompt to overwrite the VM, and the recovery fails

The NetBackup Add-in for Microsoft SCVMM Console does not complete a VM recovery in the following situation:

- On the Virtual Machine Selection screen of the Add-in Recovery Wizard, the VM is identified by its GUID or host name (not its display name).
- On the Restore Options screen of the wizard, the Overwrite existing virtual machine option is not selected.
- The same VM exists at the recovery destination.

When you click Recover, the wizard should detect the VM at the recovery destination and then prompt you to select the overwrite option. However, the prompt does not appear; the recovery job starts but then fails with status 2821.

To recover the VM, select Overwrite existing virtual machine on the Restore Options screen and rerun the recovery.

## SCVMM Rollup 5 and 6 cannot restore VM to alternate location on Hyper-V server

The NetBackup Add-in for Microsoft SCVMM supports restore of a VM to its original location or to an alternate location. The Add-in supports the System Center 2012 R2 Virtual Machine Manager, including Rollups 1 to 6. If your SCVMM version is Rollup 5 or 6 however, the Add-in cannot restore the VM to an alternate location on the target Hyper-V server. When you click Browse to specify the restore location on the Add-in's Restore Options screen, the following message appears:

```
Exception has been thrown by the target of an invocation.
```

The NetBackup administrator can restore the VM to an alternate location by means of the NetBackup Backup, Archive, and Restore interface.

# About SORT for NetBackup Users

This appendix includes the following topics:

- [About Symantec Operations Readiness Tools](#)
- [Recommended SORT procedures for new installations](#)
- [Recommended SORT procedures for upgrades](#)

## About Symantec Operations Readiness Tools

Symantec Operations Readiness Tools (SORT) is a robust set of standalone and web-based tools that support Symantec 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.symantec.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 Symantec enterprise products.

- **NetBackup Future Platform and Feature Plans**

Use this tool to get information about what items Symantec intends to replace with newer and improved functionality. The tool also provides insight about what items Symantec intends to discontinue without replacement. Some of these items include certain NetBackup features, functionality, 3rd-party product integration, Symantec 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

Symantec 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 SymAccount profile on the SORT webpage | See <a href="#">"To create a SymAccount profile on the SORT page"</a> on page 89.                                                                                                                    |
| Create generic installation reports             | See <a href="#">"To create a generic installation checklist"</a> on page 89.                                                                                                                         |
| Create system-specific installation reports     | See <a href="#">"To create a system-specific installation report for Windows"</a> on page 90.<br>See <a href="#">"To create a system-specific installation report for UNIX or Linux"</a> on page 91. |



### To create a SymAccount profile on the SORT page

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

|                           |                                                                    |
|---------------------------|--------------------------------------------------------------------|
| <b>Email address</b>      | Enter and verify your email address                                |
| <b>Password</b>           | Enter and verify your password                                     |
| <b>First name</b>         | Enter your first name                                              |
| <b>Last name</b>          | Enter your last name                                               |
| <b>Company name</b>       | Enter your company name                                            |
| <b>Country</b>            | Enter your country                                                 |
| <b>Preferred language</b> | Select your preferred language                                     |
| <b>CAPTCHA text</b>       | 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.symantec.com/netbackup>
- 2 Find the **Installation and Upgrade Checklist** widget.

### 3 Specify the requested information

|                                                          |                                                                                                                                              |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Product</b>                                           | Select the appropriate product from the drop-down menu. For NetBackup select <b>NetBackup Enterprise Server</b> or <b>NetBackup Server</b> . |
| <b>Product version you are installing or upgraded to</b> | Select the correct version of NetBackup. The most current version is always shown at the top of the list.                                    |
| <b>Platform</b>                                          | Select the operating system that corresponds to the checklist you want generated.                                                            |
| <b>Processor</b>                                         | Select the correct processor type for your checklist.                                                                                        |
| <b>Product version you are upgrading from (optional)</b> | 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.symantec.com/>
- 2 Select **SORT > SORT for NetBackup**
- 3 In the **Custom Reports Using Data Collectors**, select the **Data Collector** 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. Symantec 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. Symantec 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.symantec.com/>
- 2 Select **SORT > SORT for NetBackup**
- 3 Change to directory that contains downloaded utility.
- 4 In the **Custom Reports Using Data Collectors**, select the **Data Collector** tab.
- 5 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.
- 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 Symantec uses to make improvements to the tool.**

## Recommended SORT procedures for upgrades

Symantec 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 SymAccount profile on the SORT webpage | See <a href="#">"To create a SymAccount profile on the SORT page"</a> on page 89. |

**Table A-2** (continued)

| Procedure                                                                                                                         | Details                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Create a system-specific upgrade report                                                                                           | See <a href="#">"To create a system-specific installation report for Windows"</a> on page 90.<br>See <a href="#">"To create a system-specific installation report for UNIX or Linux"</a> on page 91. |
| Review the future platform and feature plans.<br>Review the hot fix and emergency engineering binary release auditor information. | See <a href="#">"To review future platform changes and feature plans"</a> on page 93.<br>See <a href="#">"To review hot fix and emergency engineering binary information"</a> on page 93.            |

**To review future platform changes and feature plans**

- 1 In your web browser, navigate to:  
<https://sort.symantec.com/netbackup>
- 2 Find the **NetBackup Future Platform and Feature Plans** widget.
- 3 Click **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.symantec.com/netbackup>
- 2 Find 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:

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

# NetBackup installation requirements

This appendix includes the following topics:

- [About NetBackup installation requirements](#)
- [Required operating system patches and updates for NetBackup](#)
- [NetBackup 7.7.1 binary sizes](#)

## 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 Getting Started Guide* and the *NetBackup Installation Guide*.

See “[NetBackup installation and upgrade operational notes](#)” on page 24.

- 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 7.7.1, 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/opensv/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 notes on the Symantec Support website:  
<http://www.symantec.com/docs/TECH168846>
- To install NetBackup on Windows 2008/Vista/2008 R2/7 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.
- Symantec 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, Symantec 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 7.7.1. However, this information may sometimes change in between releases. The most up-to-date required OS patch information for NetBackup 7.7.1 and other NetBackup releases can be found on the Symantec Operations Readiness Tools (SORT) website and in the NetBackup compatibility lists.

See [“About NetBackup compatibility lists and information”](#) on page 102.

See [“About Symantec Operations Readiness Tools”](#) on page 87.

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**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. Symantec recommends that you visit the Support website of your particular OS vendor for their latest patch information.

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**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.

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**Table B-1** Required operating system patches and updates for NetBackup 7.7.1

| Operating system type and version | NetBackup role        | Patch                                   | Notes                                                                                                               |
|-----------------------------------|-----------------------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| AIX 6.1                           | Master, media, client | 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. |



**Table B-1** Required operating system patches and updates for NetBackup 7.7.1 (continued)

| Operating system type and version | NetBackup role        | Patch                                                | Notes                                                                                                                                                                                                                                               |
|-----------------------------------|-----------------------|------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AIX 7.1                           | Master, media, client | AIX 7.1 TL1 SP2 (7100-01-02-1150)                    | This patch is required for the NetBackup-Java Administration Console to function properly.<br><br><a href="https://www-304.ibm.com/support/docview.wss?uid=isg1fixinfo134913">https://www-304.ibm.com/support/docview.wss?uid=isg1fixinfo134913</a> |
| HP-UX                             | Master, media, client | COMPLIBS.LIBM-PS32                                   | If you install AT on an HP-UX platform, this patch is required.                                                                                                                                                                                     |
| HP-UX IA-64                       | Master, media, client | Networking.NET-RUN:<br>/usr/lib/libip6.sl            |                                                                                                                                                                                                                                                     |
|                                   | Master, media, client | Networking.NET-RUN-64:<br>/usr/lib/pa20_64/libip6.1  |                                                                                                                                                                                                                                                     |
|                                   | Master, media, client | Networking.NET-RUN-64:<br>/usr/lib/pa20_64/libip6.sl |                                                                                                                                                                                                                                                     |
|                                   | Master, media, client | Networking.NET2-RUN:<br>/usr/lib/hpux32/libip6.so    |                                                                                                                                                                                                                                                     |
|                                   | Master, media, client | Networking.NET2-RUN:<br>/usr/lib/hpux32/libip6.so.1  |                                                                                                                                                                                                                                                     |
|                                   | Master, media, client | Networking.NET2-RUN:<br>/usr/lib/hpux64/libip6.so    |                                                                                                                                                                                                                                                     |
|                                   | Master, media, client | Networking.NET2-RUN:<br>/usr/lib/hpux64/libip6.so.1  |                                                                                                                                                                                                                                                     |
|                                   | Master, media, client | Networking.NET2-RUN:<br>/usr/lib/libip6.1            |                                                                                                                                                                                                                                                     |
| HP-UX 11.31                       | Media                 | QPK1131 (B.11.31.1003.347a) patch bundle             | This patch bundle is required for NetBackup media server support. It is an HP-UX March 2010 patch bundle.                                                                                                                                           |
| Red Hat Enterprise Linux 6        | Master, media, client | glibc-2.12-1.107 or higher                           |                                                                                                                                                                                                                                                     |
| Windows Vista x86-32              | Client                | KB936357                                             | Microsoft microcode reliability update.                                                                                                                                                                                                             |

**Table B-1** Required operating system patches and updates for NetBackup 7.7.1 (continued)

| Operating system type and version | NetBackup role        | Patch     | Notes                                                                                                                                               |
|-----------------------------------|-----------------------|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
|                                   | Client                | KB952696  | Contains the necessary updates to ensure that you can back up encrypted files.                                                                      |
| Windows Vista x86-64              | Client                | KB936357  | Microsoft microcode reliability update.                                                                                                             |
|                                   | Client                | KB952696  | Contains the necessary updates to ensure that you can back up encrypted files.                                                                      |
| Windows Server 2008 x86-32        | 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 (SP2)         | Master, media, client | KB979612  | Hot fix to improve TCP loopback latency and UDP latency                                                                                             |
| Windows Server 2008 R2            | Master, media, client | KB2265716 | Hot fix for when a computer randomly stops responding.<br><br>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.<br><br>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.<br><br>Note that this patch is also contained in Windows Server 2008 R2 SP1. |

**Table B-1** Required operating system patches and updates for NetBackup 7.7.1 (continued)

| Operating system type and version | NetBackup role        | Patch    | Notes                                                                                                                                |
|-----------------------------------|-----------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------|
|                                   | Master, media, client | KB979612 | Hot fix to improve TCP loopback latency and UDP latency<br><br>Note that this patch is also contained in Windows Server 2008 R2 SP1. |

- Symantec recommends the following Microsoft 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>
  - Microsoft microcode reliability update. This fix applies to 32-bit and 64-bit versions of Windows Server Vista: (suggested) <http://support.microsoft.com/?kbid=936357>
  - Symantec AntiVirus. Update to latest version and latest update (required).
  - The `Symevent` driver updates (required). Update to latest driver version.

## NetBackup 7.7.1 binary sizes

[Table B-2](#) contains the approximate binary sizes of the NetBackup 7.7.1 master server, media server, and client software for the various supported operating systems. This information is meant to help you determine if you have allocated enough disk space on your computers to safely and efficiently back up and restore all of the data in your NetBackup environment.

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**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 Symantec Operations Readiness Tools](#)” on page 87.

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**Table B-2** NetBackup binary sizes for compatible platforms

| OS                              | CPU Architecture | 32-bit client | 64-bit client | 64-bit server | Notes                                                                                                      |
|---------------------------------|------------------|---------------|---------------|---------------|------------------------------------------------------------------------------------------------------------|
| AIX                             | POWER            |               | 2546MB        | 6955MB        |                                                                                                            |
| Canonical Ubuntu                | x86-64           |               | 1662MB        |               |                                                                                                            |
| CentOS                          | x86-64           |               | 1662MB        | 5145MB        | Media server or client compatibility only.                                                                 |
| Debian GNU/Linux                | x86-64           |               | 1662MB        |               |                                                                                                            |
| FreeBSD                         | x86-64           |               | 301MB         |               |                                                                                                            |
| HP-UX                           | IA-64            |               | 2807MB        | 7738MB        |                                                                                                            |
| Mac OS X                        | x86-64           |               | 249MB         |               |                                                                                                            |
| Novell Open Enterprise Server   | x86-64           |               | 1545MB        | 4943MB        |                                                                                                            |
| OpenVMS                         | IA-64            |               | 128MB         |               | The listed sizes are for the NetBackup 7.5 binaries. No NetBackup 7.7.1 binaries for OpenVMS are provided. |
| Oracle Linux                    | x86-64           |               | 1662MB        | 5145MB        |                                                                                                            |
| Red Hat Enterprise Linux Server | x86-64           |               | 1662MB        | 5145MB        |                                                                                                            |
| Red Hat Enterprise Linux Server | z/Architecture   |               | 1276MB        | 2471MB        | Media server or client compatibility only.                                                                 |
| Solaris                         | SPARC            |               | 1669MB        | 5121MB        |                                                                                                            |
| Solaris                         | x86-64           |               | 1617MB        | 5324MB        |                                                                                                            |
| SUSE Linux Enterprise Server    | x86-64           |               | 1545MB        | 4943MB        |                                                                                                            |
| SUSE Linux Enterprise Server    | z/Architecture   |               | 1197MB        | 2360MB        | Media server or client compatibility only.                                                                 |
| Windows                         | x86-32           | 750MB         |               |               | Covers all compatible Windows x86 platforms                                                                |
| Windows                         | x86-64           |               | 1050MB        | 2700MB        | 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 7.7.1.

**Table B-3** NetBackup OpsCenter binary sizes for compatible platforms

| OS                              | CPU Architecture | Agent | Server | ViewBuilder |
|---------------------------------|------------------|-------|--------|-------------|
| Oracle Linux                    | x86-64           |       | 713MB  |             |
| Red Hat Enterprise Linux Server | x86-64           |       | 725MB  |             |
| SUSE Linux Enterprise Server    | x86-64           |       | 725MB  |             |
| Windows Server                  | x86-64           | 245MB | 637MB  | 201MB       |

## 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.

# NetBackup compatibility requirements

This appendix includes the following topics:

- [About NetBackup compatibility lists and information](#)
- [About NetBackup end-of-life notifications](#)

## 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 Symantec Operations Readiness Tools (SORT) for NetBackup website.

See “[About Symantec Operations Readiness Tools](#)” on page 87.

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, Symantec 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 Symantec Support website at the following location:

<http://www.netbackup.com/compatibility>

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

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## About NetBackup end-of-life notifications

Symantec 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. Symantec 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 Symantec 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.

Symantec provides advance notification to better help its customers to plan for upcoming changes to the support status of the various features in NetBackup. Symantec 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. Symantec 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 Symantec 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.symantec.com/nbufutureplans>

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

[https://sort.symantec.com/eosl/show\\_matrix](https://sort.symantec.com/eosl/show_matrix)

See “[About Symantec Operations Readiness Tools](#)” on page 87.

## **About changes in platform compatibility**

The NetBackup 7.7.1 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 18.

<http://www.netbackup.com/compatibility>



# Other NetBackup documentation and related documents

This appendix includes the following topics:

- [About related NetBackup documents](#)
- [About NetBackup release notes documents](#)
- [About NetBackup administration documents](#)
- [About NetBackup installation documents](#)
- [About NetBackup configuration documents](#)
- [About NetBackup troubleshooting documents](#)
- [About other NetBackup documents](#)

## About related NetBackup documents

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

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Symantec 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.symantec.com/docs/DOC5332>

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

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## 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.

## About administration of NetBackup options

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

- *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 Symantec 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 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 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 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 Plug-in for VMware vCenter Guide*

This guide explains how to install and use the NetBackup vCenter plug-in to monitor virtual machine backups and restore virtual machines.

- *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 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.
- *NetBackupAdd-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 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 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 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.
- *NetBackup OpsCenter Administrator's Guide*  
This document 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.

## 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 Symantec 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 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 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 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 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 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 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 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.
- *NetBackup Installation Guide*  
This guide explains how to install NetBackup server, client, and administrative software on UNIX and Windows platforms.
- *NetBackup LiveUpdate Guide*  
This guide explains how to set up a NetBackup LiveUpdate server to provide a policy-driven method of distributing NetBackup software releases within your environment.

## 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 Troubleshooting Guide*  
This guide provides general troubleshooting information and explains the various troubleshooting methods that can be used for NetBackup products and features.
- *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.

## About other NetBackup documents

The following documents are published for NetBackup software:

- *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 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 Security and Encryption Guide*  
This guide provides information about on how to secure NetBackup using access control, enhanced authorization and authentication, and encryption.
- *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 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 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 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 Symantec NetBackup and OpsCenter products.