

Veritas NetBackup™ for MySQL Administrator's Guide

Windows and Linux

Release 8.1

VERITAS™

Veritas NetBackup™ for MySQL Agent Administrator's Guide

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Introduction to NetBackup for MySQL Agent

This chapter includes the following topics:

- [About NetBackup for MySQL Agent](#)

About NetBackup for MySQL Agent

NetBackup for MySQL Agent extends the capabilities of NetBackup to include backups, restores, query, and delete operations of MySQL databases. The MySQL agent interacts with the NetBackup XBSA interface to protect data in the NetBackup environment. The agent is located on the NetBackup client and supports the MySQL 5.5.5 and later versions.

Features of NetBackup for MySQL Agent

The [Table 1-1](#) displays the features that the agent supports:

Table 1-1 Features of NetBackup for MySQL Agent

Features	Description
Backup	NetBackup supports full instance backups of the MySQL database.
Restore	NetBackup supports full instance restores of MySQL backups.
Redirected restore	NetBackup supports to restore MySQL backups to alternate NetBackup clients.

Packaging the NetBackup for MySQL Agent

The MySQL agent is packaged in `NBMySQLAgent_8.1.zip` file and is available on my.veritas.com site. The `NBMySQLAgent_8.1.zip` package file includes the following platform files:

- (Windows) `NBMySQLAgent_8.1_AMD64/`
- (Linux RHEL) `NBMySQLAgent_8.1_linuxR_x86/`
- (Linux SLES) `NBMySQLAgent_8.1_linuxS_x86/`

About the License for NetBackup for MySQL Agent

The NetBackup for MySQL Agent is not a separately licensed option of NetBackup. However, it is expected that each customer using the NetBackup for MySQL Agent has a NetBackup license and is under support contract. In general, licensing of the NetBackup for MySQL Agent follows the existing capacity licensing models for supported database agents.

NetBackup Documentation

The NetBackup for MySQL Agent documentation is available at the following URL:

www.veritas.com/support/en_US/article.000127661

Installing NetBackup for MySQL Agent

This chapter includes the following topics:

- [Planning the installation of NetBackup for MySQL Agent](#)

Planning the installation of NetBackup for MySQL Agent

The following table shows the planning steps that are mandatory for installing the NetBackup for MySQL Agent.

Table 2-1 Installation steps for NetBackup for MySQL Agent

Step	Action
Step 1	Verifying the operating systems. For more information, See Verifying the operating systems and the platforms on page 11.
Step 2	Verifying the prerequisites before you install the NetBackup for MySQL Agent. For more information, See Pre-requisites for installing NetBackup for MySQL Server on page 11.
Step 3	Installing the NetBackup for MySQL Agent on your operating system. For more information, See the section called "Installing the NetBackup for MySQL Agent" on page 12.

Table 2-1 Installation steps for NetBackup for MySQL Agent (*continued*)

Step	Action
Step 4	<p>Authenticating the database password for NetBackup for MySQL backups and restores.</p> <p>For more information, See the section called “Authenticating password for backups and restores” on page 13.</p>

Verifying the operating systems and the platforms

The following platforms support the NetBackup for MySQL Agent:

- Red Hat Enterprise Linux (RHEL) 6.8 and later
- SUSE Enterprise Linux Server 11 SP3 and later
- Microsoft Windows Server 2008 R2 and later
- Microsoft Windows 8.1 and later

Installing prerequisites of NetBackup for MySQL Agent

Before you install, ensure that you meet the following installation prerequisites:

- NetBackup 8.1 must be installed and operational on the master server, media server, and the client.
- The MySQL database must be installed and operational on the client.
- The MySQL instance must be on the InnoDB storage engine.

Post-installation requirements for NetBackup for MySQL Agent

After you install, complete the following:

- (Windows) Configure the NetBackup for MySQL Agent to run with administrative privileges.
- (Windows) Add the NetBackup `bin` directory to the `PATH` user environment variable.
- (Linux) Users of the agent must be a superuser or have superuser privileges.
- (Linux) Create a symbolic link `libmysqlclient.so` and ensure that it points to the `libmysqlclient` library.
- The following user privileges must be set:

Table 2-2 User privileges

User	Privileges
Backup	LOCK TABLES, SELECT, FILE, RELOAD, SUPER, UPDATE, TRIGGER, SHOW, VIEW, EXECUTE, and EVENT.
Restore	CREATE, DROP, INDEX, SHUTDOWN, INSERT, ALTER, DELETE, UPDATE, TRIGGER, SUPER, and CREATE VIEW.

To set the user privileges, run the following commands:

```
GRANT SELECT, INSERT, UPDATE, CREATE, DROP, RELOAD, SHUTDOWN, FILE,
INDEX, ALTER, SUPER, LOCK TABLES, CREATE VIEW, SHOW VIEW, TRIGGER,
CREATE ROUTINE, DELETE, EVENT, ALTER ROUTINE ON *.* TO
'USER'@'localhost' IDENTIFIED BY 'PASSWORD'
```

Installing the NetBackup for MySQL Agent

The agent is packaged in the `NBMySQLAgent_8.1.zip` file and is available on my.veritas.com site. The package file includes the following platform files:

- (Windows) `NBMySQLAgent_8.1_AMD64/`
- (Linux RHEL) `NBMySQLAgent_8.1_linuxR_x86/`
- (Linux SUSE) `NBMySQLAgent_8.1_linuxS_x86/`

During the installation procedure, you have to accept the VERITAS LICENSE AGREEMENT to proceed with installing the agent successfully. The agent by default gets installed at the following locations:

- (Windows) `C:\Program Files\Veritas\NBMySQLAgent`
- (Linux RHEL & SUSE) `/usr/NBMySQLAgent/`

The platform files have the following directory structure:

(Windows) `NBMySQLAgent_8.1_AMD64/` includes the following files:

- `NBMySQLAgent_8.1_AMD64/README.txt`
- `NBMySQLAgent_8.1_AMD64/NBMySQLAgent.msi`
- `NBMySQLAgent_8.1_AMD64/Setup.exe`
- `NBMySQLAgent_8.1_AMD64/CAB1.CAB`

(Linux RHEL) `NBMySQLAgent_8.1_linuxR_x86/` includes the following files:

- `NBMySQLAgent_8.1_linuxR_x86/README`
- `NBMySQLAgent_8.1_linuxR_x86/install`

- NMySQLAgent_8.1_linuxR_x86/LICENSE
- NMySQLAgent_8.1_linuxR_x86/pkg.tar

(Linux SUSE) NMySQLAgent_8.1_linuxS_x86/ includes the following files:

- NMySQLAgent_8.1_linuxS_x86/README
- NMySQLAgent_8.1_linuxS_x86/install
- NMySQLAgent_8.1_linuxS_x86/LICENSE
- NMySQLAgent_8.1_linuxS_x86/pkg.tar

Performing the installation for the MySQL Agent

To install the agent on Windows, complete the following steps:

- 1 Extract the NMySQLAgent_8.1_AMD64/ file contents to your chosen location.
- 2 Run the NMySQLAgent_8.1_AMD64/Setup.exe.
- 3 Accept the VERITAS LICENSE AGREEMENT and then click **Finish**.

The agent gets installed at C:\Program Files\Veritas\NMySQLAgent location.

To install the agent for Linux (RHEL), complete the following steps:

- 1 Extract the NMySQLAgent_8.1_linuxR_x86/ file contents to your chosen location.
- 2 Run the NMySQLAgent_8.1_linuxR_x86/install file.
- 3 Type *y* to accept the VERITAS LICENSE AGREEMENT.

The agent gets installed at /usr/NMySQLAgent/ location.

To install the agent on Linux (SUSE), complete the following steps:

- 1 Extract the NMySQLAgent_8.1_linuxS_x86/ file contents to your chosen location.
- 2 Run the NMySQLAgent_8.1_linuxS_x86/install file.
- 3 Type *y* to accept the VERITAS LICENSE AGREEMENT.

The agent gets installed at /usr/NMySQLAgent/ location.

Authenticating password for backups and restores

Authenticating the password keeps you from specifying the password every time you run a backup or restore. The `my.cnf` or the `my.ini` file stores the authentication credentials that the agent reads when it connects to the MySQL Server. Ensure that you store the password in the MySQL environment variable.

The MySQL utility to encrypt the password lets you set, reset, and validate the password. The utility for password encryption uses the port number to create a section name that corresponds to the instance to which the password belongs.

In MySQL v5.5.x, it reads the plain text authentication credentials from MySQL configuration file `my.cnf`. To authenticate, under the client section, edit the `my.cnf`, or `my.ini` file to add the password. For example:

```
[client]
```

```
port=3306
```

```
password=<add the password (for example, test123)>
```

In MySQL v5.6 and later, it reads the encrypted authentication credentials from the MySQL options `.mylogin.cnf` file.

To encrypt the password, complete the following steps:

- 1 (Windows) To encrypt the password, run the following command:

```
mysql_config_editor.exe set --login-path=<portnumber> --<password>
```

```
For example,mysql_config_editor.exe set --login-path=3306 --test123
```

- 2 (Linux) To encrypt the password, run the following command:

```
mysql_config_editor set --login-path=<portnumber> --<password>
```

```
For example,mysql_config_editor set --login-path=3306 --test123
```

- 3 To reset the password, run the command that applies to your operating system:

- (Windows) `mysql_config_editor.exe reset`

- (Linux) `mysql_config_editor reset`

- 4 To validate the password, run the command that applies to your operating system:

- (Windows) `mysql_config_editor.exe print --all`

- (Linux) `mysql_config_editor print --all`

Uninstalling the NetBackup for MySQL Agent

To uninstall the agent, complete the following steps:

- 1** (Windows) From the **Control Panel**, right-click the `NBMySQLAgent_8.1_AMD64/` file and **Uninstall** the agent.
- 2** (Linux RHEL) To uninstall, delete the `NBMySQLAgent_8.1_linuxR_x86/` directory from the installed location.
- 3** (Linux SUSE) To uninstall, delete the `NBMySQLAgent_8.1_linuxS_x86/` directory from the installed location.

Configuring NetBackup for MySQL Agent

This chapter includes the following topics:

- [The nbmysql configuration file](#)

The `nbmysql` configuration file

The NetBackup for MySQL Agent configuration (`nbmysql.conf`) file is used to configure the MySQL parameters for the respective operations. It contains predefined settings and is located on the client. When parameters are not configured in the `nbmysql.conf` file, then the default parameter value takes precedence. The NetBackup connection parameters like server name, policy, and schedule are required parameters for MySQL backups and restores. You can configure the parameters in the `nbmysql.conf` file or set them on the command line, where the command line parameters take precedence.

The `nbmysql.conf` file is located in the following locations:

- (Windows) `install_path\NBMySQLAgent_8.1_AMD64\nbmysql.conf`
- (Linux (RHEL)) `install_path/NBMySQLAgent_8.1_linuxR_x86/nbmysql.conf`
- (Linux SUSE) `install_path/NBMySQLAgent_8.1_linuxS_x86/nbmysql.conf`

The `nbmysql.conf` includes the following parameters:

Table 3-1 `nbmysql.conf` parameters

Parameters	Description
<code>DB_USER</code>	Configures the MySQL database user name and when not specified, then the default value is "root".

Table 3-1 nbmysql.conf parameters (continued)

Parameters	Description
DB_PORT	Configures the MySQL database server port number on which the backup or the restore should be performed. The default value for the port number is "3306". The port number verifies the MySQL service status and is a required parameter for restores
MySQL_LIB_INSTALL_PATH	Configures the libmysql.dll/libmysqlclient.so binary path. On Windows, the library directory is at MySQL server installed path. On Linux, run the libmysqlclient command to locate the library path.
NETBACKUP_MASTER_SERVER	Specifies the NetBackup master server for backups and restores.
NETBACKUP_POLICY_NAME	Specifies the NetBackup DataStore policy name.
NETBACKUP_SCHEDULE_NAME	Identifies the backup schedule that you configured while creating the DataStore policy.
NETBACKUP_CLIENT_NAME	Defines the NetBackup MySQL client name.
SNAPSHOT_SIZE	(Linux) Specifies the snapshot size. Specify the snapshot size in kilobytes, megabytes, or gigabytes as K, M, or G respectively. If you do not specify a measurement, the default measurement is M (megabytes).
COPY_ID	copyid is the backup image name. You can use this value to query, restore, or delete a specific backup.
MYSQL_TARGET_DIRECTORY	Specifies the destination directory where you want to restore the backups.

Table 3-1 nbmysql.conf parameters (continued)

Parameters	Description
NBMYSQL_LOG_LEVEL	<p>The NBMYSQL_LOG_LEVEL lets you set the logging level for the NetBackup MySQL logs. The default value is 1. For a particular logging level, all details at that level or lower are logged.</p> <p>The MySQL debug logs includes the following verbose levels:</p> <ul style="list-style-type: none"> ■ 1 – ERROR: Conditions that should be corrected, such as configuration errors. ■ 2 – WARN: Conditions that are not errors, but that might require special handling. ■ 3 – INFO: Informational messages ■ 4 – DEBUG: Debugging the messages that is used for troubleshooting.
NBMYSQL_LOG_SIZE	Configures the NetBackup MySQL log size in MB. When this parameter is not configured, then the default value is 10MB.

Configuring NetBackup for MySQL backups with DataStore policies

The agent uses the DataStore policies to define the attributes, schedules, clients list, and backup selections.

To configure MySQL database backups with DataStore policies, complete the following steps:

- 1** Log on to the master server as an administrator (Windows) or root (Linux).
- 2** In the **NetBackup Administration Console**, expand **NetBackup Management**, and then click **Policies**.
- 3** In **All Policies** pane, right-click **Summary of All Policies**, and then click **New Policy**.
- 4** In **Add a New Policy** dialog box, enter a unique name for the policy.
- 5** In the **Change Policy** dialog box, select **Data Store Policy** from the **Policy Type** drop-down list.
- 6** From the **Policy Storage** list, select the **Any_Available media** for storage.

- 7 To select the schedule type, under the **Schedules** tab, click **Ok** to select the **Application Backup** schedule type.

Note: The XBSA framework supports the **Application backup** schedule type only.

- 8 In the **Clients** tab, click **New**, and then add the NetBackup client that has the NetBackup for MySQL Agent.
- 9 In the **Add Client** screen, click **New**, and then in the **Client Name** field, type the name of the client.
- 10 In the **NetBackup Administration Console**, click **NetBackup Management > Policies** to view the policy in the existing policies list.
- 11 Before performing the backup, review the settings in the `nbmysql.conf` file.
For more information, See [“The nbmysql configuration file”](#) on page 16.

Performing NetBackup for MySQL backups and restores

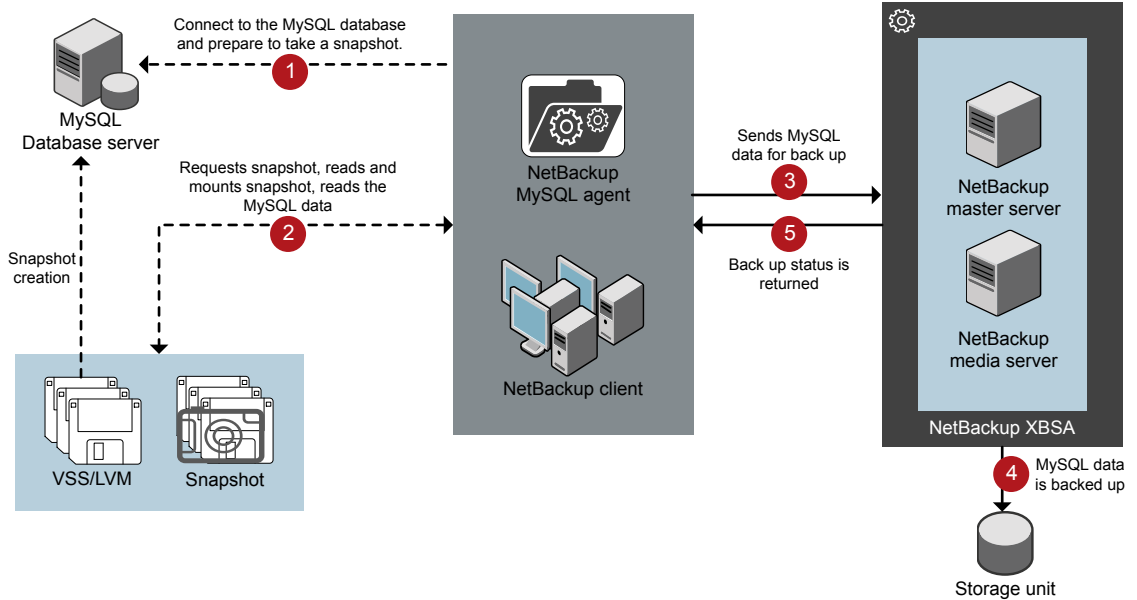
This chapter includes the following topics:

- [About NetBackup for MySQL backups](#) This section includes the high-level interactions of the components, prerequisites, and the procedure to perform the backups.
- [Configuring NetBackup for PostgreSQL backups with DataStore policies](#)
- [About NetBackup for MySQL restores](#)
- [Disaster recovery](#)

About NetBackup for MySQL backups This section includes the high-level interactions of the components, prerequisites, and the procedure to perform the backups.

When you initiate a backup, the agent connects to the MySQL database to execute a flush and read only lock on all tables. The agent then reads the associated MySQL database files from mounted directory and initiates the backup. The LVM or VSS, then creates a snapshot, mounts the snapshot and then sends the data to the NetBackup XBSA interface. The NetBackup XBSA interface then writes the data into the mounted media that is managed by the NetBackup media server.

Figure 4-1 NetBackup for MySQL backup workflow



Prerequisites

Before you can perform the MySQL backups, ensure that you meet the following prerequisites.

- (LVM users) Ensure that MySQL data and logs directory reside on the logical volumes.
- Configure the DataStore policy from the NetBackup Administration Console. For more information, See [Configuring NetBackup Data Store policies for MySQL Server backups and restores](#) on page 21.
- Add the database parameters and library path in the `nbmysql.conf` file. For more information, See [“The nbmysql configuration file”](#) on page 16.
- Verify that there is enough space for the snapshot in the volume group, and then set the snapshot size in `nbmysql.conf` file or by the command line.

Note: Ensure that the snapshot size is 20% to 30% more than the instance size that you want to backup.

Performing the NetBackup for MySQL backups

To initiate the backups, complete the following steps:

- 1 Run the following command:

```
nbmysql -o backup
-S master_server_name
-P policy_name
-s schedule_name
-L mysql_lib_path
-z snapshot_size
[-p database_server_port]
[-u database_username]
```

For more information, See [the section called “The NetBackup for MySQL command options”](#) on page 28.

- 2 (Optional) When prompted, type the database password. NetBackup connects to the database and initiates the backup. For more information on password, See [the section called “Authenticating password for backups and restores”](#) on page 13.

Validating the NetBackup for MySQL backup information

After a successful MySQL backup, you can view and verify the backup information using the following command:

```
nbmysql -o query
```

Querying the NetBackup for MySQL backups

The `nbmysql` query command shows a list of previously backed up files according to the options that you specify. You can configure these parameters from the `nbmysql.conf` file or set the parameters using the `nbmysql` command. The parameter `-s` is the required parameter.

By default, NetBackup uses the values that you have configured in the `nbmysql.conf` file. Alternatively, you can use the `-C client_name` and `-P policy_name` options to define a different client and policy.

For example, to query a backup from ClientA, run the following command:

```
nbmysql -o query -S master_server_name [-C ClientA]
```

For example, to list backup files with the policy name `policy_name`, run the following command:

```
nbmysql -o query -S master_server_name [-P policy_name]
```

Deleting a MySQL backup image from the NetBackup catalog.

The `nbmysql delete` command, removes the backup information from the catalog files but retains the backup files on the NetBackup media server.

By default, NetBackup uses the values that you have defined in the `nbmysql.conf` file. Alternatively you can use the `-i` option to delete a backup using its backup image name. The value `-s` is the required parameter.

To delete the MySQL backups, complete the following steps:

- 1 Configure the parameters, in the `nbmysql.conf` file or set them in the command line.
- 2 Run the following command:

```
nbmysql -o delete -S master_server_name [-i copy_id].
```

Configuring NetBackup for PostgreSQL backups with DataStore policies

The agent uses the DataStore policies to define the attributes, schedules, clients list, and backup selections.

To configure the PostgreSQL database backups with DataStore policies, complete the following steps:

- 1 Log on to the master server as an administrator (Windows) or root (Linux).
- 2 In the **NetBackup Administration Console**, expand **NetBackup Management**, and then click **Policies**.
- 3 In **All Policies** pane, right-click **Summary of All Policies**, and then click **New Policy**.
- 4 In **Add a New Policy** dialog box, enter a unique name for the policy.
- 5 In the **Change Policy** dialog box, select **DataStore Policy** the from **Policy Type** drop-down list.
- 6 From the **Policy Storage** drop-down list, select a **disk-based storage unit** for storage.

- 7 To select the schedule type, under the **Schedules** tab, click **OK** to select the **Application Backup** schedule type.

Note: The XBSA framework supports the **Application backup** schedule type only.

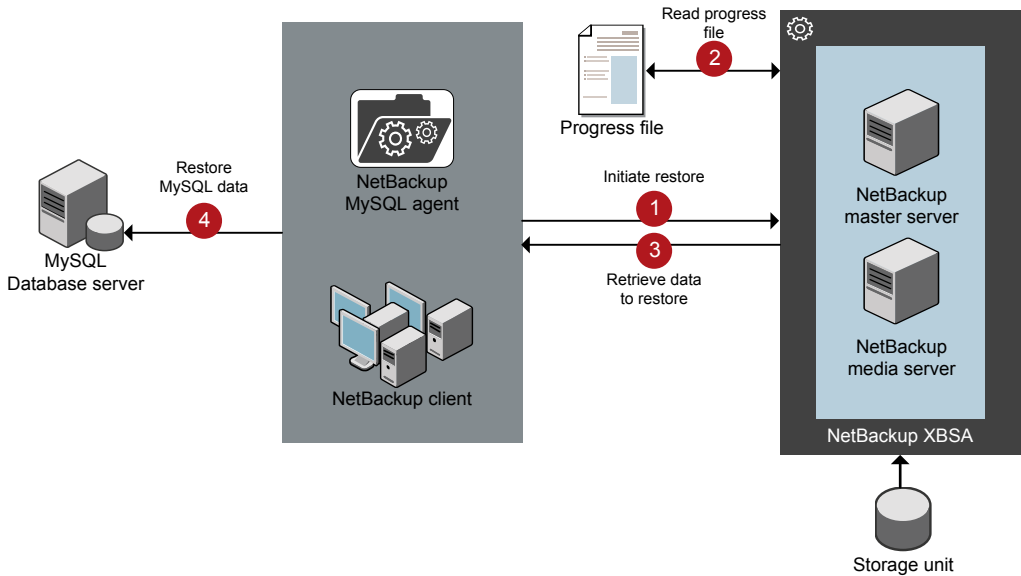
- 8 In the **Clients** tab, click **New** and then add the NetBackup client that has the **NetBackup for PostgreSQL Agent**.
- 9 In the **Add Client** screen, click **New**, and then in the **Client Name** field, type the name of the client.
- 10 In the **NetBackup Administration Console**, click **NetBackup Management > Policies** to view the policy in the existing policies list.
- 11 Before performing the backup, review the settings in the `nbpgsql.conf` file.
For more information, see

About NetBackup for MySQL restores

This section includes the high-level interactions of the components, prerequisites, and the procedure to perform the MySQL restore.

When you initiate a restore, the NetBackup XBSA interface reads the progress files to receive the MySQL backup files to restore them to the target directory. Before you run a restore, ensure that the target directory is empty.

Figure 4-2 NetBackup for MySQL restore workflow



The parameter `-s`, `-t`, and `-p` are required parameters. Alternatively, you can choose to restore using the optional values `-i` as the backup image name and `-c` to restore from a specified client name.

Prerequisites

Before you restore the MySQL backups, you must meet the following prerequisites:

- Ensure that you restore the MySQL instance to an empty target directory.
- Ensure that the target directory is a valid instance directory.
- (Non-LVM) Ensure the MySQL services are running.

Performing the NetBackup for MySQL restores

To restore the MySQL backups, complete the following steps:

- 1 Configure the parameters in the `nbmysql.conf` file, or set them using the `nbmysql` command. For more information, See [“The nbmysql configuration file”](#) on page 16.
- 2 Verify that the MySQL services are running for Non-LVM restores.
- 3 Run the following command:

```
nbmysql -o restore -S master_server_name -t target_directory -p  
db_port [-i copy_id] [-C client_name]
```

Note: The restore fails when the target directory is invalid or not empty. Ensure that you delete all contents of the target directory before you initiate the restore.

Performing a redirected restore

A redirected restores lets you restore backup files to a client different from the client that originally performed the backup. The new location can be a different host or a different file path using a different name for the redirected restore. To redirect a MySQL restore to a different host, include the destination client name in the `install_path\NetBackup\db\altnames` directory.

To redirect a restore to a different host, complete the following steps:

- 1 Update the `nbmysql.conf` file with the NetBackup client name as the host and the MySQL target directory as the directory where you want to redirect the restore.
- 2 On the NetBackup master server, create an `altnames` directory for the host that you want to have permission to perform the redirected restore. For example, to give Host B permissions to restore from another host, create the following file:
 - (Windows) `install_path\NetBackup\db\altnames\HostB`
 - (Linux RHEL and SLES) `/usr/openv/netbackup/db/altnames/HostB`
- 3 In the `altnames` directory, add the names of the client(s) whose files the requesting client wants to restore. For example, if you want Host B to have permissions to redirect restores from Host A, add Host A to the Host B file.

- 4 Run the following command:

```
nbmysql -o restore -S master_server_name -t target_directory -p  
db_port [-i copy_id] [-C client_name]
```

- 5 After a successful redirected restore, undo the changes that you made on the master server and the client.

To redirect a restore to a different file path, complete the following steps:

- 1 Run the following command:

```
nbmysql -o restore -S master_server_name -t target_directory -p  
db_port [-i copy_id] [-C client_name]
```

- 2 After a successful restore, make the following changes:

- (Linux) To change the ownership of the files and directories to MySQL, run the following command:

```
$chown -R mysql <data_dir>  
$chgrp -R mysql <data_dir>
```

- 3 Copy the restore data to the data directory.

Disaster recovery

Disaster recovery is a plan to recover the data that can get lost in a disaster event. The NetBackup for MySQL agent uses redirected restore as a disaster recovery strategy.

For more information, See [the section called “Performing a redirected restore ”](#) on page 26.

NetBackup for MySQL Commands

This chapter includes the following topics:

- [About NetBackup for MySQL commands](#)

About NetBackup for MySQL commands

This section describes the commands that are available to perform backups, restores, query, and delete operations. Note that:

- Brackets ' [] ' indicate that the enclosed component of the command line is optional. Other options are required.
- The parameter values that you provide on the command line takes precedence over the `nbmysql.conf` settings.
- If the required parameters are not set in the `nbmysql.conf`, then they should be provided in the command lines.

The NetBackup for MySQL command options

This section describes the options that you can use with the `nbmysql` command.

Options	Description
-C	Configures the NetBackup client name for a redirected restore
-h	Displays the Help information.
-i	Configures the backup using the copyid value as a backup image name.
-l	Configures the MySQL Library directory.

- o Configures the operation type (backup, restore, query, or delete)
- P Configures the NetBackup DataStore policy
- p Configures the database server port number that identifies the MySQL instance on which the backup or restore is performed.
- s Configures the NetBackup Schedule
- S Configures the NetBackup master server name
- t Configures the target directory to restore the data
- u Configures the database user name.
- z Configures the LVM snapshot size for Linux operating systems

The NetBackup for MySQL commands

This section contains detailed information on the commands that you can run on Windows and Linux as well. Each command contains a brief description and the parameters for the respective operations.

```
nbmysql -h
```

Description

The command `nbmysql -h` displays the Help information, when `-h` is the only option with `nbmysql` command. The Help displays the NetBackup for MySQL utility usage information for options, arguments, and the detailed usage of the operations. The detailed usage, displays the command for each operation and the parameters (required and optional) that you need to specify for the respective operation.

```
nbmysql -o backup -S master_server_name -P policy_name -s  
schedule_name -l library_path -z snapshot_size [-p  
database_server_port] [-u database_server_user]
```

Description

This command invokes the backup operation from the NetBackup client using the NetBackup DataStore policy name and the NetBackup schedule that you have configured on the master server.

```
nbmysql -o restore -S master_server_name -t target_directory -p  
database_port [-i copy_id] [-C client_name]
```

Description

This command initiates the restore operation from the NetBackup client. You must specify the valid MySQL target data directory. The target directory should be empty

for a successful restore. For a redirected restore, run the command from the destination client. Also specify the source client.

If you specify the `-i copy_id` as the optional parameter, then the restore command gets a backup using `copy-id` value as a backup image name. Also, the `-c` parameter gets all the backups that are performed on the specified NetBackup client name.

Note: Ensure that the target directory corresponds to the MySQL instance that is identified by the database port number. Also ensure that the target directory is empty for a successful restore.

```
nbmysql -o query -S master_server_name [-P policy_name] [-C  
client_name]
```

Description

This command queries the MySQL instances from the specified master server name. If you specify the `-P` as the optional parameter, then the command queries using the NetBackup policy name. Also, the optional `-c` parameter gets all the backups that are performed on the NetBackup client name.

```
nbmysql -o delete -S master_server_name -i copy_id
```

Description

This command deletes the MySQL backups and restores from the specified master server name. The parameters `-s` and `-i` are required parameters.

Troubleshooting for NetBackup for MySQL

This chapter includes the following topics:

- [Troubleshooting errors for the NetBackup for MySQL Agent](#)

Troubleshooting errors for the NetBackup for MySQL Agent

To troubleshoot problems, you can refer to the logs that are specific to NetBackup MySQL, NetBackup XBSA, or set the verbose logging levels in the `nbmysql.conf` file. The logs are located at the following locations:

The NetBackup logs are located at:

- `install_path\NetBackup\logs\bprd`
- `install_path\NetBackup\logs\bpcd`
- `install_path\NetBackup\logs\user_ops\dbext\logs`

The logs that are specific to NetBackup for MySQL Agent is located at:

`install_path\nbmysql.log`

The logs that are specific to NetBackup XBSA is located at:

`<NetBackup_install_path>/netbackup/logs/extrn_client.`

Preliminary steps

Before you troubleshoot the problems, verify the following:

- All the prerequisites are completed.
- All the computers have compatible operating system versions.

- Debug logs and reports are verified for errors.

Troubleshooting NetBackup problems

For troubleshooting NetBackup problems, refer to the *Veritas NetBackup Troubleshooting Guide* and the *Veritas NetBackup Commands Reference Guide*.

Troubleshooting NetBackup for MySQL operations

Table 6-1 Troubleshooting NetBackup for MySQL backups and restores

Problems	Description	Solution
<p>The <code>nbmysql</code> backup fails with the following error:</p> <p><i>An error has occurred during backup</i></p>	<p>The <code>nbmysql</code> backup may fail for any of the following reasons:</p> <ul style="list-style-type: none"> ■ The NetBackup media server or client runs on NetBackup 8.0 or earlier versions. ■ The check box for Enable in secure communication with NetBackup 8.0 and earlier hosts is disabled ■ The NetBackup host ID certificate that exists on the MySQL client is invalid. 	<p>For a successful backup, complete any of the following:</p> <ul style="list-style-type: none"> ■ Upgrade the media server or client to use NetBackup 8.1 or later versions. ■ In NetBackup Administration Console, under Security Management > Global Security Settings, select the Enable in secure communication with NetBackup 8.0 and earlier hosts check box. ■ Verify the NetBackup host ID certificate. You can manually obtain the host ID certificate. For more information, see www.veritas.com/support/en_US/article.000127129
<p>The <code>nbmysql</code> agent fails to initiate any operation.</p>	<p>The MySQL agent displays an error that is related to absence of the <code>I18N</code> file. You may encounter this problem when you launch the NetBackup MySQL Agent.</p>	<p>When the agent fails to initiate operations due to absence of the <code>I18N</code> file, copy the language file in the agent installer location and then run the operations.</p>
<p>The <code>nbmysql</code> backup fails with the following error:</p> <p><i>Unable to load MySQL library</i></p>	<p>You may encounter this problem when the <code>nbmysql.conf</code> file is not updated with the following:</p> <ul style="list-style-type: none"> ■ MySQL library file location. ■ The <code>MySQL_lib_install_path</code> does not point to <code>libmysqlclient.so</code> 	<p>Verify the following and then run the backup again:</p> <ul style="list-style-type: none"> ■ Add or update the MySQL library file location in the <code>nbmysql.conf</code> file. For more information, See “The nbmysql configuration file” on page 16. ■ Ensure that the <code>MySQL_lib_install_path</code> is set to the correct path. It should point to <code>libmysqlclient.so</code> ■ Create a softlink <code>libmysqlclient.so</code> that points to the <code>libmysqlclient</code> version.

Table 6-1 Troubleshooting NetBackup for MySQL backups and restores
(continued)

Problems	Description	Solution
The <code>nbmysql</code> backup fails with the following error message: <i>Unable to connect to the database</i>	The <code>nbmysql</code> backup fails if the <code>nbmysql.conf</code> includes an invalid database user name and the port number.	To add the appropriate database user name and port number, complete the following step: <ul style="list-style-type: none"> ■ Configure the appropriate database user name and port number in the <code>nbmysql.conf</code> file or provide the appropriate options with the <code>nbmysql</code> command. For more information, See “The <code>nbmysql</code> configuration file” on page 16. <p>If the backup fails again, verify if the MySQL services are running.</p>
The <code>nbmysql</code> backup fails with the following error: <i>Unable to load xbsa.dll</i>	The <code>nbmysql</code> backup fails if the environment variable path is not updated with NetBackup bin directory.	To run a MySQL backup successfully: <ul style="list-style-type: none"> ■ Update the environment variable path with <code>NetBackup_install_path/bin</code>.
The <code>nbmysql</code> backup fails with the following error: <i>XBSA initiation failed</i>	The <code>nbmysql</code> backup fails if the <code>nbmysql.conf</code> file is not updated with the required parameters.	To run the MySQL backup successfully, do the following: <ul style="list-style-type: none"> ■ Configure the valid master server name, policy name, schedule type in the <code>nbmysql.conf</code> file or from the command line. For more information, See “The <code>nbmysql</code> configuration file” on page 16. ■ Verify if there are communication errors between the MySQL agent and the NetBackup master server. For more information see the <i>NetBackup Administration guide</i>.

Table 6-1 Troubleshooting NetBackup for MySQL backups and restores
(continued)

Problems	Description	Solution
<p>The <code>nbmysql</code> backup on Linux (LVM), fails with the following error:</p> <p><i>Error unmounting the snapshot-Device or resource busy</i></p> <p>OR</p> <p><i>Error removing the snapshot-mysqlsnap_<timestamp></i></p> <p>Note: <timestamp> is the LVM snapshot time</p>	<p>The <code>nbmysql</code> backup fails during an attempt to unmount the snapshot, the device, or when you remove the existing snapshots.</p>	<p>To unmount the snapshot, complete the following steps:</p> <ol style="list-style-type: none"> 1 List all mounted file systems using the following command: <code>\$ mount-l</code> 2 If the snapshot still exists, create a mount directory using the following command: <code>\$mount<mount_directory></code> Note: This directory is created in <code>/mnt/<snapshot_name></code>. The prefix names for snapshot are <code>mysqlsnap</code>. 3 To remove the mount directory run the following command: <code>\$rm -rf <mount_directory></code> 4 To remove the snapshot manually run the following command: <code>lvremove -f <volume_group>/<snapshot_name></code>
<p>Error messages after a successful backup:</p> <p><code><volume_group>/<snapshot_name></code> Read failure after 0 of 4096 at 29393616896: input or output error.</p> <p>OR</p> <p><code><volume_group>/<snapshot_name></code> read failure after 0 of 4096 at 4096: input or output error.</p>	<p>The <code>nbmysql</code> backup gives these errors when the volume group contains the snapshots. You can list the snapshots and then remove them before you run the backup again.</p>	<p>To remove the snapshots, complete the following steps:</p> <ol style="list-style-type: none"> 1 To list the existing snapshot, run the following command: <code>\$lvs</code> The command displays the snapshot details. 2 To remove the snapshots, run the following command: <code>\$ lvremove -f <volume_group>/<snapshot_name></code>

Table 6-1 Troubleshooting NetBackup for MySQL backups and restores
(continued)

Problems	Description	Solution
The <code>nbmysql</code> backup fails with the following error: (Linux) <i>Error creating LVM snapshot</i>	The <code>nbmysql</code> backup may fail when the volume group does not have sufficient space for the snapshot.	To verify the space in the volume group, use the following command: 1 <code>\$vgs</code> The command displays the volume group details. 2 Update the <code>nbmysql.conf</code> file with the appropriate snapshot size. The snapshot should be equivalent to or more than the instance size.
(Windows) <i>VSS snapshot creation failed</i>	The <code>nbmysql</code> backup may fail when the user does not have the privileges to run the <code>nbmysql</code> operations.	Run <code>cmd.exe</code> in Administrator mode.
The <code>nbmysql</code> restore operation does not restore any data from the target NetBackup client.	The <code>nbmysql</code> restore fails if the <code>nbmysql.conf</code> file is not updated with the NetBackup client name.	Add or update the NetBackup client name in the <code>nbmysql.conf</code> file. For more information, See “The <code>nbmysql</code> configuration file” on page 16.
The <code>nbmysql</code> restore is unsuccessful when you trigger from the target client.	The <code>nbmysql</code> restore fails if the target directory is invalid or not empty for restores. The restore may also fail, when you initiate a redirected restore from the NetBackup target client instead of the NetBackup source client.	For a successful restore, do the following: <ul style="list-style-type: none"> ■ Verify that the target directory is a valid and empty. ■ Initiate the restore from the NetBackup source client.
Exception error during backups and restores.	The <code>nbmysql</code> restores and backups fail, if the disk space is not sufficient for the restore and backups.	Verify that the disk space is larger than the MySQL database and then initiate backups or restores. Note: Approximately 30% to 40% of space more than the MySQL database is required for restores and backups.

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