

NetBackup™ for MariaDB Administrator's Guide

Windows and Linux

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NetBackup™ for MariaDB Administrator's Guide

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4. If needed, Cohesity Support can join a three-way call with the partner and the customer.
5. The customer informs Cohesity Support on the progress of the partner's case.

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Introduction to NetBackup for MariaDB

This chapter includes the following topics:

- [About NetBackup for MariaDB](#)
- [Features of NetBackup for MariaDB](#)
- [Prerequisites for NetBackup for MariaDB](#)
- [Authenticating the MariaDB environment password](#)

About NetBackup for MariaDB

NetBackup for MariaDB extends the capabilities of NetBackup to include backups and restores of the MariaDB databases. The agent supports the MariaDB version 5.5 and later.

The agent also supports to:

- Validate the backup.
- Query a backup and restore.
- Delete the backup information from the catalog files.
- Redirect restores.

NetBackup for MariaDB is available with the NetBackup client.

Note: Ensure that all NetBackup hosts are of the same NetBackup versions for successful backup and restore operations.

NetBackup for MariaDB workflow

The agent communicates with the MariaDB database to create a snapshot. The Volume Shadow Copy Services (VSS) for Windows or Logical Volume Manager (LVM) for Linux, takes a snapshot of the MariaDB database.

The agent then interacts with the NetBackup XBSA interface to update the server name, policy, and schedule type information. The NetBackup primary server connects to the NetBackup client to backup or retrieve the data that you want to protect.

The agent mounts the snapshot, copies the file, and then sends it to the NetBackup XBSA interface. The NetBackup XBSA interface then writes this data to the mounted media or disk storage that is managed by the NetBackup media server.

Features of NetBackup for MariaDB

Table 1-1 lists the features that are supported by the agent.

Table 1-1 Features supported by NetBackup for MariaDB agent

Feature	Description
Backup	The agent supports full instance backups of the MariaDB database.
Restore	The agent supports full instance restores of MariaDB backups.
Redirected restore	The agent supports restoring MariaDB backups to alternate NetBackup clients.

Prerequisites for NetBackup for MariaDB

Ensure that you meet the following prerequisites:

- NetBackup is installed and operational on the primary server, media server, and the client.
- The MariaDB database is installed and operational on the client.

Note: MariaDB instances must be started using `mariadb` instead of `mysqld`. To create a MariaDB service in a Windows environment, use the following command:

```
"<mariadb-installation-dir>\bin\mariadb.exe" --install  
"<service-name>" --defaults-file="<defaults-file-path>\my.ini"
```

```
Example - E:\MariaDB_11.4.2\bin\mariadb.exe" --install "MariaDBD"  
--defaults-file="E:\MariaDB_11.4.2\my.ini"
```

Post-installation requirements for NetBackup

After you install:

- (Windows) Ensure that the user who performs backups and restores has administrative privileges.
- (Linux) Ensure that the user who performs backups and restores is a super user or has superuser privileges.
- (Linux) Symbolic link: If a symbolic link does not exist, create a symbolic link `libmariadb.so` or `libmysqlclient.so` and ensure that it points to `libmariadb.so.<n>` and `libmysqlclient.so.<n>` respectively, where `<n>` is the MariaDB client library version. You can create the symbolic link at your chosen directory.

The client library name is `libmysqlclient.so` in older versions of MariaDB and `libmariadb.so` in newer versions.

For example, if the MySQL client library version is 18, then the symbolic link `libmysqlclient.so` points to `libmysqlclient.so.18`.

Note: Ensure that you update the `MARIADB_LIB_INSTALL_PATH` parameter in the `nbmariadb.conf` file with the absolute path of the symbolic link.

- Set the privileges for the MariaDB users for backup and restore operations. [Table 1-2](#) lists the user type and the privileges for the respective user.

Table 1-2 User and privileges

User type	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 MariaDB server user privileges, run the following MariaDB 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';
```

For more information, refer to the *MariaDB Administration Guide*.

Authenticating the MariaDB environment password

Authenticating the MariaDB environment password keeps you from specifying the password every time you run a backup. The (Windows) `my.ini` file and the (Linux) `my.cnf` file stores the password and the application picks the password every time you run a backup.

Authenticating the password

The agent reads the plaintext authentication credentials from the `my.cnf` file in Linux and `my.ini` file in Windows.

Prerequisites

Before you authenticate the password, you must meet the following prerequisites:

- (Windows) Set the user environment variable `NBMARIADB_CNF_<port>` to point to `my.ini` file.
- (Linux) Set the user environment variable `NBMARIADB_CNF_<port>` to point to `my.cnf` file. and include the Mariadb bin directory in `$PATH`.

To authenticate the password

- 1 Add the client section.
- 2 Under the Client section, edit the `my.ini` or `my.cnf` file to add the password. For example,

```
[client]
port=3306
password=<password>
```

Note: If password is not added under client section, then you can mention the section name using `NBMARIADB_CNF_SECTION_<port>`.

Note: For this environment variable, specify `NBMARIADB_CNF_<port>` variable.

For example:

- For Linux, use command: `echo "export NBMARIADB_CNF_SECTION_3306=instance1" >> ~/.bashrc`

- For windows, user can create new environment variable and add name of section as: `NBMARIADB_CNF_SECTION_3306=instance1`
- 3** To verify the password authentication, login to MariaDB server using the following command:

```
mysql -u <user>
```

Configuring the NetBackup for MariaDB

This chapter includes the following topics:

- [Create a DataStore policy for MariaDB backups](#)

Create a DataStore policy for MariaDB backups

The agent supports the **DataStore** policies to back up MariaDB.

To create a DataStore policy for MariaDB backups

- 1 Log on to the primary server as an administrator (Windows) or root (Linux).
- 2 Open the NetBackup web UI.
- 3 On the left, click **Protection > Policies**.
- 4 Click **Add**.
- 5 Enter a unique name for the policy.
- 6 From the **Policy type** list, select **DataStore**.
- 7 From the **Policy storage** list, select a disk-based storage unit for storage.
- 8 Download and modify the MariaDB backup sample script.
 - Authenticate the password in the MariaDB environment.
 - Download the backup sample script `mariadb_backup_script.txt` and copy it to a preferred location.
 - Rename the script as `mariadb_backup`.

- 9 On the **Schedules** tab, create an **Automatic backup** schedule.

Note: The default **Default-Application-Backup** schedule is created.

- 10 On the **Clients** tab, click **Add** and type the name of the client that has the MariaDB server.
- 11 On the **Backup selections** tab, click **Add** and provide the path to the modified script from step 8.
- 12 Click **Create**.

NetBackup for MariaDB backup and restore

This chapter includes the following topics:

- [About MariaDB backups](#)
- [Performing MariaDB backups](#)
- [Validating the backup information](#)
- [Querying the backups](#)
- [Deleting backup information from the NetBackup catalog files](#)
- [About restoring MariaDB backups](#)
- [Performing the restore for MariaDB databases](#)
- [Redirected restores](#)
- [Disaster recovery](#)

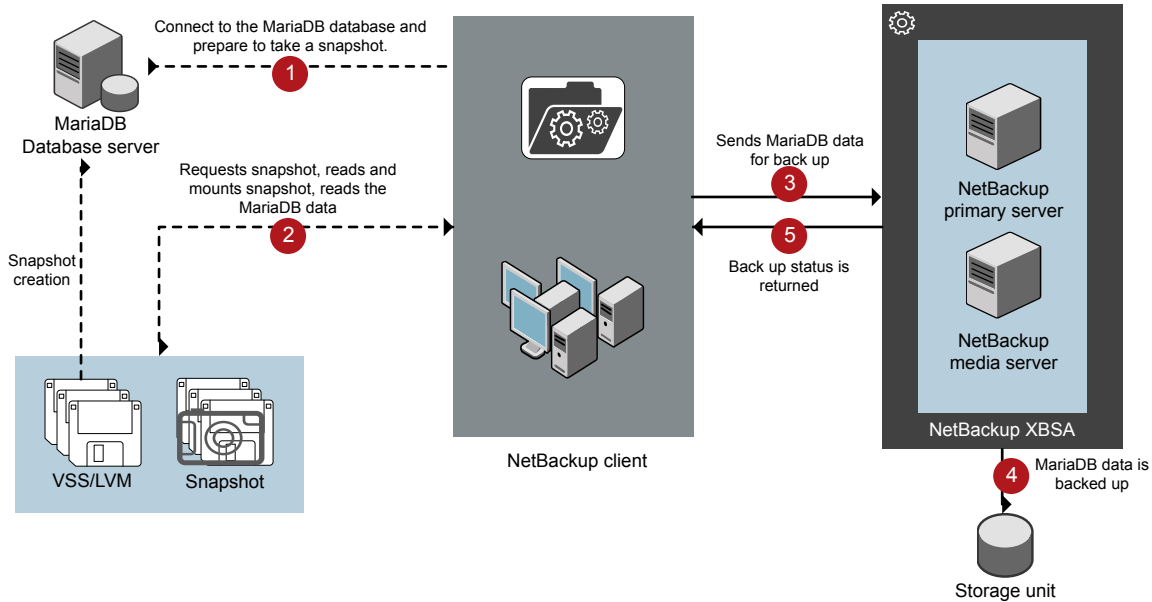
About MariaDB backups

The `nbmariadb -o backup` command initiates the backup operation using the `-s`, `-P`, `-s` and `-l` as required parameters. The parameter `-z` is the required parameter for Linux operating systems.

The agent protects the following files:

- Schema files that are associated with all database tables.
- Files that are associated with the database tables.
- Data and index files.

Figure 3-1 NetBackup for MariaDB backup workflow



The NetBackup for MariaDB workflow

When you initiate a backup, the NetBackup client (`nbmariadb`) connects to the MariaDB database to execute a flush and read only lock on all tables. The NetBackup client then reads the associated MariaDB database files from the mounted directory and initiates the backup. The LVM or VSS, then creates a snapshot, and mounts the snapshot.

The NetBackup client copies the associated files (the whole instance or the individual database) and then sends to the NetBackup XBSA interface. The NetBackup XBSA interface writes this data to the mounted media or disk storage managed by the NetBackup media server.

The command prompt displays the successful completion status of the backup. The **Activity monitor** also displays the status for the backup job.

Performing MariaDB backups

Prerequisites

Before you perform the backups, you must meet the following prerequisites:

- (LVM users) Ensure that the MariaDB data directory and logs directory reside on the logical volume.
- (Windows) Set the `NetBackup\bin` directory in the environment variable. For example, `Path =C:\Program Files\Veritas\Netbackup\bin`
- Configure the **DataStore** policy.
- (LVM) Verify that there is enough space for the snapshot in the volume group, and then set the snapshot size on the command line.

Note: Ensure that the snapshot size is 50% of the instance size that you want to backup.

- (Linux) Create a symbolic link `libmariadb.so` and ensure that it points to the correct `libmariadb.so.<n>` library version.
- Set the `FLUSH` and `LOCK` user privileges.

Run a backup from the command line

To run the backup from the command line

- 1 Run the following command:

```
nbmariadb -o backup
-S primary_server_name
-P policy_name
-s schedule_name
(Linux)-z snapshot_size
-l mariadb_library_path
[-portnum db_port]
[-u db_user]
(Linux)-b backup_type
```

- 2 (Optional) When prompted, type the database password. The NetBackup then connects to the database and initiates the backup.

Scheduling MariaDB backups from the NetBackup

You can schedule the MariaDB backups using the **DataStore** policy type to call a backup script.

See [“Create a DataStore policy for MariaDB backups”](#) on page 11.

Validating the backup information

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

```
nbmariadb -o query
```

Querying the backups

The `nbmariadb query` command lists the backup files according to the options that you specify. The parameter `-s` is the required parameter. Alternatively, you can query the backups using the `-C` and `-P` options to define a different client and policy.

To query backup

- 1 Configure the settings on the `nbmariadb` command line.
- 2 Run the following command:

```
nbmariadb -o query -S primary_server_name [-C client_name] [-P  
policy_name]
```

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

```
nbmariadb -o query -S primary_server_name [-C ClientA]
```

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

```
nbmariadb -o query -S primary_server_name [-P policy_name]
```

For example, to query a backup from the client `Client A` with policy name `policy_name`, run the following command:

```
nbmariadb -o query -S primary_server_name [-C ClientA] [-P  
policy_name]
```

Deleting backup information from the NetBackup catalog files

The `nbmariadb` command for `delete`, removes the backup information from the catalog files but retains the backup files on the NetBackup media server. The parameter `-s` and `-id` are required parameters.

To delete a backup

- 1 Configure the parameters on the `nbmariadb` command line.
- 2 Run the following command:

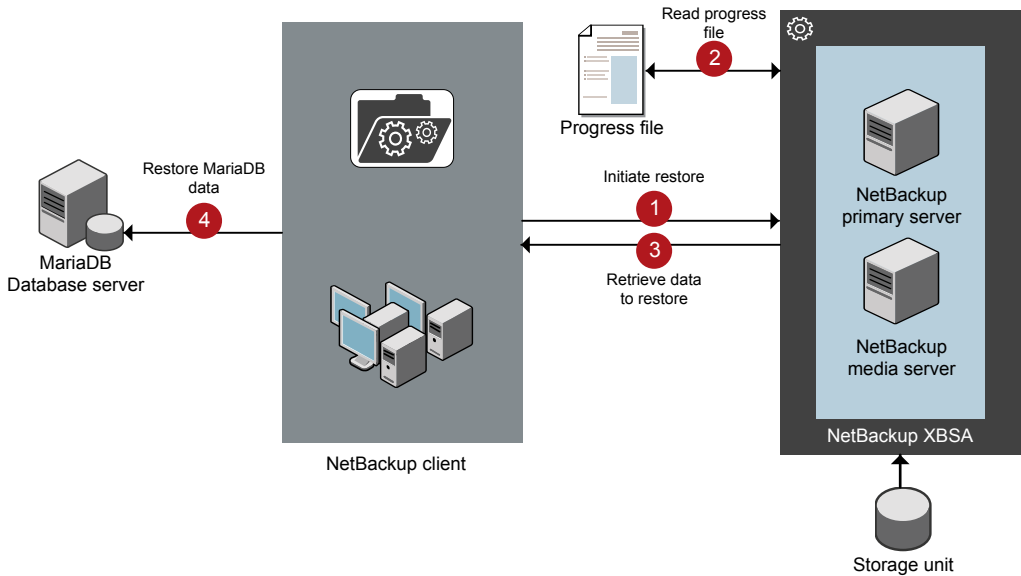
```
nbmariadb -o delete -S primary_server_name -id  
db_backup_image_name.
```

About restoring MariaDB backups

The `nbmariadb -o restore` command for initiates the restore operation with the `-S`, `-t`, and `portnum` as the required parameters. The parameters `-id` and `-c` are optional parameters.

The parameter `-id` restores the backup using the specified backup image name. The parameter `-c` lists all the backups that exist on the specified client. When you do not specify the client, it defaults to NetBackup primary server.

Figure 3-2 NetBackup for MariaDB restore workflow



The NetBackup for MariaDB restore workflow

When you initiate a restore, the agent reads the command line arguments. The agent then interacts with the NetBackup XBSA interface to retrieve the backup according to the specified parameters.

The NetBackup XBSA interface reads the progress files to receive the MariaDB backup files to restore them to the target directory.

The command prompt indicates the successful completion status of the restore. The **Activity monitor** also displays the status for the restore job.

Prerequisites

Before you run a restore, you must meet the following prerequisites:

- (LVM users) Ensure that data logs and the logs directory reside on the logical volume.
- Ensure that you restore the MariaDB instance to a valid empty target directory.

- (NONLVM) Ensure that the MariaDB service is running.

Performing the restore for MariaDB databases

To restore backup

- 1 Configure the parameters on the `nbmariadb` command line.
- 2 Run the following command:

```
nbmariadb -o restore -S primary_server_name -t target_directory  
portnum db_port [-id db_backup_image_name][-C client_name]
```

- 3 Restart the MariaDB services.

Redirected restores

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 restore to a different host, include the destination client name in the `install_path\NetBackup\db\altnames` directory.

Performing redirected restores

To redirect a restore to a different host

- 1 Update the NetBackup client name as the host and the MariaDB target directory as the directory where you want to redirect the restore.
- 2 On the NetBackup primary 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/opensv/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.

Note: (Linux only) The NetBackup service user account must have ownership of the `altnames` directory and host files.

- 4 Run the following command:

```
nbmariadb -o restore -S primary_server_name -t target_directory  
-portnum db_port [-id db_backup_image_name] [-C client_name]
```

Note: For redirected restore, provide the source client name (client from which backup was taken) to the `-c` option.

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

To redirect a restore to a different file path

- 1 Run the following command:

```
nbmariadb -o restore -S primary_server_name -t target_directory  
-portnum db_port [-id db_backup_image_name] [-C client_name]
```

- 2 After a successful restore, change the ownership of the data directory to the MariaDB user.
- 3 Copy the restore data to the data directory.

Disaster recovery

Disaster recovery is the plan to recover the data that may get lost in a disaster event. The agent supports redirected restore as a disaster recovery strategy.

For more information, See [“Redirected restores”](#) on page 19.

Troubleshooting for NetBackup for MariaDB

This chapter includes the following topics:

- [Troubleshooting errors when using NetBackup for MariaDB](#)

Troubleshooting errors when using NetBackup for MariaDB

General guidelines to resolve problems

[Table 4-1](#) lists the general steps that help you resolve problems you may encounter while using NetBackup for MariaDB Agent.

Table 4-1 General steps to resolve problems

Steps	Action	Description
Step1	Remember the error message.	Error messages are usually the vehicles for telling you something went wrong. If you do not see an error on the command line, but still suspect a problem, check the logs and the reports. These can provide an error message that directly points to the problem. The logs and reports are essential troubleshooting tools.

Table 4-1 General steps to resolve problems (*continued*)

Steps	Action	Description
Step 2	Identify what you were doing when the problem occurred.	Ask the following questions: <ul style="list-style-type: none"> ■ What operation was tried? ■ What method did you use? ■ What type of server platform and operating system was involved? ■ If your site uses both primary server and media server, was it a primary server or a media server? ■ If a client was involved, what type of client was it? ■ Have you performed the operation successfully in the past? If so, what is different now? ■ What is the service pack level? ■ Do you use operating system software with the latest fixes supplied, especially those required for use with NetBackup? ■ Is your device firmware at a level, or higher than the level, at which it has been tested according to the posted device compatibility lists?
Step 3	Record all information.	Capture potentially valuable information: <ul style="list-style-type: none"> ■ The NetBackup logs. ■ The logs specific to NetBackup for MariaDB logs. ■ The logs specific to NetBackup XBSA.
Step 4	Correct the problem.	After you define the problem, use the information to correct it.
Step 5	Contact Technical Support.	If you cannot solve the troubleshooting, contact the Technical support.

Troubleshooting errors using logs

To troubleshoot the errors, you can refer to the NetBackup logs. These logs are located at the following locations:

The NetBackup primary server logs are located at:

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

You must enable the `bprd` and the `bpcd` log files. For more information, see the *NetBackup Troubleshooting Guide*.

The logs that are specific to NetBackup client are located at:

- `install_path\NetBackup\logs\nbmariadb`

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

- `install_path\NetBackup/logs/exten_client`

Troubleshooting NetBackup errors

For troubleshooting NetBackup errors, see the *NetBackup Troubleshooting Guide* and the *NetBackup Commands Reference Guide*.

Troubleshooting NetBackup for MariaDB errors

[Table 4-2](#) lists the errors and the solutions to troubleshoot the problems while running the operations.

Table 4-2 Troubleshooting NetBackup for MariaDB errors

Problems	Description	Solution
<p>The <code>nbmariadb</code> backup fails with the following error:</p> <p><i>Unable to load mariadb library</i></p>	<p>You may encounter this problem when the library path is not provided in the <code>nbmariadb</code> command using the <code>-l</code> switch or the library path is provided but it does not contain <code>libmariadb.so</code> (Linux) or <code>libmariadb.dll</code> (Windows).</p>	<p>Verify the following and then run the backup again:</p> <ul style="list-style-type: none"> ■ Ensure that you provide the correct MariaDB library path, which contains the <code>libmariadb.so</code> (Linux) or <code>libmariadb.dll</code> (Windows) file. ■ (Linux) If <code>libmariadb.so</code> is not available, create a symbolic link named <code>libmariadb.so</code> that points to <code>libmariadb.so.<n></code>. ■ (Windows) If <code>libmariadb.dll</code> is not available under <code>bin</code> directory of the MariaDB installation location, it may be available under <code>lib</code> directory.

Table 4-2 Troubleshooting NetBackup for MariaDB errors (*continued*)

Problems	Description	Solution
<p>The <code>nbmariadb</code> backup fails with the following error: <i>Unable to connect to the database</i></p>	<p>The <code>mariadb</code> backup fails when the <code>nbmariadb</code> command is run with invalid database user name, port number, or password.</p>	<ul style="list-style-type: none"> ■ Provide the database user name using the <code>"-u"</code> switch of the <code>nbmariadb</code> command. ■ Provide the database port number using the <code>"-portnum"</code> switch of <code>nbmariadb</code> command. ■ Provide the database password using the <code>my.cnf</code> (Linux) or <code>my.ini</code> (Windows) file. <p>See "Authenticating the MariaDB environment password" on page 9.</p>
<p>The <code>nbmariadb</code> backup fails with the following error: <i>Unable to load xbsa.dll</i></p>	<p>The <code>nbmariadb</code> backup fails if the environment variable path is not updated with NetBackup bin directory.</p>	<p>To run a <code>nbmariadb</code> backup:</p> <ul style="list-style-type: none"> ■ Update the environment variable path with <code>NetBackup_install_path/bin</code>.
<p>The <code>nbmariadb</code> backup fails with the following error: <i>XBSA initiation failed</i></p>	<p>The <code>nbmariadb</code> backup fails if the required parameters are not specified on the command line.</p>	<p>To run the <code>nbmariadb</code> backup:</p> <ul style="list-style-type: none"> ■ Configure a valid primary server name, policy name, and schedule type from the command line. ■ Verify if there are communication errors between the <code>nbmariadb</code> agent and the NetBackup primary server. <p>For more information see the <i>NetBackup Administrator's Guide, Volume I</i>.</p>
<p><i>(Windows)VSS snapshot creation failed</i></p>	<p>The <code>nbmariadb</code> backup may fail when the user does not have the privileges to run the <code>nbmariadb</code> operations.</p>	<p>Run <code>cmd.exe</code> in Administrator mode.</p>
<p>The <code>nbmariadb</code> restore operation does not restore any data from the target NetBackup client.</p>	<p>The <code>nbmariadb</code> restore fails if the NetBackup client name and the target directory are not updated.</p>	<p>For a successful restore:</p> <ul style="list-style-type: none"> ■ Verify that the target directory is valid and empty. ■ Initiate the restore from the NetBackup source client. ■ Set the NetBackup client name and target directory parameters.

Table 4-2 Troubleshooting NetBackup for MariaDB errors (*continued*)

Problems	Description	Solution
<p>The <code>nbmariadb</code> backup fails with the following error: (Linux) <i>Error creating LVM snapshot</i></p>	<p>The <code>nbmariadb</code> backup may fail when the volume group does not have sufficient space for the snapshot.</p>	<p>To verify the space in the volume group</p> <ol style="list-style-type: none"> <li data-bbox="798 366 1221 539"> <p>1 To view the space in the volume, run the following command:</p> <pre data-bbox="844 444 897 465">\$vgs</pre> <p>The command displays the volume group details.</p> <li data-bbox="798 557 1221 635"> <p>2 Provide the appropriate snapshot size. The snapshot should be equivalent to or more than the instance size.</p>
<p>Error messages after a successful backup:</p> <pre data-bbox="126 743 494 826"><volume_group>/<snapshot_name> Read failure after 0 of 4096 at 29393616896: input or output error.</pre> <p>OR</p> <pre data-bbox="126 887 494 970"><volume_group>/<snapshot_name>: read failure after 0 of 4096 at 4096: input or output error.</pre>	<p>The <code>nbmariadb</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>Note: The <code>nbmariadb</code> created LVM snapshot names are prefixed with <code>mariadbsnap</code></p>	<p>To remove the snapshots:</p> <ol style="list-style-type: none"> <li data-bbox="798 708 1221 881"> <p>1 To list the existing snapshot, run the following command:</p> <pre data-bbox="844 786 897 807">\$lvs</pre> <p>The command displays the snapshot details.</p> <li data-bbox="798 899 1221 1029"> <p>2 To remove the snapshots, run the following command:</p> <pre data-bbox="844 977 1221 1029">\$ lvremove -f <volume_group>/<snapshot_name></pre>

Table 4-2 Troubleshooting NetBackup for MariaDB errors (*continued*)

Problems	Description	Solution
<p>The <code>nbmariadb</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-mariadbsnap_<timestamp></i></p>	<p>The <code>nbmariadb</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</p> <ol style="list-style-type: none"> 1 To list all mounted file systems run the following command: <pre>\$ mount-l</pre> 2 If the snapshot still exists, create a mount directory using the following command: <pre>\$mount<mount_directory></pre> <p>Note: This directory is created in <code>/mnt/<snapshot_name></code>. The prefix names for snapshot are <code>mariadbsnap</code>.</p> 3 To remove the mount directory run the following command: <pre>\$rm -rf <mount_directory></pre> 4 To remove the snapshot manually run the following command: <pre>\$ lvremove -f <volume_group>/<snapshot_name></pre>
<p>Even after a successful restore, the MariaDB services have failed to start.</p>	<p>The restore operation is successful, only when you restore the backup on a machine that has the same minor version of MariaDB.</p> <p>For example, if you back up a file from MariaDB version 10.2.x, then you must restore the file to a computer with MariaDB version 10.2.x.</p>	<ul style="list-style-type: none"> ■ Verify that the MariaDB version from the backed up data is same as the MariaDB version on the computer where you want to restore the data.

About NetBackup for MariaDB commands and conventions

This appendix includes the following topics:

- [About NetBackup for MariaDB commands](#)
- [About NetBackup for MariaDB command conventions](#)

About NetBackup for MariaDB commands

This section describes the commands, options, and parameters that are available to run the `nbmariadb` operations. Each command contains a brief description, required parameters, and optional parameters for the respective operations. The NetBackup for MariaDB Agent supports only those commands, options, and parameters that are mentioned in this document.

Observe for the following:

- You must provide the parameters on the `nbmariadbcommand` line.
- Specify the operation type `-o` on the `nbmariadb` command line.
- Specify the parameters and options for the respective operations on the `nbmariadb` command line.

The NetBackup for MariaDB command options

Table A-1 The nbmariadb command options

Options	Description
-C	Configures the NetBackup client name for redirected restores.
-h	Displays the Help usage, when it is the only option on the <code>nbmariadb</code> command line.
-id	Configures the specified backup using the backup image name.
-l	Configures the MariaDB library path.
-o	Configures the operation type (backup, restore, query, and delete).
-P	Configures the DataStore policy.
-portnum	Configures the database server port number that identifies the MariaDB instance on which the backup or restore is performed.
-s	Configures the NetBackup schedule.
-S	Configures the NetBackup primary server.
-t	Configures the target directory to restore the data.
-u	Configures the database user name.
-z	Configures the LVM snapshot size.
-b	Configures the backup type as lvm or nonlvm.

About NetBackup for MariaDB command conventions

This document uses the following conventions to describe the commands that are specific when running the operations for MariaDB database.

Run the following commands in the command line interface to see the results:

- The `-help` command (`-h`) option prints a command-line usage message when it is the only option on the command line. For example,

```
nbmariadb -h
```

- Brackets [] indicate that the enclosed component of the command line is optional. Other parameters are required.

- Italics indicate that the information is user supplied. For example, you may provide the policy name and the schedule name for a backup operation.

```
nbmariadb -o backup -S primary_server_name -P policy_name -s schedule_name
```

NetBackup for MariaDB commands

This appendix includes the following topics:

- [nbmariadb -o backup](#)
- [nbmariadb -o restore](#)
- [nbmariadb -o query](#)
- [nbmariadb -o delete](#)

nbmariadb -o backup

nbmariadb -o backup – runs the backup operation from the NetBackup client.

SYNOPSIS

```
nbmariadb -o backup
-S primary_server_name
-P policy_name
-s schedule_name
(Linux) -l mariadb_library_path
[(Linux) -b backup_type auto, lvm, and nonlvm]
(LVM) -z snapshot_size
[-portnum db_port]
[-u db_user]
```

Description

This command invokes the backup operation from the NetBackup client using the NetBackup **DataStore** policy name and the schedule type. The parameter `-s` and `-P` are required parameters for Windows. The parameters `-l` and (LVM) `-z` are required parameters for Linux. The `-portnum`, `-b`, and `-u` are the optional parameters.

On Linux systems, the directory path is `/usr/opensv/netbackup/bin`

On Windows, the directory path is `install_path\NetBackup\bin`

Options

`-l`
(Linux) Configures the MariaDB library directory

`-portnum`
Configures the database port number that identifies the MariaDB instance on which the backup is performed.

`-P`
Configures the NetBackup **DataStore** policy name.

- S Configures the NetBackup server name.
- s Specifies the schedule name that you have configured for the **DataStore** policy.
- u Configures the database user name.
- z (LVM backups) Specifies the LVM snapshot size.
- b Configures the backup type as lvm or nonlvm.

nbmariadb -o restore

`nbmariadb -o restore` – restores the backup files from the NetBackup server.

SYNOPSIS

```
nbmariadb -o restore -S primary_server_name -t target_directory  
-portnum db_port[-id db_backup_image_name] [-C client_name]
```

Description

The `nbmariadb` command restores the backup file using `-t`, `-S`, and (NONLVM) `portnum` as the required parameters. The `-id` and `-C` are optional parameters.

On Linux systems, the directory path to this command is

```
/usr/opensv/netbackup/bin
```

On Windows systems, the directory path to this command is

```
install_path\NetBackup\bin
```

Options

`-C`

Specifies the client name.

`-id`

Specifies the backup image name.

`-portnum`

Specifies the database server port.

`-S`

Configures the NetBackup primary server.

`-t`

Configures the target directory where the backups are restored.

nbmariadb -o query

nbmariadb -o query – query the backup.

SYNOPSIS

```
nbmariadb -o query -S primary_server_name [-C client_name] [-P  
policy_name]
```

Description

The `nbmariadb -o query` command gets the backup using `-s` as the required parameter and `-C` and `-P` as optional parameters.

On Linux systems, the directory path to this command is
`/usr/opensv/netbackup/bin/`

On Windows systems, the directory path to this command is
`install_path\NetBackup\bin\`

Options

- C Retrieves and lists all the backups of the specified client.
- P Retrieves and lists all backups with the specified policy name.
- S Configures the NetBackup primary server.

nbmariadb -o delete

`nbmariadb -o delete` – deletes the backup information from the NetBackup catalog files.

SYNOPSIS

```
nbmariadb -o delete -S primary_server_name -id db_backup_image_name
```

Description

The `nbmariadb -o delete` command deletes the backup information from the NetBackup catalog files, but retains the backups in the storage media.

The parameter `-s` and `-id` are the required parameters.

Options

`-id`

Specifies the backup using the backup image name.

`-S`

Configures the NetBackup primary server.

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