

# MariaDB

## Overview

From version 5.10.0, Artifactory supports the popular MariaDB fork of MySQL. By using MariaDB you can benefit from features in the MariaDB infrastructure such as backup and restore.

For Artifactory to run with MariaDB you need to create a dedicated MariaDB database instance and then configure Artifactory to use it as described in the following sections.

### Before You Continue

Before proceeding with the steps below, please make sure you have read and followed the steps described in [Configuring the Database](#).

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## Creating the Artifactory MariaDB Database

### Supported MariaDB Versions

Artifactory supports MariaDB v10.2.9 and above.

### Supported JDBC Driver Versions

Artifactory supports the MariaDB Java Connector versions 2.1.2 and above. We recommend using the latest JDBC driver version available when working with the MariaDB Java Connector.

Artifactory provides a script that will execute the SQL commands you need to create your MariaDB database.

The script can be found in `$_ARTIFACTORY_HOME/misc/db/createdb/createdb_mariadb.sql` and is displayed below.

You should review the script and modify it as needed to correspond to your specific environment.

### createdb\_mariadb.sql Script

```
CREATE DATABASE artdb CHARACTER SET utf8 COLLATE utf8_bin;
GRANT ALL on artdb.* TO 'artifactory'@'localhost' IDENTIFIED BY 'password';
FLUSH PRIVILEGES;
```

Once you have verified that the script is correct, you need to run it to create the database and proceed with configuring the database.

### Artifactory privileges

If you are running MariaDB database on a Docker container please use the following:

```
CREATE DATABASE artdb CHARACTER SET utf8 COLLATE utf8_bin;
GRANT ALL on artdb.* TO 'artifactory'@'%' IDENTIFIED BY 'password';
FLUSH PRIVILEGES;
```

### Selecting a Case-Sensitive Collation

While MariaDB Database Server is not case-sensitive by default, it is important to select a case-sensitive collation because Artifactory is case-sensitive.

For example, in the `createdb.sql` script above `COLLATE` is set to `"utf8_bin"`.



### Artifactory privileges

We recommend providing Artifactory with full privileges on the database.

## Configuring Artifactory to use MariaDB

1. Copy `ARTIFACTORY_HOME/misc/db/mariadb.properties` to `ARTIFACTORY_HOME/etc/db.properties` (If you do not have this file you can take it from the standalone zip distribution or directly from the [JFrog domain](#)). For a full explanation on the contents of this file please refer to [The Bundled Storage Configurations](#).
2. Adjust the connection definitions in the `ARTIFACTORY_HOME/etc/db.properties` file to match the attributes of the Artifactory database you created. You must configure the database URL and username/password to use. The schema and tables are created first time Artifactory is run using the new database.
3. Download the MariaDB JDBC driver (available from the [MySQL website](#)) and copy the `mariadb-java-client-<version>.jar` file into the server's shared lib directory. For example `$TOMCAT_HOME/lib` when installed as a service or `ARTIFACTORY_HOME/tomcat/lib` in the standalone version.



### Permissions

Make sure your driver has the same permissions as the rest of the files in the shared lib directory.

4. Start Artifactory.



### Storing BLOBs inside MariaDB

The suggested (and recommended) configuration stores all artifact information in MariaDB while the artifact binary data is stored on the file system (under `ARTIFACTORY_HOME/data/filestore`).

While it is **not recommended**, it is possible to store BLOBs inside MariaDB provided that the typical BLOB size is relatively small. Storing large BLOBs in MariaDB can cause memory issues because MariaDB buffers BLOBs rather than streaming them (please refer to [MySQL Bug #15089](#)) and may result in `OutOfMemory` errors with large binaries depending on your JVM heap size.

To store BLOBs in MariaDB, you will need to configure the Filestore with the [Full-DB Binary Provider](#) and change `max_allowed_packet` to be higher than the maximum artifact size you intend to store in Artifactory.

## Known Issues

### Lightweight Ping Query

The MariaDB Connector/J does not support the special `lightweight "*" ping *` query. JDBC Connection Pools perform regular validity checks on connections in the pool, which use an SQL validation query.

## Increasing MariaDB Default Packet Size

Since some data files (builds, configurations etc.) are stored in MariaDB, it is extremely important to increase the maximum allowed packet size used by MariaDB to avoid errors related to large packets.

To learn more, please refer to [Packet Too Large](#) in the MariaDB.

We recommend changing this parameter in the `/etc/my.cnf` file as follows:

### Modifying `/etc/my.cnf`

```
# The MariaDB server
[MariaDBd]
.
# The maximum size of the binary payload the server can handle
max_allowed_packet=8M
.
```



#### `/etc/my.cnf` Absolute Path

If `/etc/my.cnf` does not already exist, you need to create it under the absolute path and not under `$ARTIFACTORY_HOME`.



#### Restart required

After modifying the maximum allowed packed size you need to restart MariaDB.



#### You can also use the command line

You can also change the `max_allowed_packet` variable on the MariaDB command line as in the following example:

```
SET GLOBAL max_allowed_packet = 134217728;
```

Note, however, that upon a restart, the value of the `max_allowed_packet` variable will be read from the `/etc/my.cnf` file and revert to the value in that file as described above.

## Tuning MariaDB for Artifactory

When using Artifactory with MariaDB it is recommended to use the InnoDB engine with the following tuning parameters configured in the `/etc/my.cnf` file:

### Tuning Parameters for MySQL

```
# The MariaDB server
[mysqld]
.
# By default innodb engine use one file for all databases and tables. We recommend changing this to one file
per table.
# NOTE: This will take effect only if Artifactory tables are not created yet! Need to be set and MariaDB
restarted before starting Artifactory for the first time.
innodb_file_per_table

# These are tuning parameters that can be set to control and increase the memory buffer sizes.
innodb_buffer_pool_size=1536M
tmp_table_size=512M
max_heap_table_size=512M

# These control the innodb log files size and can be changed only when MariaDB is down and MariaDB will not
start if there are some innodb log files left in the datadir.
# So, changing theses means removing the old innodb log files before start.
innodb_log_file_size=256M
innodb_log_buffer_size=4M
.
```

Note that both the XtraDB and InnoDB engines are compatible with the various InnoDB system variables.

**Restart required**

After tuning MariaDB to work with Artifactory, you need to restart MariaDB.

Both MySQL and MariaDB servers do support the “/\* ping \*/” query, but the MariaDB Connector/J wraps the query as if it was a standard SQL query and transforms it into a “SET STATEMENT...” query, which is illegal in terms of syntax as far as the server is concerned. For this reason, Artifactory uses a generic “SELECT 1” as a validation query for pooled connections when MariaDB is used as a database type. The MySQL Connector has no such limitation, and supports the “/\* ping \*/” query.