Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that the client program should not prompt for one, use the --skip-password option.

• [--password1[=*pass\_val*]](#_bookmark1)

The password for multifactor authentication factor 1 of the MySQL account used for connecting to the server. The password value is optional. If not given, the client program prompts for one. If given, there must be *no* *space* between [--password1=](#_bookmark1) and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that the client program should not prompt for one, use the [--skip-password1](#_bookmark1) option.

[--password1](#_bookmark1) and --password are synonymous, as are [--skip-password1](#_bookmark1) and --skip- password.

• [--password2[=*pass\_val*]](#_bookmark2)

The password for multifactor authentication factor 2 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark1); see the description of that option for details.

• [--password3[=*pass\_val*]](#_bookmark3)

The password for multifactor authentication factor 3 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark1); see the description of that option for details.

• [--pipe](#_bookmark4), -W

On Windows, connect to the server using a named pipe. This option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• [--plugin-dir=*dir\_name*](#_bookmark5)

The directory in which to look for plugins. Specify this option if the --default-auth option is used to specify an authentication plugin but the client program does not find it. See Section 6.2.17, “Pluggable Authentication” .

• [--port=*port\_num*](#_bookmark6), -P *port\_num*

For TCP/IP connections, the port number to use. The default port number is 3306.

• [--protocol={TCP|SOCKET|PIPE|MEMORY}](#_bookmark7)

This option explicitly specifies which transport protocol to use for connecting to the server. It is useful when other connection parameters normally result in use of a protocol other than the one you want. For example, connections on Unix to localhost are made using a Unix socket file by default:

mysql --host=localhost

To force TCP/IP transport to be used instead, specify a [--protocol](#_bookmark7) option:



mysql --host=localhost --protocol=TCP

The following table shows the permissible [--protocol](#_bookmark7) option values and indicates the applicable platforms for each value. The values are not case-sensitive.

|  |  |  |
| --- | --- | --- |
| [**--protocol**](#_bookmark7) **Value** | **Transport** **Protocol** **Used** | **Applicable** **Platforms** |
| TCP | TCP/IP transport to local or remote server | All |
| SOCKET | Unix socket-file transport to local server | Unix and Unix-like systems |
| PIPE | Named-pipe transport to local server | Windows |
| MEMORY | Shared-memory transport to local server | Windows |

See also [Section 4.2.7, “Connection Transport Protocols”](#_bookmark8)

• [--shared-memory-base-name=*name*](#_bookmark9)

On Windows, the shared-memory name to use for connections made using shared memory to a local server. The default value is MYSQL. The shared-memory name is case-sensitive.

This option applies only if the server was started with the shared\_memory system variable enabled to support shared-memory connections.

• [--socket=*path*](#_bookmark10), -S *path*

On Unix, the name of the Unix socket file to use for connections made using a named pipe to a local server. The default Unix socket file name is /tmp/mysql.sock.

On Windows, the name of the named pipe to use for connections to a local server. The default Windows pipe name is MySQL. The pipe name is not case-sensitive.

On Windows, this option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• [--user=*user\_name*](#_bookmark11), -u *user\_name*

The user name of the MySQL account to use for connecting to the server. The default user name is ODBC on Windows or your Unix login name on Unix.

**Command** **Options** **for** **Encrypted** **Connections**

This section describes options for client programs that specify whether to use encrypted connections to the server, the names of certificate and key files, and other parameters related to encrypted-connection support. For examples of suggested use and how to check whether a connection is encrypted, see Section 6.3.1, “Configuring MySQL to Use Encrypted Connections” .

**Note**

These options have an effect only for connections that use a transport protocol subject to encryption; that is, TCP/IP and Unix socket-file connections. See

[Section 4.2.7, “Connection Transport Protocols”](#_bookmark8)

For information about using encrypted connections from the MySQL C API, see [Support for Encrypted](https://dev.mysql.com/doc/c-api/8.0/en/c-api-encrypted-connections.html) [Connections](https://dev.mysql.com/doc/c-api/8.0/en/c-api-encrypted-connections.html).

**Table** **4.4** **Connection-Encryption** **Option** **Summary**

|  |  |  |
| --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** |
| [--get-server-public-key](#_bookmark13) | Request RSA public key from server |  |
| [--server-public-key-path](#_bookmark14) | Path name to file containing RSA public key |  |
| [--ssl-ca](#_bookmark15) | File that contains list of trusted  SSL Certificate Authorities |  |
| [--ssl-capath](#_bookmark16) | Directory that contains trusted SSL Certificate Authority certificate files |  |
| [--ssl-cert](#_bookmark17) | File that contains X.509  certificate |  |
| [--ssl-cipher](#_bookmark18) | Permissible ciphers for  connection encryption |  |
| [--ssl-crl](#_bookmark19) | File that contains certificate revocation lists |  |
| [--ssl-crlpath](#_bookmark20) | Directory that contains certificate revocation-list files |  |
| [--ssl-fips-mode](#_bookmark21) | Whether to enable FIPS mode on client side |  |
| [--ssl-key](#_bookmark22) | File that contains X.509 key |  |
| [--ssl-mode](#_bookmark23) | Desired security state of  connection to server |  |
| [--ssl-session-data](#_bookmark24) | File that contains SSL session data | 8.0.29 |
| [--ssl-session-data-continue-on-](#_bookmark25) [failed-reuse](#_bookmark25) | Whether to establish connections if session reuse fails | 8.0.29 |
| [--tls-ciphersuites](#_bookmark26) | Permissible TLSv1.3 ciphersuites for encrypted connections | 8.0.16 |
| [--tls-version](#_bookmark27) | Permissible TLS protocols for encrypted connections |  |

• [--get-server-public-key](#_bookmark13)

Request from the server the public key required for RSA key pair-based password exchange. This option applies to clients that authenticate with the caching\_sha2\_password authentication plugin. For that plugin, the server does not send the public key unless requested. This option is ignored for accounts that do not authenticate with that plugin. It is also ignored if RSA-based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark14) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark13).

For information about the caching\_sha2\_password plugin, see Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--server-public-key-path=*file\_name*](#_bookmark14)

The path name to a file in PEM format containing a client-side copy of the public key required by the server for RSA key pair-based password exchange. This option applies to clients that authenticate with the sha256\_password or caching\_sha2\_password authentication plugin. This option is



ignored for accounts that do not authenticate with one of those plugins. It is also ignored if RSA- based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark14) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark13).

This option is available only if MySQL was built using OpenSSL.

For information about the sha256\_password and caching\_sha2\_password plugins, see Section 6.4.1.3, “SHA-256 Pluggable Authentication” , and Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--ssl-ca=*file\_name*](#_bookmark15)

The path name of the Certificate Authority (CA) certificate file in PEM format. The file contains a list of trusted SSL Certificate Authorities.

To tell the client not to authenticate the server certificate when establishing an encrypted connection to the server, specify neither [--ssl-ca](#_bookmark15) nor [--ssl-capath](#_bookmark16). The server still verifies the client according to any applicable requirements established for the client account, and it still uses any ssl\_ca or ssl\_capath system variable values specified on the server side.

To specify the CA file for the server, set the ssl\_ca system variable.

• [--ssl-capath=*dir\_name*](#_bookmark16)

The path name of the directory that contains trusted SSL certificate authority (CA) certificate files in PEM format.

To tell the client not to authenticate the server certificate when establishing an encrypted connection to the server, specify neither [--ssl-ca](#_bookmark15) nor [--ssl-capath](#_bookmark16). The server still verifies the client according to any applicable requirements established for the client account, and it still uses any ssl\_ca or ssl\_capath system variable values specified on the server side.

To specify the CA directory for the server, set the ssl\_capath system variable. • [--ssl-cert=*file\_name*](#_bookmark17)

The path name of the client SSL public key certificate file in PEM format.

To specify the server SSL public key certificate file, set the ssl\_cert system variable.

**Note**

Chained SSL certificate support was added in v8.0.30; previously only the first certificate was read.

• [--ssl-cipher=*cipher\_list*](#_bookmark18)

The list of permissible encryption ciphers for connections that use TLS protocols up through TLSv1.2. If no cipher in the list is supported, encrypted connections that use these TLS protocols do not work.

For greatest portability, *cipher\_list* should be a list of one or more cipher names, separated by colons. Examples:

--ssl-cipher=AES128-SHA



--ssl-cipher=DHE-RSA-AES128-GCM-SHA256:AES128-SHA

OpenSSL supports the syntax for specifying ciphers described in the OpenSSL documentation at <https://www.openssl.org/docs/manmaster/man1/ciphers.html>.

For information about which encryption ciphers MySQL supports, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

To specify the encryption ciphers for the server, set the ssl\_cipher system variable. • [--ssl-crl=*file\_name*](#_bookmark19)

The path name of the file containing certificate revocation lists in PEM format.

If neither [--ssl-crl](#_bookmark19) nor [--ssl-crlpath](#_bookmark20) is given, no CRL checks are performed, even if the CA path contains certificate revocation lists.

To specify the revocation-list file for the server, set the ssl\_crl system variable.

• [--ssl-crlpath=*dir\_name*](#_bookmark20)

The path name of the directory that contains certificate revocation-list files in PEM format.

If neither [--ssl-crl](#_bookmark19) nor [--ssl-crlpath](#_bookmark20) is given, no CRL checks are performed, even if the CA path contains certificate revocation lists.

To specify the revocation-list directory for the server, set the ssl\_crlpath system variable.

• [--ssl-fips-mode={OFF|ON|STRICT}](#_bookmark21)

Controls whether to enable FIPS mode on the client side. The [--ssl-fips-mode](#_bookmark21) option differs from other --ssl-*xxx* options in that it is not used to establish encrypted connections, but rather to affect which cryptographic operations to permit. See Section 6.8, “FIPS Support” .

These [--ssl-fips-mode](#_bookmark21) values are permissible:

• OFF: Disable FIPS mode.

• ON: Enable FIPS mode.

• STRICT: Enable “strict” FIPS mode.

**Note**

If the OpenSSL FIPS Object Module is not available, the only permissible value for [--ssl-fips-mode](#_bookmark21) is OFF. In this case, setting [--ssl-fips-](#_bookmark21) [mode](#_bookmark21) to ON or STRICT causes the client to produce a warning at startup and to operate in non-FIPS mode.

To specify the FIPS mode for the server, set the ssl\_fips\_mode system variable.

• [--ssl-key=*file\_name*](#_bookmark22)

The path name of the client SSL private key file in PEM format. For better security, use a certificate with an RSA key size of at least 2048 bits.

If the key file is protected by a passphrase, the client program prompts the user for the passphrase. The password must be given interactively; it cannot be stored in a file. If the passphrase is incorrect, the program continues as if it could not read the key.

To specify the server SSL private key file, set the ssl\_key system variable.

• [--ssl-mode=*mode*](#_bookmark23)



The default setting, [--ssl-mode=PREFERRED](#_bookmark23), produces an encrypted connection if the other default settings are unchanged. However, to help prevent sophisticated man-in-the-middle attacks, it is important for the client to verify the server’s identity. The settings [--ssl-mode=VERIFY\_CA](#_bookmark23) and [--](#_bookmark23) [ssl-mode=VERIFY\_IDENTITY](#_bookmark23) are a better choice than the default setting to help prevent this type of attack. To implement one of these settings, you must first ensure that the CA certificate for the server is reliably available to all the

This option specifies the desired security state of the connection to the server. These mode values are permissible, in order of increasing strictness:

• DISABLED: Establish an unencrypted connection.

• PREFERRED: Establish an encrypted connection if the server supports encrypted connections, falling back to an unencrypted connection if an encrypted connection cannot be established. This is the default if [--ssl-mode](#_bookmark23) is not specified.

Connections over Unix socket files are not encrypted with a mode of PREFERRED. To enforce encryption for Unix socket-file connections, use a mode of REQUIRED or stricter. (However, socket-file transport is secure by default, so encrypting a socket-file connection makes it no more secure and increases CPU load.)

• REQUIRED: Establish an encrypted connection if the server supports encrypted connections. The connection attempt fails if an encrypted connection cannot be established.

• VERIFY\_CA: Like REQUIRED, but additionally verify the server Certificate Authority (CA) certificate against the configured CA certificates. The connection attempt fails if no valid matching CA certificates are found.

• VERIFY\_IDENTITY: Like VERIFY\_CA, but additionally perform host name identity verification by checking the host name the client uses for connecting to the server against the identity in the certificate that the server sends to the client:

• As of MySQL 8.0.12, if the client uses OpenSSL 1.0.2 or higher, the client checks whether the host name that it uses for connecting matches either the Subject Alternative Name value or the Common Name value in the server certificate. Host name identity verification also works with certificates that specify the Common Name using wildcards.

• Otherwise, the client checks whether the host name that it uses for connecting matches the Common Name value in the server certificate.

The connection fails if there is a mismatch. For encrypted connections, this option helps prevent man-in-the-middle attacks.

 **Note**

 Host name identity verification with VERIFY\_IDENTITY does not work



**Important**

with self-signed certificates that are created automatically by the server or manually using [mysql\_ssl\_rsa\_setup](#_bookmark28) (see Section 6.3.3.1, “Creating SSL and RSA Certificates and Keys using MySQL”). Such self-signed certificates do not contain the server name as the Common Name value.

For this reason, they are not the default setting.

 clients that use it in your environment, otherwise availability issues will result.

The [--ssl-mode](#_bookmark23) option interacts with CA certificate options as follows:

• If [--ssl-mode](#_bookmark23) is not explicitly set otherwise, use of [--ssl-ca](#_bookmark15) or [--ssl-capath](#_bookmark16) implies [--](#_bookmark23) [ssl-mode=VERIFY\_CA](#_bookmark23).

• For [--ssl-mode](#_bookmark23) values of VERIFY\_CA or VERIFY\_IDENTITY, [--ssl-ca](#_bookmark15) or [--ssl-capath](#_bookmark16) is also required, to supply a CA certificate that matches the one used by the server.

• An explicit [--ssl-mode](#_bookmark23) option with a value other than VERIFY\_CA or VERIFY\_IDENTITY, together with an explicit [--ssl-ca](#_bookmark15) or [--ssl-capath](#_bookmark16) option, produces a warning that no

verification of the server certificate is performed, despite a CA certificate option being specified.

To require use of encrypted connections by a MySQL account, use CREATE USER to create the account with a REQUIRE SSL clause, or use ALTER USER for an existing account to add a REQUIRE SSL clause. This causes connection attempts by clients that use the account to be rejected unless MySQL supports encrypted connections and an encrypted connection can be established.

The REQUIRE clause permits other encryption-related options, which can be used to enforce security requirements stricter than REQUIRE SSL. For additional details about which command options may or must be specified by clients that connect using accounts configured using the various REQUIRE options, see CREATE USER SSL/TLS Options.

• [--ssl-session-data=*file\_name*](#_bookmark24)

The path name of the client SSL session data file in PEM format for session reuse.

When you invoke a MySQL client program with the [--ssl-session-data](#_bookmark24) option, the client attempts to deserialize session data from the file, if provided, and then use it to establish a new connection. If you supply a file, but the session is not reused, then the connection fails unless you also specified the [--ssl-session-data-continue-on-failed-reuse](#_bookmark25) option on the command line when you invoked the client program.

The [mysql](#_bookmark29) command, ssl\_session\_data\_print, generates the session data file (see [Section 4.5.1.2, “mysql Client Commands”](#_bookmark30)).

• [ssl-session-data-continue-on-failed-reuse](#_bookmark25)

Controls whether a new connection is started to replace an attempted connection that tried but failed to reuse session data specified with the [--ssl-session-data](#_bookmark24) command-line option. By default, the [--ssl-session-data-continue-on-failed-reuse](#_bookmark25) command-line option is off, which causes a client program to return a connect failure when session data are supplied and not reused.

To ensure that a new, unrelated connection opens after session reuse fails silently, invoke MySQL client programs with both the [--ssl-session-data](#_bookmark24) and [--ssl-session-data-continue-on-](#_bookmark25) [failed-reuse](#_bookmark25) command-line options.

• [--tls-ciphersuites=*ciphersuite\_list*](#_bookmark26)

This option specifies which ciphersuites the client permits for encrypted connections that use TLSv1.3. The value is a list of zero or more colon-separated ciphersuite names. For example:

mysql --tls-ciphersuites="*suite1*:*suite2*:*suite3*"

The ciphersuites that can be named for this option depend on the SSL library used to compile MySQL. If this option is not set, the client permits the default set of ciphersuites. If the option is set to



the empty string, no ciphersuites are enabled and encrypted connections cannot be established. For

more information, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” . This option was added in MySQL 8.0.16.

To specify which ciphersuites the server permits, set the tls\_ciphersuites system variable.

• [--tls-version=*protocol\_list*](#_bookmark27)

This option specifies the TLS protocols the client permits for encrypted connections. The value is a list of one or more comma-separated protocol versions. For example:

mysql --tls-version="TLSv1.2,TLSv1.3"

The protocols that can be named for this option depend on the SSL library used to compile MySQL, and on the MySQL Server release.

**Important**

• Support for the TLSv1 and TLSv1. 1 connection protocols is removed from MySQL Server as of MySQL 8.0.28. The protocols were deprecated

from MySQL 8.0.26, though MySQL Server clients do not return warnings to the user if a deprecated TLS protocol version is used. From MySQL 8.0.28 onwards, clients, including MySQL Shell, that support the [--tls-](#_bookmark27) [version](#_bookmark27) option cannot make a TLS/SSL connection with the protocol set to TLSv1 or TLSv1. 1. If a client attempts to connect using these protocols, for TCP connections, the connection fails, and an error is returned to the client. For socket connections, if [--ssl-mode](#_bookmark23) is set to REQUIRED, the connection fails, otherwise the connection is made but with TLS/SSL disabled. See Removal of Support for the TLSv1 and TLSv1. 1 Protocols for more information.

• Support for the TLSv1.3 protocol is available in MySQL Server as of MySQL 8.0. 16, provided that MySQL Server was compiled using OpenSSL

1.1.1 or higher. The server checks the version of OpenSSL at startup, and if it is lower than 1. 1. 1, TLSv1.3 is removed from the default value for the server system variables relating to the TLS version (such as the tls\_version system variable).

Permitted protocols should be chosen such as not to leave “holes” in the list. For example, these values do not have holes:

--tls-version="TLSv1,TLSv1.1,TLSv1.2,TLSv1.3"

--tls-version="TLSv1 .1,TLSv1 .2,TLSv1 .3"

--tls-version="TLSv1 .2,TLSv1 .3"

--tls-version="TLSv1.3"

From MySQL 8.0.28, only the last two values are suitable.

These values do have holes and should not be used:

--tls-version="TLSv1,TLSv1.2"

--tls-version="TLSv1.1,TLSv1.3"

For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” . To specify which TLS protocols the server permits, set the tls\_version system variable.

**Command** **Options** **for** **Connection** **Compression**

This section describes options that enable client programs to control use of compression for connections to the server. For additional information and examples showing how to use them, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

**Table** **4.5** **Connection-Compression** **Option** **Summary**

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--compress](#_bookmark32) | Compress all  information sent  between client and  server |  | 8.0.18 |
| [--compression-](#_bookmark33)  [algorithms](#_bookmark33) | Permitted compression algorithms for connections to server | 8.0.18 |  |
| [--zstd-compression-level](#_bookmark34) | Compression level  for connections to  server that use zstd  compression | 8.0.18 |  |

• [--compress](#_bookmark32), -C

Compress all information sent between the client and the server if possible.

As of MySQL 8.0.18, this option is deprecated. Expect it to be removed in a future version of MySQL. See [Configuring Legacy Connection Compression](#_bookmark35).

• [--compression-algorithms=*value*](#_bookmark33)

The permitted compression algorithms for connections to the server. The available algorithms are the same as for the protocol\_compression\_algorithms system variable. The default value is uncompressed.

This option was added in MySQL 8.0.18.

• [--zstd-compression-level=*level*](#_bookmark34)

The compression level to use for connections to the server that use the zstd compression algorithm. The permitted levels are from 1 to 22, with larger values indicating increasing levels of compression. The default zstd compression level is 3. The compression level setting has no effect on connections that do not use zstd compression.

This option was added in MySQL 8.0.18.

**4.2.4** **Connecting** **to** **the** **MySQL** **Server** **Using** **Command** **Options**

This section describes use of command-line options to specify how to establish connections to the MySQL server, for clients such as [mysql](#_bookmark29) or [mysqldump](#_bookmark37). For information on establishing connections using URI-like connection strings or key-value pairs, for clients such as MySQL Shell, see [Section 4.2.5, “Connecting to the Server Using URI-Like Strings or Key-Value Pairs”](#_bookmark38) . For additional information if you are unable to connect, see Section 6.2.22, “Troubleshooting Problems Connecting to MySQL” .

For a client program to connect to the MySQL server, it must use the proper connection parameters, such as the name of the host where the server is running and the user name and password of your MySQL account. Each connection parameter has a default value, but you can override default values as necessary using program options specified either on the command line or in an option file.

The examples here use the [mysql](#_bookmark29) client program, but the principles apply to other clients such as [mysqldump](#_bookmark37), [mysqladmin](#_bookmark39), or [mysqlshow](#_bookmark40).

This command invokes [mysql](#_bookmark29) without specifying any explicit connection parameters:

mysql

Because there are no parameter options, the default values apply:

• The default host name is localhost. On Unix, this has a special meaning, as described later.

• The default user name is ODBC on Windows or your Unix login name on Unix.

• No password is sent because neither --password nor -p is given.

• For [mysql](#_bookmark29), the first nonoption argument is taken as the name of the default database. Because there is no such argument, [mysql](#_bookmark29) selects no default database.

To specify the host name and user name explicitly, as well as a password, supply appropriate options on the command line. To select a default database, add a database-name argument. Examples:

mysql --host=localhost --user=myname --password=*password* mydb

mysql -h localhost -u myname -p*password* mydb

For password options, the password value is optional:

• If you use a --password or -p option and specify a password value, there must be *no* *space* between --password= or -p and the password following it.

• If you use --password or -p but do not specify a password value, the client program prompts you to enter the password. The password is not displayed as you enter it. This is more secure than giving the password on the command line, which might enable other users on your system to see the password line by executing a command such as ps. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

• To explicitly specify that there is no password and that the client program should not prompt for one, use the --skip-password option.

As just mentioned, including the password value on the command line is a security risk. To avoid this risk, specify the --password or -p option without any following password value:

mysql --host=localhost --user=myname --password mydb

mysql -h localhost -u myname -p mydb

When the --password or -p option is given with no password value, the client program prints a prompt and waits for you to enter the password. (In these examples, mydb is *not* interpreted as a password because it is separated from the preceding password option by a space.)

On some systems, the library routine that MySQL uses to prompt for a password automatically limits the password to eight characters. That limitation is a property of the system library, not MySQL. Internally, MySQL does not have any limit for the length of the password. To work around the limitation on systems affected by it, specify your password in an option file (see Section 4.2.2.2, “Using Option Files” ). Another workaround is to change your MySQL password to a value that has eight or fewer characters, but that has the disadvantage that shorter passwords tend to be less secure.

Client programs determine what type of connection to make as follows:

• If the host is not specified or is localhost, a connection to the local host occurs:

• On Windows, the client connects using shared memory, if the server was started with the shared\_memory system variable enabled to support shared-memory connections.

• On Unix, MySQL programs treat the host name localhost specially, in a way that is likely different from what you expect compared to other network-based programs: the client connects using a Unix socket file. The [--socket](#_bookmark10) option or the MYSQL\_UNIX\_PORT environment variable may be used to specify the socket name.

• On Windows, if host is . (period), or TCP/IP is not enabled and [--socket](#_bookmark10) is not specified or the host is empty, the client connects using a named pipe, if the server was started with the named\_pipe system variable enabled to support named-pipe connections. If named-pipe

connections are not supported or if the user making the connection is not a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable, an error occurs.

• Otherwise, the connection uses TCP/IP.

The [--protocol](#_bookmark7) option enables you to use a particular transport protocol even when other options normally result in use of a different protocol. That is, [--protocol](#_bookmark7) specifies the transport protocol explicitly and overrides the preceding rules, even for localhost.

Only connection options that are relevant to the selected transport protocol are used or checked. Other connection options are ignored. For example, with --host=localhost on Unix, the client attempts to connect to the local server using a Unix socket file, even if a [--port](#_bookmark6) or -P option is given to specify a TCP/IP port number.

To ensure that the client makes a TCP/IP connection to the local server, use --host or -h to specify a host name value of 127.0.0.1 (instead of localhost), or the IP address or name of the local server. You can also specify the transport protocol explicitly, even for localhost, by using the [--](#_bookmark7) [protocol=TCP](#_bookmark7) option. Examples:

mysql --host=127.0.0.1

mysql --protocol=TCP

If the server is configured to accept IPv6 connections, clients can connect to the local server over IPv6 using --host=::1. See Section 5.1.13, “IPv6 Support” .

On Windows, to force a MySQL client to use a named-pipe connection, specify the [--pipe](#_bookmark4) or [--protocol=PIPE](#_bookmark7) option, or specify . (period) as the host name. If the server was not started with the named\_pipe system variable enabled to support named-pipe connections

or if the user making the connection is not a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable, an error occurs. Use the [--socket](#_bookmark10) option to specify the name of the pipe if you do not want to use the default pipe name.

Connections to remote servers use TCP/IP. This command connects to the server running on remote.example.com using the default port number (3306):

mysql --host=remote.example.com

To specify a port number explicitly, use the [--port](#_bookmark6) or -P option:

mysql --host=remote.example.com --port=13306

You can specify a port number for connections to a local server, too. However, as indicated previously, connections to localhost on Unix use a socket file by default, so unless you force a TCP/IP connection as previously described, any option that specifies a port number is ignored.

For this command, the program uses a socket file on Unix and the [--port](#_bookmark6) option is ignored:

mysql --port=13306 --host=localhost

To cause the port number to be used, force a TCP/IP connection. For example, invoke the program in either of these ways:

mysql --port=13306 --host=127.0.0.1

mysql --port=13306 --protocol=TCP

For additional information about options that control how client programs establish connections to the server, see Section 4.2.3, “Command Options for Connecting to the Server” .

It is possible to specify connection parameters without entering them on the command line each time you invoke a client program:

• Specify the connection parameters in the [client] section of an option file. The relevant section of the file might look like this:

[client]

host=*host\_name*

user=*user\_name*

password=*password*



For more information, see Section 4.2.2.2, “Using Option Files” .

• Some connection parameters can be specified using environment variables. Examples:

• To specify the host for [mysql](#_bookmark29), use MYSQL\_HOST.

• On Windows, to specify the MySQL user name, use USER.

For a list of supported environment variables, see Section 4.9, “Environment Variables” .

**4.2.5** **Connecting** **to** **the** **Server** **Using** **URI-Like** **Strings** **or** **Key-Value** **Pairs**

This section describes use of URI-like connection strings or key-value pairs to specify how to establish connections to the MySQL server, for clients such as MySQL Shell. For information on establishing connections using command-line options, for clients such as [mysql](#_bookmark29) or [mysqldump](#_bookmark37), see [Section 4.2.4,](#_bookmark36) [“Connecting to the MySQL Server Using Command Options”](#_bookmark36) . For additional information if you are unable to connect, see Section 6.2.22, “Troubleshooting Problems Connecting to MySQL” .

**Note**

The term “URI-like” signifies connection-string syntax that is similar to but not identical to the URI (uniform resource identifier) syntax defined by [RFC 3986](https://tools.ietf.org/html/rfc3986).

The following MySQL clients support connecting to a MySQL server using a URI-like connection string or key-value pairs:

• MySQL Shell

• MySQL Connectors which implement X DevAPI

This section documents all valid URI-like string and key-value pair connection parameters, many of which are similar to those specified with command-line options:

• Parameters specified with a URI-like string use a syntax such as myuser@example.com:3306/ main-schema. For the full syntax, see [Connecting Using URI-Like Connection Strings](#_bookmark41).

• Parameters specified with key-value pairs use a syntax such as {user:'myuser',

host:'example.com ', port:3306, schema:'main-schema'}. For the full syntax, see [Connecting Using Key-Value Pairs](#_bookmark42).

Connection parameters are not case-sensitive. Each parameter, if specified, can be given only once. If a parameter is specified more than once, an error occurs.

This section covers the following topics:

• [Base Connection Parameters](#_bookmark43)

• [Additional Connection parameters](#_bookmark44)

• [Connecting Using URI-Like Connection Strings](#_bookmark41)

• [Connecting Using Key-Value Pairs](#_bookmark42)

**Base** **Connection** **Parameters**

The following discussion describes the parameters available when specifying a connection to MySQL. These parameters can be provided using either a string that conforms to the base URI-like syntax (see [Connecting Using URI-Like Connection Strings](#_bookmark41)), or as key-value pairs (see [Connecting Using Key-](#_bookmark42) [Value Pairs](#_bookmark42)).

• *scheme*: The transport protocol to use. Use mysqlx for X Protocol connections and mysql for classic MySQL protocol connections. If no protocol is specified, the server attempts to guess the



protocol. Connectors that support DNS SRV can use the mysqlx+srv scheme (see [Connections](https://dev.mysql.com/doc/x-devapi-userguide/en/connecting-dns-srv.html) [Using DNS SRV Records](https://dev.mysql.com/doc/x-devapi-userguide/en/connecting-dns-srv.html)).

• *user*: The MySQL user account to provide for the authentication process.

• *password*: The password to use for the authentication process.

**Warning**

Specifying an explicit password in the connection specification is insecure and not recommended. Later discussion shows how to cause an interactive prompt for the password to occur.

• *host*: The host on which the server instance is running. The value can be a host name, IPv4 address, or IPv6 address. If no host is specified, the default is localhost.

• *port*: The TCP/IP network port on which the target MySQL server is listening for connections. If no port is specified, the default is 33060 for X Protocol connections and 3306 for classic MySQL protocol connections.

• *socket*: The path to a Unix socket file or the name of a Windows named pipe. Values are local file paths. In URI-like strings, they must be encoded, using either percent encoding or by surrounding the path with parentheses. Parentheses eliminate the need to percent encode characters such as the / directory separator character. For example, to connect as root@localhost using the Unix socket /tmp/mysql.sock, specify the path using percent encoding as root@localhost? socket=%2Ftmp%2Fmysql.sock, or using parentheses as root@localhost?socket=(/tmp/ mysql.sock).

• *schema*: The default database for the connection. If no database is specified, the connection has no default database.

The handling of localhost on Unix depends on the type of transport protocol. Connections using classic MySQL protocol handle localhost the same way as other MySQL clients, which means that localhost is assumed to be for socket-based connections. For connections using X Protocol, the behavior of localhost differs in that it is assumed to represent the loopback address, for example, IPv4 address 127.0.0.1.

**Additional** **Connection** **parameters**

You can specify options for the connection, either as attributes in a URI-like string by appending ?*attribute=value*, or as key-value pairs. The following options are available:

• ssl-mode: The desired security state for the connection. The following modes are permissible:

• DISABLED

• PREFERRED

• REQUIRED

• VERIFY\_CA

• VERIFY\_IDENTITY

**Important**

VERIFY\_CA and VERIFY\_IDENTITY are better choices than the default PREFERRED, because they help prevent man-in-the-middle attacks.

For information about these modes, see the [--ssl-mode](#_bookmark23) option description in [Command Options](#_bookmark12) [for Encrypted Connections](#_bookmark12).

• ssl-ca: The path to the X.509 certificate authority file in PEM format.

• ssl-capath: The path to the directory that contains the X.509 certificates authority files in PEM format.

• ssl-cert: The path to the X.509 certificate file in PEM format.

• ssl-cipher: The encryption cipher to use for connections that use TLS protocols up through TLSv1.2.

• ssl-crl: The path to the file that contains certificate revocation lists in PEM format.

• ssl-crlpath: The path to the directory that contains certificate revocation-list files in PEM format.

• ssl-key: The path to the X.509 key file in PEM format.

• tls-version: The TLS protocols permitted for classic MySQL protocol encrypted connections. This option is supported by MySQL Shell only. The value of tls-version (singular) is a comma separated list, for example TLSv1.2,TLSv1.3. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” . This option depends on the ssl-mode option not being set to DISABLED.

• tls-versions: The permissible TLS protocols for encrypted X Protocol connections. The value of tls-versions (plural) is an array such as [TLSv1.2,TLSv1.3]. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” . This option depends on the ssl-mode option not being set to DISABLED.

• tls-ciphersuites: The permitted TLS cipher suites. The value of tls-ciphersuites is a list of IANA cipher suite names as listed at [TLS Ciphersuites](https://www.iana.org/assignments/tls-parameters/tls-parameters.xhtml#tls-parameters-4). For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” . This option depends on the ssl-mode option not being set to DISABLED.

• auth-method: The authentication method to use for the connection. The default is AUTO, meaning that the server attempts to guess. The following methods are permissible:

• AUTO

• MYSQL41

• SHA256\_MEMORY

• FROM\_CAPABILITIES

• FALLBACK

• PLAIN

For X Protocol connections, any configured auth-method is overridden to this sequence of authentication methods: MYSQL41, SHA256\_MEMORY, PLAIN.

• get-server-public-key: Request from the server the public key required for RSA key pair-

based password exchange. Use when connecting to MySQL 8.0 servers over classic MySQL

protocol with SSL mode DISABLED. You must specify the protocol in this case. For example:

mysql://user@localhost:3306?get-server-public-key=true

This option applies to clients that authenticate with the caching\_sha2\_password authentication plugin. For that plugin, the server does not send the public key unless requested. This option is ignored for accounts that do not authenticate with that plugin. It is also ignored if RSA-based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If server-public-key-path=*file\_name* is given and specifies a valid public key file, it takes precedence over get-server-public-key.



For information about the caching\_sha2\_password plugin, see Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• server-public-key-path: The path name to a file in PEM format containing a client-side copy of the public key required by the server for RSA key pair-based password exchange. Use when connecting to MySQL 8.0 servers over classic MySQL protocol with SSL mode DISABLED.

This option applies to clients that authenticate with the sha256\_password or caching\_sha2\_password authentication plugin. This option is ignored for accounts that do not authenticate with one of those plugins. It is also ignored if RSA-based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If server-public-key-path=*file\_name* is given and specifies a valid public key file, it takes precedence over get-server-public-key.

For information about the sha256\_password and caching\_sha2\_password plugins, see Section 6.4.1.3, “SHA-256 Pluggable Authentication” , and Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• ssh: The URI for connection to an SSH server to access a MySQL server instance using SSH tunneling. The URI format is [user@]host[:port]. Use the uri option to specify the URI of the target MySQL server instance. For information on SSH tunnel connections from MySQL Shell, see [Using an SSH Tunnel](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysql-shell-connection-ssh.html).

• uri: The URI for a MySQL server instance that is to be accessed through an SSH tunnel from the server specified by the ssh option. The URI format is [scheme://][user@]host[:port]. Do not use the base connection parameters (scheme, user, host, port) to specify the MySQL server connection for SSH tunneling, just use the uri option.

• ssh-password: The password for the connection to the SSH server.

**Warning**

Specifying an explicit password in the connection specification is insecure and not recommended. MySQL Shell prompts for a password interactively when one is required.

• ssh-config-file: The SSH configuration file for the connection to the SSH server. You can use the MySQL Shell configuration option ssh.configFile to set a custom file as the default if this option is not specified. If ssh.configFile has not been set, the default is the standard SSH configuration file ~/.ssh/config.

• ssh-identity-file: The identity file to use for the connection to the SSH server. The default if this option is not specified is any identity file configured in an SSH agent (if used), or in the SSH configuration file, or the standard private key file in the SSH configuration folder (~/.ssh/id\_rsa).

• ssh-identity-pass: The passphrase for the identity file specified by the ssh-identity-file option.

**Warning**

Specifying an explicit password in the connection specification is insecure and not recommended. MySQL Shell prompts for a password interactively when one is required.

• connect-timeout: An integer value used to configure the number of seconds that clients, such as MySQL Shell, wait until they stop trying to connect to an unresponsive MySQL server.

• compression: This option requests or disables compression for the connection. Up to MySQL 8.0.19 it operates for classic MySQL protocol connections only, and from MySQL 8.0.20 it also operates for X Protocol connections.



• Up to MySQL 8.0.19, the values for this option are true (or 1) which enables compression, and the default false (or 0) which disables compression.

• From MySQL 8.0.20, the values for this option are required, which requests compression and fails if the server does not support it; preferred, which requests compression and falls back to an uncompressed connection; and disabled, which requests an uncompressed connection and fails if the server does not permit those. preferred is the default for X Protocol connections, and disabled is the default for classic MySQL protocol connections. For information on X Plugin connection compression control, see Section 20.5.5, “Connection Compression with X Plugin” .

Note that different MySQL clients implement their support for connection compression differently. Consult your client's documentation for details.

• compression-algorithms and compression-level: These options are available in MySQL Shell 8.0.20 and later for more control over connection compression. You can specify them to select the compression algorithm used for the connection, and the numeric compression level used with that algorithm. You can also use compression-algorithms in place of compression to request compression for the connection. For information on MySQL Shell's connection compression control, see [Using Compressed Connections](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysql-shell-compressed-connections.html).

• connection-attributes: Controls the key-value pairs that application programs pass to the server at connect time. For general information about connection attributes, see Section 27.12.9, “Performance Schema Connection Attribute Tables” . Clients usually define a default set of attributes, which can be disabled or enabled. For example:

mysqlx://user@host?connection-attributes

mysqlx://user@host?connection-attributes=true

mysqlx://user@host?connection-attributes=false

The default behavior is to send the default attribute set. Applications can specify attributes to be passed in addition to the default attributes. You specify additional connection attributes as a connection-attributes parameter in a connection string. The connection-attributes parameter value must be empty (the same as specifying true), a Boolean value (true or false to enable or disable the default attribute set), or a list or zero or more key=value specifiers separated by commas (to be sent in addition to the default attribute set). Within a list, a missing key value evaluates as an empty string. Further examples:

mysqlx://user@host?connection-attributes=[attr1=val1,attr2,attr3=]

mysqlx://user@host?connection-attributes=[]

Application-defined attribute names cannot begin with \_ because such names are reserved for internal attributes.

**Connecting** **Using** **URI-Like** **Connection** **Strings**

You can specify a connection to MySQL Server using a URI-like string. Such strings can be used with the MySQL Shell with the [--uri](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysqlsh.html#option_mysqlsh_uri) command option, the MySQL Shell \connect command, and MySQL Connectors which implement X DevAPI.

**Note**

The term “URI-like” signifies connection-string syntax that is similar to but not identical to the URI (uniform resource identifier) syntax defined by [RFC 3986](https://tools.ietf.org/html/rfc3986).

A URI-like connection string has the following syntax:

[*scheme*://][*user* [:[*password*]]@]*host*[:*port*][/*schema*][?*attribute1=value1&attribute2=value2...*

**Important**

Percent encoding must be used for reserved characters in the elements of the URI-like string. For example, if you specify a string that includes the @ character,

the character must be replaced by %40. If you include a zone ID in an IPv6 address, the % character used as the separator must be replaced with %25.

The parameters you can use in a URI-like connection string are described at [Base Connection](#_bookmark43) [Parameters](#_bookmark43).

MySQL Shell's shell.parseUri() and shell.unparseUri() methods can be used to deconstruct and assemble a URI-like connection string. Given a URI-like connection string, shell.parseUri() returns a dictionary containing each element found in the string.

shell.unparseUri() converts a dictionary of URI components and connection options into a valid URI-like connection string for connecting to MySQL, which can be used in MySQL Shell or by MySQL Connectors which implement X DevAPI.

If no password is specified in the URI-like string, which is recommended, interactive clients prompt for the password. The following examples show how to specify URI-like strings with the user name *user\_name*. In each case, the password is prompted for.

• An X Protocol connection to a local server instance listening at port 33065. mysqlx://*user\_name*@localhost:33065

• A classic MySQL protocol connection to a local server instance listening at port 3333. mysql://*user\_name*@localhost:3333

• An X Protocol connection to a remote server instance, using a host name, an IPv4 address, and an IPv6 address.

mysqlx://*user\_name*@server.example.com/

mysqlx://*user\_name*@198.51.100.14 :123

mysqlx://*user\_name*@[2001:db8:85a3:8d3:1319:8a2e:370:7348]

• An X Protocol connection using a socket, with the path provided using either percent encoding or parentheses.

mysqlx://*user\_name*@/*path*%2F*to*%2F*socket* *.sock*

mysqlx://*user\_name*@(*/path/to/socket* *.sock*)

• An optional path can be specified, which represents a database.

# use 'world' as the default database

mysqlx://*user\_name*@198.51.100.1/world

# use 'world\_x' as the default database, encoding \_ as %5F

mysqlx://*user\_name*@198.51.100.2:33060/world%5Fx

• An optional query can be specified, consisting of values each given as a *key*=*value* pair or as a single *key*. To specify multiple values, separate them by , characters. A mix of *key*=*value* and *key* values is permissible. Values can be of type list, with list values ordered by appearance. Strings must be either percent encoded or surrounded by parentheses. The following are equivalent.

ssluser@127.0.0.1?ssl-ca=%2Froot%2Fclientcert%2Fca-cert.pem\

&ssl-cert=%2Froot%2Fclientcert%2Fclient-cert .pem\

&ssl-key=%2Froot%2Fclientcert%2Fclient-key

ssluser@127.0.0.1?ssl-ca=(/root/clientcert/ca-cert.pem)\

&ssl-cert=(/root/clientcert/client-cert .pem)\

&ssl-key=(/root/clientcert/client-key)

• To specify a TLS version and ciphersuite to use for encrypted connections:

mysql://*user\_name*@198.51.100.2:3306/world%5Fx?\

tls-versions=[TLSv1.2,TLSv1.3]&tls-ciphersuites=[TLS\_DHE\_PSK\_WITH\_AES\_128\_\

GCM\_SHA256, TLS\_CHACHA20\_POLY1305\_SHA256]

The previous examples assume that connections require a password. With interactive clients, the specified user's password is requested at the login prompt. If the user account has no password (which

is insecure and not recommended), or if socket peer-credential authentication is in use (for example, with Unix socket connections), you must explicitly specify in the connection string that no password is being provided and the password prompt is not required. To do this, place a : after the *user\_name* in the string but do not specify a password after it. For example:

mysqlx://*user\_name*:@localhost

**Connecting** **Using** **Key-Value** **Pairs**

In MySQL Shell and some MySQL Connectors which implement X DevAPI, you can specify a connection to MySQL Server using key-value pairs, supplied in language-natural constructs for the implementation. For example, you can supply connection parameters using key-value pairs as a JSON object in JavaScript, or as a dictionary in Python. Regardless of the way the key-value pairs are supplied, the concept remains the same: the keys as described in this section can be assigned values that are used to specify a connection. You can specify connections using key-value pairs in MySQL Shell's shell.connect() method or InnoDB Cluster's dba.createCluster() method, and with some of the MySQL Connectors which implement X DevAPI.

Generally, key-value pairs are surrounded by { and } characters and the , character is used as a separator between key-value pairs. The : character is used between keys and values, and strings must be delimited (for example, using the ' character). It is not necessary to percent encode strings, unlike URI-like connection strings.

A connection specified as key-value pairs has the following format: { *key*: *value*, *key*: *value*, ...} The parameters you can use as keys for a connection are described at [Base Connection Parameters](#_bookmark43).

If no password is specified in the key-value pairs, which is recommended, interactive clients prompt for the password. The following examples show how to specify connections using key-value pairs with the user name '*user\_name*'. In each case, the password is prompted for.

• An X Protocol connection to a local server instance listening at port 33065. {user:'*user\_name*', host:'localhost', port:33065}

• A classic MySQL protocol connection to a local server instance listening at port 3333. {user:'*user\_name*', host:'localhost', port:3333}

• An X Protocol connection to a remote server instance, using a host name, an IPv4 address, and an IPv6 address.

{user:'*user\_name* ', host:'server.example.com'}

{user:'*user\_name* ', host:198 .51 .100 .14:123}

{user:'*user\_name* ', host:[2001:db8:85a3:8d3:1319:8a2e:370:7348]}

• An X Protocol connection using a socket. {user:'*user\_name*', socket:'*/path/to/socket/file*'}

• An optional schema can be specified, which represents a database. {user:'*user\_name*', host:'localhost', schema:'world'}

The previous examples assume that connections require a password. With interactive clients, the specified user's password is requested at the login prompt. If the user account has no password (which is insecure and not recommended), or if socket peer-credential authentication is in use (for example, with Unix socket connections), you must explicitly specify that no password is being provided and the password prompt is not required. To do this, provide an empty string using '' after the password key. For example:

{user:'*user\_name*', password:'', host:'localhost'}

**4.2.6** **Connecting** **to** **the** **Server** **Using** **DNS** **SRV** **Records**

In the Domain Name System (DNS), a SRV record (service location record) is a type of resource record that enables a client to specify a name that indicates a service, protocol, and domain. A DNS lookup on the name returns a reply containing the names of multiple available servers in the domain that provide the required service. For information about DNS SRV, including how a record defines the preference order of the listed servers, see [RFC 2782](https://tools.ietf.org/html/rfc2782).

MySQL supports the use of DNS SRV records for connecting to servers. A client that receives a DNS SRV lookup result attempts to connect to the MySQL server on each of the listed hosts in order of preference, based on the priority and weighting assigned to each host by the DNS administrator. A failure to connect occurs only if the client cannot connect to any of the servers.

When multiple MySQL instances, such as a cluster of servers, provide the same service for your applications, DNS SRV records can be used to assist with failover, load balancing, and replication services. It is cumbersome for applications to directly manage the set of candidate servers for connection attempts, and DNS SRV records provide an alternative:

• DNS SRV records enable a DNS administrator to map a single DNS domain to multiple servers. DNS SRV records also can be updated centrally by administrators when servers are added or removed from the configuration or when their host names are changed.

• Central management of DNS SRV records eliminates the need for individual clients to identify each possible host in connection requests, or for connections to be handled by an additional software component. An application can use the DNS SRV record to obtain information about candidate MySQL servers, instead of managing the server information itself.

• DNS SRV records can be used in combination with connection pooling, in which case connections to hosts that are no longer in the current list of DNS SRV records are removed from the pool when they become idle.

MySQL supports use of DNS SRV records to connect to servers in these contexts:

• Several MySQL Connectors implement DNS SRV support; connector-specific options enable requesting DNS SRV record lookup both for X Protocol connections and for classic MySQL protocol connections. For general information, see [Connections Using DNS SRV Records](https://dev.mysql.com/doc/x-devapi-userguide/en/connecting-dns-srv.html). For details, see the documentation for individual MySQL Connectors.

• The C API provides a [mysql\_real\_connect\_dns\_srv()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-real-connect-dns-srv.html) function that is similar to [mysql\_real\_connect()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-real-connect.html), except that the argument list does not specify the particular host of the MySQL server to connect to. Instead, it names a DNS SRV record that specifies a group of servers. See [mysql\_real\_connect\_dns\_srv()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-real-connect-dns-srv.html).

• The [mysql](#_bookmark29) client has a [-- - -](#_bookmark46)dnssrvname option to indicate a DNS SRV record that specifies a group of servers. See [Section 4.5.1, “mysql — The MySQL Command-Line Client”](#_bookmark29) .

A DNS SRV name consists of a service, protocol, and domain, with the service and protocol each prefixed by an underscore:

\_*service*.\_*protocol*.*domain*

The following DNS SRV record identifies multiple candidate servers, such as might be used by clients for establishing X Protocol connections:

|  |  |
| --- | --- |
| Name | TTL Class Priority Weight Port Target |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| \_mysqlx.\_tcp.example.com. 86400 | IN SRV 0 | 5 | 33060 | server1.example.com. |
| \_mysqlx.\_tcp.example.com . 86400 | IN SRV 0 | 10 | 33060 | server2.example.com . |
| \_mysqlx.\_tcp.example.com . 86400 | IN SRV 10 | 5 | 33060 | server3.example.com . |
| \_mysqlx.\_tcp.example.com. 86400 | IN SRV 20 | 5 | 33060 | server4.example.com. |

Here, mysqlx indicates the X Protocol service and tcp indicates the TCP protocol. A client can

request this DNS SRV record using the name \_mysqlx .\_tcp .example .com. The particular syntax

for specifying the name in the connection request depends on the type of client. For example, a client might support specifying the name within a URI-like connection string or as a key-value pair.

A DNS SRV record for classic protocol connections might look like this:

|  |  |  |  |
| --- | --- | --- | --- |
| Name TTL Class | Priority | Weight | Port Target |
| \_mysql.\_tcp.example.com. 86400 IN SRV | 0 | 5 | 3306 server1.example.com. |
| \_mysql.\_tcp.example.com . 86400 IN SRV | 0 | 10 | 3306 server2 .example .com . |
| \_mysql.\_tcp.example.com . 86400 IN SRV | 10 | 5 | 3306 server3 .example .com . |
| \_mysql.\_tcp.example.com. 86400 IN SRV | 20 | 5 | 3306 server4.example.com. |

Here, the name mysql designates the classic MySQL protocol service, and the port is 3306 (the default classic MySQL protocol port) rather than 33060 (the default X Protocol port).

When DNS SRV record lookup is used, clients generally must apply these rules for connection requests (there may be client- or connector-specific exceptions):

• The request must specify the full DNS SRV record name, with the service and protocol names prefixed by underscores.

• The request must not specify multiple host names.

• The request must not specify a port number.

• Only TCP connections are supported. Unix socket files, Windows named pipes, and shared memory cannot be used.

For more information on using DNS SRV based connections in X DevAPI, see [Connections Using DNS](https://dev.mysql.com/doc/x-devapi-userguide/en/connecting-dns-srv.html) [SRV Records](https://dev.mysql.com/doc/x-devapi-userguide/en/connecting-dns-srv.html).

**4.2.7** **Connection** **Transport** **Protocols**

For programs that use the MySQL client library (for example, [mysql](#_bookmark29) and [mysqldump](#_bookmark37)), MySQL supports connections to the server based on several transport protocols: TCP/IP, Unix socket file, named pipe, and shared memory. This section describes how to select these protocols, and how they are similar and different.

• [Transport Protocol Selection](#_bookmark47)

• [Transport Support for Local and Remote Connections](#_bookmark48)

• [Interpretation of localhost](#_bookmark49)

• [Encryption and Security Characteristics](#_bookmark50)

• [Connection Compression](#_bookmark51)

**Transport** **Protocol** **Selection**

For a given connection, if the transport protocol is not specified explicitly, it is determined implicitly. For example, connections to localhost result in a socket file connection on Unix and Unix-like systems, and a TCP/IP connection to 127.0.0.1 otherwise. For additional information, see [Section 4.2.4,](#_bookmark36) [“Connecting to the MySQL Server Using Command Options”](#_bookmark36) .

To specify the protocol explicitly, use the [--protocol](#_bookmark7) command option. The following table shows the permissible values for [--protocol](#_bookmark7) and indicates the applicable platforms for each value. The values are not case-sensitive.

|  |  |  |
| --- | --- | --- |
| [**--protocol**](#_bookmark7) **Value** | **Transport** **Protocol** **Used** | **Applicable** **Platforms** |
| TCP | TCP/IP | All |
| SOCKET | Unix socket file | Unix and Unix-like systems |
| PIPE | Named pipe | Windows |

|  |  |  |
| --- | --- | --- |
| [**--protocol**](#_bookmark7) **Value** | **Transport** **Protocol** **Used** | **Applicable** **Platforms** |
| MEMORY | Shared memory | Windows |

**Transport** **Support** **for** **Local** **and** **Remote** **Connections**

TCP/IP transport supports connections to local or remote MySQL servers.

Socket-file, named-pipe, and shared-memory transports support connections only to local MySQL servers. (Named-pipe transport does allow for remote connections, but this capability is not implemented in MySQL.)

**Interpretation** **of** **localhost**

If the transport protocol is not specified explicitly, localhost is interpreted as follows:

• On Unix and Unix-like systems, a connection to localhost results in a socket-file connection.

• Otherwise, a connection to localhost results in a TCP/IP connection to 127.0.0.1.

If the transport protocol is specified explicitly, localhost is interpreted with respect to that protocol. For example, with [--protocol=TCP](#_bookmark7), a connection to localhost results in a TCP/IP connection to 127.0.0.1 on all platforms.

**Encryption** **and** **Security** **Characteristics**

TCP/IP and socket-file transports are subject to TLS/SSL encryption, using the options described in [Command Options for Encrypted Connections](#_bookmark12). Named-pipe and shared-memory transports are not subject to TLS/SSL encryption.

A connection is secure by default if made over a transport protocol that is secure by default. Otherwise, for protocols that are subject to TLS/SSL encryption, a connection may be made secure using encryption:

• TCP/IP connections are not secure by default, but can be encrypted to make them secure.

• Socket-file connections are secure by default. They can also be encrypted, but encrypting a socket- file connection makes it no more secure and increases CPU load.

• Named-pipe connections are not secure by default, and are not subject to encryption to make them secure. However, the named\_pipe\_full\_access\_group system variable is available to control which MySQL users are permitted to use named-pipe connections.

• Shared-memory connections are secure by default.

If the require\_secure\_transport system variable is enabled, the server permits only connections

that use some form of secure transport. Per the preceding remarks, connections that use TCP/ IP encrypted using TLS/SSL, a socket file, or shared memory are secure connections. TCP/IP connections not encrypted using TLS/SSL and named-pipe connections are not secure.

See also Configuring Encrypted Connections as Mandatory.

**Connection** **Compression**

All transport protocols are subject to use of compression on the traffic between the client and server. If both compression and encryption are used for a given connection, compression occurs before encryption. For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

**4.2.8** **Connection** **Compression** **Control**

Connections to the server can use compression on the traffic between client and server to reduce the number of bytes sent over the connection. By default, connections are uncompressed, but can be compressed if the server and the client agree on a mutually permitted compression algorithm.



Compressed connections originate on the client side but affect CPU load on both the client and server sides because both sides perform compression and decompression operations. Because enabling compression decreases performance, its benefits occur primarily when there is low network bandwidth, network transfer time dominates the cost of compression and decompression operations, and result sets are large.

This section describes the available compression-control configuration parameters and the information sources available for monitoring use of compression. It applies to classic MySQL protocol connections.

Compression control applies to connections to the server by client programs and by servers participating in source/replica replication or Group Replication. Compression control does not apply to connections for FEDERATED tables. In the following discussion, “client connection” is shorthand for a connection to the server originating from any source for which compression is supported, unless context indicates a specific connection type.

**Note**

X Protocol connections to a MySQL Server instance support compression from MySQL 8.0.19, but compression for X Protocol connections operates independently from the compression for classic MySQL protocol connections described here, and is controlled separately. See Section 20.5.5, “Connection Compression with X Plugin” for information on X Protocol connection compression.

• [Configuring Connection Compression](#_bookmark52)

• [Configuring Legacy Connection Compression](#_bookmark35)

• [Monitoring Connection Compression](#_bookmark53)

**Configuring** **Connection** **Compression**

As of MySQL 8.0.18, these configuration parameters are available for controlling connection compression:

• The protocol\_compression\_algorithms system variable configures which compression algorithms the server permits for incoming connections.

• The [--compression-algorithms](#_bookmark33) and [--zstd-compression-level](#_bookmark34) command-line options configure permitted compression algorithms and zstd compression level for these client programs: [mysql](#_bookmark29), [mysqladmin](#_bookmark39), mysqlbinlog, [mysqlcheck](#_bookmark54), [mysqldump](#_bookmark37), [mysqlimport](#_bookmark55), [mysqlpump](#_bookmark56), [mysqlshow](#_bookmark40), [mysqlslap](#_bookmark57), and mysqltest, and [mysql\_upgrade](#_bookmark58). MySQL Shell also offers these command-line options from its 8.0.20 release.

• The MYSQL\_OPT\_COMPRESSION\_ALGORITHMS and MYSQL\_OPT\_ZSTD\_COMPRESSION\_LEVEL options for the [mysql\_options()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-options.html) function configure permitted compression algorithms and zstd compression level for client programs that use the MySQL C API.

• The MASTER\_COMPRESSION\_ALGORITHMS and MASTER\_ZSTD\_COMPRESSION\_LEVEL options for the CHANGE MASTER TO statement configure permitted compression algorithms and zstd compression level for replica servers participating in source/replica replication. From MySQL 8.0.23, use the statement CHANGE REPLICATION SOURCE TO and the options SOURCE\_COMPRESSION\_ALGORITHMS and SOURCE\_ZSTD\_COMPRESSION\_LEVEL instead.

• The group\_replication\_recovery\_compression\_algorithms and group\_replication\_recovery\_zstd\_compression\_level system variables configure permitted compression algorithms and zstd compression level for Group Replication recovery connections when a new member joins a group and connects to a donor.

Configuration parameters that enable specifying compression algorithms are string-valued and take a list of one or more comma-separated compression algorithm names, in any order, chosen from the following items (not case-sensitive):

• zlib: Permit connections that use the zlib compression algorithm.

• zstd: Permit connections that use the zstd compression algorithm (zstd 1.3).

• uncompressed: Permit uncompressed connections.



Examples:



**Note**

Because uncompressed is an algorithm name that may or may not be configured, it is possible to configure MySQL *not* to permit uncompressed connections.

• To configure which compression algorithms the server permits for incoming connections, set the protocol\_compression\_algorithms system variable. By default, the server permits all available algorithms. To configure that setting explicitly at startup, use these lines in the server my.cnf file:

[mysqld]

protocol\_compression\_algorithms=zlib,zstd,uncompressed

To set and persist the protocol\_compression\_algorithms system variable to that value at runtime, use this statement:

SET PERSIST protocol\_compression\_algorithms='zlib,zstd,uncompressed';

SET PERSIST sets a value for the running MySQL instance. It also saves the value, causing it to carry over to subsequent server restarts. To change the value for the running MySQL instance without having it carry over to subsequent restarts, use the GLOBAL keyword rather than PERSIST. See Section 13.7.6.1, “SET Syntax for Variable Assignment” .

• To permit only incoming connections that use zstd compression, configure the server at startup like this:

[mysqld]

protocol\_compression\_algorithms=zstd

Or, to make the change at runtime:

SET PERSIST protocol\_compression\_algorithms='zstd';

• To permit the [mysql](#_bookmark29) client to initiate zlib or uncompressed connections, invoke it like this: mysql --compression-algorithms=zlib,uncompressed

• To configure replicas to connect to the source using zlib or zstd connections, with a compression level of 7 for zstd connections, use a CHANGE REPLICATION SOURCE TO statement (from MySQL 8.0.23) or CHANGE MASTER TO statement (before MySQL 8.0.23):

CHANGE REPLICATION SOURCE TO

SOURCE\_COMPRESSION\_ALGORITHMS = 'zlib,zstd',

SOURCE\_ZSTD\_COMPRESSION\_LEVEL = 7;

This assumes that the replica\_compressed\_protocol or slave\_compressed\_protocol system variable is disabled, for reasons described in [Configuring Legacy Connection Compression](#_bookmark35).

For successful connection setup, both sides of the connection must agree on a mutually permitted compression algorithm. The algorithm-negotiation process attempts to use zlib, then zstd, then uncompressed. If the two sides can find no common algorithm, the connection attempt fails.

Because both sides must agree on the compression algorithm, and because uncompressed is an algorithm value that is not necessarily permitted, fallback to an uncompressed connection does not necessarily occur. For example, if the server is configured to permit zstd and a client is configured to

permit zlib,uncompressed, the client cannot connect at all. In this case, no algorithm is common to both sides, so connection attempts fail.

Configuration parameters that enable specifying the zstd compression level take an integer value from 1 to 22, with larger values indicating increasing levels of compression. The default zstd compression level is 3. The compression level setting has no effect on connections that do not use zstd compression.

A configurable zstd compression level enables choosing between less network traffic and higher CPU load versus more network traffic and lower CPU load. Higher compression levels reduce network congestion but the additional CPU load may reduce server performance.

**Configuring** **Legacy** **Connection** **Compression**

Prior to MySQL 8.0.18, these configuration parameters are available for controlling connection compression:

• Client programs support a [--compress](#_bookmark32) command-line option to specify use of compression for the connection to the server.

• For programs that use the MySQL C API, enabling the MYSQL\_OPT\_COMPRESS option for the [mysql\_options()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-options.html) function specifies use of compression for the connection to the server.

• For source/replica replication, enabling the system variable replica\_compressed\_protocol (from MySQL 8.0.26) or slave\_compressed\_protocol (before MySQL 8.0.26) specifies use of compression for replica connections to the source.

In each case, when use of compression is specified, the connection uses the zlib compression algorithm if both sides permit it, with fallback to an uncompressed connection otherwise.

As of MySQL 8.0.18, the compression parameters just described become legacy parameters, due to the additional compression parameters introduced for more control over connection compression that are described in [Configuring Connection Compression](#_bookmark52). An exception is MySQL Shell, where the [--](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysqlsh.html#option_mysqlsh_compress) [compress](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysqlsh.html#option_mysqlsh_compress) command-line option remains current, and can be used to request compression without selecting compression algorithms. For information on MySQL Shell's connection compression control, see [Using Compressed Connections](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysql-shell-compressed-connections.html).

The legacy compression parameters interact with the newer parameters and their semantics change as follows:

• The meaning of the legacy [--compress](#_bookmark32) option depends on whether [--compression-](#_bookmark33) [algorithms](#_bookmark33) is specified:

• When [--compression-algorithms](#_bookmark33) is not specified, [--compress](#_bookmark32) is equivalent to specifying a client-side algorithm set of zlib,uncompressed.

• When [--compression-algorithms](#_bookmark33) is specified, [--compress](#_bookmark32) is equivalent to specifying an algorithm set of zlib and the full client-side algorithm set is the union of zlib plus the algorithms specified by [--compression-algorithms](#_bookmark33). For example, with both [--](#_bookmark32) [compress](#_bookmark32) and [-- -](#_bookmark33)compressionalgorithms=zlib,zstd, the permitted-algorithm

set is zlib plus zlib,zstd; that is, zlib,zstd. With both [--compress](#_bookmark32) and [--](#_bookmark33) [compression-algorithms=zstd,uncompressed](#_bookmark33), the permitted-algorithm set is zlib plus zstd,uncompressed; that is, zlib,zstd,uncompressed.

• The same type of interaction occurs between the legacy MYSQL\_OPT\_COMPRESS option and the MYSQL\_OPT\_COMPRESSION\_ALGORITHMS option for the [mysql\_options()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-options.html) C API function.

• If the replica\_compressed\_protocol or slave\_compressed\_protocol system variable is enabled, it takes precedence over MASTER\_COMPRESSION\_ALGORITHMS and connections to the source use zlib compression if both source and replica permit that algorithm. If



replica\_compressed\_protocol or slave\_compressed\_protocol is disabled, the value of MASTER\_COMPRESSION\_ALGORITHMS applies.

**Note**

The legacy compression-control parameters are deprecated as of MySQL 8.0.18; expect it to be removed in a future version of MySQL.

**Monitoring** **Connection** **Compression**

The Compression status variable is ON or OFF to indicate whether the current connection uses compression.

The [mysql](#_bookmark29) client \status command displays a line that says Protocol: Compressed if compression is enabled for the current connection. If that line is not present, the connection is uncompressed.

As of 8.0.14, the MySQL Shell \status command displays a Compression: line that says Disabled or Enabled to indicate whether the connection is compressed.

As of MySQL 8.0.18, these additional sources of information are available for monitoring connection compression:

• To monitor compression in use for client connections, use the Compression\_algorithm and Compression\_level status variables. For the current connection, their values indicate the compression algorithm and compression level, respectively.

• To determine which compression algorithms the server is configured to permit for incoming connections, check the protocol\_compression\_algorithms system variable.

• For source/replica replication connections, the configured compression algorithms and compression level are available from multiple sources:

• The Performance Schema replication\_connection\_configuration table has COMPRESSION\_ALGORITHMS and ZSTD\_COMPRESSION\_LEVEL columns.

• The mysql.slave\_master\_info system table has Master\_compression\_algorithms and Master\_zstd\_compression\_level columns. If the master.info file exists, it contains lines

for those values as well.

**4.2.9** **Setting** **Environment** **Variables**

Environment variables can be set at the command prompt to affect the current invocation of your command processor, or set permanently to affect future invocations. To set a variable permanently, you can set it in a startup file or by using the interface provided by your system for this purpose. Consult the documentation for your command interpreter for specific details. Section 4.9, “Environment Variables” , lists all environment variables that affect MySQL program operation.

To specify a value for an environment variable, use the syntax appropriate for your command processor. For example, on Windows, you can set the USER variable to specify your MySQL account name. To do so, use this syntax:

SET USER=*your\_name*

The syntax on Unix depends on your shell. Suppose that you want to specify the TCP/IP port number using the MYSQL\_TCP\_PORT variable. Typical syntax (such as for sh, ksh, bash, zsh, and so on) is as follows:

MYSQL\_TCP\_PORT=3306

export MYSQL\_TCP\_PORT

The first command sets the variable, and the export command exports the variable to the shell environment so that its value becomes accessible to MySQL and other processes.



For csh and tcsh, use setenv to make the shell variable available to the environment:

setenv MYSQL\_TCP\_PORT 3306

The commands to set environment variables can be executed at your command prompt to take effect immediately, but the settings persist only until you log out. To have the settings take effect each time you log in, use the interface provided by your system or place the appropriate command or commands in a startup file that your command interpreter reads each time it starts.

On Windows, you can set environment variables using the System Control Panel (under Advanced). On Unix, typical shell startup files are .bashrc or .bash\_profile for bash, or .tcshrc for tcsh.

Suppose that your MySQL programs are installed in /usr/local/mysql/bin and that you want to make it easy to invoke these programs. To do this, set the value of the PATH environment variable to include that directory. For example, if your shell is bash, add the following line to your .bashrc file:

PATH=${PATH}:/usr/local/mysql/bin

bash uses different startup files for login and nonlogin shells, so you might want to add the setting to

.bashrc for login shells and to .bash\_profile for nonlogin shells to make sure that PATH is set regardless.

If your shell is tcsh, add the following line to your .tcshrc file:

setenv PATH ${PATH}:/usr/local/mysql/bin

If the appropriate startup file does not exist in your home directory, create it with a text editor.

After modifying your PATH setting, open a new console window on Windows or log in again on Unix so that the setting goes into effect.

**4.3** **Server** **and** **Server-Startup** **Programs**

This section describes [mysqld](#_bookmark59), the MySQL server, and several programs that are used to start the server.

**4.3.1** **mysqld** **—** **The** **MySQL** **Server**

[mysqld](#_bookmark59), also known as MySQL Server, is a single multithreaded program that does most of the work in a MySQL installation. It does not spawn additional processes. MySQL Server manages access to the MySQL data directory that contains databases and tables. The data directory is also the default location for other information such as log files and status files.

**Note**

Some installation packages contain a debugging version of the server named  [-](#_bookmark59)mysqlddebug. Invoke this version instead of [mysqld](#_bookmark59) for debugging support, memory allocation checking, and trace file support (see Section 5.9.1.2, “Creating Trace Files” ).

When MySQL server starts, it listens for network connections from client programs and manages access to databases on behalf of those clients.

The [mysqld](#_bookmark59) program has many options that can be specified at startup. For a complete list of options, run this command:

mysqld --verbose --help

MySQL Server also has a set of system variables that affect its operation as it runs. System variables can be set at server startup, and many of them can be changed at runtime to effect dynamic server



reconfiguration. MySQL Server also has a set of status variables that provide information about its operation. You can monitor these status variables to access runtime performance characteristics.

For a full description of MySQL Server command options, system variables, and status variables, see Section 5.1, “The MySQL Server” . For information about installing MySQL and setting up the initial configuration, see Chapter 2, *Installing* *and* *Upgrading* *MySQL*.

**4.3.2** **mysqld\_safe** **—** **MySQL** **Server** **Startup** **Script**

[mysqld\_safe](#_bookmark60) is the recommended way to start a [mysqld](#_bookmark59) server on Unix. [mysqld\_safe](#_bookmark60) adds some safety features such as restarting the server when an error occurs and logging runtime information to an error log. A description of error logging is given later in this section.

**Note**

For some Linux platforms, MySQL installation from RPM or Debian packages includes systemd support for managing MySQL server startup and shutdown. On these platforms, [mysqld\_safe](#_bookmark60) is not installed because it is unnecessary. For more information, see Section 2.5.9, “Managing MySQL Server with systemd” .

One implication of the non-use of [mysqld\_safe](#_bookmark60) on platforms that use systemd for server management is that use of [mysqld\_safe] or [safe\_mysqld] sections in option files is not supported and might lead to unexpected behavior.

[mysqld\_safe](#_bookmark60) tries to start an executable named [mysqld](#_bookmark59). To override the default behavior and specify explicitly the name of the server you want to run, specify a [--mysqld](#_bookmark61) or [--mysqld-version](#_bookmark62) option to [mysqld\_safe](#_bookmark60). You can also use [--ledir](#_bookmark63) to indicate the directory where [mysqld\_safe](#_bookmark60) should look for the server.

Many of the options to [mysqld\_safe](#_bookmark60) are the same as the options to [mysqld](#_bookmark59). See Section 5.1.7, “Server Command Options” .

Options unknown to [mysqld\_safe](#_bookmark60) are passed to [mysqld](#_bookmark59) if they are specified on the command line, but ignored if they are specified in the [mysqld\_safe] group of an option file. See Section 4.2.2.2, “Using Option Files” .

[mysqld\_safe](#_bookmark60) reads all options from the [mysqld], [server], and [mysqld\_safe] sections in option files. For example, if you specify a [mysqld] section like this, [mysqld\_safe](#_bookmark60) finds and uses the [--log-error](#_bookmark64) option:

[mysqld]

log-error=error.log

For backward compatibility, [mysqld\_safe](#_bookmark60) also reads [safe\_mysqld] sections, but to be current you should rename such sections to [mysqld\_safe].

[mysqld\_safe](#_bookmark60) accepts options on the command line and in option files, as described in the following table. For information about option files used by MySQL programs, see Section 4.2.2.2, “Using Option

Files” .

**Table** **4.6** **mysqld\_safe** **Options**

|  |  |
| --- | --- |
| **Option** **Name** | **Description** |
| [--basedir](#_bookmark65) | Path to MySQL installation directory |
| [--core-file-size](#_bookmark66) | Size of core file that mysqld should be able to create |
| [--datadir](#_bookmark67) | Path to data directory |
| [--defaults-extra-file](#_bookmark68) | Read named option file in addition to usual option files |



|  |  |
| --- | --- |
| **Option** **Name** | **Description** |
| [--defaults-file](#_bookmark69) | Read only named option file |
| [--help](#_bookmark70) | Display help message and exit |
| [--ledir](#_bookmark63) | Path to directory where server is located |
| [--log-error](#_bookmark64) | Write error log to named file |
| [--malloc-lib](#_bookmark71) | Alternative malloc library to use for mysqld |
| [--mysqld](#_bookmark61) | Name of server program to start (in ledir directory) |
| [--mysqld-safe-log-timestamps](#_bookmark72) | Timestamp format for logging |
| [--mysqld-version](#_bookmark62) | Suffix for server program name |
| [--nice](#_bookmark73) | Use nice program to set server scheduling priority |
| [--no-defaults](#_bookmark74) | Read no option files |
| [--open-files-limit](#_bookmark75) | Number of files that mysqld should be able to open |
| [--pid-file](#_bookmark76) | Path name of server process ID file |
| [--plugin-dir](#_bookmark77) | Directory where plugins are installed |
| [--port](#_bookmark78) | Port number on which to listen for TCP/IP connections |
| [--skip-kill-mysqld](#_bookmark79) | Do not try to kill stray mysqld processes |
| [--skip-syslog](#_bookmark80) | Do not write error messages to syslog; use error log file |
| [--socket](#_bookmark81) | Socket file on which to listen for Unix socket connections |
| [--syslog](#_bookmark80) | Write error messages to syslog |
| [--syslog-tag](#_bookmark82) | Tag suffix for messages written to syslog |
| [--timezone](#_bookmark83) | Set TZ time zone environment variable to named value |
| [--user](#_bookmark84) | Run mysqld as user having name user\_name or numeric user ID user\_id |

• [--help](#_bookmark70)

Display a help message and exit.

• [--basedir=*dir\_name*](#_bookmark65)

The path to the MySQL installation directory.

• [--core-file-size=*size*](#_bookmark66)

The size of the core file that [mysqld](#_bookmark59) should be able to create. The option value is passed to ulimit -c.

**Note**

The innodb\_buffer\_pool\_in\_core\_file variable can be used to reduce the size of core files on operating systems that support it. For more information, see Section 15.8.3.7, “Excluding Buffer Pool Pages from Core

Files” .

• [--datadir=*dir\_name*](#_bookmark67)

The path to the data directory.

• [--defaults-extra-file=*file\_name*](#_bookmark68)

Read this option file in addition to the usual option files. If the file does not exist or is otherwise inaccessible, the server exits with an error. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory. This must be the first option on the command line if it is used.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-file=*file\_name*](#_bookmark69)

Use only the given option file. If the file does not exist or is otherwise inaccessible, the server exits with an error. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory. This must be the first option on the command line if it is used.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--ledir=*dir\_name*](#_bookmark63)

If [mysqld\_safe](#_bookmark60) cannot find the server, use this option to indicate the path name to the directory where the server is located.

This option is accepted only on the command line, not in option files. On platforms that use systemd, the value can be specified in the value of MYSQLD\_OPTS. See Section 2.5.9, “Managing MySQL Server with systemd” .

• [--log-error=*file\_name*](#_bookmark64)

Write the error log to the given file. See Section 5.4.2, “The Error Log” .

• [--mysqld-safe-log-timestamps](#_bookmark72)

This option controls the format for timestamps in log output produced by [mysqld\_safe](#_bookmark60). The following list describes the permitted values. For any other value, [mysqld\_safe](#_bookmark60) logs a warning and uses UTC format.

• UTC, utc

ISO 8601 UTC format (same as --log\_timestamps=UTC for the server). This is the default.

• SYSTEM, system

ISO 8601 local time format (same as --log\_timestamps=SYSTEM for the server).

• HYPHEN, hyphen

*YY-MM-DD* *h:mm:ss* format, as in [mysqld\_safe](#_bookmark60) for MySQL 5.6.

• LEGACY, legacy

*YYMMDD* *hh:mm:ss* format, as in [mysqld\_safe](#_bookmark60) prior to MySQL 5.6.

• [--malloc-lib=[*lib\_name*]](#_bookmark71)

The name of the library to use for memory allocation instead of the system malloc() library. The option value must be one of the directories /usr/lib, /usr/lib64, /usr/lib/i386-linux- gnu, or /usr/lib/x86\_64-linux-gnu.

The [--malloc-lib](#_bookmark71) option works by modifying the LD\_PRELOAD environment value to affect dynamic linking to enable the loader to find the memory-allocation library when [mysqld](#_bookmark59) runs:



• If the option is not given, or is given without a value ([--malloc-lib=](#_bookmark71)), LD\_PRELOAD is not modified and no attempt is made to use tcmalloc.

• Prior to MySQL 8.0.21, if the option is given as [--malloc-lib=tcmalloc](#_bookmark71), [mysqld\_safe](#_bookmark60) looks for a tcmalloc library in /usr/lib. If tmalloc is found, its path name is added to the beginning of the LD\_PRELOAD value for [mysqld](#_bookmark59). If tcmalloc is not found, [mysqld\_safe](#_bookmark60) aborts with an error.

As of MySQL 8.0.21, tcmalloc is not a permitted value for the [--malloc-lib](#_bookmark71) option.

• If the option is given as [--malloc-lib=*/path/to/some/library*](#_bookmark71), that full path is added to the beginning of the LD\_PRELOAD value. If the full path points to a nonexistent or unreadable file, [mysqld\_safe](#_bookmark60) aborts with an error.

• For cases where [mysqld\_safe](#_bookmark60) adds a path name to LD\_PRELOAD, it adds the path to the beginning of any existing value the variable already has.

**Note**

On systems that manage the server using systemd, [mysqld\_safe](#_bookmark60) is not available. Instead, specify the allocation library by setting LD\_PRELOAD in / etc/sysconfig/mysql.

Linux users can use the libtcmalloc\_minimal.so library on any platform for which a tcmalloc package is installed in /usr/lib by adding these lines to the my.cnf file:

[mysqld\_safe]

malloc-lib=tcmalloc

To use a specific tcmalloc library, specify its full path name. Example:

[mysqld\_safe]

malloc-lib=/opt/lib/libtcmalloc\_minimal.so

• [--mysqld=*prog\_name*](#_bookmark61)

The name of the server program (in the ledir directory) that you want to start. This option is needed if you use the MySQL binary distribution but have the data directory outside of the binary distribution. If [mysqld\_safe](#_bookmark60) cannot find the server, use the [--ledir](#_bookmark63) option to indicate the path name to the directory where the server is located.

This option is accepted only on the command line, not in option files. On platforms that use systemd, the value can be specified in the value of MYSQLD\_OPTS. See Section 2.5.9, “Managing MySQL Server with systemd” .

• [--mysqld-version=*suffix*](#_bookmark62)

This option is similar to the [--mysqld](#_bookmark61) option, but you specify only the suffix for the server program name. The base name is assumed to be [mysqld](#_bookmark59). For example, if you use [-- -](#_bookmark62)mysqld [version=debug](#_bookmark62), [mysqld\_safe](#_bookmark60) starts the [-](#_bookmark59)mysqlddebug program in the ledir directory. If the argument to [-- -](#_bookmark62)mysqldversion is empty, [mysqld\_safe](#_bookmark60) uses [mysqld](#_bookmark59) in the ledir directory.

This option is accepted only on the command line, not in option files. On platforms that use systemd, the value can be specified in the value of MYSQLD\_OPTS. See Section 2.5.9, “Managing MySQL Server with systemd” .

• [--nice=*priority*](#_bookmark73)

Use the nice program to set the server's scheduling priority to the given value.



• [--no-defaults](#_bookmark74)

Do not read any option files. If program startup fails due to reading unknown options from an option file, [--no-defaults](#_bookmark74) can be used to prevent them from being read. This must be the first option on the command line if it is used.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--open-files-limit=*count*](#_bookmark75)

The number of files that [mysqld](#_bookmark59) should be able to open. The option value is passed to ulimit -n.

**Note**

You must start [mysqld\_safe](#_bookmark60) as root for this to function properly.

• [--pid-file=*file\_name*](#_bookmark76)

The path name that [mysqld](#_bookmark59) should use for its process ID file.

• [--plugin-dir=*dir\_name*](#_bookmark77)

The path name of the plugin directory.

• [--port=*port\_num*](#_bookmark78)

The port number that the server should use when listening for TCP/IP connections. The port number must be 1024 or higher unless the server is started by the root operating system user.

• [--skip-kill-mysqld](#_bookmark79)

Do not try to kill stray [mysqld](#_bookmark59) processes at startup. This option works only on Linux. • [--socket=*path*](#_bookmark81)

The Unix socket file that the server should use when listening for local connections.

• [--syslog](#_bookmark80), [--skip-syslog](#_bookmark80)

[--syslog](#_bookmark80) causes error messages to be sent to syslog on systems that support the logger program. --skip-syslog suppresses the use of syslog; messages are written to an error log file.

When syslog is used for error logging, the daemon.err facility/severity is used for all log messages.

Using these options to control [mysqld](#_bookmark59) logging is deprecated. To write error log output to the system log, use the instructions at Section 5.4.2.8, “Error Logging to the System Log” . To control the facility, use the server log\_syslog\_facility system variable.

• [--syslog-tag=*tag*](#_bookmark82)

For logging to syslog, messages from [mysqld\_safe](#_bookmark60) and [mysqld](#_bookmark59) are written with identifiers of mysqld\_safe and mysqld, respectively. To specify a suffix for the identifiers, use [--syslog-](#_bookmark82) [tag=*tag*](#_bookmark82), which modifies the identifiers to be mysqld\_safe-*tag* and mysqld-*tag*.

Using this option to control [mysqld](#_bookmark59) logging is deprecated. Use the server log\_syslog\_tag system variable instead. See Section 5.4.2.8, “Error Logging to the System Log” .

• [--timezone=*timezone*](#_bookmark83)

Set the TZ time zone environment variable to the given option value. Consult your operating system documentation for legal time zone specification formats.

• [--user={*user\_name*|*user\_id*}](#_bookmark84)

Run the [mysqld](#_bookmark59) server as the user having the name *user\_name* or the numeric user ID *user\_id*. (“User” in this context refers to a system login account, not a MySQL user listed in the grant tables.)

If you execute [mysqld\_safe](#_bookmark60) with the [--defaults-file](#_bookmark69) or [--defaults-extra-file](#_bookmark68) option to name an option file, the option must be the first one given on the command line or the option file is not used. For example, this command does not use the named option file:

mysql> **mysqld\_safe** **--port=*port\_num*** **--defaults-file=*file\_name***

Instead, use the following command:

mysql> **mysqld\_safe** **--defaults-file=*file\_name*** **--port=*port\_num***

The [mysqld\_safe](#_bookmark60) script is written so that it normally can start a server that was installed from either a source or a binary distribution of MySQL, even though these types of distributions typically install the

server in slightly different locations. (See Section 2. 1.5, “Installation Layouts” .) [mysqld\_safe](#_bookmark60) expects one of the following conditions to be true:

• The server and databases can be found relative to the working directory (the directory from which [mysqld\_safe](#_bookmark60) is invoked). For binary distributions, [mysqld\_safe](#_bookmark60) looks under its working directory for bin and data directories. For source distributions, it looks for libexec and var directories. This condition should be met if you execute [mysqld\_safe](#_bookmark60) from your MySQL installation directory (for example, /usr/local/mysql for a binary distribution).

• If the server and databases cannot be found relative to the working directory, [mysqld\_safe](#_bookmark60) attempts to locate them by absolute path names. Typical locations are /usr/local/libexec and /usr/local/var. The actual locations are determined from the values configured into the distribution at the time it was built. They should be correct if MySQL is installed in the location specified at configuration time.

Because [mysqld\_safe](#_bookmark60) tries to find the server and databases relative to its own working directory, you can install a binary distribution of MySQL anywhere, as long as you run [mysqld\_safe](#_bookmark60) from the MySQL installation directory:

cd *mysql\_installation\_directory*

bin/mysqld\_safe &

If [mysqld\_safe](#_bookmark60) fails, even when invoked from the MySQL installation directory, specify the [--ledir](#_bookmark63) and [--datadir](#_bookmark67) options to indicate the directories in which the server and databases are located on your system.

[mysqld\_safe](#_bookmark60) tries to use the sleep and date system utilities to determine how many times per second it has attempted to start. If these utilities are present and the attempted starts per second is greater than 5, [mysqld\_safe](#_bookmark60) waits 1 full second before starting again. This is intended to prevent excessive CPU usage in the event of repeated failures. (Bug #11761530, Bug #54035)

When you use [mysqld\_safe](#_bookmark60) to start [mysqld](#_bookmark59), [mysqld\_safe](#_bookmark60) arranges for error (and notice) messages from itself and from [mysqld](#_bookmark59) to go to the same destination.

There are several [mysqld\_safe](#_bookmark60) options for controlling the destination of these messages:

• [--log-error=*file\_name*](#_bookmark64): Write error messages to the named error file.

• [--syslog](#_bookmark80): Write error messages to syslog on systems that support the logger program.

• [--skip-syslog](#_bookmark80): Do not write error messages to syslog. Messages are written to the default error log file (*host\_name*.err in the data directory), or to a named file if the [--log-error](#_bookmark64) option is given.

If none of these options is given, the default is [--skip-syslog](#_bookmark80).

When [mysqld\_safe](#_bookmark60) writes a message, notices go to the logging destination (syslog or the error log file) and stdout. Errors go to the logging destination and stderr.



**Note**

Controlling [mysqld](#_bookmark59) logging from [mysqld\_safe](#_bookmark60) is deprecated. Use the server's native syslog support instead. For more information, see Section 5.4.2.8, “Error Logging to the System Log” .

**4.3.3** **mysql.server** **—** **MySQL** **Server** **Startup** **Script**

MySQL distributions on Unix and Unix-like system include a script named [mysql.server](#_bookmark85), which starts the MySQL server using [mysqld\_safe](#_bookmark60). It can be used on systems such as Linux and Solaris that use System V-style run directories to start and stop system services. It is also used by the macOS Startup Item for MySQL.

[mysql.server](#_bookmark85) is the script name as used within the MySQL source tree. The installed name might be different (for example, [mysqld](#_bookmark59) or [mysql](#_bookmark29)). In the following discussion, adjust the name [.](#_bookmark85)mysqlserver as appropriate for your system.

**Note**

For some Linux platforms, MySQL installation from RPM or Debian packages includes systemd support for managing MySQL server startup and shutdown. On these platforms, [mysql.server](#_bookmark85) and [mysqld\_safe](#_bookmark60) are not installed because they are unnecessary. For more information, see Section 2.5.9, “Managing MySQL Server with systemd” .

To start or stop the server manually using the [mysql.server](#_bookmark85) script, invoke it from the command line with start or stop arguments:

|  |  |
| --- | --- |
| mysql.server  mysql.server | start  stop |

[mysql.server](#_bookmark85) changes location to the MySQL installation directory, then invokes [mysqld\_safe](#_bookmark60). To run the server as some specific user, add an appropriate user option to the [mysqld] group of the global /etc/my.cnf option file, as shown later in this section. (It is possible that you must edit [mysql.server](#_bookmark85) if you've installed a binary distribution of MySQL in a nonstandard location. Modify it to change location into the proper directory before it runs [mysqld\_safe](#_bookmark60). If you do this, your modified version of [mysql.server](#_bookmark85) may be overwritten if you upgrade MySQL in the future; make a copy of your edited version that you can reinstall.)

[mysql.server stop](#_bookmark85) stops the server by sending a signal to it. You can also stop the server manually by executing [mysqladmin shutdown](#_bookmark39).

To start and stop MySQL automatically on your server, you must add start and stop commands to the appropriate places in your /etc/rc\* files:

• If you use the Linux server RPM package (MySQL-server-*VERS工ON*.rpm), or a native Linux package installation, the [mysql.server](#_bookmark85) script may be installed in the /etc/init.d directory with the name mysqld or mysql. See Section 2.5.4, “Installing MySQL on Linux Using RPM Packages from Oracle” , for more information on the Linux RPM packages.

• If you install MySQL from a source distribution or using a binary distribution format that does not install [mysql.server](#_bookmark85) automatically, you can install the script manually. It can be found in the support-files directory under the MySQL installation directory or in a MySQL source tree. Copy the script to the /etc/init.d directory with the name [mysql](#_bookmark29) and make it executable:

cp mysql.server /etc/init.d/mysql

chmod +x /etc/init.d/mysql

After installing the script, the commands needed to activate it to run at system startup depend on your operating system. On Linux, you can use chkconfig:

chkconfig --add mysql

On some Linux systems, the following command also seems to be necessary to fully enable the [mysql](#_bookmark29) script:

chkconfig --level 345 mysql on

• On FreeBSD, startup scripts generally should go in /usr/local/etc/rc.d/. Install the mysql.server script as /usr/local/etc/rc.d/mysql.server.sh to enable automatic

startup. The rc(8) manual page states that scripts in this directory are executed only if their base name matches the \*.sh shell file name pattern. Any other files or directories present within the directory are silently ignored.

• As an alternative to the preceding setup, some operating systems also use /etc/rc.local or / etc/init.d/boot.local to start additional services on startup. To start up MySQL using this method, append a command like the one following to the appropriate startup file:

/bin/sh -c 'cd /usr/local/mysql; ./bin/mysqld\_safe --user=mysql &'

• For other systems, consult your operating system documentation to see how to install startup scripts.

[mysql.server](#_bookmark85) reads options from the [mysql.server] and [mysqld] sections of option files. For backward compatibility, it also reads [mysql\_server] sections, but to be current you should rename such sections to [mysql.server].

You can add options for [mysql.server](#_bookmark85) in a global /etc/my.cnf file. A typical my.cnf file might look like this:

[mysqld]

datadir=/usr/local/mysql/var

socket=/var/tmp/mysql.sock

port=3306

user=mysql

[mysql.server]

basedir=/usr/local/mysql

The [mysql.server](#_bookmark85) script supports the options shown in the following table. If specified, they *must* be placed in an option file, not on the command line. [mysql.server](#_bookmark85) supports only start and stop as command-line arguments.

**Table** **4.7** **mysql.server** **Option-File** **Options**

|  |  |  |
| --- | --- | --- |
| **Option** **Name** | **Description** | **Type** |
| [basedir](#_bookmark86) | Path to MySQL installation  directory | Directory name |
| [datadir](#_bookmark87) | Path to MySQL data directory | Directory name |
| [pid-file](#_bookmark88) | File in which server should write its process ID | File name |
| [service-startup-timeout](#_bookmark89) | How long to wait for server  startup | Integer |

• [basedir=*dir\_name*](#_bookmark86)

The path to the MySQL installation directory.

• [datadir=*dir\_name*](#_bookmark87)

The path to the MySQL data directory.

• [pid-file=*file\_name*](#_bookmark88)

The path name of the file in which the server should write its process ID. The server creates the file in the data directory unless an absolute path name is given to specify a different directory.



If this option is not given, [mysql.server](#_bookmark85) uses a default value of *host\_name*.pid. The PID file value passed to [mysqld\_safe](#_bookmark60) overrides any value specified in the [mysqld\_safe] option file group. Because [mysql.server](#_bookmark85) reads the [mysqld] option file group but not the [mysqld\_safe] group, you can ensure that [mysqld\_safe](#_bookmark60) gets the same value when invoked from [mysql.server](#_bookmark85) as when invoked manually by putting the same pid-file setting in both the [mysqld\_safe] and [mysqld] groups.

• [service-startup-timeout=*seconds*](#_bookmark89)

How long in seconds to wait for confirmation of server startup. If the server does not start within this time, [mysql.server](#_bookmark85) exits with an error. The default value is 900. A value of 0 means not to wait at all for startup. Negative values mean to wait forever (no timeout).

**4.3.4** **mysqld\_multi** **—** **Manage** **Multiple** **MySQL** **Servers**

[mysqld\_multi](#_bookmark90) is designed to manage several [mysqld](#_bookmark59) processes that listen for connections on different Unix socket files and TCP/IP ports. It can start or stop servers, or report their current status.

**Note**

For some Linux platforms, MySQL installation from RPM or Debian packages includes systemd support for managing MySQL server startup and shutdown. On these platforms, [mysqld\_multi](#_bookmark90) is not installed because it is unnecessary. For information about using systemd to handle multiple MySQL instances, see Section 2.5.9, “Managing MySQL Server with systemd” .

[mysqld\_multi](#_bookmark90) searches for groups named [mysqld*N*] in my.cnf (or in the file named by the [--](#_bookmark91) [defaults-file](#_bookmark91) option). *N* can be any positive integer. This number is referred to in the following discussion as the option group number, or *GNR*. Group numbers distinguish option groups from one another and are used as arguments to [mysqld\_multi](#_bookmark90) to specify which servers you want to start, stop, or obtain a status report for. Options listed in these groups are the same that you would use in the [mysqld] group used for starting [mysqld](#_bookmark59). (See, for example, Section 2.9.5, “Starting and Stopping MySQL Automatically” .) However, when using multiple servers, it is necessary that each one use its

own value for options such as the Unix socket file and TCP/IP port number. For more information on which options must be unique per server in a multiple-server environment, see Section 5.8, “Running Multiple MySQL Instances on One Machine” .

To invoke [mysqld\_multi](#_bookmark90), use the following syntax:

mysqld\_multi [*options*] {start |stop |reload |report} [*GNR* [,*GNR*] ...]

start, stop, reload (stop and restart), and report indicate which operation to perform. You can perform the designated operation for a single server or multiple servers, depending on the *GNR* list that follows the option name. If there is no list, [mysqld\_multi](#_bookmark90) performs the operation for all servers in the option file.

Each *GNR* value represents an option group number or range of group numbers. The value should be the number at the end of the group name in the option file. For example, the *GNR* for a group named [mysqld17] is 17. To specify a range of numbers, separate the first and last numbers by a dash. The *GNR* value 10-13 represents groups [mysqld10] through [mysqld13]. Multiple groups or group ranges can be specified on the command line, separated by commas. There must be no whitespace characters (spaces or tabs) in the *GNR* list; anything after a whitespace character is ignored.

This command starts a single server using option group [mysqld17]:

mysqld\_multi start 17

This command stops several servers, using option groups [mysqld8] and [mysqld10] through [mysqld13]:

mysqld\_multi stop 8,10-13

For an example of how you might set up an option file, use this command:

mysqld\_multi --example

[mysqld\_multi](#_bookmark90) searches for option files as follows:

• With [--no-defaults](#_bookmark92), no option files are read.

• With [--defaults-file=*file\_name*](#_bookmark91), only the named file is read.

• Otherwise, option files in the standard list of locations are read, including any file named by the [--](#_bookmark93) [defaults-extra-file=*file\_name*](#_bookmark93) option, if one is given. (If the option is given multiple times, the last value is used.)

For additional information about these and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

Option files read are searched for [mysqld\_multi] and [mysqld*N*] option groups. The [mysqld\_multi] group can be used for options to [mysqld\_multi](#_bookmark90) itself. [mysqld*N*] groups can be used for options passed to specific [mysqld](#_bookmark59) instances.

The [mysqld] or [mysqld\_safe] groups can be used for common options read by all instances of [mysqld](#_bookmark59) or [mysqld\_safe](#_bookmark60). You can specify a --defaults-file=*file\_name* option to use a different configuration file for that instance, in which case the [mysqld] or [mysqld\_safe] groups from that file are used for that instance.

[mysqld\_multi](#_bookmark90) supports the following options.

• [--help](#_bookmark94)

Display a help message and exit.

• [--example](#_bookmark95)

Display a sample option file.

• [--log=*file\_name*](#_bookmark96)

Specify the name of the log file. If the file exists, log output is appended to it.

• [--mysqladmin=*prog\_name*](#_bookmark97)

The [mysqladmin](#_bookmark39) binary to be used to stop servers.

• [--mysqld=*prog\_name*](#_bookmark98)

The [mysqld](#_bookmark59) binary to be used. Note that you can specify [mysqld\_safe](#_bookmark60) as the value for this option also. If you use [mysqld\_safe](#_bookmark60) to start the server, you can include the mysqld or ledir options in the corresponding [mysqld*N*] option group. These options indicate the name of the server that [mysqld\_safe](#_bookmark60) should start and the path name of the directory where the server is located. (See the descriptions for these options in [Section 4.3.2, “mysqld\_safe — MySQL Server Startup Script”](#_bookmark60) .) Example:

[mysqld38]

mysqld = mysqld-debug

ledir = /opt/local/mysql/libexec

• [--no-log](#_bookmark99)

Print log information to stdout rather than to the log file. By default, output goes to the log file.

• [--password=*password*](#_bookmark100)



The password of the MySQL account to use when invoking [mysqladmin](#_bookmark39). Note that the password value is not optional for this option, unlike for other MySQL programs.

• [--silent](#_bookmark101)

Silent mode; disable warnings.

• [--tcp-ip](#_bookmark102)

Connect to each MySQL server through the TCP/IP port instead of the Unix socket file. (If a socket file is missing, the server might still be running, but accessible only through the TCP/IP port.) By default, connections are made using the Unix socket file. This option affects stop and report operations.

• [--user=*user\_name*](#_bookmark103)

The user name of the MySQL account to use when invoking [mysqladmin](#_bookmark39).

• [--verbose](#_bookmark104) Be more verbose.

• [--version](#_bookmark105)

Display version information and exit.

Some notes about [mysqld\_multi](#_bookmark90):

• **Most** **important**: Before using [mysqld\_multi](#_bookmark90) be sure that you understand the meanings of the options that are passed to the [mysqld](#_bookmark59) servers and *why* you would want to have separate [mysqld](#_bookmark59)

processes. Beware of the dangers of using multiple [mysqld](#_bookmark59) servers with the same data directory. Use separate data directories, unless you *know* what you are doing. Starting multiple servers with the same data directory does *not* give you extra performance in a threaded system. See Section 5.8, “Running Multiple MySQL Instances on One Machine” .

**Important**

Make sure that the data directory for each server is fully accessible to the Unix account that the specific [mysqld](#_bookmark59) process is started as. *Do* *not* use the Unix *root* account for this, unless you *know* what you are doing. See Section 6.1.5, “How to Run MySQL as a Normal User” .

• Make sure that the MySQL account used for stopping the [mysqld](#_bookmark59) servers (with the [mysqladmin](#_bookmark39) program) has the same user name and password for each server. Also, make sure that the account has the SHUTDOWN privilege. If the servers that you want to manage have different user names or passwords for the administrative accounts, you might want to create an account on each server that has the same user name and password. For example, you might set up a common multi\_admin account by executing the following commands for each server:

$> **mysql** **-u** **root** **-S** **/tmp/mysql** **.sock** **-p**

Enter password:

mysql> **CREATE** **USER** **'multi\_admin'@'localhost'** **IDENTIFIED** **BY** **'multipass';**

mysql> **GRANT** **SHUTDOWN** **ON** **\*** **.\*** **TO** **'multi\_admin'@'localhost';**

See Section 6.2, “Access Control and Account Management” . You have to do this for each [mysqld](#_bookmark59) server. Change the connection parameters appropriately when connecting to each one. Note that the host name part of the account name must permit you to connect as multi\_admin from the host where you want to run [mysqld\_multi](#_bookmark90).

• The Unix socket file and the TCP/IP port number must be different for every [mysqld](#_bookmark59). (Alternatively, if the host has multiple network addresses, you can set the bind\_address system variable to cause different servers to listen to different interfaces.)

• The [-- -](#_bookmark76)pidfile option is very important if you are using [mysqld\_safe](#_bookmark60) to start [mysqld](#_bookmark59) (for example, [--](#_bookmark61)mysqld=mysqld\_safe) Every [mysqld](#_bookmark59) should have its own process ID file. The advantage of using [mysqld\_safe](#_bookmark60) instead of [mysqld](#_bookmark59) is that [mysqld\_safe](#_bookmark60) monitors its [mysqld](#_bookmark59) process and restarts it if the process terminates due to a signal sent using kill -9 or for other reasons, such as a segmentation fault.

• You might want to use the --user option for [mysqld](#_bookmark59), but to do this you need to run the [mysqld\_multi](#_bookmark90) script as the Unix superuser (root). Having the option in the option file doesn't matter; you just get a warning if you are not the superuser and the [mysqld](#_bookmark59) processes are started under your own Unix account.

The following example shows how you might set up an option file for use with [mysqld\_multi](#_bookmark90). The order in which the [mysqld](#_bookmark59) programs are started or stopped depends on the order in which they appear in the option file. Group numbers need not form an unbroken sequence. The first and fifth [mysqld*N*] groups were intentionally omitted from the example to illustrate that you can have “gaps” in the option file. This gives you more flexibility.

# This is an example of a my.cnf file for mysqld\_multi.

# Usually this file is located in home dir ~/.my.cnf or /etc/my.cnf

[mysqld\_multi]

mysqld = /usr/local/mysql/bin/mysqld\_safe

mysqladmin = /usr/local/mysql/bin/mysqladmin

|  |  |
| --- | --- |
| user | = multi\_admin |
| password  [mysqld2] | = my\_password |
| socket | = /tmp/mysql.sock2 |
| port | = 3307 |
| pid-file | = /usr/local/mysql/data2/hostname.pid2 |
| datadir | = /usr/local/mysql/data2 |
| language | = /usr/local/mysql/share/mysql/english |
| user | = unix\_user1 |
| [mysqld3] |  |
| mysqld | = /path/to/mysqld\_safe |
| ledir | = /path/to/mysqld-binary/ |

mysqladmin = /path/to/mysqladmin

|  |  |
| --- | --- |
| socket | = /tmp/mysql.sock3 |
| port | = 3308 |
| pid-file | = /usr/local/mysql/data3/hostname.pid3 |
| datadir | = /usr/local/mysql/data3 |
| language | = /usr/local/mysql/share/mysql/swedish |
| user | = unix\_user2 |
| [mysqld4] |  |
| socket | = /tmp/mysql.sock4 |
| port | = 3309 |
| pid-file | = /usr/local/mysql/data4/hostname.pid4 |
| datadir | = /usr/local/mysql/data4 |
| language | = /usr/local/mysql/share/mysql/estonia |
| user | = unix\_user3 |
| [mysqld6] |  |
| socket | = /tmp/mysql.sock6 |
| port | = 3311 |
| pid-file | = /usr/local/mysql/data6/hostname.pid6 |
| datadir | = /usr/local/mysql/data6 |
| language | = /usr/local/mysql/share/mysql/japanese |
| user | = unix\_user4 |

See Section 4.2.2.2, “Using Option Files” .

**4.4** **Installation-Related** **Programs**

The programs in this section are used when installing or upgrading MySQL.

**4.4.1** **comp\_err** **—** **Compile** **MySQL** **Error** **Message** **File**

[comp\_err](#_bookmark106) creates the errmsg.sys file that is used by [mysqld](#_bookmark59) to determine the error messages to display for different error codes. [comp\_err](#_bookmark106) normally is run automatically when MySQL is built. It compiles the errmsg.sys file from text-format error information in MySQL source distributions:

• As of MySQL 8.0.19, the error information comes from the messages\_to\_error\_log.txt and messages\_to\_clients.txt files in the share directory.

For more information about defining error messages, see the comments within those files, along with the errmsg\_readme.txt file.

• Prior to MySQL 8.0.19, the error information comes from the errmsg-utf8.txt file in the sql/ share directory.

[comp\_err](#_bookmark106) also generates the mysqld\_error.h, mysqld\_ername.h, and mysqld\_errmsg.h header files.

Invoke [comp\_err](#_bookmark106) like this:

comp\_err [*options*]

[comp\_err](#_bookmark106) supports the following options.

• [--help](#_bookmark107), -?

Display a help message and exit.

• [--charset=*dir\_name*](#_bookmark108), -C *dir\_name*

The character set directory. The default is ../sql/share/charsets.

• [--debug=*debug\_options*](#_bookmark109), -# *debug\_options*

Write a debugging log. A typical *debug\_options* string is d:t:O,*file\_name*. The default is d:t:O,/tmp/comp\_err.trace.

• [--debug-info](#_bookmark110), -T

Print some debugging information when the program exits.

• [--errmsg-file=*file\_name*](#_bookmark111), -H *file\_name*

The name of the error message file. The default is mysqld\_errmsg.h. This option was added in MySQL 8.0.18.

• [--header-file=*file\_name*](#_bookmark112), -H *file\_name*

The name of the error header file. The default is mysqld\_error.h.

• [--in-file=*file\_name*](#_bookmark113), -F *file\_name*

The name of the input file. The default is ../share/errmsg-utf8.txt.

This option was removed in MySQL 8.0.19 and replaced by the [--in-file-errlog](#_bookmark114) and [--in-](#_bookmark115) [file-toclient](#_bookmark115) options.

• [--in-file-errlog=*file\_name*](#_bookmark114), -e *file\_name*

The name of the input file that defines error messages intended to be written to the error log. The default is ../share/messages\_to\_error\_log.txt.

This option was added in MySQL 8.0.19.

• [--in-file-toclient=*file\_name*](#_bookmark115), -c *file\_name*

The name of the input file that defines error messages intended to be written to clients. The default is ../share/messages\_to\_clients.txt.

This option was added in MySQL 8.0.19.

• [--name-file=*file\_name*](#_bookmark116), -N *file\_name*

The name of the error name file. The default is mysqld\_ername.h.

• [--out-dir=*dir\_name*](#_bookmark117), -D *dir\_name*

The name of the output base directory. The default is ../sql/share/.

• [--out-file=*file\_name*](#_bookmark118), -O *file\_name*

The name of the output file. The default is errmsg.sys.

• [--version](#_bookmark119), -V

Display version information and exit.

**4.4.2** **mysql\_secure\_installation** **—** **Improve** **MySQL** **Installation** **Security**

This program enables you to improve the security of your MySQL installation in the following ways:

• You can set a password for root accounts.

• You can remove root accounts that are accessible from outside the local host.

• You can remove anonymous-user accounts.

• You can remove the test database (which by default can be accessed by all users, even anonymous users), and privileges that permit anyone to access databases with names that start with test\_.

[mysql\_secure\_installation](#_bookmark120) helps you implement security recommendations similar to those described at Section 2.9.4, “Securing the Initial MySQL Account” .

Normal usage is to connect to the local MySQL server; invoke [mysql\_secure\_installation](#_bookmark120) without arguments:

mysql\_secure\_installation

When executed, [mysql\_secure\_installation](#_bookmark120) prompts you to determine which actions to perform.

The validate\_password component can be used for password strength checking. If the plugin is not installed, [mysql\_secure\_installation](#_bookmark120) prompts the user whether to install it. Any passwords entered later are checked using the plugin if it is enabled.

Most of the usual MySQL client options such as [--host](#_bookmark121) and [--port](#_bookmark122) can be used on the command line and in option files. For example, to connect to the local server over IPv6 using port 3307, use this command:

mysql\_secure\_installation --host=::1 --port=3307

[mysql\_secure\_installation](#_bookmark120) supports the following options, which can be specified on the command line or in the [mysql\_secure\_installation] and [client] groups of an option file. For information about option files used by MySQL programs, see Section 4.2.2.2, “Using Option Files” .

**Table** **4.8** **mysql\_secure\_installation** **Options**

|  |  |  |
| --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** |
| --defaults-extra-file | Read named option file in addition to usual option files |  |

|  |  |  |
| --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** |
| --defaults-file | Read only named option file |  |
| --defaults-group-suffix | Option group suffix value |  |
| [--help](#_bookmark123) | Display help message and exit |  |
| [--host](#_bookmark121) | Host on which MySQL server is located |  |
| --no-defaults | Read no option files |  |
| [--password](#_bookmark124) | Accepted but always  ignored. Whenever mysql\_secure\_installation is invoked, the user is prompted for a password, regardless |  |
| [--port](#_bookmark122) | TCP/IP port number for  connection |  |
| --print-defaults | Print default options |  |
| [--protocol](#_bookmark125) | Transport protocol to use |  |
| [--socket](#_bookmark126) | Unix socket file or Windows named pipe to use |  |
| [--ssl-ca](#_bookmark127) | File that contains list of trusted  SSL Certificate Authorities |  |
| [--ssl-capath](#_bookmark127) | Directory that contains trusted SSL Certificate Authority certificate files |  |
| [--ssl-cert](#_bookmark127) | File that contains X.509  certificate |  |
| [--ssl-cipher](#_bookmark127) | Permissible ciphers for  connection encryption |  |
| [--ssl-crl](#_bookmark127) | File that contains certificate revocation lists |  |
| [--ssl-crlpath](#_bookmark127) | Directory that contains certificate revocation-list files |  |
| [--ssl-fips-mode](#_bookmark128) | Whether to enable FIPS mode on client side |  |
| [--ssl-key](#_bookmark127) | File that contains X.509 key |  |
| [--ssl-mode](#_bookmark129) | Desired security state of  connection to server |  |
| [--ssl-session-data](#_bookmark127) | File that contains SSL session data | 8.0.29 |
| [--ssl-session-data-continue-on-](#_bookmark127) [failed-reuse](#_bookmark127) | Whether to establish connections if session reuse fails | 8.0.29 |
| [--tls-ciphersuites](#_bookmark130) | Permissible TLSv1.3 ciphersuites for encrypted connections | 8.0.16 |
| [--tls-version](#_bookmark131) | Permissible TLS protocols for encrypted connections |  |
| [--use-default](#_bookmark132) | Execute with no user interactivity |  |
| [--user](#_bookmark133) | MySQL user name to use when connecting to server |  |

• [--help](#_bookmark123), -?

Display a help message and exit.

• [--defaults-extra-file=*file\_name*](#_bookmark134)

Read this option file after the global option file but (on Unix) before the user option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-file=*file\_name*](#_bookmark135)

Use only the given option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-group-suffix=*str*](#_bookmark136)

Read not only the usual option groups, but also groups with the usual names and a suffix of *str*. For example, [mysql\_secure\_installation](#_bookmark120) normally reads the [client] and [mysql\_secure\_installation] groups. If this option is given as [--defaults-group-](#_bookmark136) [suffix=\_other](#_bookmark136), [mysql\_secure\_installation](#_bookmark120) also reads the [client\_other] and [mysql\_secure\_installation\_other] groups.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--host=*host\_name*](#_bookmark121), -h *host\_name*

Connect to the MySQL server on the given host.

• [--no-defaults](#_bookmark137)

Do not read any option files. If program startup fails due to reading unknown options from an option file, [--no-defaults](#_bookmark137) can be used to prevent them from being read.

The exception is that the .mylogin.cnf file is read in all cases, if it exists. This permits passwords to be specified in a safer way than on the command line even when [--no-defaults](#_bookmark137) is used. To create .mylogin.cnf, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--password=*password*](#_bookmark124), -p *password*

This option is accepted but ignored. Whether or not this option is used,

[mysql\_secure\_installation](#_bookmark120) always prompts the user for a password.

• [--port=*port\_num*](#_bookmark122), -P *port\_num*

For TCP/IP connections, the port number to use.



• [--print-defaults](#_bookmark138)

Print the program name and all options that it gets from option files.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--protocol={TCP|SOCKET|PIPE|MEMORY}](#_bookmark125)

The transport protocol to use for connecting to the server. It is useful when the other connection parameters normally result in use of a protocol other than the one you want. For details on the permissible values, see [Section 4.2.7, “Connection Transport Protocols”](#_bookmark8) .

• [--socket=*path*](#_bookmark126), -S *path*

For connections to localhost, the Unix socket file to use, or, on Windows, the name of the named pipe to use.

On Windows, this option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• --ssl\*

Options that begin with --ssl specify whether to connect to the server using encryption and indicate where to find SSL keys and certificates. See [Command Options for Encrypted Connections](#_bookmark12).

• [--ssl-fips-mode={OFF|ON|STRICT}](#_bookmark128)

Controls whether to enable FIPS mode on the client side. The [--ssl-fips-mode](#_bookmark128) option differs from other --ssl-*xxx* options in that it is not used to establish encrypted connections, but rather to affect which cryptographic operations to permit. See Section 6.8, “FIPS Support” .

These [--ssl-fips-mode](#_bookmark128) values are permitted:

• OFF: Disable FIPS mode.

• ON: Enable FIPS mode.

• STRICT: Enable “strict” FIPS mode.

**Note**

If the OpenSSL FIPS Object Module is not available, the only permitted value for [--ssl-fips-mode](#_bookmark128) is OFF. In this case, setting [--ssl-fips-mode](#_bookmark128) to ON or STRICT causes the client to produce a warning at startup and to operate in non-FIPS mode.

• [--tls-ciphersuites=*ciphersuite\_list*](#_bookmark130)

The permissible ciphersuites for encrypted connections that use TLSv1.3. The value is a list of one or more colon-separated ciphersuite names. The ciphersuites that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

This option was added in MySQL 8.0.16.

• [--tls-version=*protocol\_list*](#_bookmark131)

The permissible TLS protocols for encrypted connections. The value is a list of one or more comma- separated protocol names. The protocols that can be named for this option depend on the SSL



library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

• [--use-default](#_bookmark132)

Execute noninteractively. This option can be used for unattended installation operations.

• [--user=*user\_name*](#_bookmark133), -u *user\_name*

The user name of the MySQL account to use for connecting to the server.

**4.4.3** **mysql\_ssl\_rsa\_setup** **—** **Create** **SSL/RSA** **Files**

This program creates the SSL certificate and key files and RSA key-pair files required to support secure connections using SSL and secure password exchange using RSA over unencrypted connections, if those files are missing. [mysql\_ssl\_rsa\_setup](#_bookmark28) can also be used to create new SSL files if the existing ones have expired.

**Note**

[mysql\_ssl\_rsa\_setup](#_bookmark28) uses the openssl command, so its use is contingent on having OpenSSL installed on your machine.

Another way to generate SSL and RSA files, for MySQL distributions compiled using OpenSSL, is to have the server generate them automatically. See Section 6.3.3.1, “Creating SSL and RSA Certificates and Keys using MySQL” .

**Important**

[mysql\_ssl\_rsa\_setup](#_bookmark28) helps lower the barrier to using SSL by making it easier to generate the required files. However, certificates generated by [mysql\_ssl\_rsa\_setup](#_bookmark28) are self-signed, which is not very secure. After you gain experience using the files created by [mysql\_ssl\_rsa\_setup](#_bookmark28), consider obtaining a CA certificate from a registered certificate authority.

Invoke [mysql\_ssl\_rsa\_setup](#_bookmark28) like this:

mysql\_ssl\_rsa\_setup [*options*]

Typical options are [--datadir](#_bookmark139) to specify where to create the files, and [--verbose](#_bookmark140) to see the openssl commands that [mysql\_ssl\_rsa\_setup](#_bookmark28) executes.

[mysql\_ssl\_rsa\_setup](#_bookmark28) attempts to create SSL and RSA files using a default set of file names. It works as follows:

1. [mysql\_ssl\_rsa\_setup](#_bookmark28) checks for the openssl binary at the locations specified by the PATH environment variable. If openssl is not found, [mysql\_ssl\_rsa\_setup](#_bookmark28) does nothing. If openssl is present, [mysql\_ssl\_rsa\_setup](#_bookmark28) looks for default SSL and RSA files in the MySQL data directory specified by the [--datadir](#_bookmark139) option, or the compiled-in data directory if the [--datadir](#_bookmark139) option is not given.

2. [mysql\_ssl\_rsa\_setup](#_bookmark28) checks the data directory for SSL files with the following names:

ca.pem

server-cert .pem

server-key.pem

3. If any of those files are present, [mysql\_ssl\_rsa\_setup](#_bookmark28) creates no SSL files. Otherwise, it invokes openssl to create them, plus some additional files:

|  |  |
| --- | --- |
| ca.pem  ca-key .pem  server-cert.pem | Self-signed CA certificate  CA private key  Server certificate |

Server private key

server-key.pem

client-cert .pem

client-key.pem

Client certificate

Client private key

These files enable secure client connections using SSL; see Section 6.3.1, “Configuring MySQL to Use Encrypted Connections” .

4. [mysql\_ssl\_rsa\_setup](#_bookmark28) checks the data directory for RSA files with the following names:

Private member of private/public key pair

private\_key.pem

public\_key.pem

Public member of private/public key pair

5. If any of these files are present, [mysql\_ssl\_rsa\_setup](#_bookmark28) creates no RSA files. Otherwise, it invokes openssl to create them. These files enable secure password exchange using

RSA over unencrypted connections for accounts authenticated by the sha256\_password or caching\_sha2\_password plugin; see Section 6.4. 1.3, “SHA-256 Pluggable Authentication” , and Section 6.4. 1.2, “Caching SHA-2 Pluggable Authentication” .

For information about the characteristics of files created by [mysql\_ssl\_rsa\_setup](#_bookmark28), see Section 6.3.3.1, “Creating SSL and RSA Certificates and Keys using MySQL” .

At startup, the MySQL server automatically uses the SSL files created by [mysql\_ssl\_rsa\_setup](#_bookmark28) to enable SSL if no explicit SSL options are given other than --ssl (possibly along with ssl\_cipher). If you prefer to designate the files explicitly, invoke clients with the [--ssl-ca](#_bookmark15), [--ssl-cert](#_bookmark17), and [--](#_bookmark22) [ssl-key](#_bookmark22) options at startup to name the ca.pem, server-cert.pem, and server-key.pem files, respectively.

The server also automatically uses the RSA files created by [mysql\_ssl\_rsa\_setup](#_bookmark28) to enable RSA if no explicit RSA options are given.

If the server is SSL-enabled, clients use SSL by default for the connection. To specify certificate and key files explicitly, use the [--ssl-ca](#_bookmark15), [--ssl-cert](#_bookmark17), and [--ssl-key](#_bookmark22) options to name the ca.pem, client-cert.pem, and client-key.pem files, respectively. However, some additional client setup may be required first because [mysql\_ssl\_rsa\_setup](#_bookmark28) by default creates those files in the data directory. The permissions for the data directory normally enable access only to the system account that runs the MySQL server, so client programs cannot use files located there. To make the files available, copy them to a directory that is readable (but *not* writable) by clients:

• For local clients, the MySQL installation directory can be used. For example, if the data directory is a subdirectory of the installation directory and your current location is the data directory, you can copy the files like this:

cp ca.pem client-cert.pem client-key.pem ..

• For remote clients, distribute the files using a secure channel to ensure they are not tampered with during transit.

If the SSL files used for a MySQL installation have expired, you can use [mysql\_ssl\_rsa\_setup](#_bookmark28) to create new ones:

1. Stop the server.

2. Rename or remove the existing SSL files. You may wish to make a backup of them first. (The RSA files do not expire, so you need not remove them. [mysql\_ssl\_rsa\_setup](#_bookmark28) can see that they exist and does not overwrite them.)

3. Run [mysql\_ssl\_rsa\_setup](#_bookmark28) with the [--datadir](#_bookmark139) option to specify where to create the new files.

4. Restart the server.

[mysql\_ssl\_rsa\_setup](#_bookmark28) supports the following command-line options, which can be specified on the command line or in the [mysql\_ssl\_rsa\_setup] and [mysqld] groups of an option file. For information about option files used by MySQL programs, see Section 4.2.2.2, “Using Option Files” .

**Table** **4.9** **mysql\_ssl\_rsa\_setup** **Options**

|  |  |
| --- | --- |
| **Option** **Name** | **Description** |
| [--datadir](#_bookmark139) | Path to data directory |
| [--help](#_bookmark141) | Display help message and exit |
| [--suffix](#_bookmark142) | Suffix for X.509 certificate Common Name attribute |
| [--uid](#_bookmark143) | Name of effective user to use for file permissions |
| [--verbose](#_bookmark140) | Verbose mode |
| [--version](#_bookmark144) | Display version information and exit |

• [--help](#_bookmark141), ?

Display a help message and exit.

• [--datadir=*dir\_name*](#_bookmark139)

The path to the directory that [mysql\_ssl\_rsa\_setup](#_bookmark28) should check for default SSL and RSA files and in which it should create files if they are missing. The default is the compiled-in data directory.

• [--suffix=*str*](#_bookmark142)

The suffix for the Common Name attribute in X.509 certificates. The suffix value is limited to 17 characters. The default is based on the MySQL version number.

• [--uid=name](#_bookmark143), -v

The name of the user who should be the owner of any created files. The value is a user name, not a numeric user ID. In the absence of this option, files created by [mysql\_ssl\_rsa\_setup](#_bookmark28) are owned by the user who executes it. This option is valid only if you execute the program as root on a system that supports the chown() system call.

• [--verbose](#_bookmark140), -v

Verbose mode. Produce more output about what the program does. For example, the program shows the openssl commands it runs, and produces output to indicate whether it skips SSL or RSA file creation because some default file already exists.

• [--version](#_bookmark144), -V

Display version information and exit.

**4.4.4** **mysql\_tzinfo\_to\_sql** **—** **Load** **the** **Time** **Zone** **Tables**

The [mysql\_tzinfo\_to\_sql](#_bookmark145) program loads the time zone tables in the mysql database. It is used on systems that have a *zoneinfo* database (the set of files describing time zones). Examples of such systems are Linux, FreeBSD, Solaris, and macOS. One likely location for these files is the /usr/ share/zoneinfo directory (/usr/share/lib/zoneinfo on Solaris). If your system does not have a zoneinfo database, you can use the downloadable package described in Section 5.1.15, “MySQL Server Time Zone Support” .

[mysql\_tzinfo\_to\_sql](#_bookmark145) can be invoked several ways:

|  |  |
| --- | --- |
| mysql\_tzinfo\_to\_sql  mysql\_tzinfo\_to\_sql  mysql\_tzinfo\_to\_sql | *tz\_dir*  *tz\_file* *tz\_name*  --leap *tz\_file* |

For the first invocation syntax, pass the zoneinfo directory path name to [mysql\_tzinfo\_to\_sql](#_bookmark145) and send the output into the [mysql](#_bookmark29) program. For example:

mysql\_tzinfo\_to\_sql /usr/share/zoneinfo | mysql -u root mysql



[mysql\_tzinfo\_to\_sql](#_bookmark145) reads your system's time zone files and generates SQL statements from them. [mysql](#_bookmark29) processes those statements to load the time zone tables.

The second syntax causes [mysql\_tzinfo\_to\_sql](#_bookmark145) to load a single time zone file *tz\_file* that corresponds to a time zone name *tz\_name*:

mysql\_tzinfo\_to\_sql *tz\_file* *tz\_name* | mysql -u root mysql

If your time zone needs to account for leap seconds, invoke [mysql\_tzinfo\_to\_sql](#_bookmark145) using the third syntax, which initializes the leap second information. *tz\_file* is the name of your time zone file:

mysql\_tzinfo\_to\_sql --leap *tz\_file* | mysql -u root mysql

After running [mysql\_tzinfo\_to\_sql](#_bookmark145), it is best to restart the server so that it does not continue to use any previously cached time zone data.

**4.4.5** **mysql\_upgrade** **—** **Check** **and** **Upgrade** **MySQL** **Tables**

**Note**

As of MySQL 8.0.16, the MySQL server performs the upgrade tasks previously handled by [mysql\_upgrade](#_bookmark58) (for details, see Section 2.10.3, “What the MySQL Upgrade Process Upgrades”). Consequently, [mysql\_upgrade](#_bookmark58) is unneeded and is deprecated as of that version; expect it to be removed in a future version of MySQL. Because [mysql\_upgrade](#_bookmark58) no longer performs upgrade tasks, it exits with status 0 unconditionally.

Each time you upgrade MySQL, you should execute [mysql\_upgrade](#_bookmark58), which looks for incompatibilities with the upgraded MySQL server:

• It upgrades the system tables in the mysql schema so that you can take advantage of new privileges or capabilities that might have been added.

• It upgrades the Performance Schema, INFORMATION\_SCHEMA, and sys schema.

• It examines user schemas.

If [mysql\_upgrade](#_bookmark58) finds that a table has a possible incompatibility, it performs a table check and, if problems are found, attempts a table repair. If the table cannot be repaired, see Section 2.10.13, “Rebuilding or Repairing Tables or Indexes” for manual table repair strategies.

[mysql\_upgrade](#_bookmark58) communicates directly with the MySQL server, sending it the SQL statements required to perform an upgrade.

**Caution**

You should always back up your current MySQL installation *before* performing an upgrade. See Section 7.2, “Database Backup Methods” .

Some upgrade incompatibilities may require special handling *before* upgrading your MySQL installation and running [mysql\_upgrade](#_bookmark58). See Section 2.10, “Upgrading MySQL” , for instructions on determining whether any such incompatibilities apply to your installation and how to handle them.

Use [mysql\_upgrade](#_bookmark58) like this:

1. Ensure that the server is running.

2. Invoke [mysql\_upgrade](#_bookmark58) to upgrade the system tables in the mysql schema and check and repair tables in other schemas:

mysql\_upgrade [*options*]

3. Stop the server and restart it so that any system table changes take effect.



If you have multiple MySQL server instances to upgrade, invoke [mysql\_upgrade](#_bookmark58) with connection parameters appropriate for connecting to each of the desired servers. For example, with servers running on the local host on parts 3306 through 3308, upgrade each of them by connecting to the appropriate port:

|  |  |  |
| --- | --- | --- |
| mysql\_upgrade  mysql\_upgrade  mysql\_upgrade | --protocol=tcp -P  --protocol=tcp -P  --protocol=tcp -P | 3306 [*other\_options*]  3307 [*other\_options*]  3308 [*other\_options*] |

For local host connections on Unix, the [--protocol=tcp](#_bookmark146) option forces a connection using TCP/IP rather than the Unix socket file.

By default, [mysql\_upgrade](#_bookmark58) runs as the MySQL root user. If the root password is expired when you run [mysql\_upgrade](#_bookmark58), it displays a message that your password is expired and that [mysql\_upgrade](#_bookmark58) failed as a result. To correct this, reset the root password to unexpire it and run [mysql\_upgrade](#_bookmark58) again. First, connect to the server as root:

$> **mysql** **-u** **root** **-p**

Enter password: **\*\*\*\*** <- enter root password here

Reset the password using ALTER USER:

mysql> **ALTER** **USER** **USER()** **IDENTIFIED** **BY** **'*root-password*';**

Then exit [mysql](#_bookmark29) and run [mysql\_upgrade](#_bookmark58) again:

$> **mysql\_upgrade** **[*options*]**

**Note**

If you run the server with the disabled\_storage\_engines system variable set to disable certain storage engines (for example, MyISAM), [mysql\_upgrade](#_bookmark58) might fail with an error like this:

mysql\_upgrade: [ERROR] 3161: Storage engine MyISAM is disabled

(Table creation is disallowed).

To handle this, restart the server with disabled\_storage\_engines disabled. Then you should be able to run [mysql\_upgrade](#_bookmark58) successfully. After that, restart the server with disabled\_storage\_engines set to its original value.

Unless invoked with the [--upgrade-system-tables](#_bookmark147) option, [mysql\_upgrade](#_bookmark58) processes all tables in all user schemas as necessary. Table checking might take a long time to complete. Each table is locked and therefore unavailable to other sessions while it is being processed. Check and repair operations can be time-consuming, particularly for large tables. Table checking uses the FOR UPGRADE option of the CHECK TABLE statement. For details about what this option entails, see

Section 13.7.3.2, “CHECK TABLE Statement” .

[mysql\_upgrade](#_bookmark58) marks all checked and repaired tables with the current MySQL version number. This ensures that the next time you run [mysql\_upgrade](#_bookmark58) with the same version of the server, it can be determined whether there is any need to check or repair a given table again.

[mysql\_upgrade](#_bookmark58) saves the MySQL version number in a file named mysql\_upgrade\_info in the data directory. This is used to quickly check whether all tables have been checked for this release so that table-checking can be skipped. To ignore this file and perform the check regardless, use the [--](#_bookmark148) [force](#_bookmark148) option.

**Note**

The mysql\_upgrade\_info file is deprecated; expect it to be removed in a future version of MySQL.

[mysql\_upgrade](#_bookmark58) checks mysql.user system table rows and, for any row with an empty plugin column, sets that column to 'mysql\_native\_password' if the credentials use a hash format compatible with that plugin. Rows with a pre-4.1 password hash must be upgraded manually.

[mysql\_upgrade](#_bookmark58) does not upgrade the contents of the time zone tables or help tables. For upgrade instructions, see Section 5.1.15, “MySQL Server Time Zone Support” , and Section 5.1.17, “Server-Side Help Support” .

Unless invoked with the [--skip-sys-schema](#_bookmark149) option, [mysql\_upgrade](#_bookmark58) installs the sys schema if it is not installed, and upgrades it to the current version otherwise. An error occurs if a sys schema exists but has no version view, on the assumption that its absence indicates a user-created schema:

|  |  |
| --- | --- |
| A sys schema exists with no  you have a user created sys  upgrade to succeed. | sys.version view. If  schema, this must be renamed for the |

To upgrade in this case, remove or rename the existing sys schema first.

[mysql\_upgrade](#_bookmark58) supports the following options, which can be specified on the command line or in the [mysql\_upgrade] and [client] groups of an option file. For information about option files used by MySQL programs, see Section 4.2.2.2, “Using Option Files” .

**Table** **4.10** **mysql\_upgrade** **Options**

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--bind-address](#_bookmark150) | Use specified network interface to connect to MySQL Server |  |  |
| [--character-sets-dir](#_bookmark151) | Directory where  character sets are  installed |  |  |
| [--compress](#_bookmark152) | Compress all  information sent  between client and  server |  | 8.0.18 |
| [--compression-](#_bookmark153)  [algorithms](#_bookmark153) | Permitted compression algorithms for connections to server | 8.0.18 |  |
| [--debug](#_bookmark154) | Write debugging log |  |  |
| [--debug-check](#_bookmark155) | Print debugging  information when  program exits |  |  |
| [--debug-info](#_bookmark156) | Print debugging information, memory, and CPU statistics when program exits |  |  |
| [--default-auth](#_bookmark157) | Authentication plugin to use |  |  |
| [--default-character-set](#_bookmark158) | Specify default  character set |  |  |
| [--defaults-extra-file](#_bookmark159) | Read named option file in addition to usual option files |  |  |
| [--defaults-file](#_bookmark160) | Read only named option file |  |  |
| [--defaults-group-suffix](#_bookmark161) | Option group suffix  value |  |  |
| [--force](#_bookmark148) | Force execution even if mysql\_upgrade has already been executed |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
|  | for current MySQL  version |  |  |
| [--get-server-public-key](#_bookmark162) | Request RSA public key from server |  |  |
| [--help](#_bookmark163) | Display help message and exit |  |  |
| [--host](#_bookmark164) | Host on which MySQL server is located |  |  |
| [--login-path](#_bookmark165) | Read login path options from .mylogin.cnf |  |  |
| [--max-allowed-packet](#_bookmark166) | Maximum packet length to send to or receive from server |  |  |
| [--net-buffer-length](#_bookmark167) | Buffer size for  TCP/IP and socket  communication |  |  |
| [--no-defaults](#_bookmark168) | Read no option files |  |  |
| [--password](#_bookmark169) | Password to use when connecting to server |  |  |
| [--pipe](#_bookmark170) | Connect to server using named pipe (Windows only) |  |  |
| [--plugin-dir](#_bookmark171) | Directory where plugins are installed |  |  |
| [--port](#_bookmark172) | TCP/IP port number for connection |  |  |
| [--print-defaults](#_bookmark173) | Print default options |  |  |
| [--protocol](#_bookmark146) | Transport protocol to use |  |  |
| [--server-public-key-path](#_bookmark174) | Path name to file containing RSA public key |  |  |
| [--shared-memory-base-](#_bookmark175) [name](#_bookmark175) | Shared-memory name for shared-memory connections (Windows only) |  |  |
| [--skip-sys-schema](#_bookmark149) | Do not install or upgrade sys schema |  |  |
| [--socket](#_bookmark176) | Unix socket file or Windows named pipe to use |  |  |
| [--ssl-ca](#_bookmark177) | File that contains list of trusted SSL Certificate  Authorities |  |  |
| [--ssl-capath](#_bookmark177) | Directory that contains trusted SSL Certificate Authority certificate files |  |  |
| [--ssl-cert](#_bookmark177) | File that contains X.509 certificate |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--ssl-cipher](#_bookmark177) | Permissible ciphers for connection encryption |  |  |
| [--ssl-crl](#_bookmark177) | File that contains certificate revocation lists |  |  |
| [--ssl-crlpath](#_bookmark177) | Directory that contains certificate revocation-list files |  |  |
| [--ssl-fips-mode](#_bookmark178) | Whether to enable FIPS mode on client side |  |  |
| [--ssl-key](#_bookmark177) | File that contains X.509 key |  |  |
| [--ssl-mode](#_bookmark177) | Desired security state of connection to server |  |  |
| [--ssl-session-data](#_bookmark177) | File that contains SSL session data | 8.0.29 |  |
| [--ssl-session-data-](#_bookmark177) [continue-on-failed-reuse](#_bookmark177) | Whether to establish connections if session reuse fails | 8.0.29 |  |
| [--tls-ciphersuites](#_bookmark179) | Permissible TLSv1.3  ciphersuites for encrypted connections | 8.0.16 |  |
| [--tls-version](#_bookmark180) | Permissible TLS  protocols for encrypted connections |  |  |
| [--upgrade-system-tables](#_bookmark147) | Update only system  tables, not user  schemas |  |  |
| [--user](#_bookmark181) | MySQL user name to use when connecting to server |  |  |
| [--verbose](#_bookmark182) | Verbose mode |  |  |
| [--version-check](#_bookmark183) | Check for proper server version |  |  |
| [--write-binlog](#_bookmark184) | Write all statements to binary log |  |  |
| [--zstd-compression-level](#_bookmark185) | Compression level  for connections to  server that use zstd  compression | 8.0.18 |  |

• --help

Display a short help message and exit.

• --bind-address=*ip\_address*

On a computer having multiple network interfaces, use this option to select which interface to use for connecting to the MySQL server.

• [--character-sets-dir=*dir\_name*](#_bookmark151)

The directory where character sets are installed. See Section 10.15, “Character Set Configuration” .

• [--compress](#_bookmark152), -C

Compress all information sent between the client and the server if possible. See [Section 4.2.8,](#_bookmark31) [“Connection Compression Control”](#_bookmark31) .

As of MySQL 8.0.18, this option is deprecated. Expect it to be removed in a future version of MySQL. See [Configuring Legacy Connection Compression](#_bookmark35).

• [--compression-algorithms=*value*](#_bookmark153)

The permitted compression algorithms for connections to the server. The available algorithms are the same as for the protocol\_compression\_algorithms system variable. The default value is uncompressed.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

• [--debug[=*debug\_options*]](#_bookmark154), -# [*debug\_options*]

Write a debugging log. A typical *debug\_options* string is d:t:o,*file\_name*. The default is d:t:O,/tmp/mysql\_upgrade.trace.

• [--debug-check](#_bookmark155)

Print some debugging information when the program exits.

• [--debug-info](#_bookmark156), -T

Print debugging information and memory and CPU usage statistics when the program exits.

• [--default-auth=*plugin*](#_bookmark157)

A hint about which client-side authentication plugin to use. See Section 6.2.17, “Pluggable

Authentication” .

• [--default-character-set=*charset\_name*](#_bookmark158)

Use *charset\_name* as the default character set. See Section 10.15, “Character Set Configuration” .

• [--defaults-extra-file=*file\_name*](#_bookmark159)

Read this option file after the global option file but (on Unix) before the user option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-file=*file\_name*](#_bookmark160)

Use only the given option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .



• [--defaults-group-suffix=*str*](#_bookmark161)

Read not only the usual option groups, but also groups with the usual names and a suffix of *str*. For example, [mysql\_upgrade](#_bookmark58) normally reads the [client] and [mysql\_upgrade] groups. If this option is given as [--defaults-group-suffix=\_other](#_bookmark161), [mysql\_upgrade](#_bookmark58) also reads the [client\_other] and [mysql\_upgrade\_other] groups.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--force](#_bookmark148)

Ignore the mysql\_upgrade\_info file and force execution even if [mysql\_upgrade](#_bookmark58) has already been executed for the current version of MySQL.

• [--get-server-public-key](#_bookmark162)

Request from the server the public key required for RSA key pair-based password exchange. This option applies to clients that authenticate with the caching\_sha2\_password authentication plugin. For that plugin, the server does not send the public key unless requested. This option is ignored for accounts that do not authenticate with that plugin. It is also ignored if RSA-based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark174) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark162).

For information about the caching\_sha2\_password plugin, see Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--host=*host\_name*](#_bookmark164), -h *host\_name*

Connect to the MySQL server on the given host.

• [--login-path=*name*](#_bookmark165)

Read options from the named login path in the .mylogin.cnf login path file. A “login path” is an option group containing options that specify which MySQL server to connect to and which account to authenticate as. To create or modify a login path file, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--max-allowed-packet=*value*](#_bookmark166)

The maximum size of the buffer for client/server communication. The default value is 24MB. The minimum and maximum values are 4KB and 2GB.

• [--net-buffer-length=*value*](#_bookmark167)

The initial size of the buffer for client/server communication. The default value is 1MB − 1KB. The minimum and maximum values are 4KB and 16MB.

• [--no-defaults](#_bookmark168)

Do not read any option files. If program startup fails due to reading unknown options from an option file, [--no-defaults](#_bookmark168) can be used to prevent them from being read.

The exception is that the .mylogin.cnf file is read in all cases, if it exists. This permits passwords to be specified in a safer way than on the command line even when [--no-defaults](#_bookmark168)

is used. To create .mylogin.cnf, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [password[=*password*]](#_bookmark169)--, -p[*password*]

The password of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysql\_upgrade](#_bookmark58) prompts for one. If given, there must be *no* *space* between [--password=](#_bookmark169) or -p and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysql\_upgrade](#_bookmark58) should not prompt for one, use the [--skip-password](#_bookmark169) option.

• [--pipe](#_bookmark170), -W

On Windows, connect to the server using a named pipe. This option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• [--plugin-dir=*dir\_name*](#_bookmark171)

The directory in which to look for plugins. Specify this option if the [--default-auth](#_bookmark157) option is used to specify an authentication plugin but [mysql\_upgrade](#_bookmark58) does not find it. See Section 6.2.17, “Pluggable Authentication” .

• [--port=*port\_num*](#_bookmark172), -P *port\_num*

For TCP/IP connections, the port number to use.

• [--print-defaults](#_bookmark173)

Print the program name and all options that it gets from option files.

• [--protocol={TCP|SOCKET|PIPE|MEMORY}](#_bookmark146)

The transport protocol to use for connecting to the server. It is useful when the other connection parameters normally result in use of a protocol other than the one you want. For details on the permissible values, see [Section 4.2.7, “Connection Transport Protocols”](#_bookmark8) .

• [--server-public-key-path=*file\_name*](#_bookmark174)

The path name to a file in PEM format containing a client-side copy of the public key required by the server for RSA key pair-based password exchange. This option applies to clients that authenticate with the sha256\_password or caching\_sha2\_password authentication plugin. This option is ignored for accounts that do not authenticate with one of those plugins. It is also ignored if RSA-



based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark174) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark162).

For sha256\_password, this option applies only if MySQL was built using OpenSSL.

For information about the sha256\_password and caching\_sha2\_password plugins, see Section 6.4.1.3, “SHA-256 Pluggable Authentication” , and Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--shared-memory-base-name=*name*](#_bookmark175)

On Windows, the shared-memory name to use for connections made using shared memory to a local server. The default value is MYSQL. The shared-memory name is case-sensitive.

This option applies only if the server was started with the shared\_memory system variable enabled to support shared-memory connections.

• [--skip-sys-schema](#_bookmark149)

By default, [mysql\_upgrade](#_bookmark58) installs the sys schema if it is not installed, and upgrades it to the current version otherwise. The [--skip-sys-schema](#_bookmark149) option suppresses this behavior.

• [--socket=*path*](#_bookmark176), -S *path*

For connections to localhost, the Unix socket file to use, or, on Windows, the name of the named pipe to use.

On Windows, this option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• --ssl\*

Options that begin with --ssl specify whether to connect to the server using encryption and indicate where to find SSL keys and certificates. See [Command Options for Encrypted Connections](#_bookmark12).

• [--ssl-fips-mode={OFF|ON|STRICT}](#_bookmark178)

Controls whether to enable FIPS mode on the client side. The [--ssl-fips-mode](#_bookmark178) option differs from other --ssl-*xxx* options in that it is not used to establish encrypted connections, but rather to affect which cryptographic operations to permit. See Section 6.8, “FIPS Support” .

These [--ssl-fips-mode](#_bookmark178) values are permitted:

• OFF: Disable FIPS mode.

• ON: Enable FIPS mode.

• STRICT: Enable “strict” FIPS mode.

**Note**

If the OpenSSL FIPS Object Module is not available, the only permitted value for [--ssl-fips-mode](#_bookmark178) is OFF. In this case, setting [--ssl-fips-mode](#_bookmark178) to ON or STRICT causes the client to produce a warning at startup and to operate in non-FIPS mode.

• [--tls-ciphersuites=*ciphersuite\_list*](#_bookmark179)

The permissible ciphersuites for encrypted connections that use TLSv1.3. The value is a list of one or more colon-separated ciphersuite names. The ciphersuites that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

This option was added in MySQL 8.0.16.

• [--tls-version=*protocol\_list*](#_bookmark180)

The permissible TLS protocols for encrypted connections. The value is a list of one or more comma- separated protocol names. The protocols that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

• [--upgrade-system-tables](#_bookmark147), -s

Upgrade only the system tables in the mysql schema, do not upgrade user schemas.

• [--user=*user\_name*](#_bookmark181), -u *user\_name*

The user name of the MySQL account to use for connecting to the server. The default user name is root.

• [--verbose](#_bookmark182)

Verbose mode. Print more information about what the program does.

• [--version-check](#_bookmark183), -k

Check the version of the server to which [mysql\_upgrade](#_bookmark58) is connecting to verify that it is the same as the version for which [mysql\_upgrade](#_bookmark58) was built. If not, [mysql\_upgrade](#_bookmark58) exits. This option is enabled by default; to disable the check, use --skip-version-check.

• [--write-binlog](#_bookmark184)

By default, binary logging by [mysql\_upgrade](#_bookmark58) is disabled. Invoke the program with [--write-](#_bookmark184) [binlog](#_bookmark184) if you want its actions to be written to the binary log.

When the server is running with global transaction identifiers (GTIDs) enabled (gtid\_mode=ON), do not enable binary logging by [mysql\_upgrade](#_bookmark58).

• [--zstd-compression-level=*level*](#_bookmark185)

The compression level to use for connections to the server that use the zstd compression algorithm. The permitted levels are from 1 to 22, with larger values indicating increasing levels of compression. The default zstd compression level is 3. The compression level setting has no effect on connections that do not use zstd compression.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

**4.5** **Client** **Programs**

This section describes client programs that connect to the MySQL server.

**4.5.1** **mysql** **—** **The** **MySQL** **Command-Line** **Client**

[mysql](#_bookmark29) is a simple SQL shell with input line editing capabilities. It supports interactive and noninteractive use. When used interactively, query results are presented in an ASCII-table format.



When used noninteractively (for example, as a filter), the result is presented in tab-separated format. The output format can be changed using command options.

If you have problems due to insufficient memory for large result sets, use the [--quick](#_bookmark186) option. This forces [mysql](#_bookmark29) to retrieve results from the server a row at a time rather than retrieving the entire result set and buffering it in memory before displaying it. This is done by returning the result set using the [mysql\_use\_result()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-use-result.html) C API function in the client/server library rather than [mysql\_store\_result()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-store-result.html).

**Note**

Alternatively, MySQL Shell offers access to the X DevAPI. For details, see [MySQL Shell 8.0](https://dev.mysql.com/doc/mysql-shell/8.0/en/).

Using [mysql](#_bookmark29) is very easy. Invoke it from the prompt of your command interpreter as follows:

mysql *db\_name*

Or:

mysql --user=*user\_name* --password *db\_name* In this case, you'll need to enter your password in response to the prompt that [mysql](#_bookmark29) displays: Enter password: *your\_password* Then type an SQL statement, end it with ;, \g, or \G and press Enter.

Typing **Control+C** interrupts the current statement if there is one, or cancels any partial input line otherwise.

You can execute SQL statements in a script file (batch file) like this: mysql *db\_name* < *script.sql* > *output.tab*

On Unix, the [mysql](#_bookmark29) client logs statements executed interactively to a history file. See [Section 4.5.1.3,](#_bookmark187) [“mysql Client Logging”](#_bookmark187) .

**4.5.1.1** **mysql** **Client** **Options**

[mysql](#_bookmark29) supports the following options, which can be specified on the command line or in the [mysql] and [client] groups of an option file. For information about option files used by MySQL programs, see Section 4.2.2.2, “Using Option Files” .

**Table** **4.11** **mysql** **Client** **Options**

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--auto-rehash](#_bookmark189) | Enable automatic  rehashing |  |  |
| [--auto-vertical-output](#_bookmark190) | Enable automatic vertical result set display |  |  |
| [--batch](#_bookmark191) | Do not use history file |  |  |
| [--binary-as-hex](#_bookmark192) | Display binary values in hexadecimal notation |  |  |
| [--binary-mode](#_bookmark193) | Disable \r\n - to - \n translation and treatment of \0 as end- of-query |  |  |
| [--bind-address](#_bookmark194) | Use specified network interface to connect to MySQL Server |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--character-sets-dir](#_bookmark195) | Directory where  character sets are  installed |  |  |
| [--column-names](#_bookmark196) | Write column names in results |  |  |
| [--column-type-info](#_bookmark197) | Display result set  metadata |  |  |
| [--comments](#_bookmark198) | Whether to retain or strip comments in statements sent to the server |  |  |
| [--compress](#_bookmark199) | Compress all  information sent  between client and  server |  | 8.0.18 |
| [--compression-](#_bookmark200)  [algorithms](#_bookmark200) | Permitted compression algorithms for connections to server | 8.0.18 |  |
| [--connect-expired-](#_bookmark201)  [password](#_bookmark201) | Indicate to server that client can handle expired-password sandbox mode |  |  |
| [--connect-timeout](#_bookmark202) | Number of seconds  before connection  timeout |  |  |
| [--database](#_bookmark203) | The database to use |  |  |
| [--debug](#_bookmark204) | Write debugging log; supported only if MySQL was built with debugging support |  |  |
| [--debug-check](#_bookmark205) | Print debugging  information when  program exits |  |  |
| [--debug-info](#_bookmark206) | Print debugging information, memory, and CPU statistics when program exits |  |  |
| [--default-auth](#_bookmark207) | Authentication plugin to use |  |  |
| [--default-character-set](#_bookmark208) | Specify default  character set |  |  |
| [--defaults-extra-file](#_bookmark209) | Read named option file in addition to usual option files |  |  |
| [--defaults-file](#_bookmark210) | Read only named option file |  |  |
| [--defaults-group-suffix](#_bookmark211) | Option group suffix  value |  |  |
| [--delimiter](#_bookmark212) | Set the statement  delimiter |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--dns-srv-name](#_bookmark46) | Use DNS SRV lookup for host information | 8.0.22 |  |
| [--enable-cleartext-plugin](#_bookmark213) | Enable cleartext authentication plugin |  |  |
| [--execute](#_bookmark214) | Execute the statement and quit |  |  |
| [--fido-register-factor](#_bookmark215) | Multifactor  authentication factors for which registration must be done | 8.0.27 |  |
| [--force](#_bookmark216) | Continue even if an SQL error occurs |  |  |
| [--get-server-public-key](#_bookmark217) | Request RSA public key from server |  |  |
| [--help](#_bookmark218) | Display help message and exit |  |  |
| [--histignore](#_bookmark219) | Patterns specifying  which statements to  ignore for logging |  |  |
| [--host](#_bookmark220) | Host on which MySQL server is located |  |  |
| [--html](#_bookmark221) | Produce HTML output |  |  |
| [--ignore-spaces](#_bookmark222) | Ignore spaces after  function names |  |  |
| [--init-command](#_bookmark223) | SQL statement to execute after connecting |  |  |
| [--line-numbers](#_bookmark224) | Write line numbers for errors |  |  |
| [--load-data-local-dir](#_bookmark225) | Directory for files named in LOAD DATA LOCAL statements | 8.0.21 |  |
| [--local-infile](#_bookmark226) | Enable or disable for LOCAL capability for  LOAD DATA |  |  |
| [--login-path](#_bookmark227) | Read login path options from .mylogin.cnf |  |  |
| [--max-allowed-packet](#_bookmark228) | Maximum packet length to send to or receive from server |  |  |
| [--max-join-size](#_bookmark229) | The automatic limit for rows in a join when using --safe-updates |  |  |
| [--named-commands](#_bookmark230) | Enable named mysql commands |  |  |
| [--net-buffer-length](#_bookmark231) | Buffer size for  TCP/IP and socket  communication |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--network-namespace](#_bookmark232) | Specify network  namespace | 8.0.22 |  |
| [--no-auto-rehash](#_bookmark233) | Disable automatic  rehashing |  |  |
| [--no-beep](#_bookmark234) | Do not beep when  errors occur |  |  |
| [--no-defaults](#_bookmark235) | Read no option files |  |  |
| [--one-database](#_bookmark236) | Ignore statements except those for the default database named on the command line |  |  |
| [--pager](#_bookmark237) | Use the given command for paging query output |  |  |
| [--password](#_bookmark238) | Password to use when connecting to server |  |  |
| [--password1](#_bookmark239) | First multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password2](#_bookmark240) | Second multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password3](#_bookmark241) | Third multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--pipe](#_bookmark242) | Connect to server using named pipe (Windows only) |  |  |
| [--plugin-authentication-](#_bookmark243) [kerberos-client-mode](#_bookmark243) | Permit GSSAPI  pluggable authentication through the MIT Kerberos library on  Windows | 8.0.32 |  |
| [--plugin-dir](#_bookmark244) | Directory where plugins are installed |  |  |
| [--port](#_bookmark245) | TCP/IP port number for connection |  |  |
| [--print-defaults](#_bookmark246) | Print default options |  |  |
| [--prompt](#_bookmark247) | Set the prompt to the specified format |  |  |
| [--protocol](#_bookmark248) | Transport protocol to use |  |  |
| [--quick](#_bookmark186) | Do not cache each  query result |  |  |
| [--raw](#_bookmark249) | Write column values without escape conversion |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--reconnect](#_bookmark250) | If the connection to  the server is lost,  automatically try to  reconnect |  |  |
| [--safe-updates](#_bookmark251), [--i-am-a-](#_bookmark251) [dummy](#_bookmark251) | Allow only UPDATE and DELETE statements that specify key values |  |  |
| [--select-limit](#_bookmark252) | The automatic limit for SELECT statements when using --safe- updates |  |  |
| [--server-public-key-path](#_bookmark253) | Path name to file containing RSA public key |  |  |
| [--shared-memory-base-](#_bookmark254) [name](#_bookmark254) | Shared-memory name for shared-memory connections (Windows only) |  |  |
| [--show-warnings](#_bookmark255) | Show warnings after each statement if there are any |  |  |
| [--sigint-ignore](#_bookmark256) | Ignore SIGINT signals (typically the result of typing Control+C) |  |  |
| [--silent](#_bookmark257) | Silent mode |  |  |
| [--skip-auto-rehash](#_bookmark189) | Disable automatic  rehashing |  |  |
| [--skip-column-names](#_bookmark258) | Do not write column  names in results |  |  |
| [--skip-line-numbers](#_bookmark259) | Skip line numbers for errors |  |  |
| [--skip-named-](#_bookmark230)  [commands](#_bookmark230) | Disable named mysql commands |  |  |
| [--skip-pager](#_bookmark237) | Disable paging |  |  |
| [--skip-reconnect](#_bookmark250) | Disable reconnecting |  |  |
| [--socket](#_bookmark260) | Unix socket file or Windows named pipe to use |  |  |
| [--ssl-ca](#_bookmark129) | File that contains list of trusted SSL Certificate  Authorities |  |  |
| [--ssl-capath](#_bookmark129) | Directory that contains trusted SSL Certificate Authority certificate files |  |  |
| [--ssl-cert](#_bookmark129) | File that contains X.509 certificate |  |  |
| [--ssl-cipher](#_bookmark129) | Permissible ciphers for connection encryption |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--ssl-crl](#_bookmark129) | File that contains certificate revocation lists |  |  |
| [--ssl-crlpath](#_bookmark129) | Directory that contains certificate revocation-list files |  |  |
| [--ssl-fips-mode](#_bookmark261) | Whether to enable FIPS mode on client side |  |  |
| [--ssl-key](#_bookmark129) | File that contains X.509 key |  |  |
| [--ssl-mode](#_bookmark129) | Desired security state of connection to server |  |  |
| [--ssl-session-data](#_bookmark129) | File that contains SSL session data | 8.0.29 |  |
| [--ssl-session-data-](#_bookmark129) [continue-on-failed-reuse](#_bookmark129) | Whether to establish connections if session reuse fails | 8.0.29 |  |
| [--syslog](#_bookmark262) | Log interactive statements to syslog |  |  |
| [--table](#_bookmark263) | Display output in tabular format |  |  |
| [--tee](#_bookmark264) | Append a copy of output to named file |  |  |
| [--tls-ciphersuites](#_bookmark265) | Permissible TLSv1.3  ciphersuites for encrypted connections | 8.0.16 |  |
| [--tls-version](#_bookmark266) | Permissible TLS  protocols for encrypted connections |  |  |
| [--unbuffered](#_bookmark267) | Flush the buffer after each query |  |  |
| [--user](#_bookmark268) | MySQL user name to use when connecting to server |  |  |
| [--verbose](#_bookmark269) | Verbose mode |  |  |
| [--version](#_bookmark270) | Display version  information and exit |  |  |
| [--vertical](#_bookmark271) | Print query output rows vertically (one line per column value) |  |  |
| [--wait](#_bookmark272) | If the connection cannot be established, wait and retry instead of aborting |  |  |
| [--xml](#_bookmark273) | Produce XML output |  |  |
| [--zstd-compression-level](#_bookmark274) | Compression level  for connections to  server that use zstd  compression | 8.0.18 |  |



• [--help](#_bookmark218), -?

Display a help message and exit.

• [--auto-rehash](#_bookmark189)

Enable automatic rehashing. This option is on by default, which enables database, table, and column name completion. Use [-- - -](#_bookmark189)disableautorehash to disable rehashing. That causes [mysql](#_bookmark29) to start faster, but you must issue the rehash command or its \# shortcut if you want to use name completion.

To complete a name, enter the first part and press Tab. If the name is unambiguous, [mysql](#_bookmark29) completes it. Otherwise, you can press Tab again to see the possible names that begin with what you have typed so far. Completion does not occur if there is no default database.

**Note**

This feature requires a MySQL client that is compiled with the **readline** library. Typically, the **readline** library is not available on Windows.

• [--auto-vertical-output](#_bookmark190)

Cause result sets to be displayed vertically if they are too wide for the current window, and using normal tabular format otherwise. (This applies to statements terminated by ; or \G.)

• [--batch](#_bookmark191), -B

Print results using tab as the column separator, with each row on a new line. With this option, [mysql](#_bookmark29) does not use the history file.

Batch mode results in nontabular output format and escaping of special characters. Escaping may be disabled by using raw mode; see the description for the [--raw](#_bookmark249) option.

• [--binary-as-hex](#_bookmark192)

When this option is given, [mysql](#_bookmark29) displays binary data using hexadecimal notation ( 0x*value*). This occurs whether the overall output display format is tabular, vertical, HTML, or XML.

[--binary-as-hex](#_bookmark192) when enabled affects display of all binary strings, including those returned by functions such as CHAR() and UNHEX(). The following example demonstrates this using the ASCII code for A (65 decimal, 41 hexadecimal):

• [--binary-as-hex](#_bookmark192) disabled:

mysql> **SELECT** **CHAR(0x41),** **UNHEX('41');**

+------------+-------------+

| CHAR(0x41) | UNHEX('41') |

+------------+-------------+

| A | A |

+------------+-------------+

• [--binary-as-hex](#_bookmark192) enabled:

mysql> **SELECT** **CHAR(0x41),** **UNHEX('41');**

+------------------------+--------------------------+

| CHAR(0x41) | UNHEX('41') |

+------------------------+--------------------------+

| 0x41 | 0x41 |

+------------------------+--------------------------+

To write a binary string expression so that it displays as a character string regardless of whether [--](#_bookmark192) [binary-as-hex](#_bookmark192) is enabled, use these techniques:

• The CHAR() function has a USING *charset* clause:



mysql> **SELECT** **CHAR(0x41** **USING** **utf8mb4);**

+--------------------------+

| CHAR(0x41 USING utf8mb4) |

+--------------------------+

| A |

+--------------------------+

• More generally, use CONVERT() to convert an expression to a given character set:

mysql> **SELECT** **CONVERT(UNHEX('41')** **USING** **utf8mb4);**

+------------------------------------+

| CONVERT(UNHEX('41') USING utf8mb4) |

+------------------------------------+

| A |

+------------------------------------+

As of MySQL 8.0.19, when [mysql](#_bookmark29) operates in interactive mode, this option is enabled by default. In addition, output from the status (or \s) command includes this line when the option is enabled implicitly or explicitly:

Binary data as: Hexadecimal

To disable hexadecimal notation, use [--skip-binary-as-hex](#_bookmark192)

• [--binary-mode](#_bookmark193)

This option helps when processing mysqlbinlog output that may contain BLOB values. By default, [mysql](#_bookmark29) translates \r\n in statement strings to \n and interprets \0 as the statement terminator. [-- -](#_bookmark193)binarymode disables both features. It also disables all [mysql](#_bookmark29) commands except charset and delimiter in noninteractive mode (for input piped to [mysql](#_bookmark29) or loaded using the source command).

• [--bind-address=*ip\_address*](#_bookmark194)

On a computer having multiple network interfaces, use this option to select which interface to use for connecting to the MySQL server.

• [--character-sets-dir=*dir\_name*](#_bookmark195)

The directory where character sets are installed. See Section 10.15, “Character Set Configuration” .

• [--column-names](#_bookmark196)

Write column names in results.

• [--column-type-info](#_bookmark197)

Display result set metadata. This information corresponds to the contents of C API MYSQL\_FIELD data structures. See [C API Basic Data Structures](https://dev.mysql.com/doc/c-api/8.0/en/c-api-data-structures.html).

• [--comments](#_bookmark198), -c

Whether to strip or preserve comments in statements sent to the server. The default is [--skip-](#_bookmark198) [comments](#_bookmark198) (strip comments), enable with [--](#_bookmark198)comments (preserve comments).

**Note**

The [mysql](#_bookmark29) client always passes optimizer hints to the server, regardless of whether this option is given.

Comment stripping is deprecated. Expect this feature and the options to control it to be removed in a future MySQL release.

• [--compress](#_bookmark199), -C

Compress all information sent between the client and the server if possible. See [Section 4.2.8,](#_bookmark31) [“Connection Compression Control”](#_bookmark31) .

As of MySQL 8.0.18, this option is deprecated. Expect it be removed in a future version of MySQL. See [Configuring Legacy Connection Compression](#_bookmark35).

• [--compression-algorithms=*value*](#_bookmark200)

The permitted compression algorithms for connections to the server. The available algorithms are the same as for the protocol\_compression\_algorithms system variable. The default value is uncompressed.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

• [--connect-expired-password](#_bookmark201)

Indicate to the server that the client can handle sandbox mode if the account used to connect has an expired password. This can be useful for noninteractive invocations of [mysql](#_bookmark29) because normally the server disconnects noninteractive clients that attempt to connect using an account with an expired password. (See Section 6.2.16, “Server Handling of Expired Passwords” .)

• [--connect-timeout=*value*](#_bookmark202)

The number of seconds before connection timeout. (Default value is 0.)

• [--database=*db\_name*](#_bookmark203), -D *db\_name*

The database to use. This is useful primarily in an option file.

• [--debug[=*debug\_options*]](#_bookmark204), -# [*debug\_options*]

Write a debugging log. A typical *debug\_options* string is d:t:o,*file\_name*. The default is d:t:o,/tmp/mysql.trace.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-check](#_bookmark205)

Print some debugging information when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-info](#_bookmark206), -T

Print debugging information and memory and CPU usage statistics when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--default-auth=*plugin*](#_bookmark207)

A hint about which client-side authentication plugin to use. See Section 6.2.17, “Pluggable

Authentication” .

• [--default-character-set=*charset\_name*](#_bookmark208)

Use *charset\_name* as the default character set for the client and connection.

This option can be useful if the operating system uses one character set and the [mysql](#_bookmark29) client by default uses another. In this case, output may be formatted incorrectly. You can usually fix such issues by using this option to force the client to use the system character set instead.

For more information, see Section 10.4, “Connection Character Sets and Collations” , and Section 10.15, “Character Set Configuration” .

• [--defaults-extra-file=*file\_name*](#_bookmark209)

Read this option file after the global option file but (on Unix) before the user option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-file=*file\_name*](#_bookmark210)

Use only the given option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

Exception: Even with --defaults-file, client programs read .mylogin.cnf.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-group-suffix=*str*](#_bookmark211)

Read not only the usual option groups, but also groups with the usual names and a suffix of *str*. For example, [mysql](#_bookmark29) normally reads the [client] and [mysql] groups. If this option is given as [-- - -](#_bookmark211)defaultsgroupsuffix=\_other, [mysql](#_bookmark29) also reads the [client\_other] and [mysql\_other] groups.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--delimiter=*str*](#_bookmark212)

Set the statement delimiter. The default is the semicolon character (;).

• [--disable-named-commands](#_bookmark275)

Disable named commands. Use the \\* form only, or use named commands only at the beginning of a line ending with a semicolon (;). [mysql](#_bookmark29) starts with this option *enabled* by default. However, even with this option, long-format commands still work from the first line. See [Section 4.5.1.2, “mysql](#_bookmark30) [Client Commands”](#_bookmark30) .

• [--dns-srv-name=*name*](#_bookmark46)

Specifies the name of a DNS SRV record that determines the candidate hosts to use for establishing a connection to a MySQL server. For information about DNS SRV support in MySQL, see [Section 4.2.6, “Connecting to the Server Using DNS SRV Records”](#_bookmark45) .

Suppose that DNS is configured with this SRV information for the example.com domain:

Name TTL Class Priority Weight Port Target

\_mysql.\_tcp.example.com. 86400 IN SRV 0 5 3306 host1.example.com

\_mysql.\_tcp.example.com . 86400 IN SRV 0 10 3306 host2 .example .com

\_mysql.\_tcp.example.com. 86400 IN SRV 10 5 3306 host3.example.com

\_mysql.\_tcp.example.com. 86400 IN SRV 20 5 3306 host4.example.com To use that DNS SRV record, invoke [mysql](#_bookmark29) like this: mysql --dns-srv-name=\_mysql.\_tcp.example.com

[mysql](#_bookmark29) then attempts a connection to each server in the group until a successful connection is established. A failure to connect occurs only if a connection cannot be established to any of the servers. The priority and weight values in the DNS SRV record determine the order in which servers should be tried.

When invoked with [-- - -](#_bookmark46)dnssrvname, [mysql](#_bookmark29) attempts to establish TCP connections only.

The [--dns-srv-name](#_bookmark46) option takes precedence over the [--host](#_bookmark220) option if both are given. [--dns-](#_bookmark46) [srv-name](#_bookmark46) causes connection establishment to use the [mysql\_real\_connect\_dns\_srv()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-real-connect-dns-srv.html) C API function rather than [mysql\_real\_connect()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-real-connect.html). However, if the connect command is subsequently used at runtime and specifies a host name argument, that host name takes precedence over any [--](#_bookmark46)  [- -](#_bookmark46)dnssrvname option given at [mysql](#_bookmark29) startup to specify a DNS SRV record.

This option was added in MySQL 8.0.22.

• [--enable-cleartext-plugin](#_bookmark213)

Enable the mysql\_clear\_password cleartext authentication plugin. (See Section 6.4.1.4, “Client- Side Cleartext Pluggable Authentication” .)

• [--execute=*statement*](#_bookmark214), -e *statement*

Execute the statement and quit. The default output format is like that produced with [--batch](#_bookmark191). See Section 4.2.2.1, “Using Options on the Command Line” , for some examples. With this option, [mysql](#_bookmark29) does not use the history file.

• [--fido-register-factor=*value*](#_bookmark215)

The factor or factors for which FIDO device registration must be performed. This option value must be a single value, or two values separated by commas. Each value must be 2 or 3, so the permitted option values are '2', '3', '2,3' and '3,2'.

For example, an account that requires registration for a 3rd authentication factor invokes the [mysql](#_bookmark29) client as follows:

mysql --user=*user\_name* --fido-register-factor=3

An account that requires registration for a 2nd and 3rd authentication factor invokes the [mysql](#_bookmark29) client as follows:

mysql --user=*user\_name* --fido-register-factor=2,3

If registration is successful, a connection is established. If there is an authentication factor with a pending registration, a connection is placed into pending registration mode when attempting to

connect to the server. In this case, disconnect and reconnect with the correct [--fido-register-](#_bookmark215) [factor](#_bookmark215) value to complete the registration.

Registration is a two step process comprising *initiate* *registration* and *finish* *registration* steps. The initiate registration step executes this statement:

ALTER USER *user* *factor* INITIATE REGISTRATION

The statement returns a result set containing a 32 byte challenge, the user name, and the relying party ID (see authentication\_fido\_rp\_id).

The finish registration step executes this statement:

ALTER USER *user* *factor* FINISH REGISTRATION SET CHALLENGE\_RESPONSE AS '*auth\_string*'

The statement completes the registration and sends the following information to the server as part of the *auth\_string*: authenticator data, an optional attestation certificate in X.509 format, and a signature.

The initiate and registration steps must be performed in a single connection, as the challenge received by the client during the initiate step is saved to the client connection handler. Registration would fail if the registration step was performed by a different connection. The [--fido-register-](#_bookmark215) [factor](#_bookmark215) option executes both the initiate and registration steps, which avoids the failure scenario described above and prevents having to execute the ALTER USER initiate and registration statements manually.

The [-- - -](#_bookmark215)fidoregisterfactor option is only available for the [mysql](#_bookmark29) client and MySQL Shell. Other MySQL client programs do not support it.

For related information, see Using FIDO Authentication.

• [--force](#_bookmark216), -f

Continue even if an SQL error occurs.

• [--get-server-public-key](#_bookmark217)

Request from the server the public key required for RSA key pair-based password exchange. This option applies to clients that authenticate with the caching\_sha2\_password authentication plugin. For that plugin, the server does not send the public key unless requested. This option is ignored for accounts that do not authenticate with that plugin. It is also ignored if RSA-based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark253) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark217).

For information about the caching\_sha2\_password plugin, see Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--histignore](#_bookmark219)

A list of one or more colon-separated patterns specifying statements to ignore for logging purposes. These patterns are added to the default pattern list ( "\*IDENTIFIED\*:\*PASSWORD\*"). The value specified for this option affects logging of statements written to the history file, and to syslog if the [--syslog](#_bookmark262) option is given. For more information, see [Section 4.5.1.3, “mysql Client Logging”](#_bookmark187) .

• [--host=*host\_name*](#_bookmark220), -h *host\_name*

Connect to the MySQL server on the given host.

The [--dns-srv-name](#_bookmark46) option takes precedence over the [--host](#_bookmark220) option if both are given. [--dns-](#_bookmark46) [srv-name](#_bookmark46) causes connection establishment to use the [mysql\_real\_connect\_dns\_srv()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-real-connect-dns-srv.html) C API function rather than [mysql\_real\_connect()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-real-connect.html). However, if the connect command is subsequently used at runtime and specifies a host name argument, that host name takes precedence over any [--](#_bookmark46)  [- -](#_bookmark46)dnssrvname option given at [mysql](#_bookmark29) startup to specify a DNS SRV record.

• [--html](#_bookmark221), -H

Produce HTML output.

• [--ignore-spaces](#_bookmark222), -i

Ignore spaces after function names. The effect of this is described in the discussion for the IGNORE\_SPACE SQL mode (see Section 5.1.11, “Server SQL Modes” ).

• [--init-command=str](#_bookmark223)

SQL statement to execute after connecting to the server. If auto-reconnect is enabled, the statement is executed again after reconnection occurs.

• [--line-numbers](#_bookmark224)

Write line numbers for errors. Disable this with [--skip-line-numbers](#_bookmark259).

• [--load-data-local-dir=*dir\_name*](#_bookmark225)

This option affects the client-side LOCAL capability for LOAD DATA operations. It specifies the directory in which files named in LOAD DATA LOCAL statements must be located. The effect of [--](#_bookmark225) [load-data-local-dir](#_bookmark225) depends on whether LOCAL data loading is enabled or disabled:

• If LOCAL data loading is enabled, either by default in the MySQL client library or by specifying [--](#_bookmark226) [local-infile[=1]](#_bookmark226), the [--load-data-local-dir](#_bookmark225) option is ignored.

• If LOCAL data loading is disabled, either by default in the MySQL client library or by specifying [--](#_bookmark226) [local-infile=0](#_bookmark226), the [--load-data-local-dir](#_bookmark225) option applies.

When [--load-data-local-dir](#_bookmark225) applies, the option value designates the directory in which local data files must be located. Comparison of the directory path name and the path name of files to be loaded is case-sensitive regardless of the case sensitivity of the underlying file system. If the option value is the empty string, it names no directory, with the result that no files are permitted for local data loading.

For example, to explicitly disable local data loading except for files located in the /my/local/data directory, invoke [mysql](#_bookmark29) like this:

mysql --local-infile=0 --load-data-local-dir=/my/local/data

When both [--local-infile](#_bookmark226) and [--load-data-local-dir](#_bookmark225) are given, the order in which they are given does not matter.

Successful use of LOCAL load operations within [mysql](#_bookmark29) also requires that the server permits local loading; see Section 6.1.6, “Security Considerations for LOAD DATA LOCAL”

The [--load-data-local-dir](#_bookmark225) option was added in MySQL 8.0.21.

• [--local-infile[={0|1}]](#_bookmark226)

By default, LOCAL capability for LOAD DATA is determined by the default compiled into the MySQL client library. To enable or disable LOCAL data loading explicitly, use the [--local-infile](#_bookmark226) option.

When given with no value, the option enables LOCAL data loading. When given as [--local-](#_bookmark226) [infile=0](#_bookmark226) or [-- -infile=1](#_bookmark226)local, the option disables or enables LOCAL data loading.

If LOCAL capability is disabled, the [--load-data-local-dir](#_bookmark225) option can be used to permit restricted local loading of files located in a designated directory.

Successful use of LOCAL load operations within [mysql](#_bookmark29) also requires that the server permits local loading; see Section 6.1.6, “Security Considerations for LOAD DATA LOCAL”

• [--login-path=*name*](#_bookmark227)

Read options from the named login path in the .mylogin.cnf login path file. A “login path” is an option group containing options that specify which MySQL server to connect to and which account to authenticate as. To create or modify a login path file, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--max-allowed-packet=*value*](#_bookmark228)

The maximum size of the buffer for client/server communication. The default is 16MB, the maximum is 1GB.

• [--max-join-size=*value*](#_bookmark229)

The automatic limit for rows in a join when using [--safe-updates](#_bookmark251). (Default value is 1,000,000.)

• [--named-commands](#_bookmark230), -G

Enable named [mysql](#_bookmark29) commands. Long-format commands are permitted, not just short-format commands. For example, quit and \q both are recognized. Use [--skip-named-commands](#_bookmark230) to disable named commands. See [Section 4.5.1.2, “mysql Client Commands”](#_bookmark30) .

• [--net-buffer-length=*value*](#_bookmark231)

The buffer size for TCP/IP and socket communication. (Default value is 16KB.)

• [--network-namespace=*name*](#_bookmark232)

The network namespace to use for TCP/IP connections. If omitted, the connection uses the default (global) namespace. For information about network namespaces, see Section 5.1.14, “Network Namespace Support” .

This option was added in MySQL 8.0.22. It is available only on platforms that implement network namespace support.

• [--no-auto-rehash](#_bookmark189), -A

This has the same effect as --skip-auto-rehash. See the description for [--auto-rehash](#_bookmark189). • [--no-beep](#_bookmark234), -b

Do not beep when errors occur.

• [--no-defaults](#_bookmark235)

Do not read any option files. If program startup fails due to reading unknown options from an option file, [--no-defaults](#_bookmark235) can be used to prevent them from being read.

The exception is that the .mylogin.cnf file is read in all cases, if it exists. This permits passwords to be specified in a safer way than on the command line even when [--no-defaults](#_bookmark235)

is used. To create .mylogin.cnf, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--one-database](#_bookmark236), -o

Ignore statements except those that occur while the default database is the one named on the command line. This option is rudimentary and should be used with care. Statement filtering is based only on USE statements.

Initially, [mysql](#_bookmark29) executes statements in the input because specifying a database *db\_name* on the command line is equivalent to inserting USE *db\_name* at the beginning of the input. Then, for each USE statement encountered, [mysql](#_bookmark29) accepts or rejects following statements depending on whether the database named is the one on the command line. The content of the statements is immaterial.

Suppose that [mysql](#_bookmark29) is invoked to process this set of statements:

DELETE FROM db2.t2;

USE db2;

DROP TABLE db1.t1;

CREATE TABLE db1.t1 (i INT);

USE db1;

INSERT INTO t1 (i) VALUES(1);

CREATE TABLE db2.t1 (j INT);

If the command line is [-- -- - db1](#_bookmark29)mysqlforceonedatabase, [mysql](#_bookmark29) handles the input as follows:

• The DELETE statement is executed because the default database is db1, even though the statement names a table in a different database.

• The DROP TABLE and CREATE TABLE statements are not executed because the default database is not db1, even though the statements name a table in db1.

• The INSERT and CREATE TABLE statements are executed because the default database is db1, even though the CREATE TABLE statement names a table in a different database.

• [--pager[=*command*]](#_bookmark237)

Use the given command for paging query output. If the command is omitted, the default pager is the value of your PAGER environment variable. Valid pagers are less, more, cat [> filename], and so forth. This option works only on Unix and only in interactive mode. To disable paging, use [--](#_bookmark237) [skip-pager](#_bookmark237). [Section 4.5.1.2, “mysql Client Commands”](#_bookmark30) , discusses output paging further.

• [password[=*password*]](#_bookmark238)--, -p[*password*]

The password of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysql](#_bookmark29) prompts for one. If given, there must be *no* *space* between [--](#_bookmark238) [password=](#_bookmark238) or -p and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysql](#_bookmark29) should not prompt for one, use the [--](#_bookmark238) [skip-password](#_bookmark238) option.

• [--password1[=*pass\_val*]](#_bookmark239)

The password for multifactor authentication factor 1 of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysql](#_bookmark29) prompts for one. If given, there must be *no* *space* between [--password1=](#_bookmark239) and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysql](#_bookmark29) should not prompt for one, use the [--](#_bookmark239) [skip-password1](#_bookmark239) option.

[--password1](#_bookmark239) and [--password](#_bookmark238) are synonymous, as are [--skip-password1](#_bookmark239) and [--skip-](#_bookmark238) [password](#_bookmark238).

• [--password2[=*pass\_val*]](#_bookmark240)

The password for multifactor authentication factor 2 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark239); see the description of that option for details.

• [--password3[=*pass\_val*]](#_bookmark241)

The password for multifactor authentication factor 3 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark239); see the description of that option for details.

• [--pipe](#_bookmark242), -W

On Windows, connect to the server using a named pipe. This option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• [--plugin-authentication-kerberos-client-mode=*value*](#_bookmark243)

On Windows, the authentication\_kerberos\_client authentication plugin supports this plugin option. It provides two possible values that the client user can set at runtime: SSPI and GSSAPI.

The default value for the client-side plugin option uses Security Support Provider Interface (SSPI), which is capable of acquiring credentials from the Windows in-memory cache. Alternatively, the client user can select a mode that supports Generic Security Service Application Program Interface (GSSAPI) through the MIT Kerberos library on Windows. GSSAPI is capable of acquiring cached credentials previously generated by using the kinit command.

For more information, see Commands for Windows Clients in GSSAPI Mode.

• [--plugin-dir=*dir\_name*](#_bookmark244)

The directory in which to look for plugins. Specify this option if the [--default-auth](#_bookmark207) option is used to specify an authentication plugin but [mysql](#_bookmark29) does not find it. See Section 6.2.17, “Pluggable

Authentication” .

• [--port=*port\_num*](#_bookmark245), -P *port\_num*

For TCP/IP connections, the port number to use.

• [--print-defaults](#_bookmark246)

Print the program name and all options that it gets from option files.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--prompt=*format\_str*](#_bookmark247)

Set the prompt to the specified format. The default is mysql>. The special sequences that the prompt can contain are described in [Section 4.5.1.2, “mysql Client Commands”](#_bookmark30) .

• [--protocol={TCP|SOCKET|PIPE|MEMORY}](#_bookmark248)

The transport protocol to use for connecting to the server. It is useful when the other connection parameters normally result in use of a protocol other than the one you want. For details on the permissible values, see [Section 4.2.7, “Connection Transport Protocols”](#_bookmark8) .

• [--quick](#_bookmark186), -q

Do not cache each query result, print each row as it is received. This may slow down the server if the output is suspended. With this option, [mysql](#_bookmark29) does not use the history file.

• [--raw](#_bookmark249), -r

For tabular output, the “boxing” around columns enables one column value to be distinguished from another. For nontabular output (such as is produced in batch mode or when the [--batch](#_bookmark191) or [--](#_bookmark257) [silent](#_bookmark257) option is given), special characters are escaped in the output so they can be identified easily. Newline, tab, NUL, and backslash are written as \n, \t, \0, and \\. The [--raw](#_bookmark249) option disables this character escaping.

The following example demonstrates tabular versus nontabular output and the use of raw mode to disable escaping:

% **mysql**

mysql> SELECT CHAR(92);

+----------+

| CHAR(92) |

+----------+

| \ |

+ +

% **mysql** **-s**

mysql> SELECT CHAR(92);

CHAR(92)

\\

% **mysql** **-s** **-r**

mysql> SELECT CHAR(92);

CHAR(92)

\

• [--reconnect](#_bookmark250)

If the connection to the server is lost, automatically try to reconnect. A single reconnect attempt is made each time the connection is lost. To suppress reconnection behavior, use [--skip-](#_bookmark250) [reconnect](#_bookmark250).

• [--safe-updates](#_bookmark251), [--i-am-a-dummy](#_bookmark251), -U

If this option is enabled, UPDATE and DELETE statements that do not use a key in the WHERE clause or a LIMIT clause produce an error. In addition, restrictions are placed on SELECT statements that produce (or are estimated to produce) very large result sets. If you have set this option in an option file, you can use [--skip-safe-updates](#_bookmark251) on the command line to override it. For more information about this option, see [Using Safe-Updates Mode (--safe-updates)](#_bookmark276).

• [--select-limit=*value*](#_bookmark252)

The automatic limit for SELECT statements when using [--safe-updates](#_bookmark251). (Default value is 1,000.)

• [--server-public-key-path=*file\_name*](#_bookmark253)

The path name to a file in PEM format containing a client-side copy of the public key required by the server for RSA key pair-based password exchange. This option applies to clients that authenticate with the sha256\_password or caching\_sha2\_password authentication plugin. This option is ignored for accounts that do not authenticate with one of those plugins. It is also ignored if RSA- based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark253) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark217).

For sha256\_password, this option applies only if MySQL was built using OpenSSL.

For information about the sha256\_password and caching\_sha2\_password plugins, see Section 6.4.1.3, “SHA-256 Pluggable Authentication” , and Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--shared-memory-base-name=*name*](#_bookmark254)

On Windows, the shared-memory name to use for connections made using shared memory to a local server. The default value is MYSQL. The shared-memory name is case-sensitive.

This option applies only if the server was started with the shared\_memory system variable enabled to support shared-memory connections.

• [--show-warnings](#_bookmark255)

Cause warnings to be shown after each statement if there are any. This option applies to interactive and batch mode.

• [--sigint-ignore](#_bookmark256)

Ignore SIGINT signals (typically the result of typing **Control+C**).

Without this option, typing **Control+C** interrupts the current statement if there is one, or cancels any partial input line otherwise.

• [--silent](#_bookmark257), -s

Silent mode. Produce less output. This option can be given multiple times to produce less and less output.

This option results in nontabular output format and escaping of special characters. Escaping may be disabled by using raw mode; see the description for the [--raw](#_bookmark249) option.

• [--skip-column-names](#_bookmark258), -N

Do not write column names in results.

• [--skip-line-numbers](#_bookmark259), -L

Do not write line numbers for errors. Useful when you want to compare result files that include error messages.

• [--socket=*path*](#_bookmark260), -S *path*

For connections to localhost, the Unix socket file to use, or, on Windows, the name of the named pipe to use.



On Windows, this option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• --ssl\*

Options that begin with --ssl specify whether to connect to the server using encryption and indicate where to find SSL keys and certificates. See [Command Options for Encrypted Connections](#_bookmark12).

• [--ssl-fips-mode={OFF|ON|STRICT}](#_bookmark261)

Controls whether to enable FIPS mode on the client side. The [--ssl-fips-mode](#_bookmark261) option differs from other --ssl-*xxx* options in that it is not used to establish encrypted connections, but rather to affect which cryptographic operations to permit. See Section 6.8, “FIPS Support” .

These [--ssl-fips-mode](#_bookmark261) values are permitted:

• OFF: Disable FIPS mode.

• ON: Enable FIPS mode.

• STRICT: Enable “strict” FIPS mode.

**Note**

If the OpenSSL FIPS Object Module is not available, the only permitted value for [--ssl-fips-mode](#_bookmark261) is OFF. In this case, setting [--ssl-fips-mode](#_bookmark261) to ON or STRICT causes the client to produce a warning at startup and to operate in non-FIPS mode.

• [--syslog](#_bookmark262), -j

This option causes [mysql](#_bookmark29) to send interactive statements to the system logging facility. On Unix, this is syslog; on Windows, it is the Windows Event Log. The destination where logged messages appear is system dependent. On Linux, the destination is often the /var/log/messages file.

Here is a sample of output generated on Linux by using --syslog. This output is formatted for readability; each logged message actually takes a single line.

Mar 7 12:39:25 myhost MysqlClient[20824]:

SYSTEM\_USER:'oscar', MYSQL\_USER:'my\_oscar', CONNECTION\_ID:23,

DB\_SERVER:'127.0.0.1 ', DB:'-- ', QUERY:'USE test;'

Mar 7 12:39:28 myhost MysqlClient[20824]:

SYSTEM\_USER:'oscar', MYSQL\_USER:'my\_oscar', CONNECTION\_ID:23,

DB\_SERVER:'127.0.0.1 ', DB:'test', QUERY:'SHOW TABLES;'

For more information, see [Section 4.5.1.3, “mysql Client Logging”](#_bookmark187) .

• [--table](#_bookmark263), -t

Display output in table format. This is the default for interactive use, but can be used to produce table output in batch mode.

• [--tee=*file\_name*](#_bookmark264)

Append a copy of output to the given file. This option works only in interactive mode. [Section 4.5.1.2,](#_bookmark30) [“mysql Client Commands”](#_bookmark30) , discusses tee files further.

• [--tls-ciphersuites=*ciphersuite\_list*](#_bookmark265)

The permissible ciphersuites for encrypted connections that use TLSv1.3. The value is a list of one or more colon-separated ciphersuite names. The ciphersuites that can be named for this option

depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

This option was added in MySQL 8.0.16.

• [--tls-version=*protocol\_list*](#_bookmark266)

The permissible TLS protocols for encrypted connections. The value is a list of one or more comma- separated protocol names. The protocols that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

• [--unbuffered](#_bookmark267), -n

Flush the buffer after each query.

• [--user=*user\_name*](#_bookmark268), -u *user\_name*

The user name of the MySQL account to use for connecting to the server.

• [--verbose](#_bookmark269), -v

Verbose mode. Produce more output about what the program does. This option can be given multiple times to produce more and more output. (For example, -v -v -v produces table output format even in batch mode.)

• [--version](#_bookmark270), -V

Display version information and exit.

• [--vertical](#_bookmark271), -E

Print query output rows vertically (one line per column value). Without this option, you can specify vertical output for individual statements by terminating them with \G.

• [--wait](#_bookmark272), -w

If the connection cannot be established, wait and retry instead of aborting.

• [--xml](#_bookmark273), -X

Produce XML output.

<field name="*column\_name*">NULL</field>

The output when [--](#_bookmark273)xml is used with [mysql](#_bookmark29) matches that of [mysqldump](#_bookmark37) [--](#_bookmark277)xml. See [Section 4.5.4,](#_bookmark37) [“mysqldump — A Database Backup Program”](#_bookmark37) , for details.

The XML output also uses an XML namespace, as shown here:

$> **mysql** **--xml** **-uroot** **-e** **"SHOW** **VARIABLES** **LIKE** **'version%'"**

<?xml version="1.0"?>

<resultset statement="SHOW VARIABLES LIKE 'version%'" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instan

<row>

<field name="Variable\_name">version</field>

<field name="Value">5 .0 .40-debug</field>

</row>

<row>

<field name="Variable\_name">version\_comment</field>

<field name="Value">Source distribution</field>

</row>

<row>

<field name="Variable\_name">version\_compile\_machine</field>

<field name="Value">i686</field>

</row>

<row>

<field name="Variable\_name">version\_compile\_os</field>

<field name="Value">suse-linux-gnu</field>

</row>

</resultset>

• [--zstd-compression-level=*level*](#_bookmark274)

The compression level to use for connections to the server that use the zstd compression algorithm. The permitted levels are from 1 to 22, with larger values indicating increasing levels of compression. The default zstd compression level is 3. The compression level setting has no effect on connections that do not use zstd compression.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

**4.5.1.2** **mysql** **Client** **Commands**

[mysql](#_bookmark29) sends each SQL statement that you issue to the server to be executed. There is also a set of commands that [mysql](#_bookmark29) itself interprets. For a list of these commands, type help or \h at the mysql> prompt:

mysql> **help**

List of all MySQL commands:

Note that all text commands must be first on line and end with ';'

? (\?) Synonym for `help' .

clear (\c) Clear the current input statement .

connect (\r) Reconnect to the server . Optional arguments are db and host .

delimiter (\d) Set statement delimiter .

edit (\e) Edit command with $EDITOR .

ego (\G) Send command to mysql server, display result vertically .

exit (\q) Exit mysql . Same as quit .

go (\g) Send command to mysql server .

help (\h) Display this help .

nopager (\n) Disable pager, print to stdout .

notee (\t) Don't write into outfile .

pager (\P) Set PAGER [to\_pager] . Print the query results via PAGER .

print (\p) Print current command .

prompt (\R) Change your mysql prompt .

quit (\q) Quit mysql .

rehash (\#) Rebuild completion hash .

source (\ .) Execute an SQL script file . Takes a file name as an argument .

status (\s) Get status information from the server .

system (\!) Execute a system shell command .

tee (\T) Set outfile [to\_outfile] . Append everything into given

outfile .

use (\u) Use another database . Takes database name as argument .

charset (\C) Switch to another charset . Might be needed for processing

binlog with multi-byte charsets .

warnings (\W) Show warnings after every statement .

nowarning (\w) Don't show warnings after every statement .

resetconnection(\x) Clean session context .

query\_attributes Sets string parameters (name1 value1 name2 value2 . . .)

for the next query to pick up .

ssl\_session\_data\_print Serializes the current SSL session data to stdout

or file.

For server side help, type 'help contents'

If [mysql](#_bookmark29) is invoked with the [-- -](#_bookmark193)binarymode option, all [mysql](#_bookmark29) commands are disabled except charset and delimiter in noninteractive mode (for input piped to [mysql](#_bookmark29) or loaded using the source command).

Each command has both a long and short form. The long form is not case-sensitive; the short form is. The long form can be followed by an optional semicolon terminator, but the short form should not.

The use of short-form commands within multiple-line /\* ... \*/ comments is not supported. Short- form commands do work within single-line /\*! ... \*/ version comments, as do /\*+ ... \*/ optimizer-hint comments, which are stored in object definitions. If there is a concern that optimizer- hint comments may be stored in object definitions so that dump files when reloaded with mysql would result in execution of such commands, either invoke [mysql](#_bookmark29) with the [-- -](#_bookmark193)binarymode option or use a reload client other than [mysql](#_bookmark29).

• help [*arg*], \h [*arg*], \? [*arg*], ? [*arg*]

Display a help message listing the available [mysql](#_bookmark29) commands.

If you provide an argument to the help command, [mysql](#_bookmark29) uses it as a search string to access server-side help from the contents of the MySQL Reference Manual. For more information, see [Section 4.5.1.4, “mysql Client Server-Side Help”](#_bookmark278) .

• charset *charset\_name*, \C *charset\_name*

Change the default character set and issue a SET NAMES statement. This enables the character set to remain synchronized on the client and server if [mysql](#_bookmark29) is run with auto-reconnect enabled (which is not recommended), because the specified character set is used for reconnects.

• clear, \c

Clear the current input. Use this if you change your mind about executing the statement that you are entering.

• connect [*db\_name* [*host\_name*]], \r [*db\_name* [*host\_name*]]

Reconnect to the server. The optional database name and host name arguments may be given to specify the default database or the host where the server is running. If omitted, the current values are used.

If the connect command specifies a host name argument, that host takes precedence over any [--](#_bookmark46)  [- -](#_bookmark46)dnssrvname option given at [mysql](#_bookmark29) startup to specify a DNS SRV record.

• delimiter *str*, \d *str*

Change the string that [mysql](#_bookmark29) interprets as the separator between SQL statements. The default is the semicolon character (;).

The delimiter string can be specified as an unquoted or quoted argument on the delimiter command line. Quoting can be done with either single quote ( '), double quote ( "), or backtick (`) characters. To include a quote within a quoted string, either quote the string with a different quote character or escape the quote with a backslash (\) character. Backslash should be avoided outside of quoted strings because it is the escape character for MySQL. For an unquoted argument, the delimiter is read up to the first space or end of line. For a quoted argument, the delimiter is read up to the matching quote on the line.

[mysql](#_bookmark29) interprets instances of the delimiter string as a statement delimiter anywhere it occurs, except within quoted strings. Be careful about defining a delimiter that might occur within other words. For example, if you define the delimiter as X, it is not possible to use the word INDEX in statements. [mysql](#_bookmark29) interprets this as INDE followed by the delimiter X.

When the delimiter recognized by [mysql](#_bookmark29) is set to something other than the default of ;, instances of that character are sent to the server without interpretation. However, the server itself still interprets ; as a statement delimiter and processes statements accordingly. This behavior on the server side comes into play for multiple-statement execution (see [Multiple Statement Execution Support](https://dev.mysql.com/doc/c-api/8.0/en/c-api-multiple-queries.html)), and

for parsing the body of stored procedures and functions, triggers, and events (see Section 25.1, “Defining Stored Programs”).

• edit, \e

Edit the current input statement. [mysql](#_bookmark29) checks the values of the EDITOR and VISUAL environment variables to determine which editor to use. The default editor is vi if neither variable is set.

The edit command works only in Unix.

• ego, \G

Send the current statement to the server to be executed and display the result using vertical format.

• exit, \q Exit [mysql](#_bookmark29).

• go, \g

Send the current statement to the server to be executed.

• nopager, \n

Disable output paging. See the description for pager.

The nopager command works only in Unix.

• notee, \t

Disable output copying to the tee file. See the description for tee.

• nowarning, \w

Disable display of warnings after each statement.

• pager [*command*], \P [*command*]

Enable output paging. By using the [--](#_bookmark237)pager option when you invoke [mysql](#_bookmark29), it is possible to browse or search query results in interactive mode with Unix programs such as less, more, or any other similar program. If you specify no value for the option, [mysql](#_bookmark29) checks the value of the PAGER environment variable and sets the pager to that. Pager functionality works only in interactive mode.

Output paging can be enabled interactively with the pager command and disabled with nopager. The command takes an optional argument; if given, the paging program is set to that. With no argument, the pager is set to the pager that was set on the command line, or stdout if no pager was specified.

Output paging works only in Unix because it uses the popen() function, which does not exist on Windows. For Windows, the tee option can be used instead to save query output, although it is not as convenient as pager for browsing output in some situations.

• print, \p

Print the current input statement without executing it.

• prompt [*str*], \R [*str*]

Reconfigure the [mysql](#_bookmark29) prompt to the given string. The special character sequences that can be used in the prompt are described later in this section.

If you specify the prompt command with no argument, [mysql](#_bookmark29) resets the prompt to the default of mysql>.

• query\_attributes *name* *value* [*name* *value* ...]

Define query attributes that apply to the next query sent to the server. For discussion of the purpose

and use of query attributes, see Section 9.6, “Query Attributes” .

The query\_attributes command follows these rules:

• The format and quoting rules for attribute names and values are the same as for the delimiter command.

• The command permits up to 32 attribute name/value pairs. Names and values may be up to 1024 characters long. If a name is given without a value, an error occurs.

• If multiple query\_attributes commands are issued prior to query execution, only the last command applies. After sending the query, [mysql](#_bookmark29) clears the attribute set.

• If multiple attributes are defined with the same name, attempts to retrieve the attribute value have an undefined result.

• An attribute defined with an empty name cannot be retrieved by name.

• If a reconnect occurs while [mysql](#_bookmark29) executes the query, [mysql](#_bookmark29) restores the attributes after reconnecting so the query can be executed again with the same attributes.

• quit, \q Exit [mysql](#_bookmark29).

• rehash, \#

Rebuild the completion hash that enables database, table, and column name completion while you are entering statements. (See the description for the [--auto-rehash](#_bookmark189) option.)

• resetconnection, \x

Reset the connection to clear the session state. This includes clearing any current query attributes defined using the query\_attributes command.

Resetting a connection has effects similar to [mysql\_change\_user()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-change-user.html) or an auto-reconnect except that the connection is not closed and reopened, and re-authentication is not done. See [mysql\_change\_user()](https://dev.mysql.com/doc/c-api/8.0/en/mysql-change-user.html), and [Automatic Reconnection Control](https://dev.mysql.com/doc/c-api/8.0/en/c-api-auto-reconnect.html).

This example shows how resetconnection clears a value maintained in the session state:

mysql> **SELECT** **LAST\_INSERT\_ID(3);**

+-------------------+

| LAST\_INSERT\_ID(3) |

+-------------------+

| 3 |

+-------------------+

mysql> **SELECT** **LAST\_INSERT\_ID();**

+------------------+

| LAST\_INSERT\_ID() |

+------------------+

| 3 |

+------------------+

mysql> **resetconnection;**

mysql> **SELECT** **LAST\_INSERT\_ID();**

+------------------+

| LAST\_INSERT\_ID() |

+------------------+

| 0 |

mysql> **less** **-n** **-i** **-S**

+------------------+

• source *file\_name*, \. *file\_name*

Read the named file and executes the statements contained therein. On Windows, specify path name separators as / or \\.

Quote characters are taken as part of the file name itself. For best results, the name should not include space characters.

• ssl\_session\_data\_print [*file\_name*]

Fetches, serializes, and optionally stores the session data of a successful connection. The optional file name and arguments may be given to specify the file to store serialized session data. If omitted, the session data is printed to stdout.

If the MySQL session is configured for reuse, session data from the file is deserialized and supplied to the connect command to reconnect. When the session is reused successfully, the status command contains a row showing SSL session reused: true while the client remains reconnected to the server.

• status, \s

Provide status information about the connection and the server you are using. If you are running with [-- -](#_bookmark251)safeupdates enabled, status also prints the values for the [mysql](#_bookmark29) variables that affect your queries.

• system *command*, \! *command*

Execute the given command using your default command interpreter.

Prior to MySQL 8.0.19, the system command works only in Unix. As of 8.0.19, it also works on

Windows.

• tee [*file\_name*], \T [*file\_name*]

By using the [--](#_bookmark264)tee option when you invoke [mysql](#_bookmark29), you can log statements and their output. All the data displayed on the screen is appended into a given file. This can be very useful for debugging purposes also. [mysql](#_bookmark29) flushes results to the file after each statement, just before it prints its next prompt. Tee functionality works only in interactive mode.

You can enable this feature interactively with the tee command. Without a parameter, the previous file is used. The tee file can be disabled with the notee command. Executing tee again re-enables logging.

• use *db\_name*, \u *db\_name* Use *db\_name* as the default database.

• warnings, \W

Enable display of warnings after each statement (if there are any).

Here are a few tips about the pager command:

• You can use it to write to a file and the results go only to the file: mysql> **pager** **cat** **>** **/tmp/log.txt** You can also pass any options for the program that you want to use as your pager:

• In the preceding example, note the -S option. You may find it very useful for browsing wide query results. Sometimes a very wide result set is difficult to read on the screen. The -S option to less can make the result set much more readable because you can scroll it horizontally using the left- arrow and right-arrow keys. You can also use -S interactively within less to switch the horizontal- browse mode on and off. For more information, read the less manual page:

man less

• The -F and -X options may be used with less to cause it to exit if output fits on one screen, which is convenient when no scrolling is necessary:

mysql> **pager** **less** **-n** **-i** **-S** **-F** **-X**

• You can specify very complex pager commands for handling query output:

mysql> **pager** **cat** **|** **tee** **/dr1/tmp/res.txt** **\**

**|** **tee** **/dr2/tmp/res2.txt** **|** **less** **-n** **-i** **-S**

In this example, the command would send query results to two files in two different directories on two different file systems mounted on /dr1 and /dr2, yet still display the results onscreen using less.

You can also combine the tee and pager functions. Have a tee file enabled and pager set to less, and you are able to browse the results using the less program and still have everything appended into a file the same time. The difference between the Unix tee used with the pager command and the [mysql](#_bookmark29) built-in tee command is that the built-in tee works even if you do not have the Unix tee available. The built-in tee also logs everything that is printed on the screen, whereas the Unix tee used with pager does not log quite that much. Additionally, tee file logging can be turned on and off interactively from within [mysql](#_bookmark29). This is useful when you want to log some queries to a file, but not others.

The prompt command reconfigures the default mysql> prompt. The string for defining the prompt can contain the following special sequences.

|  |  |
| --- | --- |
| **Option** | **Description** |
| \C | The current connection identifier |
| \c | A counter that increments for each statement you issue |
| \D | The full current date |
| \d | The default database |
| \h | The server host |
| \l | The current delimiter |
| \m | Minutes of the current time |
| \n | A newline character |
| \O | The current month in three-letter format (Jan, Feb, …) |
| \o | The current month in numeric format |
| \P | am/pm |
| \p | The current TCP/IP port or socket file |
| \R | The current time, in 24-hour military time (0–23) |
| \r | The current time, standard 12-hour time (1– 12) |
| \S | Semicolon |
| \s | Seconds of the current time |
| \T | Print an asterisk (\*) if the current session is inside a transaction block (from MySQL 8.0.28) |

|  |  |
| --- | --- |
| **Option** | **Description** |
| \t | A tab character |
| \U | Your full *user\_name*@*host\_name* account name |
| \u | Your user name |
| \v | The server version |
| \w | The current day of the week in three-letter format (Mon, Tue, …) |
| \Y | The current year, four digits |
| \y | The current year, two digits |
| \\_ | A space |
| \ | A space (a space follows the backslash) |
| \' | Single quote |
| \" | Double quote |
| \\ | A literal \ backslash character |
| \*x* | *x*, for any “*x*” not listed above |

You can set the prompt in several ways:

• *Use* *an* *environment* *variable.* You can set the MYSQL\_PS1 environment variable to a prompt string. For example:

export MYSQL\_PS1="(\u@\h) [\d]> "

• *Use* *a* *command-line* *option.* You can set the [--](#_bookmark247)prompt option on the command line to [mysql](#_bookmark29). For example:

$> **mysql** **--prompt="(\u@\h)** **[\d]>** **"**

(user@host) [database]>

• *Use* *an* *option* *file.* You can set the prompt option in the [mysql] group of any MySQL option file, such as /etc/my.cnf or the .my.cnf file in your home directory. For example:

[mysql]

prompt=(\\u@\\h) [\\d]>\\\_

In this example, note that the backslashes are doubled. If you set the prompt using the prompt option in an option file, it is advisable to double the backslashes when using the special prompt options. There is some overlap in the set of permissible prompt options and the set of special escape sequences that are recognized in option files. (The rules for escape sequences in option files are listed in Section 4.2.2.2, “Using Option Files” .) The overlap may cause you problems if you use single backslashes. For example, \s is interpreted as a space rather than as the current seconds value. The following example shows how to define a prompt within an option file to include the current time in *hh:mm:ss*> format:

[mysql]

prompt="\\r:\\m:\\s> "

• *Set* *the* *prompt* *interactively.* You can change your prompt interactively by using the prompt (or \R) command. For example:

mysql> **prompt** **(\u@\h)** **[\d]>\\_**

PROMPT set to '(\u@\h) [\d]>\\_ '

(*user*@*host*) [*database*]>

(*user*@*host*) [*database*]> prompt

Returning to default PROMPT of mysql>

mysql>

**4.5.1.3** **mysql** **Client** **Logging**

The [mysql](#_bookmark29) client can do these types of logging for statements executed interactively:

• On Unix, [mysql](#_bookmark29) writes the statements to a history file. By default, this file is named .mysql\_history in your home directory. To specify a different file, set the value of the MYSQL\_HISTFILE environment variable.

• On all platforms, if the --syslog option is given, [mysql](#_bookmark29) writes the statements to the system logging facility. On Unix, this is syslog; on Windows, it is the Windows Event Log. The destination where logged messages appear is system dependent. On Linux, the destination is often the /var/log/ messages file.

The following discussion describes characteristics that apply to all logging types and provides information specific to each logging type.

• [How Logging Occurs](#_bookmark279)

• [Controlling the History File](#_bookmark280)

• [syslog Logging Characteristics](#_bookmark281)

**How** **Logging** **Occurs**

For each enabled logging destination, statement logging occurs as follows:

• Statements are logged only when executed interactively. Statements are noninteractive, for example, when read from a file or a pipe. It is also possible to suppress statement logging by using the [--](#_bookmark191) [batch](#_bookmark191) or [--](#_bookmark214)execute option.

• Statements are ignored and not logged if they match any pattern in the “ignore” list. This list is described later.

• [mysql](#_bookmark29) logs each nonignored, nonempty statement line individually.

• If a nonignored statement spans multiple lines (not including the terminating delimiter), [mysql](#_bookmark29) concatenates the lines to form the complete statement, maps newlines to spaces, and logs the result, plus a delimiter.

Consequently, an input statement that spans multiple lines can be logged twice. Consider this input:

mysql> **SELECT**

-> **'Today** **is'**

-> **,**

-> **CURDATE()**

-> **;**

In this case, [mysql](#_bookmark29) logs the “SELECT” , “'Today is'” , “,” , “CURDATE()” , and “;” lines as it reads them. It also logs the complete statement, after mapping SELECT\n'Today is'\n,\nCURDATE() to SELECT 'Today is' , CURDATE(), plus a delimiter. Thus, these lines appear in logged output:

SELECT

'Today is'

,

CURDATE()

;

SELECT 'Today is' , CURDATE();

[mysql](#_bookmark29) ignores for logging purposes statements that match any pattern in the “ignore” list. By default,

the pattern list is "\*IDENTIFIED\*:\*PASSWORD\*", to ignore statements that refer to passwords. Pattern matching is not case-sensitive. Within patterns, two characters are special:

• ? matches any single character.

• \* matches any sequence of zero or more characters.

To specify additional patterns, use the [--histignore](#_bookmark219) option or set the MYSQL\_HISTIGNORE environment variable. (If both are specified, the option value takes precedence.) The value should be a list of one or more colon-separated patterns, which are appended to the default pattern list.

Patterns specified on the command line might need to be quoted or escaped to prevent your command interpreter from treating them specially. For example, to suppress logging for UPDATE and DELETE statements in addition to statements that refer to passwords, invoke [mysql](#_bookmark29) like this:

mysql --histignore="\*UPDATE\*:\*DELETE\*"

**Controlling** **the** **History** **File**

The .mysql\_history file should be protected with a restrictive access mode because sensitive information might be written to it, such as the text of SQL statements that contain passwords. See Section 6.1.2.1, “End-User Guidelines for Password Security” . Statements in the file are accessible from the [mysql](#_bookmark29) client when the **up-arrow** key is used to recall the history. See [Disabling Interactive](#_bookmark282) [History](#_bookmark282).

If you do not want to maintain a history file, first remove .mysql\_history if it exists. Then use either of the following techniques to prevent it from being created again:

• Set the MYSQL\_HISTFILE environment variable to /dev/null. To cause this setting to take effect each time you log in, put it in one of your shell's startup files.

• Create .mysql\_history as a symbolic link to /dev/null; this need be done only once:

ln -s /dev/null $HOME/.mysql\_history

**syslog** **Logging** **Characteristics**

If the --syslog option is given, [mysql](#_bookmark29) writes interactive statements to the system logging facility. Message logging has the following characteristics.

Logging occurs at the “information” level. This corresponds to the LOG\_INFO priority for syslog on Unix/Linux syslog capability and to EVENTLOG\_INFORMATION\_TYPE for the Windows Event Log.

Consult your system documentation for configuration of your logging capability.

Message size is limited to 1024 bytes.

Messages consist of the identifier MysqlClient followed by these values:

• SYSTEM\_USER

The operating system user name (login name) or -- if the user is unknown.

• MYSQL\_USER

The MySQL user name (specified with the [--user](#_bookmark268) option) or -- if the user is unknown.

• CONNECTION\_ID:

The client connection identifier. This is the same as the CONNECTION\_ID() function value within the session.

• DB\_SERVER

The server host or -- if the host is unknown.

• DB

The default database or -- if no database has been selected.

• QUERY

The text of the logged statement.

Here is a sample of output generated on Linux by using --syslog. This output is formatted for readability; each logged message actually takes a single line.

Mar 7 12:39:25 myhost MysqlClient[20824]:

SYSTEM\_USER:'oscar', MYSQL\_USER:'my\_oscar', CONNECTION\_ID:23,

DB\_SERVER:'127.0.0.1 ', DB:'-- ', QUERY:'USE test;'

Mar 7 12:39:28 myhost MysqlClient[20824]:

SYSTEM\_USER:'oscar', MYSQL\_USER:'my\_oscar', CONNECTION\_ID:23,

DB\_SERVER:'127.0.0.1 ', DB:'test', QUERY:'SHOW TABLES;'

**4.5.1.4** **mysql** **Client** **Server-Side** **Help**

mysql> **help** ***search\_string***

If you provide an argument to the help command, [mysql](#_bookmark29) uses it as a search string to access server- side help from the contents of the MySQL Reference Manual. The proper operation of this command requires that the help tables in the mysql database be initialized with help topic information (see Section 5.1.17, “Server-Side Help Support”).

If there is no match for the search string, the search fails:

mysql> **help** **me**

Nothing found

Please try to run 'help contents' for a list of all accessible topics

Use help contents to see a list of the help categories:

mysql> **help** **contents**

You asked for help about help category: "Contents"

For more information, type 'help <item>', where <item> is one of the

following categories:

Account Management

Administration

Data Definition

Data Manipulation

Data Types

Functions

Functions and Modifiers for Use with GROUP BY

Geographic Features

Language Structure

Plugins

Storage Engines

Stored Routines

Table Maintenance

Transactions

Triggers

If the search string matches multiple items, mysql shows a list of matching topics:

mysql> **help** **logs**

Many help items for your request exist .

To make a more specific request, please type 'help <item>',

where <item> is one of the following topics:

SHOW

SHOW BINARY LOGS

SHOW ENGINE

SHOW LOGS

Use a topic as the search string to see the help entry for that topic:

mysql> **help** **show** **binary** **logs**

Name: 'SHOW BINARY LOGS'

Description:

Syntax:

SHOW BINARY LOGS

SHOW MASTER LOGS

Lists the binary log files on the server. This statement is used as

part of the procedure described in [purge-binary-logs], that shows how

to determine which logs can be purged.

mysql> SHOW BINARY LOGS;

+---------------+-----------+-----------+

| Log\_name | File\_size | Encrypted |

+---------------+-----------+-----------+

|

| binlog.000015 |

| binlog.000016 |

|

|

724935

733481

Yes

Yes

|

+---------------+-----------+-----------+

The search string can contain the wildcard characters % and \_. These have the same meaning as for pattern-matching operations performed with the LIKE operator. For example, HELP rep% returns a list of topics that begin with rep:

mysql> **HELP** **rep%**

Many help items for your request exist .

To make a more specific request, please type 'help <item>',

where <item> is one of the following

topics:

REPAIR TABLE

REPEAT FUNCTION

REPEAT LOOP

REPLACE

REPLACE FUNCTION

**4.5.1.5** **Executing** **SQL** **Statements** **from** **a** **Text** **File**

The [mysql](#_bookmark29) client typically is used interactively, like this:

mysql *db\_name*

However, it is also possible to put your SQL statements in a file and then tell [mysql](#_bookmark29) to read its input from that file. To do so, create a text file *text\_file* that contains the statements you wish to execute. Then invoke [mysql](#_bookmark29) as shown here:

mysql *db\_name* < *text\_file*

If you place a USE *db\_name* statement as the first statement in the file, it is unnecessary to specify the database name on the command line:

mysql < text\_file

If you are already running [mysql](#_bookmark29), you can execute an SQL script file using the source command or \. command:

mysql> **source** ***fi1e\_name***

mysql> **\** **.** ***fi1e\_name***

Sometimes you may want your script to display progress information to the user. For this you can insert statements like this:

SELECT '<info\_to\_display>' AS ' ';

The statement shown outputs <info\_to\_display>.

You can also invoke [mysql](#_bookmark29) with the [--](#_bookmark269)verbose option, which causes each statement to be displayed before the result that it produces.

[mysql](#_bookmark29) ignores Unicode byte order mark (BOM) characters at the beginning of input files. Previously, it read them and sent them to the server, resulting in a syntax error. Presence of a BOM does not cause [mysql](#_bookmark29) to change its default character set. To do that, invoke [mysql](#_bookmark29) with an option such as [--](#_bookmark208) [default-character-set=utf8mb4](#_bookmark208).

For more information about batch mode, see Section 3.5, “Using mysql in Batch Mode” .

**4.5.1.6** **mysql** **Client** **Tips**

This section provides information about techniques for more effective use of [mysql](#_bookmark29) and about [mysql](#_bookmark29) operational behavior.

• [Input-Line Editing](#_bookmark283)

• [Disabling Interactive History](#_bookmark282)

• [Unicode Support on Windows](#_bookmark284)

• [Displaying Query Results Vertically](#_bookmark285)

• [Using Safe-Updates Mode (--safe-updates)](#_bookmark276)

• [Disabling mysql Auto-Reconnect](#_bookmark286)

• [mysql Client Parser Versus Server Parser](#_bookmark287)

**Input-Line** **Editing**

[mysql](#_bookmark29) supports input-line editing, which enables you to modify the current input line in place or recall previous input lines. For example, the **left-arrow** and **right-arrow** keys move horizontally within the current input line, and the **up-arrow** and **down-arrow** keys move up and down through the set of previously entered lines. **Backspace** deletes the character before the cursor and typing new characters enters them at the cursor position. To enter the line, press **Enter**.

On Windows, the editing key sequences are the same as supported for command editing in console windows. On Unix, the key sequences depend on the input library used to build [mysql](#_bookmark29) (for example, the libedit or readline library).

Documentation for the libedit and readline libraries is available online. To change the set of key sequences permitted by a given input library, define key bindings in the library startup file. This is a file in your home directory: .editrc for libedit and .inputrc for readline.

For example, in libedit, **Control+W** deletes everything before the current cursor position and **Control+U** deletes the entire line. In readline, **Control+W** deletes the word before the cursor and **Control+U** deletes everything before the current cursor position. If [mysql](#_bookmark29) was built using libedit, a user who prefers the readline behavior for these two keys can put the following lines in the .editrc file (creating the file if necessary):

bind "^W" ed-delete-prev-word

bind "^U" vi-kill-line-prev

To see the current set of key bindings, temporarily put a line that says only bind at the end of .editrc. [mysql](#_bookmark29) shows the bindings when it starts.

**Disabling** **Interactive** **History**

The **up-arrow** key enables you to recall input lines from current and previous sessions. In cases where a console is shared, this behavior may be unsuitable. [mysql](#_bookmark29) supports disabling the interactive history partially or fully, depending on the host platform.

On Windows, the history is stored in memory. **Alt+F7** deletes all input lines stored in memory for the current history buffer. It also deletes the list of sequential numbers in front of the input lines displayed with **F7** and recalled (by number) with **F9**. New input lines entered after you press **Alt+F7** repopulate the current history buffer. Clearing the buffer does not prevent logging to the Windows Event Viewer, if the [--](#_bookmark262)syslog option was used to start [mysql](#_bookmark29). Closing the console window also clears the current history buffer.

To disable interactive history on Unix, first delete the .mysql\_history file, if it exists (previous entries are recalled otherwise). Then start [mysql](#_bookmark29) with the --histignore="\*" option to ignore all new input lines. To re-enable the recall (and logging) behavior, restart [mysql](#_bookmark29) without the option.

If you prevent the .mysql\_history file from being created (see [Controlling the History File](#_bookmark280)) and use --histignore="\*" to start the [mysql](#_bookmark29) client, the interactive history recall facility is disabled fully. Alternatively, if you omit the [--histignore](#_bookmark219) option, you can recall the input lines entered during the current session.

**Unicode** **Support** **on** **Windows**

Windows provides APIs based on UTF-16LE for reading from and writing to the console; the [mysql](#_bookmark29) client for Windows is able to use these APIs. The Windows installer creates an item in the MySQL menu named MySQL command line client - Unicode. This item invokes the [mysql](#_bookmark29) client with properties set to communicate through the console to the MySQL server using Unicode.

To take advantage of this support manually, run [mysql](#_bookmark29) within a console that uses a compatible Unicode font and set the default character set to a Unicode character set that is supported for communication with the server:

1. Open a console window.

2. Go to the console window properties, select the font tab, and choose Lucida Console or some other compatible Unicode font. This is necessary because console windows start by default using a DOS raster font that is inadequate for Unicode.

3. Execute [mysql.exe](#_bookmark29) with the [--default-character-set=utf8mb4](#_bookmark208) (or utf8mb3) option. This option is necessary because utf16le is one of the character sets that cannot be used as the client character set. See Impermissible Client Character Sets.

With those changes, [mysql](#_bookmark29) uses the Windows APIs to communicate with the console using

UTF- 16LE, and communicate with the server using UTF-8. (The menu item mentioned previously sets the font and character set as just described.)

To avoid those steps each time you run [mysql](#_bookmark29), you can create a shortcut that invokes [.](#_bookmark29)mysqlexe. The shortcut should set the console font to Lucida Console or some other compatible Unicode font, and pass the [--default-character-set=utf8mb4](#_bookmark208) (or utf8mb3) option to [mysql.exe](#_bookmark29).

Alternatively, create a shortcut that only sets the console font, and set the character set in the [mysql] group of your my.ini file:

|  |  |  |
| --- | --- | --- |
| [mysql]  default-character-set=utf8mb4 | # or | utf8mb3 |

**Displaying** **Query** **Results** **Vertically**

Some query results are much more readable when displayed vertically, instead of in the usual horizontal table format. Queries can be displayed vertically by terminating the query with \G instead of a semicolon. For example, longer text values that include newlines often are much easier to read with vertical output:

mysql> **SELECT** **\*** **FROM** **mails** **WHERE** **LENGTH(txt)** **<** **300** **LIMIT** **300,1\G**

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 1. row \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

msg\_nro: 3068

date: 2000-03-01 23:29:50

time\_zone: +0200

mail\_from: Jones

reply: jones@example .com

mail\_to: "John Smith" <smith@example .com>

sbj: UTF-8

txt: >>>>> "John" == John Smith writes:

good idea.

John> Hi. I think this is a

John> with UTF-8 or Unicode?

John> TODO list and see what

Is anyone familiar

I'll put this on my

Otherwise,

happens.

Yes, please do that.

Regards,

Jones

file: inbox-jani-1

hash: 190402944

1 row in set (0.09 sec)

**Using** **Safe-Updates** **Mode** **(--safe-updates)**

For beginners, a useful startup option is [--safe-updates](#_bookmark251) (or [--i-am-a-dummy](#_bookmark251), which has the same effect). Safe-updates mode is helpful for cases when you might have issued an UPDATE or DELETE statement but forgotten the WHERE clause indicating which rows to modify. Normally, such statements update or delete all rows in the table. With [--safe-updates](#_bookmark251), you can modify rows only by specifying the key values that identify them, or a LIMIT clause, or both. This helps prevent accidents. Safe-updates mode also restricts SELECT statements that produce (or are estimated to produce) very large result sets.

The [-- -](#_bookmark251)safeupdates option causes [mysql](#_bookmark29) to execute the following statement when it connects to the MySQL server, to set the session values of the sql\_safe\_updates, sql\_select\_limit, and max\_join\_size system variables:

SET sql\_safe\_updates=1, sql\_select\_limit=1000, max\_join\_size=1000000;

The SET statement affects statement processing as follows:

• Enabling sql\_safe\_updates causes UPDATE and DELETE statements to produce an error if they do not specify a key constraint in the WHERE clause, or provide a LIMIT clause, or both. For example:

UPDATE *tbl\_name* SET *not\_key\_column*=*val* WHERE *key\_column*=*val*;

UPDATE *tbl\_name* SET *not\_key\_column*=*val* LIMIT 1;

• Setting sql\_select\_limit to 1,000 causes the server to limit all SELECT result sets to 1,000 rows unless the statement includes a LIMIT clause.

• Setting max\_join\_size to 1,000,000 causes multiple-table SELECT statements to produce an error if the server estimates it must examine more than 1,000,000 row combinations.

To specify result set limits different from 1,000 and 1,000,000, you can override the defaults by using the [-- -](#_bookmark252)selectlimit and [-- - -](#_bookmark229)maxjoinsize options when you invoke [mysql](#_bookmark29):

mysql --safe-updates --select-limit=500 --max-join-size=10000

It is possible for UPDATE and DELETE statements to produce an error in safe-updates mode even with a key specified in the WHERE clause, if the optimizer decides not to use the index on the key column:

• Range access on the index cannot be used if memory usage exceeds that permitted by the range\_optimizer\_max\_mem\_size system variable. The optimizer then falls back to a table scan. See Limiting Memory Use for Range Optimization.

• If key comparisons require type conversion, the index may not be used (see Section 8.3.1, “How MySQL Uses Indexes” ). Suppose that an indexed string column c1 is compared to a numeric value using WHERE c1 = 2222. For such comparisons, the string value is converted to a number and the operands are compared numerically (see Section 12.3, “Type Conversion in Expression Evaluation”), preventing use of the index. If safe-updates mode is enabled, an error occurs.

As of MySQL 8.0.13, safe-updates mode also includes these behaviors:

• EXPLAIN with UPDATE and DELETE statements does not produce safe-updates errors. This enables use of EXPLAIN plus SHOW WARNINGS to see why an index is not used, which can be helpful in cases such as when a range\_optimizer\_max\_mem\_size violation or type conversion occurs and the optimizer does not use an index even though a key column was specified in the WHERE clause.

• When a safe-updates error occurs, the error message includes the first diagnostic that was produced, to provide information about the reason for failure. For example, the message may indicate that the range\_optimizer\_max\_mem\_size value was exceeded or type conversion occurred, either of which can preclude use of an index.

• For multiple-table deletes and updates, an error is produced with safe updates enabled only if any target table uses a table scan.

**Disabling** **mysql** **Auto-Reconnect**

If the [mysql](#_bookmark29) client loses its connection to the server while sending a statement, it immediately and automatically tries to reconnect once to the server and send the statement again. However, even if [mysql](#_bookmark29) succeeds in reconnecting, your first connection has ended and all your previous session objects and settings are lost: temporary tables, the autocommit mode, and user-defined and session variables. Also, any current transaction rolls back. This behavior may be dangerous for you, as in the following example where the server was shut down and restarted between the first and second statements without you knowing it:

mysql> **SET** **@a=1;**

Query OK, 0 rows affected (0.05 sec)

mysql> **INSERT** **INTO** **t** **VALUES(@a);**

ERROR 2006: MySQL server has gone away

No connection . Trying to reconnect . . .

Connection id: 1

Current database: test

Query OK, 1 row affected (1.30 sec)

mysql> **SELECT** **\*** **FROM** **t;**

+------+

| a |

+------+

| NULL |

+------+

1 row in set (0.05 sec)

The @a user variable has been lost with the connection, and after the reconnection it is undefined. If it is important to have [mysql](#_bookmark29) terminate with an error if the connection has been lost, you can start the [mysql](#_bookmark29) client with the [-- -](#_bookmark250)skipreconnect option.

For more information about auto-reconnect and its effect on state information when a reconnection occurs, see [Automatic Reconnection Control](https://dev.mysql.com/doc/c-api/8.0/en/c-api-auto-reconnect.html).

**mysql** **Client** **Parser** **Versus** **Server** **Parser**

The [mysql](#_bookmark29) client uses a parser on the client side that is not a duplicate of the complete parser used by the [mysqld](#_bookmark59) server on the server side. This can lead to differences in treatment of certain constructs. Examples:

• The server parser treats strings delimited by " characters as identifiers rather than as plain strings if the ANSI\_QUOTES SQL mode is enabled.

The [mysql](#_bookmark29) client parser does not take the ANSI\_QUOTES SQL mode into account. It treats strings delimited by ", ', and ` characters the same, regardless of whether ANSI\_QUOTES is enabled.

• Within /\*! ... \*/ and /\*+ ... \*/ comments, the [mysql](#_bookmark29) client parser interprets short-form [mysql](#_bookmark29) commands. The server parser does not interpret them because these commands have no meaning on the server side.

If it is desirable for [mysql](#_bookmark29) not to interpret short-form commands within comments, a partial workaround is to use the [-- -](#_bookmark193)binarymode option, which causes all [mysql](#_bookmark29) commands to be disabled except \C and \d in noninteractive mode (for input piped to [mysql](#_bookmark29) or loaded using the source command).

**4.5.2** **mysqladmin** **—** **A** **MySQL** **Server** **Administration** **Program**

[mysqladmin](#_bookmark39) is a client for performing administrative operations. You can use it to check the server's configuration and current status, to create and drop databases, and more.

Invoke [mysqladmin](#_bookmark39) like this:

mysqladmin [*options*] *command* [*command-arg*] [*command* [*command-arg*]] ...

[mysqladmin](#_bookmark39) supports the following commands. Some of the commands take an argument following the command name.

• create *db\_name*

Create a new database named *db\_name*.

• debug

Prior to MySQL 8.0.20, tell the server to write debug information to the error log. The connected user must have the SUPER privilege. Format and content of this information is subject to change.

This includes information about the Event Scheduler. See Section 25.4.5, “Event Scheduler Status” .

• drop *db\_name*

Delete the database named *db\_name* and all its tables.

• extended-status

Display the server status variables and their values.

• flush-hosts

Flush all information in the host cache. See Section 5.1.12.3, “DNS Lookups and the Host Cache” .

• flush-logs [*log\_type* ...] Flush all logs.

The [mysqladmin flush-logs](#_bookmark39) command permits optional log types to be given, to specify which logs to flush. Following the flush-logs command, you can provide a space-separated list of one or more of the following log types: binary, engine, error, general, relay, slow. These correspond to the log types that can be specified for the FLUSH LOGS SQL statement.

• flush-privileges

Reload the grant tables (same as reload).

• flush-status

Clear status variables.

• flush-tables Flush all tables.

• flush-threads

Flush the thread cache.

• kill *id*,*id*,...

Kill server threads. If multiple thread ID values are given, there must be no spaces in the list.

To kill threads belonging to other users, the connected user must have the CONNECTION\_ADMIN privilege (or the deprecated SUPER privilege).

• password *new\_password*

Set a new password. This changes the password to *new\_password* for the account that you use with [mysqladmin](#_bookmark39) for connecting to the server. Thus, the next time you invoke [mysqladmin](#_bookmark39) (or any other client program) using the same account, you must specify the new password.



**Warning**

Setting a password using [mysqladmin](#_bookmark39) should be considered *insecure*. On some systems, your password becomes visible to system status programs such as ps that may be invoked by other users to display command lines. MySQL clients typically overwrite the command-line password argument with zeros during their initialization sequence. However, there is still a brief interval during which the value is visible. Also, on some systems this overwriting strategy is ineffective and the password remains visible to ps. (SystemV Unix systems and perhaps others are subject to this problem.)

If the *new\_password* value contains spaces or other characters that are special to your command interpreter, you need to enclose it within quotation marks. On Windows, be sure to use double quotation marks rather than single quotation marks; single quotation marks are not stripped from the password, but rather are interpreted as part of the password. For example:

mysqladmin password "my new password"

The new password can be omitted following the password command. In this case, [mysqladmin](#_bookmark39) prompts for the password value, which enables you to avoid specifying the password on the command line. Omitting the password value should be done only if password is the final command on the [mysqladmin](#_bookmark39) command line. Otherwise, the next argument is taken as the password.



• ping



**Caution**

Do not use this command used if the server was started with the --skip- grant-tables option. No password change is applied. This is true even if you precede the password command with flush-privileges on the same command line to re-enable the grant tables because the flush operation occurs after you connect. However, you can use [mysqladmin](#_bookmark39) [flush-privileges](#_bookmark39) to re-enable the grant table and then use a separate [mysqladmin password](#_bookmark39) command to change the password.

Check whether the server is available. The return status from [mysqladmin](#_bookmark39) is 0 if the server is running, 1 if it is not. This is 0 even in case of an error such as Access denied, because this means that the server is running but refused the connection, which is different from the server not running.

• processlist

Show a list of active server threads. This is like the output of the SHOW If the [--verbose](#_bookmark288) option is given, the output is like that of SHOW FULL Section 13.7.7.29, “SHOW PROCESSLIST Statement” .)

• reload

PROCESSLIST statement. PROCESSLIST. (See

Reload the grant tables.

• refresh

Flush all tables and close and open log files.

• shutdown

Stop the server.

• start-replica

Start replication on a replica server. Use this command from MySQL 8.0.26.

• start-slave

Start replication on a replica server. Use this command before MySQL 8.0.26.

• status

Display a short server status message.

• stop-replica

Stop replication on a replica server. Use this command from MySQL 8.0.26.

• stop-slave

Stop replication on a replica server. Use this command before MySQL 8.0.26.

• variables

Display the server system variables and their values.

• version

Display version information from the server.

All commands can be shortened to any unique prefix. For example:

$> **mysqladmin** **proc** **stat**

+----+-------+-----------+----+---------+------+-------+------------------+

| Id | User | Host | db | Command | Time | State | Info |

+----+-------+-----------+----+---------+------+-------+------------------+

| 51 | jones | localhost | | Query | 0 | | show processlist |

+ +-------+-----------+----+---------+------+-------+------------------+

Uptime: 1473624 Threads: 1 Questions: 39487

Slow queries: 0 Opens: 541 Flush tables: 1

Open tables: 19 Queries per second avg: 0.0268

The [mysqladmin status](#_bookmark39) command result displays the following values:

• Uptime

The number of seconds the MySQL server has been running.

• Threads

The number of active threads (clients).

• Questions

The number of questions (queries) from clients since the server was started.

• Slow queries

The number of queries that have taken more than long\_query\_time seconds. See Section 5.4.5, “The Slow Query Log” .

• Opens

The number of tables the server has opened.

• Flush tables

The number of flush-\*, refresh, and reload commands the server has executed. • Open tables

The number of tables that currently are open.

If you execute [mysqladmin shutdown](#_bookmark39) when connecting to a local server using a Unix socket file, [mysqladmin](#_bookmark39) waits until the server's process ID file has been removed, to ensure that the server has stopped properly.

[mysqladmin](#_bookmark39) supports the following options, which can be specified on the command line or in the [mysqladmin] and [client] groups of an option file. For information about option files used by MySQL programs, see Section 4.2.2.2, “Using Option Files” .

**Table** **4.12** **mysqladmin** **Options**

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--bind-address](#_bookmark289) | Use specified network interface to connect to MySQL Server |  |  |
| [--compress](#_bookmark290) | Compress all  information sent  between client and  server |  | 8.0.18 |
| [--compression-](#_bookmark291)  [algorithms](#_bookmark291) | Permitted compression algorithms for connections to server | 8.0.18 |  |
| [--connect-timeout](#_bookmark292) | Number of seconds  before connection  timeout |  |  |
| [--count](#_bookmark293) | Number of iterations to make for repeated command execution |  |  |
| [--debug](#_bookmark294) | Write debugging log |  |  |
| [--debug-check](#_bookmark295) | Print debugging  information when  program exits |  |  |
| [--debug-info](#_bookmark296) | Print debugging information, memory, and CPU statistics when program exits |  |  |
| [--default-auth](#_bookmark297) | Authentication plugin to use |  |  |
| [--default-character-set](#_bookmark298) | Specify default  character set |  |  |
| [--defaults-extra-file](#_bookmark299) | Read named option file in addition to usual option files |  |  |
| [--defaults-file](#_bookmark300) | Read only named option file |  |  |
| [--defaults-group-suffix](#_bookmark301) | Option group suffix  value |  |  |
| [--enable-cleartext-plugin](#_bookmark302) | Enable cleartext authentication plugin |  |  |
| [--force](#_bookmark303) | Continue even if an SQL error occurs |  |  |
| [--get-server-public-key](#_bookmark304) | Request RSA public key from server |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--help](#_bookmark305) | Display help message and exit |  |  |
| [--host](#_bookmark306) | Host on which MySQL server is located |  |  |
| [--login-path](#_bookmark307) | Read login path options from .mylogin.cnf |  |  |
| [--no-beep](#_bookmark308) | Do not beep when  errors occur |  |  |
| [--no-defaults](#_bookmark309) | Read no option files |  |  |
| [--password](#_bookmark310) | Password to use when connecting to server |  |  |
| [--password1](#_bookmark311) | First multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password2](#_bookmark312) | Second multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password3](#_bookmark313) | Third multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--pipe](#_bookmark314) | Connect to server using named pipe (Windows only) |  |  |
| [--plugin-dir](#_bookmark315) | Directory where plugins are installed |  |  |
| [--port](#_bookmark316) | TCP/IP port number for connection |  |  |
| [--print-defaults](#_bookmark317) | Print default options |  |  |
| [--protocol](#_bookmark318) | Transport protocol to use |  |  |
| [--relative](#_bookmark319) | Show the difference between the current and previous values when used with the --sleep option |  |  |
| [--server-public-key-path](#_bookmark320) | Path name to file containing RSA public key |  |  |
| [--shared-memory-base-](#_bookmark321) [name](#_bookmark321) | Shared-memory name for shared-memory connections (Windows only) |  |  |
| [--show-warnings](#_bookmark322) | Show warnings after statement execution |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--shutdown-timeout](#_bookmark323) | The maximum number of seconds to wait for server shutdown |  |  |
| [--silent](#_bookmark324) | Silent mode |  |  |
| [--sleep](#_bookmark325) | Execute commands repeatedly, sleeping for delay seconds in between |  |  |
| [--socket](#_bookmark326) | Unix socket file or Windows named pipe to use |  |  |
| [--ssl-ca](#_bookmark327) | File that contains list of trusted SSL Certificate  Authorities |  |  |
| [--ssl-capath](#_bookmark327) | Directory that contains trusted SSL Certificate Authority certificate files |  |  |
| [--ssl-cert](#_bookmark327) | File that contains X.509 certificate |  |  |
| [--ssl-cipher](#_bookmark327) | Permissible ciphers for connection encryption |  |  |
| [--ssl-crl](#_bookmark327) | File that contains certificate revocation lists |  |  |
| [--ssl-crlpath](#_bookmark327) | Directory that contains certificate revocation-list files |  |  |
| [--ssl-fips-mode](#_bookmark328) | Whether to enable FIPS mode on client side |  |  |
| [--ssl-key](#_bookmark327) | File that contains X.509 key |  |  |
| [--ssl-mode](#_bookmark327) | Desired security state of connection to server |  |  |
| [--ssl-session-data](#_bookmark327) | File that contains SSL session data | 8.0.29 |  |
| [--ssl-session-data-](#_bookmark327) [continue-on-failed-reuse](#_bookmark327) | Whether to establish connections if session reuse fails | 8.0.29 |  |
| [--tls-ciphersuites](#_bookmark329) | Permissible TLSv1.3  ciphersuites for encrypted connections | 8.0.16 |  |
| [--tls-version](#_bookmark330) | Permissible TLS  protocols for encrypted connections |  |  |
| [--user](#_bookmark331) | MySQL user name to use when connecting to server |  |  |
| [--verbose](#_bookmark288) | Verbose mode |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--version](#_bookmark332) | Display version  information and exit |  |  |
| [--vertical](#_bookmark333) | Print query output rows vertically (one line per column value) |  |  |
| [--wait](#_bookmark334) | If the connection cannot be established, wait and retry instead of aborting |  |  |
| [--zstd-compression-level](#_bookmark335) | Compression level  for connections to  server that use zstd  compression | 8.0.18 |  |

• [--help](#_bookmark305), -?

Display a help message and exit.

• [--bind-address=*ip\_address*](#_bookmark289)

On a computer having multiple network interfaces, use this option to select which interface to use for connecting to the MySQL server.

• [--character-sets-dir=*dir\_name*](#_bookmark336)

The directory where character sets are installed. See Section 10.15, “Character Set Configuration” .

• [--compress](#_bookmark290), -C

Compress all information sent between the client and the server if possible. See [Section 4.2.8,](#_bookmark31) [“Connection Compression Control”](#_bookmark31) .

As of MySQL 8.0.18, this option is deprecated. Expect it to be removed in a future version of MySQL. See [Configuring Legacy Connection Compression](#_bookmark35).

• [--compression-algorithms=*value*](#_bookmark291)

The permitted compression algorithms for connections to the server. The available algorithms are the same as for the protocol\_compression\_algorithms system variable. The default value is uncompressed.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

• [--connect-timeout=*value*](#_bookmark292)

The maximum number of seconds before connection timeout. The default value is 43200 (12 hours).

• [--count=*N*](#_bookmark293), -c *N*

The number of iterations to make for repeated command execution if the [--sleep](#_bookmark325) option is given.

• [--debug[=*debug\_options*]](#_bookmark294), -# [*debug\_options*]

Write a debugging log. A typical *debug\_options* string is d:t:o,*file\_name*. The default is d:t:o,/tmp/mysqladmin.trace.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-check](#_bookmark295)

Print some debugging information when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-info](#_bookmark296)

Print debugging information and memory and CPU usage statistics when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--default-auth=*plugin*](#_bookmark297)

A hint about which client-side authentication plugin to use. See Section 6.2.17, “Pluggable

Authentication” .

• [--default-character-set=*charset\_name*](#_bookmark298)

Use *charset\_name* as the default character set. See Section 10.15, “Character Set Configuration” .

• [--defaults-extra-file=*file\_name*](#_bookmark299)

Read this option file after the global option file but (on Unix) before the user option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-file=*file\_name*](#_bookmark300)

Use only the given option file. If the file does not exist or is otherwise inaccessible, an error occurs. If

*file\_name* is not an absolute path name, it is interpreted relative to the current directory. Exception: Even with --defaults-file, client programs read .mylogin.cnf.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-group-suffix=*str*](#_bookmark301)

Read not only the usual option groups, but also groups with the usual names and a suffix of *str*. For example, [mysqladmin](#_bookmark39) normally reads the [client] and [mysqladmin] groups. If this option is given as [-- - -](#_bookmark301)defaultsgroupsuffix=\_other, [mysqladmin](#_bookmark39) also reads the [client\_other] and [mysqladmin\_other] groups.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--enable-cleartext-plugin](#_bookmark302)

Enable the mysql\_clear\_password cleartext authentication plugin. (See Section 6.4.1.4, “Client- Side Cleartext Pluggable Authentication” .)

• [--force](#_bookmark303), -f

Do not ask for confirmation for the drop *db\_name* command. With multiple commands, continue even if an error occurs.

• [--get-server-public-key](#_bookmark304)

Request from the server the public key required for RSA key pair-based password exchange. This option applies to clients that authenticate with the caching\_sha2\_password authentication plugin. For that plugin, the server does not send the public key unless requested. This option is ignored for accounts that do not authenticate with that plugin. It is also ignored if RSA-based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark320) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark304).

For information about the caching\_sha2\_password plugin, see Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--host=*host\_name*](#_bookmark306), -h *host\_name*

Connect to the MySQL server on the given host.

• [--login-path=*name*](#_bookmark307)

Read options from the named login path in the .mylogin.cnf login path file. A “login path” is an option group containing options that specify which MySQL server to connect to and which account to authenticate as. To create or modify a login path file, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--no-beep](#_bookmark308), -b

Suppress the warning beep that is emitted by default for errors such as a failure to connect to the server.

• [--no-defaults](#_bookmark309)

Do not read any option files. If program startup fails due to reading unknown options from an option file, [--no-defaults](#_bookmark309) can be used to prevent them from being read.

The exception is that the .mylogin.cnf file is read in all cases, if it exists. This permits passwords to be specified in a safer way than on the command line even when [--no-defaults](#_bookmark309) is used. To create .mylogin.cnf, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [password[=*password*]](#_bookmark310)--, -p[*password*]

The password of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysqladmin](#_bookmark39) prompts for one. If given, there must be *no* *space* between [--](#_bookmark310) [password=](#_bookmark310) or -p and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqladmin](#_bookmark39) should not prompt for one, use the [--skip-password](#_bookmark310) option.

• [--password1[=*pass\_val*]](#_bookmark311)

The password for multifactor authentication factor 1 of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysql](#_bookmark29) prompts for one. If given, there must be *no* *space* between [--password1=](#_bookmark311) and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqladmin](#_bookmark39) should not prompt for one, use the [--skip-password1](#_bookmark311) option.

[--password1](#_bookmark311) and [--password](#_bookmark310) are synonymous, as are [--skip-password1](#_bookmark239) and [--skip-](#_bookmark238) [password](#_bookmark238).

• [--password2[=*pass\_val*]](#_bookmark312)

The password for multifactor authentication factor 2 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark311); see the description of that option for details.

• [--password3[=*pass\_val*]](#_bookmark313)

The password for multifactor authentication factor 3 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark311); see the description of that option for details.

• [--pipe](#_bookmark314), -W

On Windows, connect to the server using a named pipe. This option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• [--plugin-dir=*dir\_name*](#_bookmark315)

The directory in which to look for plugins. Specify this option if the [--default-auth](#_bookmark297) option is used to specify an authentication plugin but [mysqladmin](#_bookmark39) does not find it. See Section 6.2.17, “Pluggable

Authentication” .

• [--port=*port\_num*](#_bookmark316), -P *port\_num*

For TCP/IP connections, the port number to use.

• [--print-defaults](#_bookmark317)

Print the program name and all options that it gets from option files.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--protocol={TCP|SOCKET|PIPE|MEMORY}](#_bookmark318)

The transport protocol to use for connecting to the server. It is useful when the other connection parameters normally result in use of a protocol other than the one you want. For details on the permissible values, see [Section 4.2.7, “Connection Transport Protocols”](#_bookmark8) .

• [--relative](#_bookmark319), -r

Show the difference between the current and previous values when used with the [--sleep](#_bookmark325) option. This option works only with the extended-status command.

• [--server-public-key-path=*file\_name*](#_bookmark320)

The path name to a file in PEM format containing a client-side copy of the public key required by the server for RSA key pair-based password exchange. This option applies to clients that authenticate with the sha256\_password or caching\_sha2\_password authentication plugin. This option is ignored for accounts that do not authenticate with one of those plugins. It is also ignored if RSA- based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark320) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark304).

For sha256\_password, this option applies only if MySQL was built using OpenSSL.

For information about the sha256\_password and caching\_sha2\_password plugins, see Section 6.4.1.3, “SHA-256 Pluggable Authentication” , and Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--shared-memory-base-name=*name*](#_bookmark321)

On Windows, the shared-memory name to use for connections made using shared memory to a local server. The default value is MYSQL. The shared-memory name is case-sensitive.

This option applies only if the server was started with the shared\_memory system variable enabled to support shared-memory connections.

• [--show-warnings](#_bookmark322)

Show warnings resulting from execution of statements sent to the server.

• [--shutdown-timeout=*value*](#_bookmark323)

The maximum number of seconds to wait for server shutdown. The default value is 3600 (1 hour). • [--silent](#_bookmark324), -s

Exit silently if a connection to the server cannot be established.

• [--sleep=*delay*](#_bookmark325), -i *delay*

Execute commands repeatedly, sleeping for *delay* seconds in between. The [--count](#_bookmark293) option determines the number of iterations. If [--](#_bookmark293)count is not given, [mysqladmin](#_bookmark39) executes commands indefinitely until interrupted.

• [--socket=*path*](#_bookmark326), -S *path*

For connections to localhost, the Unix socket file to use, or, on Windows, the name of the named pipe to use.

On Windows, this option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• --ssl\*

Options that begin with --ssl specify whether to connect to the server using encryption and indicate where to find SSL keys and certificates. See [Command Options for Encrypted Connections](#_bookmark12).



• [--ssl-fips-mode={OFF|ON|STRICT}](#_bookmark328)

Controls whether to enable FIPS mode on the client side. The [--ssl-fips-mode](#_bookmark328) option differs from other --ssl-*xxx* options in that it is not used to establish encrypted connections, but rather to affect which cryptographic operations to permit. See Section 6.8, “FIPS Support” .

These [--ssl-fips-mode](#_bookmark328) values are permitted:

• OFF: Disable FIPS mode.

• ON: Enable FIPS mode.

• STRICT: Enable “strict” FIPS mode.

**Note**

If the OpenSSL FIPS Object Module is not available, the only permitted value for [--ssl-fips-mode](#_bookmark328) is OFF. In this case, setting [--ssl-fips-mode](#_bookmark328) to ON or STRICT causes the client to produce a warning at startup and to operate in non-FIPS mode.

• [--tls-ciphersuites=*ciphersuite\_list*](#_bookmark329)

The permissible ciphersuites for encrypted connections that use TLSv1.3. The value is a list of one or more colon-separated ciphersuite names. The ciphersuites that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

This option was added in MySQL 8.0.16.

• [--tls-version=*protocol\_list*](#_bookmark330)

The permissible TLS protocols for encrypted connections. The value is a list of one or more comma- separated protocol names. The protocols that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

• [--user=*user\_name*](#_bookmark331), -u *user\_name*

The user name of the MySQL account to use for connecting to the server.

If you are using the Rewriter plugin with MySQL 8.0.31 or later, you should grant this user the SKIP\_QUERY\_REWRITE privilege.

• [--verbose](#_bookmark288), -v

Verbose mode. Print more information about what the program does.

• [--version](#_bookmark332), -V

Display version information and exit.

• [--vertical](#_bookmark333), -E

Print output vertically. This is similar to [--relative](#_bookmark319), but prints output vertically.

• [--wait[=*count*]](#_bookmark334), -w[*count*]

If the connection cannot be established, wait and retry instead of aborting. If a *count* value is given, it indicates the number of times to retry. The default is one time.



• [--zstd-compression-level=*level*](#_bookmark335)

The compression level to use for connections to the server that use the zstd compression algorithm. The permitted levels are from 1 to 22, with larger values indicating increasing levels of compression. The default zstd compression level is 3. The compression level setting has no effect on connections that do not use zstd compression.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

**4.5.3** **mysqlcheck** **—** **A** **Table** **Maintenance** **Program**

The [mysqlcheck](#_bookmark54) client performs table maintenance: It checks, repairs, optimizes, or analyzes tables.

Each table is locked and therefore unavailable to other sessions while it is being processed, although for check operations, the table is locked with a READ lock only (see Section 13.3.6, “LOCK TABLES and UNLOCK TABLES Statements” , for more information about READ and WRITE locks). Table maintenance operations can be time-consuming, particularly for large tables. If you use the [--](#_bookmark337) [databases](#_bookmark337) or [-- -](#_bookmark338)alldatabases option to process all tables in one or more databases, an invocation of [mysqlcheck](#_bookmark54) might take a long time. (This is also true for the MySQL upgrade procedure if it determines that table checking is needed because it processes tables the same way.)

[mysqlcheck](#_bookmark54) must be used when the [mysqld](#_bookmark59) server is running, which means that you do not have to stop the server to perform table maintenance.

[mysqlcheck](#_bookmark54) uses the SQL statements CHECK TABLE, REPAIR TABLE, ANALYZE TABLE, and

OPTIMIZE TABLE in a convenient way for the user. It determines which statements to use for the operation you want to perform, and then sends the statements to the server to be executed. For details about which storage engines each statement works with, see the descriptions for those statements in Section 13.7.3, “Table Maintenance Statements” .

All storage engines do not necessarily support all four maintenance operations. In such cases, an error message is displayed. For example, if test.t is an MEMORY table, an attempt to check it produces this result:

$> **mysqlcheck** **test** **t**

test.t

note : The storage engine for the table doesn't support check

If [mysqlcheck](#_bookmark54) is unable to repair a table, see Section 2.10.13, “Rebuilding or Repairing Tables or Indexes” for manual table repair strategies. This is the case, for example, for InnoDB tables, which can be checked with CHECK TABLE, but not repaired with REPAIR TABLE.

**Caution**

It is best to make a backup of a table before performing a table repair operation; under some circumstances the operation might cause data loss. Possible causes include but are not limited to file system errors.

There are three general ways to invoke [mysqlcheck](#_bookmark54):

mysqlcheck [*options*] *db\_name* [*tbl\_name* . . .]

mysqlcheck [*options*] --databases *db\_name* ...

mysqlcheck [*options*] --all-databases

If you do not name any tables following *db\_name* or if you use the [--databases](#_bookmark337) or [--all-](#_bookmark338) [databases](#_bookmark338) option, entire databases are checked.

[mysqlcheck](#_bookmark54) has a special feature compared to other client programs. The default behavior of checking tables ([--check](#_bookmark339)) can be changed by renaming the binary. If you want to have a tool that repairs tables by default, you should just make a copy of [mysqlcheck](#_bookmark54) named mysqlrepair, or make a symbolic link to [mysqlcheck](#_bookmark54) named mysqlrepair. If you invoke mysqlrepair, it repairs tables.

The names shown in the following table can be used to change [mysqlcheck](#_bookmark54) default behavior.

|  |  |
| --- | --- |
| **Command** | **Meaning** |
| mysqlrepair | The default option is [--repair](#_bookmark340) |
| mysqlanalyze | The default option is [--analyze](#_bookmark341) |
| mysqloptimize | The default option is [--optimize](#_bookmark342) |

[mysqlcheck](#_bookmark54) supports the following options, which can be specified on the command line or in the [mysqlcheck] and [client] groups of an option file. For information about option files used by MySQL programs, see Section 4.2.2.2, “Using Option Files” .

**Table** **4.13** **mysqlcheck** **Options**

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--all-databases](#_bookmark338) | Check all tables in all databases |  |  |
| [--all-in-1](#_bookmark343) | Execute a single statement for each database that names all the tables from that database |  |  |
| [--analyze](#_bookmark341) | Analyze the tables |  |  |
| [--auto-repair](#_bookmark344) | If a checked table is corrupted, automatically fix it |  |  |
| [--bind-address](#_bookmark345) | Use specified network interface to connect to MySQL Server |  |  |
| [--character-sets-dir](#_bookmark346) | Directory where  character sets are  installed |  |  |
| [--check](#_bookmark339) | Check the tables for  errors |  |  |
| [--check-only-changed](#_bookmark347) | Check only tables that have changed since the last check |  |  |
| [--check-upgrade](#_bookmark348) | Invoke CHECK  TABLE with the FOR UPGRADE option |  |  |
| [--compress](#_bookmark349) | Compress all  information sent  between client and  server |  | 8.0.18 |
| [--compression-](#_bookmark350)  [algorithms](#_bookmark350) | Permitted compression algorithms for connections to server | 8.0.18 |  |
| [--databases](#_bookmark337) | Interpret all arguments as database names |  |  |
| [--debug](#_bookmark351) | Write debugging log |  |  |
| [--debug-check](#_bookmark352) | Print debugging  information when  program exits |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--debug-info](#_bookmark353) | Print debugging information, memory, and CPU statistics when program exits |  |  |
| [--default-auth](#_bookmark354) | Authentication plugin to use |  |  |
| [--default-character-set](#_bookmark355) | Specify default  character set |  |  |
| [--defaults-extra-file](#_bookmark356) | Read named option file in addition to usual option files |  |  |
| [--defaults-file](#_bookmark357) | Read only named option file |  |  |
| [--defaults-group-suffix](#_bookmark358) | Option group suffix  value |  |  |
| [--enable-cleartext-plugin](#_bookmark359) | Enable cleartext authentication plugin |  |  |
| [--extended](#_bookmark360) | Check and repair tables |  |  |
| [--fast](#_bookmark361) | Check only tables that have not been closed properly |  |  |
| [--force](#_bookmark362) | Continue even if an SQL error occurs |  |  |
| [--get-server-public-key](#_bookmark363) | Request RSA public key from server |  |  |
| [--help](#_bookmark364) | Display help message and exit |  |  |
| [--host](#_bookmark365) | Host on which MySQL server is located |  |  |
| [--login-path](#_bookmark366) | Read login path options from .mylogin.cnf |  |  |
| [--medium-check](#_bookmark367) | Do a check that is faster than an --extended operation |  |  |
| [--no-defaults](#_bookmark368) | Read no option files |  |  |
| [--optimize](#_bookmark342) | Optimize the tables |  |  |
| [--password](#_bookmark369) | Password to use when connecting to server |  |  |
| [--password1](#_bookmark370) | First multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password2](#_bookmark371) | Second multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password3](#_bookmark372) | Third multifactor authentication password | 8.0.27 |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
|  | to use when connecting to server |  |  |
| [--pipe](#_bookmark373) | Connect to server using named pipe (Windows only) |  |  |
| [--plugin-dir](#_bookmark374) | Directory where plugins are installed |  |  |
| [--port](#_bookmark375) | TCP/IP port number for connection |  |  |
| [--print-defaults](#_bookmark376) | Print default options |  |  |
| [--protocol](#_bookmark377) | Transport protocol to use |  |  |
| [--quick](#_bookmark378) | The fastest method of checking |  |  |
| [--repair](#_bookmark340) | Perform a repair that can fix almost anything except unique keys that are not unique |  |  |
| [--server-public-key-path](#_bookmark379) | Path name to file containing RSA public key |  |  |
| [--shared-memory-base-](#_bookmark380) [name](#_bookmark380) | Shared-memory name for shared-memory connections (Windows only) |  |  |
| [--silent](#_bookmark381) | Silent mode |  |  |
| [--skip-database](#_bookmark382) | Omit this database from performed operations |  |  |
| [--socket](#_bookmark383) | Unix socket file or Windows named pipe to use |  |  |
| [--ssl-ca](#_bookmark384) | File that contains list of trusted SSL Certificate  Authorities |  |  |
| [--ssl-capath](#_bookmark384) | Directory that contains trusted SSL Certificate Authority certificate files |  |  |
| [--ssl-cert](#_bookmark384) | File that contains X.509 certificate |  |  |
| [--ssl-cipher](#_bookmark384) | Permissible ciphers for connection encryption |  |  |
| [--ssl-crl](#_bookmark384) | File that contains certificate revocation lists |  |  |
| [--ssl-crlpath](#_bookmark384) | Directory that contains certificate revocation-list files |  |  |
| [--ssl-fips-mode](#_bookmark385) | Whether to enable FIPS mode on client side |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--ssl-key](#_bookmark384) | File that contains X.509 key |  |  |
| [--ssl-mode](#_bookmark384) | Desired security state of connection to server |  |  |
| [--ssl-session-data](#_bookmark384) | File that contains SSL session data | 8.0.29 |  |
| [--ssl-session-data-](#_bookmark384) [continue-on-failed-reuse](#_bookmark384) | Whether to establish connections if session reuse fails | 8.0.29 |  |
| [--tables](#_bookmark386) | Overrides the -- databases or -B option |  |  |
| [--tls-ciphersuites](#_bookmark387) | Permissible TLSv1.3  ciphersuites for encrypted connections | 8.0.16 |  |
| [--tls-version](#_bookmark388) | Permissible TLS  protocols for encrypted connections |  |  |
| [--use-frm](#_bookmark389) | For repair operations on MyISAM tables |  |  |
| [--user](#_bookmark390) | MySQL user name to use when connecting to server |  |  |
| [--verbose](#_bookmark391) | Verbose mode |  |  |
| [--version](#_bookmark392) | Display version  information and exit |  |  |
| [--write-binlog](#_bookmark393) | Log ANALYZE, OPTIMIZE, REPAIR statements to binary log. --skip-write-binlog adds NO\_WRITE\_TO\_BINLOG to these statements |  |  |
| [--zstd-compression-level](#_bookmark394) | Compression level  for connections to  server that use zstd  compression | 8.0.18 |  |

• [--help](#_bookmark364), -?

Display a help message and exit.

• [--all-databases](#_bookmark338), -A

Check all tables in all databases. This is the same as using the [--databases](#_bookmark337) option and

naming all the databases on the command line, except that the INFORMATION\_SCHEMA and performance\_schema databases are not checked. They can be checked by explicitly naming them with the [--databases](#_bookmark337) option.

• [--all-in-1](#_bookmark343), -1

Instead of issuing a statement for each table, execute a single statement for each database that names all the tables from that database to be processed.

• [--analyze](#_bookmark341), -a Analyze the tables.

• [--auto-repair](#_bookmark344)

If a checked table is corrupted, automatically fix it. Any necessary repairs are done after all tables have been checked.

• [--bind-address=*ip\_address*](#_bookmark345)

On a computer having multiple network interfaces, use this option to select which interface to use for connecting to the MySQL server.

• [--character-sets-dir=*dir\_name*](#_bookmark346)

The directory where character sets are installed. See Section 10.15, “Character Set Configuration” . • [--check](#_bookmark339), -c

Check the tables for errors. This is the default operation.

• [--check-only-changed](#_bookmark347), -C

Check only tables that have changed since the last check or that have not been closed properly.

• [--check-upgrade](#_bookmark348), -g

Invoke CHECK TABLE with the FOR UPGRADE option to check tables for incompatibilities with the current version of the server.

• [--compress](#_bookmark349)

Compress all information sent between the client and the server if possible. See [Section 4.2.8,](#_bookmark31) [“Connection Compression Control”](#_bookmark31) .

As of MySQL 8.0.18, this option is deprecated. Expect it to be removed in a future version of MySQL. See [Configuring Legacy Connection Compression](#_bookmark35).

• [--compression-algorithms=*value*](#_bookmark350)

The permitted compression algorithms for connections to the server. The available algorithms are the same as for the protocol\_compression\_algorithms system variable. The default value is uncompressed.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

• [--databases](#_bookmark337), -B

Process all tables in the named databases. Normally, [mysqlcheck](#_bookmark54) treats the first name argument on the command line as a database name and any following names as table names. With this option, it treats all name arguments as database names.

• [--debug[=*debug\_options*]](#_bookmark351), -# [*debug\_options*]

Write a debugging log. A typical *debug\_options* string is d:t:o,*file\_name*. The default is d:t:o.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-check](#_bookmark352)

Print some debugging information when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-info](#_bookmark353)

Print debugging information and memory and CPU usage statistics when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--default-character-set=*charset\_name*](#_bookmark355)

Use *charset\_name* as the default character set. See Section 10.15, “Character Set Configuration” .

• [--defaults-extra-file=*file\_name*](#_bookmark356)

Read this option file after the global option file but (on Unix) before the user option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-file=*file\_name*](#_bookmark357)

Use only the given option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

Exception: Even with --defaults-file, client programs read .mylogin.cnf.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-group-suffix=*str*](#_bookmark358)

Read not only the usual option groups, but also groups with the usual names and a suffix of *str*. For example, [mysqlcheck](#_bookmark54) normally reads the [client] and [mysqlcheck] groups. If this option is given as [-- - -](#_bookmark358)defaultsgroupsuffix=\_other, [mysqlcheck](#_bookmark54) also reads the [client\_other] and [mysqlcheck\_other] groups.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--extended](#_bookmark360), -e

If you are using this option to check tables, it ensures that they are 100% consistent but takes a long time.

If you are using this option to repair tables, it runs an extended repair that may not only take a long time to execute, but may produce a lot of garbage rows also!

• [--default-auth=*plugin*](#_bookmark354)

A hint about which client-side authentication plugin to use. See Section 6.2.17, “Pluggable

Authentication” .

• [--enable-cleartext-plugin](#_bookmark359)

Enable the mysql\_clear\_password cleartext authentication plugin. (See Section 6.4.1.4, “Client- Side Cleartext Pluggable Authentication” .)

• [--fast](#_bookmark361), -F

Check only tables that have not been closed properly.

• [--force](#_bookmark362), -f

Continue even if an SQL error occurs.

• [--get-server-public-key](#_bookmark363)

Request from the server the public key required for RSA key pair-based password exchange. This option applies to clients that authenticate with the caching\_sha2\_password authentication plugin. For that plugin, the server does not send the public key unless requested. This option is ignored for accounts that do not authenticate with that plugin. It is also ignored if RSA-based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark379) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark363).

For information about the caching\_sha2\_password plugin, see Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--host=*host\_name*](#_bookmark365), -h *host\_name*

Connect to the MySQL server on the given host.

• [--login-path=*name*](#_bookmark366)

Read options from the named login path in the .mylogin.cnf login path file. A “login path” is an option group containing options that specify which MySQL server to connect to and which account to authenticate as. To create or modify a login path file, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--medium-check](#_bookmark367), -m

Do a check that is faster than an [--extended](#_bookmark360) operation. This finds only 99.99% of all errors, which should be good enough in most cases.

• [--no-defaults](#_bookmark368)

Do not read any option files. If program startup fails due to reading unknown options from an option file, [--no-defaults](#_bookmark368) can be used to prevent them from being read.

The exception is that the .mylogin.cnf file is read in all cases, if it exists. This permits passwords to be specified in a safer way than on the command line even when [--no-defaults](#_bookmark368) is used. To create .mylogin.cnf, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--optimize](#_bookmark342), -o Optimize the tables.

• [password[=*password*]](#_bookmark369)--, -p[*password*]

The password of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysqlcheck](#_bookmark54) prompts for one. If given, there must be *no* *space* between [--](#_bookmark369)

[password=](#_bookmark369) or -p and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqlcheck](#_bookmark54) should not prompt for one, use the [--skip-password](#_bookmark369) option.

• [--password1[=*pass\_val*]](#_bookmark370)

The password for multifactor authentication factor 1 of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysqlcheck](#_bookmark54) prompts for one. If given, there must be *no* *space* between [--password1=](#_bookmark370) and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqlcheck](#_bookmark54) should not prompt for one, use the [--skip-password1](#_bookmark370) option.

[--password1](#_bookmark370) and [--password](#_bookmark369) are synonymous, as are [--skip-password1](#_bookmark370) and [--skip-](#_bookmark369) [password](#_bookmark369).

• [--password2[=*pass\_val*]](#_bookmark371)

The password for multifactor authentication factor 2 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark370); see the description of that option for details.

• [--password3[=*pass\_val*]](#_bookmark372)

The password for multifactor authentication factor 3 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark370); see the description of that option for details.

• [--pipe](#_bookmark373), -W

On Windows, connect to the server using a named pipe. This option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• [--plugin-dir=*dir\_name*](#_bookmark374)

The directory in which to look for plugins. Specify this option if the [--default-auth](#_bookmark354) option is used to specify an authentication plugin but [mysqlcheck](#_bookmark54) does not find it. See Section 6.2.17, “Pluggable

Authentication” .

• [--port=*port\_num*](#_bookmark375), -P *port\_num*

For TCP/IP connections, the port number to use.

• [--print-defaults](#_bookmark376)

Print the program name and all options that it gets from option files.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--protocol={TCP|SOCKET|PIPE|MEMORY}](#_bookmark377)

The transport protocol to use for connecting to the server. It is useful when the other connection parameters normally result in use of a protocol other than the one you want. For details on the permissible values, see [Section 4.2.7, “Connection Transport Protocols”](#_bookmark8) .

• [--quick](#_bookmark378), -q

If you are using this option to check tables, it prevents the check from scanning the rows to check for incorrect links. This is the fastest check method.

If you are using this option to repair tables, it tries to repair only the index tree. This is the fastest repair method.

• [--repair](#_bookmark340), -r

Perform a repair that can fix almost anything except unique keys that are not unique.

• [--server-public-key-path=*file\_name*](#_bookmark379)

The path name to a file in PEM format containing a client-side copy of the public key required by the server for RSA key pair-based password exchange. This option applies to clients that authenticate with the sha256\_password or caching\_sha2\_password authentication plugin. This option is ignored for accounts that do not authenticate with one of those plugins. It is also ignored if RSA- based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark379) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark363).

For sha256\_password, this option applies only if MySQL was built using OpenSSL.

For information about the sha256\_password and caching\_sha2\_password plugins, see Section 6.4.1.3, “SHA-256 Pluggable Authentication” , and Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--shared-memory-base-name=*name*](#_bookmark380)

On Windows, the shared-memory name to use for connections made using shared memory to a local server. The default value is MYSQL. The shared-memory name is case-sensitive.

This option applies only if the server was started with the shared\_memory system variable enabled to support shared-memory connections.

• [--silent](#_bookmark381), -s

Silent mode. Print only error messages.

• [--skip-database=*db\_name*](#_bookmark382)

Do not include the named database (case-sensitive) in the operations performed by [mysqlcheck](#_bookmark54).

• [--socket=*path*](#_bookmark383), -S *path*

For connections to localhost, the Unix socket file to use, or, on Windows, the name of the named pipe to use.

On Windows, this option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• --ssl\*



Options that begin with --ssl specify whether to connect to the server using encryption and indicate where to find SSL keys and certificates. See [Command Options for Encrypted Connections](#_bookmark12).

• [--ssl-fips-mode={OFF|ON|STRICT}](#_bookmark385)

Controls whether to enable FIPS mode on the client side. The [--ssl-fips-mode](#_bookmark385) option differs from other --ssl-*xxx* options in that it is not used to establish encrypted connections, but rather to affect which cryptographic operations to permit. See Section 6.8, “FIPS Support” .

These [--ssl-fips-mode](#_bookmark385) values are permitted:

• OFF: Disable FIPS mode.

• ON: Enable FIPS mode.

• STRICT: Enable “strict” FIPS mode.

**Note**

If the OpenSSL FIPS Object Module is not available, the only permitted value for [--ssl-fips-mode](#_bookmark385) is OFF. In this case, setting [--ssl-fips-mode](#_bookmark385) to ON or STRICT causes the client to produce a warning at startup and to operate in non-FIPS mode.

• [--tables](#_bookmark386)

Override the [--databases](#_bookmark337) or -B option. All name arguments following the option are regarded as table names.

• [--tls-ciphersuites=*ciphersuite\_list*](#_bookmark387)

The permissible ciphersuites for encrypted connections that use TLSv1.3. The value is a list of one or more colon-separated ciphersuite names. The ciphersuites that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

This option was added in MySQL 8.0.16.

• [--tls-version=*protocol\_list*](#_bookmark388)

The permissible TLS protocols for encrypted connections. The value is a list of one or more comma- separated protocol names. The protocols that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

• [--use-frm](#_bookmark389)

For repair operations on MyISAM tables, get the table structure from the data dictionary so that the table can be repaired even if the .MYI header is corrupted.

• [--user=*user\_name*](#_bookmark390), -u *user\_name*

The user name of the MySQL account to use for connecting to the server.

• [--verbose](#_bookmark391), -v

Verbose mode. Print information about the various stages of program operation. • [--version](#_bookmark392), -V

Display version information and exit.



• [--write-binlog](#_bookmark393)

This option is enabled by default, so that ANALYZE TABLE, OPTIMIZE TABLE, and REPAIR TABLE statements generated by [mysqlcheck](#_bookmark54) are written to the binary log. Use [-- - -](#_bookmark393)skipwritebinlog to cause NO\_WRITE\_TO\_BINLOG to be added to the statements so that they are not logged. Use the [--skip-write-binlog](#_bookmark393) when these statements should not be sent to replicas or run when using the binary logs for recovery from backup.

• [--zstd-compression-level=*level*](#_bookmark394)

The compression level to use for connections to the server that use the zstd compression algorithm. The permitted levels are from 1 to 22, with larger values indicating increasing levels of compression. The default zstd compression level is 3. The compression level setting has no effect on connections that do not use zstd compression.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

**4.5.4** **mysqldump** **—** **A** **Database** **Backup** **Program**

The [mysqldump](#_bookmark37) client utility performs logical backups, producing a set of SQL statements that can be executed to reproduce the original database object definitions and table data. It dumps one or more MySQL databases for backup or transfer to another SQL server. The [mysqldump](#_bookmark37) command can also generate output in CSV, other delimited text, or XML format.

**Tip**

Consider using the [MySQL Shell dump utilities](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysql-shell-utilities-dump-instance-schema.html), which provide parallel dumping with multiple threads, file compression, and progress information display, as well as cloud features such as Oracle Cloud Infrastructure Object Storage streaming, and MySQL Database Service compatibility checks and modifications. Dumps can be easily imported into a MySQL Server instance or a MySQL Database Service DB System using the [MySQL Shell load dump](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysql-shell-utilities-load-dump.html) [utilities](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysql-shell-utilities-load-dump.html). Installation instructions for MySQL Shell can be found [here](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysql-shell-install.html).

• [Performance and Scalability Considerations](#_bookmark395)

• [Invocation Syntax](#_bookmark396)

• [Option Syntax - Alphabetical Summary](#_bookmark397)

• [Connection Options](#_bookmark398)

• [Option-File Options](#_bookmark399)

• [DDL Options](#_bookmark400)

• [Debug Options](#_bookmark401)

• [Help Options](#_bookmark402)

• [Internationalization Options](#_bookmark403)

• [Replication Options](#_bookmark404)

• [Format Options](#_bookmark405)

• [Filtering Options](#_bookmark406)

• [Performance Options](#_bookmark407)

• [Transactional Options](#_bookmark408)



• [Option Groups](#_bookmark409)

• [Examples](#_bookmark410)

• [Restrictions](#_bookmark411)

[mysqldump](#_bookmark37) requires at least the SELECT privilege for dumped tables, SHOW VIEW for dumped views, TRIGGER for dumped triggers, LOCK TABLES if the [--single-transaction](#_bookmark412) option is not used, and (as of MySQL 8.0.21) PROCESS if the --no-tablespaces option is not used. Certain options might require other privileges as noted in the option descriptions.

To reload a dump file, you must have the privileges required to execute the statements that it contains, such as the appropriate CREATE privileges for objects created by those statements.

[mysqldump](#_bookmark37) output can include ALTER DATABASE statements that change the database collation. These may be used when dumping stored programs to preserve their character encodings. To reload a dump file containing such statements, the ALTER privilege for the affected database is required.

**Note**

A dump made using PowerShell on Windows with output redirection creates a file that has UTF-16 encoding:

mysqldump [options] > dump.sql

However, UTF-16 is not permitted as a connection character set (see Impermissible Client Character Sets), so the dump file cannot be loaded correctly. To work around this issue, use the --result-file option, which creates the output in ASCII format:

mysqldump [options] --result-file=dump.sql

It is not recommended to load a dump file when GTIDs are enabled on the server (gtid\_mode=ON), if your dump file includes system tables. [mysqldump](#_bookmark37) issues DML instructions for the system tables which use the non-transactional MyISAM storage engine, and this combination is not permitted when GTIDs are enabled.

**Performance** **and** **Scalability** **Considerations**

mysqldump advantages include the convenience and flexibility of viewing or even editing the output before restoring. You can clone databases for development and DBA work, or produce slight variations of an existing database for testing. It is not intended as a fast or scalable solution for backing up substantial amounts of data. With large data sizes, even if the backup step takes a reasonable time, restoring the data can be very slow because replaying the SQL statements involves disk I/O for insertion, index creation, and so on.

For large-scale backup and restore, a physical backup is more appropriate, to copy the data files in their original format so that they can be restored quickly.

If your tables are primarily InnoDB tables, or if you have a mix of InnoDB and MyISAM tables, consider using mysqlbackup, which is available as part of MySQL Enterprise. This tool provides high performance for InnoDB backups with minimal disruption; it can also back up tables from MyISAM and other storage engines; it also provides a number of convenient options to accommodate different backup scenarios. See Section 30.2, “MySQL Enterprise Backup Overview” .

[mysqldump](#_bookmark37) can retrieve and dump table contents row by row, or it can retrieve the entire content from a table and buffer it in memory before dumping it. Buffering in memory can be a problem if you are dumping large tables. To dump tables row by row, use the [--quick](#_bookmark413) option (or [--opt](#_bookmark414), which enables [--quick](#_bookmark413)). The [--opt](#_bookmark414) option (and hence [--quick](#_bookmark413)) is enabled by default, so to enable memory buffering, use [--skip-quick](#_bookmark413).

If you are using a recent version of [mysqldump](#_bookmark37) to generate a dump to be reloaded into a very old MySQL server, use the [--skip-opt](#_bookmark415) option instead of the [--opt](#_bookmark414) or [--extended-insert](#_bookmark416) option.

For additional information about [mysqldump](#_bookmark37), see Section 7.4, “Using mysqldump for Backups” .

**Invocation** **Syntax**

There are in general three ways to use [mysqldump](#_bookmark37)— in order to dump a set of one or more tables, a set of one or more complete databases, or an entire MySQL server—as shown here:

mysqldump [*options*] *db\_name* [*tbl\_name* . . .]

mysqldump [*options*] --databases *db\_name* ...

mysqldump [*options*] --all-databases

To dump entire databases, do not name any tables following *db\_name*, or use the [--databases](#_bookmark417) or [--all-databases](#_bookmark418) option.

To see a list of the options your version of [mysqldump](#_bookmark37) supports, issue the command [mysqldump](#_bookmark37) [--](#_bookmark419) [help](#_bookmark419).

**Option** **Syntax** **-** **Alphabetical** **Summary**

[mysqldump](#_bookmark37) supports the following options, which can be specified on the command line or in the [mysqldump] and [client] groups of an option file. For information about option files used by MySQL programs, see Section 4.2.2.2, “Using Option Files” .

**Table** **4.14** **mysqldump** **Options**

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--add-drop-database](#_bookmark420) | Add DROP DATABASE  statement before each  CREATE DATABASE  statement |  |  |
| [--add-drop-table](#_bookmark421) | Add DROP TABLE  statement before each CREATE TABLE statement |  |  |
| [--add-drop-trigger](#_bookmark422) | Add DROP TRIGGER  statement before each  CREATE TRIGGER  statement |  |  |
| [--add-locks](#_bookmark423) | Surround each table dump with LOCK TABLES and UNLOCK TABLES statements |  |  |
| [--all-databases](#_bookmark418) | Dump all tables in all databases |  |  |
| [--allow-keywords](#_bookmark424) | Allow creation of column names that are keywords |  |  |
| [--apply-replica-](#_bookmark425)  [statements](#_bookmark425) | Include STOP REPLICA  prior to CHANGE  REPLICATION  SOURCE TO statement and START REPLICA at end of output | 8.0.26 |  |
| [--apply-slave-statements](#_bookmark426) | Include STOP SLAVE  prior to CHANGE MASTER statement and START SLAVE at end of output |  | 8.0.26 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--bind-address](#_bookmark427) | Use specified network interface to connect to MySQL Server |  |  |
| [--character-sets-dir](#_bookmark428) | Directory where  character sets are  installed |  |  |
| [--column-statistics](#_bookmark429) | Write ANALYZE TABLE  statements to generate statistics histograms |  |  |
| [--comments](#_bookmark430) | Add comments to dump file |  |  |
| [--compact](#_bookmark431) | Produce more compact output |  |  |
| [--compatible](#_bookmark432) | Produce output that is more compatible with other database systems or with older MySQL servers |  |  |
| [--complete-insert](#_bookmark433) | Use complete INSERT statements that include column names |  |  |
| [--compress](#_bookmark434) | Compress all  information sent  between client and  server |  | 8.0.18 |
| [--compression-](#_bookmark435)  [algorithms](#_bookmark435) | Permitted compression algorithms for connections to server | 8.0.18 |  |
| [--create-options](#_bookmark436) | Include all MySQL- specific table options in CREATE TABLE statements |  |  |
| [--databases](#_bookmark417) | Interpret all name arguments as database names |  |  |
| [--debug](#_bookmark437) | Write debugging log |  |  |
| [--debug-check](#_bookmark438) | Print debugging  information when  program exits |  |  |
| [--debug-info](#_bookmark439) | Print debugging information, memory, and CPU statistics when program exits |  |  |
| [--default-auth](#_bookmark440) | Authentication plugin to use |  |  |
| [--default-character-set](#_bookmark441) | Specify default  character set |  |  |
| [--defaults-extra-file](#_bookmark442) | Read named option file in addition to usual option files |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--defaults-file](#_bookmark443) | Read only named option file |  |  |
| [--defaults-group-suffix](#_bookmark444) | Option group suffix  value |  |  |
| [--delete-master-logs](#_bookmark445) | On a replication source server, delete the binary logs after performing the dump operation |  | 8.0.26 |
| [--delete-source-logs](#_bookmark446) | On a replication source server, delete the binary logs after performing the dump operation | 8.0.26 |  |
| [--disable-keys](#_bookmark447) | For each table, surround INSERT statements with statements to disable and enable keys |  |  |
| [--dump-date](#_bookmark448) | Include dump date as "Dump completed on" comment if --comments is given |  |  |
| [--dump-replica](#_bookmark449) | Include CHANGE  REPLICATION  SOURCE TO statement that lists binary log coordinates of replica's source | 8.0.26 |  |
| [--dump-slave](#_bookmark450) | Include CHANGE  MASTER statement that lists binary log coordinates of replica's source |  | 8.0.26 |
| [--enable-cleartext-plugin](#_bookmark451) | Enable cleartext authentication plugin |  |  |
| [--events](#_bookmark452) | Dump events from  dumped databases |  |  |
| [--extended-insert](#_bookmark416) | Use multiple-row  INSERT syntax |  |  |
| [--fields-enclosed-by](#_bookmark453) | This option is used with the --tab option and has the same meaning as the corresponding clause for LOAD DATA |  |  |
| [--fields-escaped-by](#_bookmark453) | This option is used with the --tab option and has the same meaning as the corresponding clause for LOAD DATA |  |  |
| [--fields-optionally-](#_bookmark453)  [enclosed-by](#_bookmark453) | This option is used with the --tab option and has the same meaning |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
|  | as the corresponding clause for LOAD DATA |  |  |
| [--fields-terminated-by](#_bookmark453) | This option is used with the --tab option and has the same meaning as the corresponding clause for LOAD DATA |  |  |
| [--flush-logs](#_bookmark454) | Flush MySQL server log files before starting dump |  |  |
| [--flush-privileges](#_bookmark455) | Emit a FLUSH PRIVILEGES statement after dumping mysql database |  |  |
| [--force](#_bookmark456) | Continue even if an SQL error occurs during a table dump |  |  |
| [--get-server-public-key](#_bookmark457) | Request RSA public key from server |  |  |
| [--help](#_bookmark419) | Display help message and exit |  |  |
| [--hex-blob](#_bookmark458) | Dump binary columns using hexadecimal notation |  |  |
| [--host](#_bookmark459) | Host on which MySQL server is located |  |  |
| [--ignore-error](#_bookmark460) | Ignore specified errors |  |  |
| [--ignore-table](#_bookmark461) | Do not dump given table |  |  |
| [--include-master-host-](#_bookmark462) [port](#_bookmark462) | Include  MASTER\_HOST/ MASTER\_PORT options in CHANGE MASTER statement produced with --dump- slave |  | 8.0.26 |
| [--include-source-host-](#_bookmark463) [port](#_bookmark463) | Include  SOURCE\_HOST and SOURCE\_PORT options in CHANGE  REPLICATION  SOURCE TO statement produced with --dump- replica | 8.0.26 |  |
| [--insert-ignore](#_bookmark464) | Write INSERT IGNORE  rather than INSERT  statements |  |  |
| [--lines-terminated-by](#_bookmark465) | This option is used with the --tab option and has the same meaning as the corresponding clause for LOAD DATA |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--lock-all-tables](#_bookmark466) | Lock all tables across all databases |  |  |
| [--lock-tables](#_bookmark467) | Lock all tables before dumping them |  |  |
| [--log-error](#_bookmark468) | Append warnings and errors to named file |  |  |
| [--login-path](#_bookmark469) | Read login path options from .mylogin.cnf |  |  |
| [--master-data](#_bookmark470) | Write the binary log file name and position to the output |  | 8.0.26 |
| [--max-allowed-packet](#_bookmark471) | Maximum packet length to send to or receive from server |  |  |
| [--mysqld-long-query-](#_bookmark472) [time](#_bookmark472) | Session value for slow query threshold | 8.0.30 |  |
| [--net-buffer-length](#_bookmark473) | Buffer size for  TCP/IP and socket  communication |  |  |
| [--network-timeout](#_bookmark474) | Increase network timeouts to permit larger table dumps |  |  |
| [--no-autocommit](#_bookmark475) | Enclose the INSERT statements for each dumped table within SET autocommit = 0 and COMMIT statements |  |  |
| [--no-create-db](#_bookmark476) | Do not write CREATE DATABASE statements |  |  |
| [--no-create-info](#_bookmark477) | Do not write CREATE TABLE statements that re-create each dumped table |  |  |
| [--no-data](#_bookmark478) | Do not dump table  contents |  |  |
| [--no-defaults](#_bookmark479) | Read no option files |  |  |
| [--no-set-names](#_bookmark480) | Same as --skip-set-  charset |  |  |
| [--no-tablespaces](#_bookmark481) | Do not write any  CREATE LOGFILE  GROUP or CREATE  TABLESPACE  statements in output |  |  |
| [--opt](#_bookmark414) | Shorthand for --add- drop-table --add-locks -- create-options --disable- keys --extended-insert -- lock-tables --quick --set- charset |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--order-by-primary](#_bookmark482) | Dump each table's rows sorted by its primary key, or by its first unique index |  |  |
| [--password](#_bookmark483) | Password to use when connecting to server |  |  |
| [--password1](#_bookmark484) | First multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password2](#_bookmark485) | Second multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password3](#_bookmark486) | Third multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--pipe](#_bookmark487) | Connect to server using named pipe (Windows only) |  |  |
| [--plugin-authentication-](#_bookmark488) [kerberos-client-mode](#_bookmark488) | Permit GSSAPI  pluggable authentication through the MIT Kerberos library on  Windows | 8.0.32 |  |
| [--plugin-dir](#_bookmark489) | Directory where plugins are installed |  |  |
| [--port](#_bookmark490) | TCP/IP port number for connection |  |  |
| [--print-defaults](#_bookmark491) | Print default options |  |  |
| [--protocol](#_bookmark492) | Transport protocol to use |  |  |
| [--quick](#_bookmark413) | Retrieve rows for a table from the server a row at a time |  |  |
| [--quote-names](#_bookmark493) | Quote identifiers within backtick characters |  |  |
| [--replace](#_bookmark494) | Write REPLACE  statements rather than INSERT statements |  |  |
| [--result-file](#_bookmark495) | Direct output to a given file |  |  |
| [--routines](#_bookmark496) | Dump stored routines (procedures and functions) from dumped databases |  |  |
| [--server-public-key-path](#_bookmark497) | Path name to file containing RSA public key |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--set-charset](#_bookmark498) | Add SET NAMES  default\_character\_set to output |  |  |
| [--set-gtid-purged](#_bookmark499) | Whether to add SET @@GLOBAL.GTID\_PUR to output | GED |  |
| [--shared-memory-base-](#_bookmark500) [name](#_bookmark500) | Shared-memory name for shared-memory connections (Windows only) |  |  |
| [--show-create-skip-](#_bookmark501)  [secondary-engine](#_bookmark501) | Exclude SECONDARY  ENGINE clause from  CREATE TABLE  statements | 8.0.18 |  |
| [--single-transaction](#_bookmark412) | Issue a BEGIN SQL  statement before  dumping data from  server |  |  |
| [--skip-add-drop-table](#_bookmark421) | Do not add a DROP TABLE statement before each CREATE TABLE statement |  |  |
| [--skip-add-locks](#_bookmark423) | Do not add locks |  |  |
| [--skip-comments](#_bookmark502) | Do not add comments to dump file |  |  |
| [--skip-compact](#_bookmark431) | Do not produce more compact output |  |  |
| [--skip-disable-keys](#_bookmark447) | Do not disable keys |  |  |
| [--skip-extended-insert](#_bookmark416) | Turn off extended-insert |  |  |
| [--skip-generated-](#_bookmark503) [invisible-primary-key](#_bookmark503) | Do not include generated invisible primary keys in dump file | 8.0.30 |  |
| [--skip-opt](#_bookmark415) | Turn off options set by -- opt |  |  |
| [--skip-quick](#_bookmark413) | Do not retrieve rows for a table from the server a row at a time |  |  |
| [--skip-quote-names](#_bookmark493) | Do not quote identifiers |  |  |
| [--skip-set-charset](#_bookmark498) | Do not write SET  NAMES statement |  |  |
| [--skip-triggers](#_bookmark504) | Do not dump triggers |  |  |
| [--skip-tz-utc](#_bookmark505) | Turn off tz-utc |  |  |
| [--socket](#_bookmark506) | Unix socket file or Windows named pipe to use |  |  |
| [--source-data](#_bookmark507) | Write the binary log file name and position to the output | 8.0.26 |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--ssl-ca](#_bookmark508) | File that contains list of trusted SSL Certificate  Authorities |  |  |
| [--ssl-capath](#_bookmark508) | Directory that contains trusted SSL Certificate Authority certificate files |  |  |
| [--ssl-cert](#_bookmark508) | File that contains X.509 certificate |  |  |
| [--ssl-cipher](#_bookmark508) | Permissible ciphers for connection encryption |  |  |
| [--ssl-crl](#_bookmark508) | File that contains certificate revocation lists |  |  |
| [--ssl-crlpath](#_bookmark508) | Directory that contains certificate revocation-list files |  |  |
| [--ssl-fips-mode](#_bookmark509) | Whether to enable FIPS mode on client side |  |  |
| [--ssl-key](#_bookmark508) | File that contains X.509 key |  |  |
| [--ssl-mode](#_bookmark508) | Desired security state of connection to server |  |  |
| [--ssl-session-data](#_bookmark508) | File that contains SSL session data | 8.0.29 |  |
| [--ssl-session-data-](#_bookmark508) [continue-on-failed-reuse](#_bookmark508) | Whether to establish connections if session reuse fails | 8.0.29 |  |
| [--tab](#_bookmark510) | Produce tab-separated data files |  |  |
| [--tables](#_bookmark511) | Override --databases or -B option |  |  |
| [--tls-ciphersuites](#_bookmark512) | Permissible TLSv1.3  ciphersuites for encrypted connections | 8.0.16 |  |
| [--tls-version](#_bookmark513) | Permissible TLS  protocols for encrypted connections |  |  |
| [--triggers](#_bookmark504) | Dump triggers for each dumped table |  |  |
| [--tz-utc](#_bookmark505) | Add SET  TIME\_ZONE='+00:00' to dump file |  |  |
| [--user](#_bookmark514) | MySQL user name to use when connecting to server |  |  |
| [--verbose](#_bookmark515) | Verbose mode |  |  |
| [--version](#_bookmark516) | Display version  information and exit |  |  |



|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--where](#_bookmark517) | Dump only rows  selected by given  WHERE condition |  |  |
| [--xml](#_bookmark277) | Produce XML output |  |  |
| [--zstd-compression-level](#_bookmark518) | Compression level  for connections to  server that use zstd  compression | 8.0.18 |  |

**Connection** **Options**

The [mysqldump](#_bookmark37) command logs into a MySQL server to extract information. The following options specify how to connect to the MySQL server, either on the same machine or a remote system.

• [--bind-address=*ip\_address*](#_bookmark427)

On a computer having multiple network interfaces, use this option to select which interface to use for connecting to the MySQL server.

• [--compress](#_bookmark434), -C

Compress all information sent between the client and the server if possible. See [Section 4.2.8,](#_bookmark31) [“Connection Compression Control”](#_bookmark31) .

As of MySQL 8.0.18, this option is deprecated. Expect it to be removed in a future version of MySQL. See [Configuring Legacy Connection Compression](#_bookmark35).

• [--compression-algorithms=*value*](#_bookmark435)

The permitted compression algorithms for connections to the server. The available algorithms are the same as for the protocol\_compression\_algorithms system variable. The default value is uncompressed.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

• [--default-auth=*plugin*](#_bookmark440)

A hint about which client-side authentication plugin to use. See Section 6.2.17, “Pluggable

Authentication” .

• [--enable-cleartext-plugin](#_bookmark451)

Enable the mysql\_clear\_password cleartext authentication plugin. (See Section 6.4.1.4, “Client- Side Cleartext Pluggable Authentication” .)

• [--get-server-public-key](#_bookmark457)

Request from the server the public key required for RSA key pair-based password exchange. This option applies to clients that authenticate with the caching\_sha2\_password authentication plugin. For that plugin, the server does not send the public key unless requested. This option is ignored for accounts that do not authenticate with that plugin. It is also ignored if RSA-based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark497) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark457).

For information about the caching\_sha2\_password plugin, see Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--host=*host\_name*](#_bookmark459), -h *host\_name*

Dump data from the MySQL server on the given host. The default host is localhost.

• [--login-path=*name*](#_bookmark469)

Read options from the named login path in the .mylogin.cnf login path file. A “login path” is an option group containing options that specify which MySQL server to connect to and which account to authenticate as. To create or modify a login path file, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [password[=*password*]](#_bookmark483)--, -p[*password*]

The password of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysqldump](#_bookmark37) prompts for one. If given, there must be *no* *space* between [--](#_bookmark483) [password=](#_bookmark483) or -p and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqldump](#_bookmark37) should not prompt for one, use the [--skip-password](#_bookmark483) option.

• [--password1[=*pass\_val*]](#_bookmark484)

The password for multifactor authentication factor 1 of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysqldump](#_bookmark37) prompts for one. If given, there must be *no* *space* between [--password1=](#_bookmark484) and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqldump](#_bookmark37) should not prompt for one, use the [--skip-password1](#_bookmark484) option.

[--password1](#_bookmark484) and [--password](#_bookmark483) are synonymous, as are [--skip-password1](#_bookmark484) and [--skip-](#_bookmark483) [password](#_bookmark483).

• [--password2[=*pass\_val*]](#_bookmark485)

The password for multifactor authentication factor 2 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark484); see the description of that option for details.

• [--password3[=*pass\_val*]](#_bookmark486)

The password for multifactor authentication factor 3 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark484); see the description of that option for details.

• [--pipe](#_bookmark487), -W

On Windows, connect to the server using a named pipe. This option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• [--plugin-authentication-kerberos-client-mode=*value*](#_bookmark488)

On Windows, the authentication\_kerberos\_client authentication plugin supports this plugin option. It provides two possible values that the client user can set at runtime: SSPI and GSSAPI.

The default value for the client-side plugin option uses Security Support Provider Interface (SSPI), which is capable of acquiring credentials from the Windows in-memory cache. Alternatively, the client user can select a mode that supports Generic Security Service Application Program Interface (GSSAPI) through the MIT Kerberos library on Windows. GSSAPI is capable of acquiring cached credentials previously generated by using the kinit command.

For more information, see Commands for Windows Clients in GSSAPI Mode.

• [--plugin-dir=*dir\_name*](#_bookmark489)

The directory in which to look for plugins. Specify this option if the [--default-auth](#_bookmark440) option is used to specify an authentication plugin but [mysqldump](#_bookmark37) does not find it. See Section 6.2.17, “Pluggable

Authentication” .

• [--port=*port\_num*](#_bookmark490), -P *port\_num*

For TCP/IP connections, the port number to use.

• [--protocol={TCP|SOCKET|PIPE|MEMORY}](#_bookmark492)

The transport protocol to use for connecting to the server. It is useful when the other connection parameters normally result in use of a protocol other than the one you want. For details on the permissible values, see [Section 4.2.7, “Connection Transport Protocols”](#_bookmark8) .

• [--server-public-key-path=*file\_name*](#_bookmark497)

The path name to a file in PEM format containing a client-side copy of the public key required by the server for RSA key pair-based password exchange. This option applies to clients that authenticate with the sha256\_password or caching\_sha2\_password authentication plugin. This option is ignored for accounts that do not authenticate with one of those plugins. It is also ignored if RSA- based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark497) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark457).

For sha256\_password, this option applies only if MySQL was built using OpenSSL.

For information about the sha256\_password and caching\_sha2\_password plugins, see Section 6.4.1.3, “SHA-256 Pluggable Authentication” , and Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--socket=*path*](#_bookmark506), -S *path*

For connections to localhost, the Unix socket file to use, or, on Windows, the name of the named pipe to use.

On Windows, this option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.



• --ssl\*

Options that begin with --ssl specify whether to connect to the server using encryption and indicate where to find SSL keys and certificates. See [Command Options for Encrypted Connections](#_bookmark12).

• [--ssl-fips-mode={OFF|ON|STRICT}](#_bookmark509)

Controls whether to enable FIPS mode on the client side. The [--ssl-fips-mode](#_bookmark509) option differs from other --ssl-*xxx* options in that it is not used to establish encrypted connections, but rather to affect which cryptographic operations to permit. See Section 6.8, “FIPS Support” .

These [--ssl-fips-mode](#_bookmark509) values are permitted:

• OFF: Disable FIPS mode.

• ON: Enable FIPS mode.

• STRICT: Enable “strict” FIPS mode.

**Note**

If the OpenSSL FIPS Object Module is not available, the only permitted value for [--ssl-fips-mode](#_bookmark509) is OFF. In this case, setting [--ssl-fips-mode](#_bookmark509) to ON or STRICT causes the client to produce a warning at startup and to operate in non-FIPS mode.

• [--tls-ciphersuites=*ciphersuite\_list*](#_bookmark512)

The permissible ciphersuites for encrypted connections that use TLSv1.3. The value is a list of one or more colon-separated ciphersuite names. The ciphersuites that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

This option was added in MySQL 8.0.16.

• [--tls-version=*protocol\_list*](#_bookmark513)

The permissible TLS protocols for encrypted connections. The value is a list of one or more comma- separated protocol names. The protocols that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

• [--user=*user\_name*](#_bookmark514), -u *user\_name*

The user name of the MySQL account to use for connecting to the server.

If you are using the Rewriter plugin with MySQL 8.0.31 or later, you should grant this user the SKIP\_QUERY\_REWRITE privilege.

• [--zstd-compression-level=*level*](#_bookmark518)

The compression level to use for connections to the server that use the zstd compression algorithm. The permitted levels are from 1 to 22, with larger values indicating increasing levels of compression. The default zstd compression level is 3. The compression level setting has no effect on connections that do not use zstd compression.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

**Option-File** **Options**

These options are used to control which option files to read.

• [--defaults-extra-file=*file\_name*](#_bookmark442)

Read this option file after the global option file but (on Unix) before the user option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-file=*file\_name*](#_bookmark443)

Use only the given option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

Exception: Even with --defaults-file, client programs read .mylogin.cnf.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-group-suffix=*str*](#_bookmark444)

Read not only the usual option groups, but also groups with the usual names and a suffix of *str*. For example, [mysqldump](#_bookmark37) normally reads the [client] and [mysqldump] groups. If this option is given as [-- - -](#_bookmark444)defaultsgroupsuffix=\_other, [mysqldump](#_bookmark37) also reads the [client\_other] and [mysqldump\_other] groups.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--no-defaults](#_bookmark479)

Do not read any option files. If program startup fails due to reading unknown options from an option file, [--no-defaults](#_bookmark479) can be used to prevent them from being read.

The exception is that the .mylogin.cnf file is read in all cases, if it exists. This permits passwords to be specified in a safer way than on the command line even when [--no-defaults](#_bookmark479) is used. To create .mylogin.cnf, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--print-defaults](#_bookmark491)

Print the program name and all options that it gets from option files.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

**DDL** **Options**

Usage scenarios for [mysqldump](#_bookmark37) include setting up an entire new MySQL instance (including database tables), and replacing data inside an existing instance with existing databases and tables. The following options let you specify which things to tear down and set up when restoring a dump, by encoding various DDL statements within the dump file.

• [--add-drop-database](#_bookmark420)



Write a DROP DATABASE statement before each CREATE DATABASE statement. This option is typically used in conjunction with the [--all-databases](#_bookmark418) or [--databases](#_bookmark417) option because no CREATE DATABASE statements are written unless one of those options is specified.

**Note**

In MySQL 8.0, the mysql schema is considered a system schema that cannot be dropped by end users. If [--add-drop-database](#_bookmark420) is used with [--all-databases](#_bookmark418) or with [--databases](#_bookmark417) where the list of schemas to be dumped includes mysql, the dump file contains a DROP DATABASE `mysql` statement that causes an error when the dump file is reloaded.

Instead, to use [--add-drop-database](#_bookmark420), use [--databases](#_bookmark417) with a list of schemas to be dumped, where the list does not include mysql.

• [--add-drop-table](#_bookmark421)

Write a DROP TABLE statement before each CREATE TABLE statement.

• [--add-drop-trigger](#_bookmark422)

Write a DROP TRIGGER statement before each CREATE TRIGGER statement.

• [--all-tablespaces](#_bookmark519), -Y

Adds to a table dump all SQL statements needed to create any tablespaces used by an NDB table. This information is not otherwise included in the output from [mysqldump](#_bookmark37). This option is currently relevant only to NDB Cluster tables.

• [--no-create-db](#_bookmark476), -n

Suppress the CREATE DATABASE statements that are otherwise included in the output if the [--](#_bookmark417) [databases](#_bookmark417) or [-- -](#_bookmark418)alldatabases option is given.

• [--no-create-info](#_bookmark477), -t

Do not write CREATE TABLE statements that create each dumped table.

**Note**

This option does *not* exclude statements creating log file groups or tablespaces from [mysqldump](#_bookmark37) output; however, you can use the [-- -](#_bookmark481)no [tablespaces](#_bookmark481) option for this purpose.

• [--no-tablespaces](#_bookmark481), -y

This option suppresses all CREATE LOGFILE GROUP and CREATE TABLESPACE statements in the output of [mysqldump](#_bookmark37).

• [--replace](#_bookmark494)

Write REPLACE statements rather than INSERT statements.

**Debug** **Options**

The following options print debugging information, encode debugging information in the dump file, or let the dump operation proceed regardless of potential problems.

• [--allow-keywords](#_bookmark424)

Permit creation of column names that are keywords. This works by prefixing each column name with the table name.

• [--comments](#_bookmark430), -i

Write additional information in the dump file such as program version, server version, and host. This option is enabled by default. To suppress this additional information, use [--skip-comments](#_bookmark502).

• [--debug[=*debug\_options*]](#_bookmark437), -# [*debug\_options*]

Write a debugging log. A typical *debug\_options* string is d:t:o,*file\_name*. The default value is d:t:o,/tmp/mysqldump.trace.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-check](#_bookmark438)

Print some debugging information when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-info](#_bookmark439)

Print debugging information and memory and CPU usage statistics when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--dump-date](#_bookmark448)

If the [--](#_bookmark430)comments option is given, [mysqldump](#_bookmark37) produces a comment at the end of the dump of the following form:

-- Dump completed on *DATE*

However, the date causes dump files taken at different times to appear to be different, even if the data are otherwise identical. [--dump-date](#_bookmark448) and [--skip-dump-date](#_bookmark448) control whether the date is added to the comment. The default is [--dump-date](#_bookmark448) (include the date in the comment). [--skip-](#_bookmark448) [dump-date](#_bookmark448) suppresses date printing.

• [--force](#_bookmark456), -f

Ignore all errors; continue even if an SQL error occurs during a table dump.

One use for this option is to cause [mysqldump](#_bookmark37) to continue executing even when it encounters a view that has become invalid because the definition refers to a table that has been dropped. Without --force, [mysqldump](#_bookmark37) exits with an error message. With --force, [mysqldump](#_bookmark37) prints the error message, but it also writes an SQL comment containing the view definition to the dump output and continues executing.

If the [--ignore-error](#_bookmark460) option is also given to ignore specific errors, [--force](#_bookmark456) takes precedence. • [--log-error=*file\_name*](#_bookmark468)

Log warnings and errors by appending them to the named file. The default is to do no logging.

• [--skip-comments](#_bookmark502)

See the description for the [--comments](#_bookmark430) option.

• [--verbose](#_bookmark515), -v

**Help** **Options**

The following options display information about the [mysqldump](#_bookmark37) command itself.

• [--help](#_bookmark419), -?

Display a help message and exit.

• [--version](#_bookmark516), -V

Display version information and exit.

**Internationalization** **Options**

The following options change how the [mysqldump](#_bookmark37) command represents character data with national language settings.

• [--character-sets-dir=*dir\_name*](#_bookmark428)

The directory where character sets are installed. See Section 10.15, “Character Set Configuration” .

• [--default-character-set=*charset\_name*](#_bookmark441)

Use *charset\_name* as the default character set. See Section 10.15, “Character Set Configuration” . If no character set is specified, [mysqldump](#_bookmark37) uses utf8mb4.

• [--no-set-names](#_bookmark480), -N

Turns off the [--set-charset](#_bookmark498) setting, the same as specifying --skip-set-charset.

• [--set-charset](#_bookmark498)

Write SET NAMES *default\_character\_set* to the output. This option is enabled by default. To suppress the SET NAMES statement, use [--skip-set-charset](#_bookmark498).

**Replication** **Options**

The [mysqldump](#_bookmark37) command is frequently used to create an empty instance, or an instance including data, on a replica server in a replication configuration. The following options apply to dumping and restoring data on replication source servers and replicas.

• [--apply-replica-statements](#_bookmark425)

From MySQL 8.0.26, use --apply-replica-statements, and before MySQL 8.0.26, use [--](#_bookmark426) [apply-slave-statements](#_bookmark426). Both options have the same effect. For a replica dump produced with the [--dump-replica](#_bookmark449) or [--dump-slave](#_bookmark450) option, the options add a STOP REPLICA (or before MySQL 8.0.22, STOP SLAVE) statement before the statement with the binary log coordinates, and a START REPLICA statement at the end of the output.

• [--apply-slave-statements](#_bookmark426)

Use this option before MySQL 8.0.26 rather than [--apply-replica-statements](#_bookmark425). Both options have the same effect.

• [--delete-source-logs](#_bookmark446)

From MySQL 8.0.26, use --delete-source-logs, and before MySQL 8.0.26, use [--delete-](#_bookmark445) [master-logs](#_bookmark445). Both options have the same effect. On a replication source server, the options delete the binary logs by sending a PURGE BINARY LOGS statement to the server after performing the dump operation. The options require the RELOAD privilege as well as privileges sufficient to execute that statement. The options automatically enable [--source-data](#_bookmark507) or [--master-data](#_bookmark470).

• [--delete-master-logs](#_bookmark445)



Use this option before MySQL 8.0.26 rather than [--delete-source-logs](#_bookmark446). Both options have the same effect.

• [--dump-replica[=*value*]](#_bookmark449)

From MySQL 8.0.26, use --dump-replica, and before MySQL 8.0.26, use [--dump-slave](#_bookmark450). Both options have the same effect. The options are similar to [--source-data](#_bookmark507), except that they are used to dump a replica server to produce a dump file that can be used to set up another server as a replica that has the same source as the dumped server. The options cause the dump output to include a CHANGE REPLICATION SOURCE TO statement (from MySQL 8.0.23) or CHANGE MASTER TO statement (before MySQL 8.0.23) that indicates the binary log coordinates (file name and position) of the dumped replica's source. The CHANGE REPLICATION SOURCE TO statement reads the values of Relay\_Master\_Log\_File and Exec\_Master\_Log\_Pos from the SHOW REPLICA STATUS output and uses them for SOURCE\_LOG\_FILE and SOURCE\_LOG\_POS respectively. These are the replication source server coordinates from which the replica starts replicating.

**Note**

Inconsistencies in the sequence of transactions from the relay log which have been executed can cause the wrong position to be used. See Section 17.5.1.34, “Replication and Transaction Inconsistencies” for more information.

--dump-replica or --dump-slave cause the coordinates from the source to be used rather than those of the dumped server, as is done by the [--source-data](#_bookmark507) or [--master-data](#_bookmark470) option. In addition, specifying this option causes the [--source-data](#_bookmark507) or --master-data option to be overridden, if used, and effectively ignored.

**Warning**

--dump-replica and --dump-slave should not be used if the server where the dump is going to be applied uses gtid\_mode=ON and SOURCE\_AUTO\_POSITION=1 or MASTER\_AUTO\_POSITION=1.

The option value is handled the same way as for [--source-data](#_bookmark507). Setting no value or 1 causes a CHANGE REPLICATION SOURCE TO statement (from MySQL 8.0.23) or CHANGE MASTER TO statement (before MySQL 8.0.23) to be written to the dump. Setting 2 causes the statement to be written but encased in SQL comments. It has the same effect as --source-data in terms of enabling or disabling other options and in how locking is handled.

--dump-replica and --dump-slave cause [mysqldump](#_bookmark37) to stop the replication SQL thread before the dump and restart it again after.

--dump-replica and --dump-slave send a SHOW REPLICA STATUS statement to the server to obtain information, so they require privileges sufficient to execute that statement.

[--apply-replica-statements](#_bookmark425) and [--include-source-host-port](#_bookmark463) options can be used in conjunction with --dump-replica and --dump-slave.

• [--dump-slave[=*value*]](#_bookmark450)

Use this option before MySQL 8.0.26 rather than [--dump-replica](#_bookmark449). Both options have the same effect.

• [--include-source-host-port](#_bookmark463)

From MySQL 8.0.26, use --include-source-host-port, and before MySQL 8.0.26, use [--include-master-host-port](#_bookmark462). Both options have the same effect. The options add the SOURCE\_HOST | MASTER\_HOST and SOURCE\_PORT | MASTER\_PORT options for the host name and TCP/IP port number of the replica's source, to the CHANGE REPLICATION SOURCE TO statement

(from MySQL 8.0.23) or CHANGE MASTER TO statement (before MySQL 8.0.23) in a replica dump produced with the [--dump-replica](#_bookmark449) or [--dump-slave](#_bookmark450) option.

• [--include-master-host-port](#_bookmark462)

Use this option before MySQL 8.0.26 rather than [--include-source-host-port](#_bookmark463). Both options have the same effect.

• [--source-data[=*value*]](#_bookmark507)

From MySQL 8.0.26, use --source-data, and before MySQL 8.0.26, use [--master-data](#_bookmark470). Both options have the same effect. The options are used to dump a replication source server to produce a dump file that can be used to set up another server as a replica of the source. The options cause the dump output to include a CHANGE REPLICATION SOURCE TO statement (from MySQL 8.0.23) or CHANGE MASTER TO statement (before MySQL 8.0.23) that indicates the binary log coordinates (file name and position) of the dumped server. These are the replication source server coordinates from which the replica should start replicating after you load the dump file into the replica.

If the option value is 2, the CHANGE REPLICATION SOURCE TO | CHANGE MASTER TO statement is written as an SQL comment, and thus is informative only; it has no effect when the dump file is reloaded. If the option value is 1, the statement is not written as a comment and takes effect when the dump file is reloaded. If no option value is specified, the default value is 1.

--source-data and --master-data send a SHOW MASTER STATUS statement to the server to obtain information, so they require privileges sufficient to execute that statement. This option also requires the RELOAD privilege and the binary log must be enabled.

--source-data and --master-data automatically turn off [--lock-tables](#_bookmark467). They also turn on [--lock-all-tables](#_bookmark466), unless [--single-transaction](#_bookmark412) also is specified, in which case, a global read lock is acquired only for a short time at the beginning of the dump (see the description for [--](#_bookmark412) [single-transaction](#_bookmark412)). In all cases, any action on logs happens at the exact moment of the dump.

It is also possible to set up a replica by dumping an existing replica of the source, using the [--dump-](#_bookmark449) [replica](#_bookmark449) or [-- -](#_bookmark450)dumpslave option, which overrides --source-data and --master-data and causes them to be ignored.

• [--master-data[=*value*]](#_bookmark470)

Use this option before MySQL 8.0.26 rather than [--source-data](#_bookmark507). Both options have the same effect.

• [--set-gtid-purged=*value*](#_bookmark499)

This option is for servers that use GTID-based replication (gtid\_mode=ON). It controls the inclusion of a SET @@GLOBAL.gtid\_purged statement in the dump output, which updates the value of gtid\_purged on a server where the dump file is reloaded, to add the GTID set from the source server's gtid\_executed system variable. gtid\_purged holds the GTIDs of all transactions that have been applied on the server, but do not exist on any binary log file on the server. [mysqldump](#_bookmark37) therefore adds the GTIDs for the transactions that were executed on the source server, so that the target server records these transactions as applied, although it does not have them in its binary logs. --set-gtid-purged also controls the inclusion of a SET @@SESSION.sql\_log\_bin=0 statement, which disables binary logging while the dump file is being reloaded. This statement prevents new GTIDs from being generated and assigned to the transactions in the dump file as they are executed, so that the original GTIDs for the transactions are used.

If you do not set the --set-gtid-purged option, the default is that a SET

@@GLOBAL.gtid\_purged statement is included in the dump output if GTIDs are enabled on the server you are backing up, and the set of GTIDs in the global value of the gtid\_executed system

variable is not empty. A SET @@SESSION.sql\_log\_bin=0 statement is also included if GTIDs are enabled on the server.

You can either replace the value of gtid\_purged with a specified GTID set, or add a plus

sign (+) to the statement to append a specified GTID set to the GTID set that is already held by gtid\_purged. The SET @@GLOBAL.gtid\_purged statement recorded by [mysqldump](#_bookmark37) includes a plus sign (+) in a version-specific comment, such that MySQL 8.0 (and later) adds the GTID set from the dump file to the existing gtid\_purged value.

It is important to note that the value that is included by [mysqldump](#_bookmark37) for the SET

@@GLOBAL.gtid\_purged statement includes the GTIDs of all transactions in the gtid\_executed set on the server, even those that changed suppressed parts of the database, or other databases on the server that were not included in a partial dump. This can mean that after the gtid\_purged value has been updated on the server where the dump file is replayed, GTIDs are present that do not relate to any data on the target server. If you do not replay any further dump files on the target server, the extraneous GTIDs do not cause any problems with the future operation of the server, but they make it harder to compare or reconcile GTID sets on different servers in the replication topology. If you do replay a further dump file on the target server that contains the same GTIDs (for example, another partial dump from the same origin server), any SET @@GLOBAL.gtid\_purged statement in the second dump file fails. In this case, either remove the statement manually before replaying the dump file, or output the dump file without the statement.

Using this option with the [--single-transaction](#_bookmark412) option can lead to inconsistencies in the output. If --set-gtid-purged=ON is required, it can be used with [--lock-all-tables](#_bookmark466), but this can prevent parallel queries while [mysqldump](#_bookmark37) is being run.

If the SET @@GLOBAL.gtid\_purged statement would not have the desired result on your target server, you can exclude the statement from the output, or (from MySQL 8.0.17) include it but comment it out so that it is not actioned automatically. You can also include the statement but manually edit it in the dump file to achieve the desired result.

The possible values for the --set-gtid-purged option are as follows:

AUTO

OFF

ON

The default value. If GTIDs are enabled on the server you are backing up and gtid\_executed is not empty, SET @@GLOBAL.gtid\_purged is added to the output, containing the GTID set from gtid\_executed. If GTIDs are enabled, SET @@SESSION.sql\_log\_bin=0 is added to the output. If GTIDs are not enabled on the server, the statements are not added to the output.

SET @@GLOBAL.gtid\_purged is not added to the output, and SET @@SESSION.sql\_log\_bin=0 is not added to the output. For a server where GTIDs are not in use, use this option or AUTO. Only use this option for a server where GTIDs are in use if you are sure that the required GTID set is already present in gtid\_purged on the target server and should not be changed, or if you plan to identify and add any missing GTIDs manually.

If GTIDs are enabled on the server you are backing

up, SET @@GLOBAL.gtid\_purged is added to the

output (unless gtid\_executed is empty), and SET @@SESSION.sql\_log\_bin=0 is added to the output. An error occurs if you set this option but GTIDs are not enabled on the server. For a server where GTIDs are in use, use this option or AUTO, unless you are sure that the GTIDs in gtid\_executed are not needed on the target server.

Available from MySQL 8.0.17. If GTIDs are enabled on the server you are backing up, SET @@GLOBAL.gtid\_purged is added to the output (unless gtid\_executed is empty), but it is commented out. This means that the value of gtid\_executed is available in the output, but no action is taken automatically when the dump file is reloaded. SET @@SESSION.sql\_log\_bin=0 is added to the output, and it is not commented out. With COMMENTED, you can control the use of the gtid\_executed set manually or through automation. For example, you might prefer to do this if you are migrating data to another server that already has different active databases.

COMMENTED

**Format** **Options**

The following options specify how to represent the entire dump file or certain kinds of data in the dump file. They also control whether certain optional information is written to the dump file.

• [--compact](#_bookmark431)

Produce more compact output. This option enables the [--skip-add-drop-table](#_bookmark421), [--skip-add-](#_bookmark423) [locks](#_bookmark423), [-- -](#_bookmark502)skipcomments, [-- - -](#_bookmark447)skipdisablekeys, and [-- - -](#_bookmark498)skipsetcharset options.

• [--compatible=*name*](#_bookmark432)

Produce output that is more compatible with other database systems or with older MySQL servers. The only permitted value for this option is ansi, which has the same meaning as the corresponding option for setting the server SQL mode. See Section 5.1.11, “Server SQL Modes” .

• [--complete-insert](#_bookmark433), -c

Use complete INSERT statements that include column names.

• [--create-options](#_bookmark436)

Include all MySQL-specific table options in the CREATE TABLE statements.

• [--fields-terminated-by=...](#_bookmark453), [--fields-enclosed-by=...](#_bookmark453), [--fields-optionally-](#_bookmark453) [enclosed-by=...](#_bookmark453), [--fields-escaped-by=...](#_bookmark453)

These options are used with the [--tab](#_bookmark510) option and have the same meaning as the corresponding FIELDS clauses for LOAD DATA. See Section 13.2.9, “LOAD DATA Statement” .

• [--hex-blob](#_bookmark458)

Dump binary columns using hexadecimal notation (for example, 'abc' becomes 0x616263). The affected data types are BINARY, VARBINARY, BLOB types, BIT, all spatial data types, and other non- binary data types when used with the binary character set.

The [--hex-blob](#_bookmark458) option is ignored when the [--tab](#_bookmark510) is used.

• [--lines-terminated-by=...](#_bookmark465)

This option is used with the [--tab](#_bookmark510) option and has the same meaning as the corresponding LINES clause for LOAD DATA. See Section 13.2.9, “LOAD DATA Statement” .

• [--quote-names](#_bookmark493), -Q

Quote identifiers (such as database, table, and column names) within ` characters. If the ANSI\_QUOTES SQL mode is enabled, identifiers are quoted within " characters. This option is enabled by default. It can be disabled with --skip-quote-names, but this option should be given after any option such as [--compatible](#_bookmark432) that may enable [--quote-names](#_bookmark493).



• [--result-file=*file\_name*](#_bookmark495), -r *file\_name*

Direct output to the named file. The result file is created and its previous contents overwritten, even if an error occurs while generating the dump.

This option should be used on Windows to prevent newline \n characters from being converted to \r\n carriage return/newline sequences.

• [--show-create-skip-secondary-engine=*value*](#_bookmark501)

Excludes the SECONDARY ENGINE clause from CREATE TABLE statements. It does so by enabling the show\_create\_table\_skip\_secondary\_engine system

variable for the duration of the dump operation. Alternatively, you can enable the show\_create\_table\_skip\_secondary\_engine system variable prior to using [mysqldump](#_bookmark37).

This option was added in MySQL 8.0.18. Attempting a [mysqldump](#_bookmark37) operation with the [-- -](#_bookmark501)show [create-skip-secondary-engine](#_bookmark501) option on a release prior to MySQL 8.0.18 that does not support the show\_create\_table\_skip\_secondary\_engine variable causes an error.

• [--tab=*dir\_name*](#_bookmark510), -T *dir\_name*

Produce tab-separated text-format data files. For each dumped table, [mysqldump](#_bookmark37) creates a *tbl\_name*.sql file that contains the CREATE TABLE statement that creates the table, and the server writes a *tbl\_name*.txt file that contains its data. The option value is the directory in which to write the files.

**Note**

This option should be used only when [mysqldump](#_bookmark37) is run on the same machine as the [mysqld](#_bookmark59) server. Because the server creates \*.txt files in the directory that you specify, the directory must be writable by the server and the MySQL account that you use must have the FILE privilege. Because [mysqldump](#_bookmark37) creates \*.sql in the same directory, it must be writable by your system login account.

By default, the .txt data files are formatted using tab characters between column values and a newline at the end of each line. The format can be specified explicitly using the --fields-*xxx* and [--lines-terminated-by](#_bookmark465) options.

Column values are converted to the character set specified by the [--default-character-set](#_bookmark441) option.

• [--tz-utc](#_bookmark505)

This option enables TIMESTAMP columns to be dumped and reloaded between servers

in different time zones. [mysqldump](#_bookmark37) sets its connection time zone to UTC and adds SET TIME\_ZONE='+00:00' to the dump file. Without this option, TIMESTAMP columns are dumped and reloaded in the time zones local to the source and destination servers, which can cause the values to change if the servers are in different time zones. --tz-utc also protects against changes due to daylight saving time. --tz-utc is enabled by default. To disable it, use --skip-tz-utc.

• [--xml](#_bookmark277), -X

Write dump output as well-formed XML.

**NULL,** **'NULL',** **and** **Empty** **Values**: For a column named *column\_name*, the NULL value, an empty string, and the string value 'NULL' are distinguished from one another in the output generated by this option as follows.

|  |  |
| --- | --- |
| **Value:** | **XML** **Representation:** |
| NULL (*unknown* *value*) | <field name="*column\_name*"  xsi:nil="true" /> |
| '' (*empty* *string*) | <field name="*column\_name*"></field> |
| 'NULL' (*string* *value*) | <field name="*column\_name*">NULL</  field> |

The output from the [mysql](#_bookmark29) client when run using the [--](#_bookmark273)xml option also follows the preceding rules. (See [Section 4.5.1.1, “mysql Client Options”](#_bookmark188) .)

XML output from [mysqldump](#_bookmark37) includes the XML namespace, as shown here:

$> **mysqldump** **--xml** **-u** **root** **world** **City**

<?xml version="1.0"?>

<mysqldump xmlns:xsi="http://www .w3 .org/2001/XMLSchema-instance">

<database name="world">

<table\_structure name="City">

<field Field="ID" Type="int(11)" Null="NO" Key="PRI" Extra="auto\_increment" />

<field Field="Name" Type="char(35)" Null="NO" Key="" Default="" Extra="" />

<field Field="CountryCode" Type="char(3)" Null="NO" Key="" Default="" Extra="" />

<field Field="District" Type="char(20)" Null="NO" Key="" Default="" Extra="" />

<field Field="Population" Type="int(11)" Null="NO" Key="" Default="0" Extra="" />

<key Table="City" Non\_unique="0" Key\_name="PRIMARY" Seq\_in\_index="1" Column\_name="ID"

Collation="A" Cardinality="4079" Null="" Index\_type="BTREE" Comment="" />

<options Name="City" Engine="MyISAM" Version="10" Row\_format="Fixed" Rows="4079"

Avg\_row\_length="67" Data\_length="273293" Max\_data\_length="18858823439613951"

Index\_length="43008" Data\_free="0" Auto\_increment="4080"

Create\_time="2007-03-31 01:47:01" Update\_time="2007-03-31 01:47:02"

Collation="latin1\_swedish\_ci" Create\_options="" Comment="" />

</table\_structure>

<table\_data name="City">

<row>

<field name="ID">1</field>

<field name="Name">Kabul</field>

<field name="CountryCode">AFG</field>

<field name="District">Kabol</field>

<field name="Population">1780000</field>

</row>

*...*

<row>

<field name="ID">4079</field>

<field name="Name">Rafah</field>

<field name="CountryCode">PSE</field>

<field name="District">Rafah</field>

<field name="Population">92020</field>

</row>

</table\_data>

</database>

</mysqldump>

**Filtering** **Options**

The following options control which kinds of schema objects are written to the dump file: by category, such as triggers or events; by name, for example, choosing which databases and tables to dump; or even filtering rows from the table data using a WHERE clause.



• [--all-databases](#_bookmark418), -A

Dump all tables in all databases. This is the same as using the [--databases](#_bookmark417) option and naming all the databases on the command line.

**Note**

See the [--add-drop-database](#_bookmark420) description for information about an incompatibility of that option with [--all-databases](#_bookmark418).

Prior to MySQL 8.0, the [--](#_bookmark496)routines and [--](#_bookmark452)events options for [mysqldump](#_bookmark37) and [mysqlpump](#_bookmark56) were not required to include stored routines and events when using the [--all-databases](#_bookmark418) option: The dump included the mysql system database, and therefore also the mysql.proc and mysql.event tables containing stored routine and event definitions. As of MySQL 8.0, the mysql.event and mysql.proc tables are not used. Definitions for the corresponding objects are stored in data dictionary tables, but those tables are not dumped. To include stored routines and events in a dump made using [--all-databases](#_bookmark418), use the [--routines](#_bookmark496) and [--events](#_bookmark452) options explicitly.

• [--databases](#_bookmark417), -B

Dump several databases. Normally, [mysqldump](#_bookmark37) treats the first name argument on the command line as a database name and following names as table names. With this option, it treats all name arguments as database names. CREATE DATABASE and USE statements are included in the output before each new database.

This option may be used to dump the performance\_schema database, which normally is not dumped even with the [--all-databases](#_bookmark418) option. (Also use the [--skip-lock-tables](#_bookmark467) option.)

**Note**

See the [--add-drop-database](#_bookmark420) description for information about an incompatibility of that option with [--databases](#_bookmark417).

• [--events](#_bookmark452), -E

Include Event Scheduler events for the dumped databases in the output. This option requires the EVENT privileges for those databases.

The output generated by using --events contains CREATE EVENT statements to create the events.

• [--ignore-error=*error[,error]...*](#_bookmark460)

Ignore the specified errors. The option value is a list of comma-separated error numbers specifying the errors to ignore during [mysqldump](#_bookmark37) execution. If the [--](#_bookmark456)force option is also given to ignore all errors, [--force](#_bookmark456) takes precedence.

• [--ignore-table=*db\_name.tbl\_name*](#_bookmark461)

Do not dump the given table, which must be specified using both the database and table names. To ignore multiple tables, use this option multiple times. This option also can be used to ignore views.

• [--no-data](#_bookmark478), -d

Do not write any table row information (that is, do not dump table contents). This is useful if you want to dump only the CREATE TABLE statement for the table (for example, to create an empty copy of the table by loading the dump file).



• [--routines](#_bookmark496), -R

Include stored routines (procedures and functions) for the dumped databases in the output. This option requires the global SELECT privilege.

The output generated by using --routines contains CREATE PROCEDURE and CREATE FUNCTION statements to create the routines.

• [--skip-generated-invisible-primary-key](#_bookmark503)

This option is available beginning with MySQL 8.0.30, and causes generated invisible primary keys to be excluded from the output. For more information, see Section 13.1.20.11, “Generated Invisible Primary Keys” .

• [--tables](#_bookmark511)

Override the [--](#_bookmark417)databases or -B option. [mysqldump](#_bookmark37) regards all name arguments following the option as table names.

• [--triggers](#_bookmark504)

Include triggers for each dumped table in the output. This option is enabled by default; disable it with --skip-triggers.

To be able to dump a table's triggers, you must have the TRIGGER privilege for the table.

Multiple triggers are permitted. [mysqldump](#_bookmark37) dumps triggers in activation order so that when the dump file is reloaded, triggers are created in the same activation order. However, if a [mysqldump](#_bookmark37) dump file contains multiple triggers for a table that have the same trigger event and action time, an error occurs for attempts to load the dump file into an older server that does not support multiple triggers. (For a workaround, see [Downgrade Notes](https://dev.mysql.com/doc/refman/5.7/en/downgrading-to-previous-series.html); you can convert triggers to be compatible with older servers.)

• [--where='*where\_condition*'](#_bookmark517), -w '*where\_condition*'

Dump only rows selected by the given WHERE condition. Quotes around the condition are mandatory

if it contains spaces or other characters that are special to your command interpreter.

Examples:

--where="user='jimf'"

-w"userid>1"

-w"userid<1"

**Performance** **Options**

The following options are the most relevant for the performance particularly of the restore operations. For large data sets, restore operation (processing the INSERT statements in the dump file) is the most time-consuming part. When it is urgent to restore data quickly, plan and test the performance of this stage in advance. For restore times measured in hours, you might prefer an alternative backup and restore solution, such as MySQL Enterprise Backup for InnoDB-only and mixed-use databases.

Performance is also affected by the [transactional options](#_bookmark408), primarily for the dump operation.

• [--column-statistics](#_bookmark429)

Add ANALYZE TABLE statements to the output to generate histogram statistics for dumped tables when the dump file is reloaded. This option is disabled by default because histogram generation for large tables can take a long time.

• [--disable-keys](#_bookmark447), -K



For each table, surround the INSERT statements with /\*!40000 ALTER TABLE *tbl\_name* DISABLE KEYS \*/; and /\*!40000 ALTER TABLE *tbl\_name* ENABLE KEYS \*/; statements. This makes loading the dump file faster because the indexes are created after all rows are inserted. This option is effective only for nonunique indexes of MyISAM tables.

• [--extended-insert](#_bookmark416), -e

Write INSERT statements using multiple-row syntax that includes several VALUES lists. This results in a smaller dump file and speeds up inserts when the file is reloaded.

• [--insert-ignore](#_bookmark464)

Write INSERT IGNORE statements rather than INSERT statements.

• [--max-allowed-packet=*value*](#_bookmark471)

The maximum size of the buffer for client/server communication. The default is 24MB, the maximum is 1GB.

**Note**

The value of this option is specific to [mysqldump](#_bookmark37) and should not be confused with the MySQL server's max\_allowed\_packet system variable; the server value cannot be exceeded by a single packet from [mysqldump](#_bookmark37), regardless of any setting for the [mysqldump](#_bookmark37) option, even if the latter is larger.

• [--mysqld-long-query-time=*value*](#_bookmark472)

Set the session value of the long\_query\_time system variable. Use this option, which is available from MySQL 8.0.30, if you want to increase the time allowed for [mysqldump](#_bookmark37)’s queries before they are logged to the slow query log file. [mysqldump](#_bookmark37) performs a full table scan, which means its queries can often exceed a global long\_query\_time setting that is useful for regular queries. The default global setting is 10 seconds.

You can use [--mysqld-long-query-time](#_bookmark472) to specify a session value from 0 (meaning that every query from [mysqldump](#_bookmark37) is logged to the slow query log) to 31536000, which is 365 days in seconds. For [mysqldump](#_bookmark37)’s option, you can only specify whole seconds. When you do not specify this option, the server’s global setting applies to [mysqldump](#_bookmark37)’s queries.

• [--net-buffer-length=*value*](#_bookmark473)

The initial size of the buffer for client/server communication. When creating multiple-row INSERT statements (as with the [-- -](#_bookmark416)extendedinsert or [--](#_bookmark414)opt option), [mysqldump](#_bookmark37) creates rows up to [--net-buffer-length](#_bookmark473) bytes long. If you increase this variable, ensure that the MySQL server net\_buffer\_length system variable has a value at least this large.

• [--network-timeout](#_bookmark474), -M

Enable large tables to be dumped by setting [--max-allowed-packet](#_bookmark471) to its maximum value and network read and write timeouts to a large value. This option is enabled by default. To disable it, use [--skip-network-timeout](#_bookmark474).

• [--opt](#_bookmark414)

This option, enabled by default, is shorthand for the combination of [--add-drop-table](#_bookmark421) [--add-](#_bookmark423) [locks](#_bookmark423) [-- -](#_bookmark436)createoptions [-- -](#_bookmark447)disablekeys [-- -](#_bookmark416)extendedinsert [-- -](#_bookmark467)locktables [--](#_bookmark413)quick



[--set-charset](#_bookmark498). It gives a fast dump operation and produces a dump file that can be reloaded into a MySQL server quickly.

Because the --opt option is enabled by default, you only specify its converse, the [--skip-opt](#_bookmark415) to turn off several default settings. See the discussion of [mysqldump option groups](#_bookmark409) for information about selectively enabling or disabling a subset of the options affected by --opt.

• [--quick](#_bookmark413), -q

This option is useful for dumping large tables. It forces [mysqldump](#_bookmark37) to retrieve rows for a table from the server a row at a time rather than retrieving the entire row set and buffering it in memory before writing it out.

• [--skip-opt](#_bookmark415)

See the description for the [--opt](#_bookmark414) option.

**Transactional** **Options**

The following options trade off the performance of the dump operation, against the reliability and consistency of the exported data.

• [--add-locks](#_bookmark423)

Surround each table dump with LOCK TABLES and UNLOCK TABLES statements. This results in faster inserts when the dump file is reloaded. See Section 8.2.5.1, “Optimizing INSERT Statements” .

• [--flush-logs](#_bookmark454), -F

Flush the MySQL server log files before starting the dump. This option requires the RELOAD privilege. If you use this option in combination with the [--all-databases](#_bookmark418) option, the logs are flushed *for* *each* *database* *dumped*. The exception is when using [--lock-all-tables](#_bookmark466), [--](#_bookmark507) [source-data](#_bookmark507) or [--master-data](#_bookmark470), or [--single-transaction](#_bookmark412). In these cases, the logs are flushed only once, corresponding to the moment that all tables are locked by FLUSH TABLES WITH READ LOCK. If you want your dump and the log flush to happen at exactly the same moment, you should use --flush-logs together with [--lock-all-tables](#_bookmark466), [--source-data](#_bookmark507) or [--master-](#_bookmark470) [data](#_bookmark470), or [-- -](#_bookmark412)singletransaction.

• [--flush-privileges](#_bookmark455)

Add a FLUSH PRIVILEGES statement to the dump output after dumping the mysql database. This option should be used any time the dump contains the mysql database and any other database that depends on the data in the mysql database for proper restoration.

Because the dump file contains a FLUSH PRIVILEGES statement, reloading the file requires privileges sufficient to execute that statement.

**Note**

For upgrades to MySQL 5.7 or higher from older versions, do not use --flush-privileges. For upgrade instructions in this case, see Section 2.10.4, “Changes in MySQL 8.0” .

• [--lock-all-tables](#_bookmark466), -x

Lock all tables across all databases. This is achieved by acquiring a global read lock for the duration of the whole dump. This option automatically turns off [--single-transaction](#_bookmark412) and [--lock-](#_bookmark467) [tables](#_bookmark467).

• [--lock-tables](#_bookmark467), -l

For each dumped database, lock all tables to be dumped before dumping them. The tables are locked with READ LOCAL to permit concurrent inserts in the case of MyISAM tables. For transactional tables such as InnoDB, [--single-transaction](#_bookmark412) is a much better option than --lock-tables because it does not need to lock the tables at all.

Because --lock-tables locks tables for each database separately, this option does not guarantee that the tables in the dump file are logically consistent between databases. Tables in different databases may be dumped in completely different states.

Some options, such as [--opt](#_bookmark414), automatically enable --lock-tables. If you want to override this, use --skip-lock-tables at the end of the option list.

• [--no-autocommit](#_bookmark475)

Enclose the INSERT statements for each dumped table within SET autocommit = 0 and COMMIT statements.

• [--order-by-primary](#_bookmark482)

Dump each table's rows sorted by its primary key, or by its first unique index, if such an index exists. This is useful when dumping a MyISAM table to be loaded into an InnoDB table, but makes the dump operation take considerably longer.

• [--shared-memory-base-name=*name*](#_bookmark500)

On Windows, the shared-memory name to use for connections made using shared memory to a local server. The default value is MYSQL. The shared-memory name is case-sensitive.

This option applies only if the server was started with the shared\_memory system variable enabled to support shared-memory connections.

• [--single-transaction](#_bookmark412)

This option sets the transaction isolation mode to REPEATABLE READ and sends a START TRANSACTION SQL statement to the server before dumping data. It is useful only with transactional tables such as InnoDB, because then it dumps the consistent state of the database at the time when START TRANSACTION was issued without blocking any applications.

The RELOAD or FLUSH\_TABLES privilege is required with [--single-transaction](#_bookmark412) if both gtid\_mode=ON and --set-gtid=purged=ON|AUTO. This requirement was added in MySQL 8.0.32.

When using this option, you should keep in mind that only InnoDB tables are dumped in a consistent state. For example, any MyISAM or MEMORY tables dumped while using this option may still change state.

While a [--single-transaction](#_bookmark412) dump is in process, to ensure a valid dump file (correct table contents and binary log coordinates), no other connection should use the following statements: ALTER TABLE, CREATE TABLE, DROP TABLE, RENAME TABLE, TRUNCATE TABLE. A consistent read is not isolated from those statements, so use of them on a table to be dumped can cause the SELECT that is performed by [mysqldump](#_bookmark37) to retrieve the table contents to obtain incorrect contents or fail.

The --single-transaction option and the [--lock-tables](#_bookmark467) option are mutually exclusive because LOCK TABLES causes any pending transactions to be committed implicitly.

Using --single-transaction together with the [--set-gtid-purged](#_bookmark499) option is not recommended; doing so can lead to inconsistencies in the output of [mysqldump](#_bookmark37).

To dump large tables, combine the --single-transaction option with the [--quick](#_bookmark413) option.

**Option** **Groups**

• The [--opt](#_bookmark414) option turns on several settings that work together to perform a fast dump operation. All of these settings are on by default, because --opt is on by default. Thus you rarely if ever specify --opt. Instead, you can turn these settings off as a group by specifying --skip-opt, then optionally re-enable certain settings by specifying the associated options later on the command line.

• The [--compact](#_bookmark431) option turns off several settings that control whether optional statements and comments appear in the output. Again, you can follow this option with other options that re-enable certain settings, or turn all the settings on by using the --skip-compact form.

When you selectively enable or disable the effect of a group option, order is important because options are processed first to last. For example, [--disable-keys](#_bookmark447) [--lock-tables](#_bookmark467) [--skip-opt](#_bookmark415) would not have the intended effect; it is the same as [--skip-opt](#_bookmark415) by itself.

**Examples**

To make a backup of an entire database:

mysqldump *db\_name* > *backup-file* *.sql*

To load the dump file back into the server:

mysql *db\_name* < *backup-file* *.sql*

Another way to reload the dump file:

mysql -e "source */path-to-backup/backup-file* *.sql*" *db\_name*

[mysqldump](#_bookmark37) is also very useful for populating databases by copying data from one MySQL server to another:

mysqldump --opt *db\_name* | mysql --host=*remote\_host* -C *db\_name*

You can dump several databases with one command:

|  |  |  |
| --- | --- | --- |
| mysqldump | --databases | *db\_name1* [*db\_name2* ...] > my\_databases.sql |

To dump all databases, use the [--all-databases](#_bookmark418) option:

mysqldump --all-databases > all\_databases.sql

For InnoDB tables, [mysqldump](#_bookmark37) provides a way of making an online backup:

mysqldump --all-databases --master-data --single-transaction > all\_databases.sql

or from MySQL 8.0.26:

mysqldump --all-databases --source-data --single-transaction > all\_databases.sql

This backup acquires a global read lock on all tables (using FLUSH TABLES WITH READ LOCK) at the beginning of the dump. As soon as this lock has been acquired, the binary log coordinates are read and the lock is released. If long updating statements are running when the FLUSH statement is issued, the MySQL server may get stalled until those statements finish. After that, the dump becomes lock free and does not disturb reads and writes on the tables. If the update statements that the MySQL server receives are short (in terms of execution time), the initial lock period should not be noticeable, even with many updates.

For point-in-time recovery (also known as “roll-forward,” when you need to restore an old backup and replay the changes that happened since that backup), it is often useful to rotate the binary log (see Section 5.4.4, “The Binary Log”) or at least know the binary log coordinates to which the dump corresponds:

mysqldump --all-databases --master-data=2 > all\_databases.sql

or from MySQL 8.0.26:

mysqldump --all-databases --source-data=2 > all\_databases.sql

Or:

mysqldump --all-databases --flush-logs --master-data=2 > all\_databases.sql

or from MySQL 8.0.26:

mysqldump --all-databases --flush-logs --source-data=2 > all\_databases.sql

The [--source-data](#_bookmark507) or [--master-data](#_bookmark470) option can be used simultaneously with the [--single-](#_bookmark412) [transaction](#_bookmark412) option, which provides a convenient way to make an online backup suitable for use prior to point-in-time recovery if tables are stored using the InnoDB storage engine.

For more information on making backups, see Section 7.2, “Database Backup Methods” , and Section 7.3, “Example Backup and Recovery Strategy” .

• To select the effect of [--opt](#_bookmark414) except for some features, use the --skip option for each feature. To disable extended inserts and memory buffering, use [--opt](#_bookmark414) [--skip-extended-insert](#_bookmark416) [--skip-](#_bookmark413) [quick](#_bookmark413). (Actually, [-- - -](#_bookmark416)skipextendedinsert [-- -](#_bookmark413)skipquick is sufficient because [--](#_bookmark414)opt is on by default.)

• To reverse [--opt](#_bookmark414) for all features except disabling of indexes and table locking, use [--skip-opt](#_bookmark415) [--](#_bookmark447) [disable-keys](#_bookmark447) [--lock-tables](#_bookmark467).

**Restrictions**

[mysqldump](#_bookmark37) does not dump the performance\_schema or sys schema by default. To dump any of these, name them explicitly on the command line. You can also name them with the [--databases](#_bookmark417) option. For performance\_schema, also use the [--skip-lock-tables](#_bookmark467) option.

[mysqldump](#_bookmark37) does not dump the INFORMATION\_SCHEMA schema.

[mysqldump](#_bookmark37) does not dump InnoDB CREATE TABLESPACE statements.

[mysqldump](#_bookmark37) does not dump the NDB Cluster ndbinfo information database.

[mysqldump](#_bookmark37) includes statements to recreate the general\_log and slow\_query\_log tables for dumps of the mysql database. Log table contents are not dumped.

If you encounter problems backing up views due to insufficient privileges, see Section 25.9, “Restrictions on Views” for a workaround.

**4.5.5** **mysqlimport** **—** **A** **Data** **Import** **Program**

The [mysqlimport](#_bookmark55) client provides a command-line interface to the LOAD DATA SQL statement. Most options to [mysqlimport](#_bookmark55) correspond directly to clauses of LOAD DATA syntax. See Section 13.2.9,

“LOAD DATA Statement” .

Invoke [mysqlimport](#_bookmark55) like this:

mysqlimport [*options*] *db\_name* *textfile1* [*textfile2* ...]

For each text file named on the command line, [mysqlimport](#_bookmark55) strips any extension from the file name and uses the result to determine the name of the table into which to import the file's contents. For example, files named patient.txt, patient.text, and patient all would be imported into a table named patient.

[mysqlimport](#_bookmark55) supports the following options, which can be specified on the command line or in the [mysqlimport] and [client] groups of an option file. For information about option files used by MySQL programs, see Section 4.2.2.2, “Using Option Files” .

**Table** **4.15** **mysqlimport** **Options**

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--bind-address](#_bookmark520) | Use specified network interface to connect to MySQL Server |  |  |
| [--columns](#_bookmark521) | This option takes a comma-separated list of column names as its value |  |  |
| [--compress](#_bookmark522) | Compress all  information sent  between client and  server |  | 8.0.18 |
| [--compression-](#_bookmark523)  [algorithms](#_bookmark523) | Permitted compression algorithms for connections to server | 8.0.18 |  |
| [--debug](#_bookmark524) | Write debugging log |  |  |
| [--debug-check](#_bookmark525) | Print debugging  information when  program exits |  |  |
| [--debug-info](#_bookmark526) | Print debugging information, memory, and CPU statistics when program exits |  |  |
| [--default-auth](#_bookmark527) | Authentication plugin to use |  |  |
| [--default-character-set](#_bookmark528) | Specify default  character set |  |  |
| [--defaults-extra-file](#_bookmark529) | Read named option file in addition to usual option files |  |  |
| [--defaults-file](#_bookmark530) | Read only named option file |  |  |
| [--defaults-group-suffix](#_bookmark531) | Option group suffix  value |  |  |
| [--delete](#_bookmark532) | Empty the table before importing the text file |  |  |
| [--enable-cleartext-plugin](#_bookmark533) | Enable cleartext authentication plugin |  |  |
| [--fields-enclosed-by](#_bookmark534) | This option has the same meaning as the corresponding clause for  LOAD DATA |  |  |
| [--fields-escaped-by](#_bookmark534) | This option has the same meaning as the corresponding clause for  LOAD DATA |  |  |
| [--fields-optionally-](#_bookmark534)  [enclosed-by](#_bookmark534) | This option has the same meaning as the corresponding clause for  LOAD DATA |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--fields-terminated-by](#_bookmark534) | This option has the same meaning as the corresponding clause for  LOAD DATA |  |  |
| [--force](#_bookmark535) | Continue even if an SQL error occurs |  |  |
| [--get-server-public-key](#_bookmark536) | Request RSA public key from server |  |  |
| [--help](#_bookmark537) | Display help message and exit |  |  |
| [--host](#_bookmark538) | Host on which MySQL server is located |  |  |
| [--ignore](#_bookmark539) | See the description for the --replace option |  |  |
| [--ignore-lines](#_bookmark540) | Ignore the first N lines of the data file |  |  |
| [--lines-terminated-by](#_bookmark541) | This option has the same meaning as the corresponding clause for  LOAD DATA |  |  |
| [--local](#_bookmark542) | Read input files locally from the client host |  |  |
| [--lock-tables](#_bookmark543) | Lock all tables for writing before processing any text files |  |  |
| [--login-path](#_bookmark544) | Read login path options from .mylogin.cnf |  |  |
| [--low-priority](#_bookmark545) | Use LOW\_PRIORITY when loading the table |  |  |
| [--no-defaults](#_bookmark546) | Read no option files |  |  |
| [--password](#_bookmark547) | Password to use when connecting to server |  |  |
| [--password1](#_bookmark548) | First multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password2](#_bookmark549) | Second multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password3](#_bookmark550) | Third multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--pipe](#_bookmark551) | Connect to server using named pipe (Windows only) |  |  |
| [--plugin-dir](#_bookmark552) | Directory where plugins are installed |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--port](#_bookmark553) | TCP/IP port number for connection |  |  |
| [--print-defaults](#_bookmark554) | Print default options |  |  |
| [--protocol](#_bookmark555) | Transport protocol to use |  |  |
| [--replace](#_bookmark556) | The --replace and -- ignore options control handling of input rows that duplicate existing rows on unique key values |  |  |
| [--server-public-key-path](#_bookmark557) | Path name to file containing RSA public key |  |  |
| [--shared-memory-base-](#_bookmark558) [name](#_bookmark558) | Shared-memory name for shared-memory connections (Windows only) |  |  |
| [--silent](#_bookmark559) | Produce output only  when errors occur |  |  |
| [--socket](#_bookmark560) | Unix socket file or Windows named pipe to use |  |  |
| [--ssl-ca](#_bookmark561) | File that contains list of trusted SSL Certificate  Authorities |  |  |
| [--ssl-capath](#_bookmark561) | Directory that contains trusted SSL Certificate Authority certificate files |  |  |
| [--ssl-cert](#_bookmark561) | File that contains X.509 certificate |  |  |
| [--ssl-cipher](#_bookmark561) | Permissible ciphers for connection encryption |  |  |
| [--ssl-crl](#_bookmark561) | File that contains certificate revocation lists |  |  |
| [--ssl-crlpath](#_bookmark561) | Directory that contains certificate revocation-list files |  |  |
| [--ssl-fips-mode](#_bookmark562) | Whether to enable FIPS mode on client side |  |  |
| [--ssl-key](#_bookmark561) | File that contains X.509 key |  |  |
| [--ssl-mode](#_bookmark561) | Desired security state of connection to server |  |  |
| [--ssl-session-data](#_bookmark561) | File that contains SSL session data | 8.0.29 |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--ssl-session-data-](#_bookmark561) [continue-on-failed-reuse](#_bookmark561) | Whether to establish connections if session reuse fails | 8.0.29 |  |
| [--tls-ciphersuites](#_bookmark563) | Permissible TLSv1.3  ciphersuites for encrypted connections | 8.0.16 |  |
| [--tls-version](#_bookmark564) | Permissible TLS  protocols for encrypted connections |  |  |
| [--use-threads](#_bookmark565) | Number of threads for parallel file-loading |  |  |
| [--user](#_bookmark566) | MySQL user name to use when connecting to server |  |  |
| [--verbose](#_bookmark567) | Verbose mode |  |  |
| [--version](#_bookmark568) | Display version  information and exit |  |  |
| [--zstd-compression-level](#_bookmark569) | Compression level  for connections to  server that use zstd  compression | 8.0.18 |  |

• [--help](#_bookmark537), -?

Display a help message and exit.

• [--bind-address=*ip\_address*](#_bookmark520)

On a computer having multiple network interfaces, use this option to select which interface to use for connecting to the MySQL server.

• [--character-sets-dir=*dir\_name*](#_bookmark570)

The directory where character sets are installed. See Section 10.15, “Character Set Configuration” .

• [--columns=*column\_list*](#_bookmark521), -c *column\_list*

This option takes a list of comma-separated column names as its value. The order of the column names indicates how to match data file columns with table columns.

• [--compress](#_bookmark522), -C

Compress all information sent between the client and the server if possible. See [Section 4.2.8,](#_bookmark31) [“Connection Compression Control”](#_bookmark31) .

As of MySQL 8.0.18, this option is deprecated. Expect it to be removed in a future version of MySQL. See [Configuring Legacy Connection Compression](#_bookmark35).

• [--compression-algorithms=*value*](#_bookmark523)

The permitted compression algorithms for connections to the server. The available algorithms are the same as for the protocol\_compression\_algorithms system variable. The default value is uncompressed.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

• [--debug[=*debug\_options*]](#_bookmark524), -# [*debug\_options*]

Write a debugging log. A typical *debug\_options* string is d:t:o,*file\_name*. The default is d:t:o.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-check](#_bookmark525)

Print some debugging information when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-info](#_bookmark526)

Print debugging information and memory and CPU usage statistics when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--default-character-set=*charset\_name*](#_bookmark528)

Use *charset\_name* as the default character set. See Section 10.15, “Character Set Configuration” .

• [--default-auth=*plugin*](#_bookmark527)

A hint about which client-side authentication plugin to use. See Section 6.2.17, “Pluggable

Authentication” .

• [--defaults-extra-file=*file\_name*](#_bookmark529)

Read this option file after the global option file but (on Unix) before the user option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-file=*file\_name*](#_bookmark530)

Use only the given option file. If the file does not exist or is otherwise inaccessible, an error occurs. If

*file\_name* is not an absolute path name, it is interpreted relative to the current directory. Exception: Even with --defaults-file, client programs read .mylogin.cnf.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-group-suffix=*str*](#_bookmark531)

Read not only the usual option groups, but also groups with the usual names and a suffix of *str*. For example, [mysqlimport](#_bookmark55) normally reads the [client] and [mysqlimport] groups. If this option is given as [-- - -](#_bookmark531)defaultsgroupsuffix=\_other, [mysqlimport](#_bookmark55) also reads the [client\_other] and [mysqlimport\_other] groups.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--delete](#_bookmark532), -D

Empty the table before importing the text file.

• [--enable-cleartext-plugin](#_bookmark533)

Enable the mysql\_clear\_password cleartext authentication plugin. (See Section 6.4.1.4, “Client- Side Cleartext Pluggable Authentication” .)

• [--fields-terminated-by=...](#_bookmark534), [--fields-enclosed-by=...](#_bookmark534), [--fields-optionally-](#_bookmark534) [enclosed-by=...](#_bookmark534), [--fields-escaped-by=...](#_bookmark534)

These options have the same meaning as the corresponding clauses for LOAD DATA. See Section 13.2.9, “LOAD DATA Statement” .

• [--force](#_bookmark535), -f

Ignore errors. For example, if a table for a text file does not exist, continue processing any remaining files. Without [--](#_bookmark535)force, [mysqlimport](#_bookmark55) exits if a table does not exist.

• [--get-server-public-key](#_bookmark536)

Request from the server the public key required for RSA key pair-based password exchange. This option applies to clients that authenticate with the caching\_sha2\_password authentication plugin. For that plugin, the server does not send the public key unless requested. This option is ignored for accounts that do not authenticate with that plugin. It is also ignored if RSA-based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark557) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark536).

For information about the caching\_sha2\_password plugin, see Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--host=*host\_name*](#_bookmark538), -h *host\_name*

Import data to the MySQL server on the given host. The default host is localhost.

• [--ignore](#_bookmark539), -i

See the description for the [--replace](#_bookmark556) option.

• [--ignore-lines=*N*](#_bookmark540)

Ignore the first *N* lines of the data file.

• [--lines-terminated-by=...](#_bookmark541)

This option has the same meaning as the corresponding clause for LOAD DATA. For example, to import Windows files that have lines terminated with carriage return/linefeed pairs, use [--lines-](#_bookmark541) [terminated-by="\r\n"](#_bookmark541). (You might have to double the backslashes, depending on the escaping conventions of your command interpreter.) See Section 13.2.9, “LOAD DATA Statement” .

• [--local](#_bookmark542), -L

By default, files are read by the server on the server host. With this option, [mysqlimport](#_bookmark55) reads input files locally on the client host.

Successful use of LOCAL load operations within [mysqlimport](#_bookmark55) also requires that the server permits local loading; see Section 6.1.6, “Security Considerations for LOAD DATA LOCAL”

• [--lock-tables](#_bookmark467), -l

Lock *all* tables for writing before processing any text files. This ensures that all tables are synchronized on the server.

• [--login-path=*name*](#_bookmark544)

Read options from the named login path in the .mylogin.cnf login path file. A “login path” is an option group containing options that specify which MySQL server to connect to and which account to authenticate as. To create or modify a login path file, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--low-priority](#_bookmark545)

Use LOW\_PRIORITY when loading the table. This affects only storage engines that use only table- level locking (such as MyISAM, MEMORY, and MERGE).

• [--no-defaults](#_bookmark546)

Do not read any option files. If program startup fails due to reading unknown options from an option file, [--no-defaults](#_bookmark546) can be used to prevent them from being read.

The exception is that the .mylogin.cnf file is read in all cases, if it exists. This permits passwords to be specified in a safer way than on the command line even when [--no-defaults](#_bookmark546) is used. To create .mylogin.cnf, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [password[=*password*]](#_bookmark547)--, -p[*password*]

The password of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysqlimport](#_bookmark55) prompts for one. If given, there must be *no* *space* between [--](#_bookmark547) [password=](#_bookmark547) or -p and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqlimport](#_bookmark55) should not prompt for one, use the [--skip-password](#_bookmark547) option.

• [--password1[=*pass\_val*]](#_bookmark548)

The password for multifactor authentication factor 1 of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysqlimport](#_bookmark55) prompts for one. If given, there must be *no* *space* between [--password1=](#_bookmark548) and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqlimport](#_bookmark55) should not prompt for one, use the [--skip-password1](#_bookmark548) option.

[--password1](#_bookmark548) and [--password](#_bookmark547) are synonymous, as are [--skip-password1](#_bookmark548) and [--skip-](#_bookmark547) [password](#_bookmark547).

• [--password2[=*pass\_val*]](#_bookmark549)

The password for multifactor authentication factor 2 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark548); see the description of that option for details.

• [--password3[=*pass\_val*]](#_bookmark550)

The password for multifactor authentication factor 3 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark548); see the description of that option for details.

• [--pipe](#_bookmark551), -W

On Windows, connect to the server using a named pipe. This option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• [--plugin-dir=*dir\_name*](#_bookmark552)

The directory in which to look for plugins. Specify this option if the [--default-auth](#_bookmark527) option is used to specify an authentication plugin but [mysqlimport](#_bookmark55) does not find it. See Section 6.2.17, “Pluggable Authentication” .

• [--port=*port\_num*](#_bookmark553), -P *port\_num*

For TCP/IP connections, the port number to use.

• [--print-defaults](#_bookmark554)

Print the program name and all options that it gets from option files.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--protocol={TCP|SOCKET|PIPE|MEMORY}](#_bookmark555)

The transport protocol to use for connecting to the server. It is useful when the other connection parameters normally result in use of a protocol other than the one you want. For details on the permissible values, see [Section 4.2.7, “Connection Transport Protocols”](#_bookmark8) .

• [--replace](#_bookmark556), -r

The [--replace](#_bookmark556) and [--ignore](#_bookmark539) options control handling of input rows that duplicate existing rows on unique key values. If you specify [--replace](#_bookmark556), new rows replace existing rows that have the same unique key value. If you specify [--ignore](#_bookmark539), input rows that duplicate an existing row on a unique key value are skipped. If you do not specify either option, an error occurs when a duplicate key value is found, and the rest of the text file is ignored.

• [--server-public-key-path=*file\_name*](#_bookmark557)

The path name to a file in PEM format containing a client-side copy of the public key required by the server for RSA key pair-based password exchange. This option applies to clients that authenticate with the sha256\_password or caching\_sha2\_password authentication plugin. This option is ignored for accounts that do not authenticate with one of those plugins. It is also ignored if RSA-



based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark557) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark536).

For sha256\_password, this option applies only if MySQL was built using OpenSSL.

For information about the sha256\_password and caching\_sha2\_password plugins, see Section 6.4.1.3, “SHA-256 Pluggable Authentication” , and Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--shared-memory-base-name=*name*](#_bookmark558)

On Windows, the shared-memory name to use for connections made using shared memory to a local server. The default value is MYSQL. The shared-memory name is case-sensitive.

This option applies only if the server was started with the shared\_memory system variable enabled to support shared-memory connections.

• [--silent](#_bookmark559), -s

Silent mode. Produce output only when errors occur.

• [--socket=*path*](#_bookmark560), -S *path*

For connections to localhost, the Unix socket file to use, or, on Windows, the name of the named pipe to use.

On Windows, this option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• --ssl\*

Options that begin with --ssl specify whether to connect to the server using encryption and indicate where to find SSL keys and certificates. See [Command Options for Encrypted Connections](#_bookmark12).

• [--ssl-fips-mode={OFF|ON|STRICT}](#_bookmark562)

Controls whether to enable FIPS mode on the client side. The [--ssl-fips-mode](#_bookmark562) option differs from other --ssl-*xxx* options in that it is not used to establish encrypted connections, but rather to affect which cryptographic operations to permit. See Section 6.8, “FIPS Support” .

These [--ssl-fips-mode](#_bookmark562) values are permitted:

• OFF: Disable FIPS mode.

• ON: Enable FIPS mode.

• STRICT: Enable “strict” FIPS mode.

**Note**

If the OpenSSL FIPS Object Module is not available, the only permitted value for [--ssl-fips-mode](#_bookmark562) is OFF. In this case, setting [--ssl-fips-mode](#_bookmark562) to ON or STRICT causes the client to produce a warning at startup and to operate in non-FIPS mode.

• [--tls-ciphersuites=*ciphersuite\_list*](#_bookmark563)

The permissible ciphersuites for encrypted connections that use TLSv1.3. The value is a list of one or more colon-separated ciphersuite names. The ciphersuites that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

This option was added in MySQL 8.0.16.

• [--tls-version=*protocol\_list*](#_bookmark564)

The permissible TLS protocols for encrypted connections. The value is a list of one or more comma- separated protocol names. The protocols that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

• [--user=*user\_name*](#_bookmark566), -u *user\_name*

The user name of the MySQL account to use for connecting to the server.

• [--use-threads=*N*](#_bookmark565)

Load files in parallel using *N*threads.

• [--verbose](#_bookmark567), -v

Verbose mode. Print more information about what the program does.

• [--version](#_bookmark568), -V

Display version information and exit.

• [--zstd-compression-level=*level*](#_bookmark569)

The compression level to use for connections to the server that use the zstd compression algorithm. The permitted levels are from 1 to 22, with larger values indicating increasing levels of compression. The default zstd compression level is 3. The compression level setting has no effect on connections that do not use zstd compression.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

Here is a sample session that demonstrates use of [mysqlimport](#_bookmark55):

$> **mysql** **-e** **'CREATE** **TABLE** **imptest(id** **INT,** **n** **VARCHAR(30))'** **test**

$> **ed**

a

|  |  |
| --- | --- |
| 100 Max Sydow  101 Count Dracula  .  w imptest.txt  32  q  $> **od** **-c** **imptest.txt**  0  \t  0000040  $> **mysqlimport** **--local** **test** **imptest.txt**  test.imptest: Records: 2 Deleted: 0 Skipped: [0](#_bookmark571)  $> **mysql** **-e** **'SELECT** **\*** **FROM** **imptest'** **test**  + +---------------+  | id | n |  +------+---------------+  | 100 | Max Sydow |  | 101 | Count Dracula | | d o w \n  a c u l  Warnings: 0 |

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**4.5.6** **mysqlpump** **—** **A** **Database** **Backup** **Program**

• [mysqlpump Invocation Syntax](#_bookmark572)

• [mysqlpump Option Summary](#_bookmark573)

• [mysqlpump Option Descriptions](#_bookmark574)

• [mysqlpump Object Selection](#_bookmark575)

• [mysqlpump Parallel Processing](#_bookmark576)

• [mysqlpump Restrictions](#_bookmark577)

The [mysqlpump](#_bookmark56) client utility performs logical backups, producing a set of SQL statements that can be executed to reproduce the original database object definitions and table data. It dumps one or more MySQL databases for backup or transfer to another SQL server.

**Tip**

Consider using the [MySQL Shell dump utilities](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysql-shell-utilities-dump-instance-schema.html), which provide parallel dumping with multiple threads, file compression, and progress information display, as well as cloud features such as Oracle Cloud Infrastructure Object Storage streaming, and MySQL Database Service compatibility checks and modifications. Dumps can be easily imported into a MySQL Server instance or a MySQL Database Service DB System using the [MySQL Shell load dump](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysql-shell-utilities-load-dump.html) [utilities](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysql-shell-utilities-load-dump.html). Installation instructions for MySQL Shell can be found [here](https://dev.mysql.com/doc/mysql-shell/8.0/en/mysql-shell-install.html).

[mysqlpump](#_bookmark56) features include:

• Parallel processing of databases, and of objects within databases, to speed up the dump process

• Better control over which databases and database objects (tables, stored programs, user accounts) to dump

• Dumping of user accounts as account-management statements (CREATE USER, GRANT) rather than as inserts into the mysql system database

• Capability of creating compressed output

• Progress indicator (the values are estimates)

• For dump file reloading, faster secondary index creation for InnoDB tables by adding indexes after rows are inserted

**Note**

[mysqlpump](#_bookmark56) uses MySQL features introduced in MySQL 5.7, and thus assumes use with MySQL 5.7 or higher.

[mysqlpump](#_bookmark56) requires at least the SELECT privilege for dumped tables, SHOW VIEW for dumped views, TRIGGER for dumped triggers, and LOCK TABLES if the [--single-transaction](#_bookmark578) option is not used. The SELECT privilege on the mysql system database is required to dump user definitions. Certain options might require other privileges as noted in the option descriptions.

To reload a dump file, you must have the privileges required to execute the statements that it contains, such as the appropriate CREATE privileges for objects created by those statements.

**Note**

A dump made using PowerShell on Windows with output redirection creates a file that has UTF-16 encoding:

mysqlpump [options] > dump.sql

However, UTF-16 is not permitted as a connection character set (see Section 10.4, “Connection Character Sets and Collations”), so the dump file cannot be loaded correctly. To work around this issue, use the --result- file option, which creates the output in ASCII format:

mysqlpump [options] --result-file=dump.sql

**mysqlpump** **Invocation** **Syntax**

By default, [mysqlpump](#_bookmark56) dumps all databases (with certain exceptions noted in [mysqlpump](#_bookmark577) [Restrictions](#_bookmark577)). To specify this behavior explicitly, use the [-- -](#_bookmark579)alldatabases option:

mysqlpump --all-databases

To dump a single database, or certain tables within that database, name the database on the command line, optionally followed by table names:

mysqlpump *db\_name*

mysqlpump *db\_name* *tbl\_name1* *tbl\_name2* *...*

To treat all name arguments as database names, use the [--databases](#_bookmark580) option:

mysqlpump --databases *db\_name1* *db\_name2* ...

By default, [mysqlpump](#_bookmark56) does not dump user account definitions, even if you dump the mysql system database that contains the grant tables. To dump grant table contents as logical definitions in the form of CREATE USER and GRANT statements, use the [--users](#_bookmark581) option and suppress all database dumping:

mysqlpump --exclude-databases=% --users

In the preceding command, % is a wildcard that matches all database names for the [--exclude-](#_bookmark582) [databases](#_bookmark582) option.

[mysqlpump](#_bookmark56) supports several options for including or excluding databases, tables, stored programs, and user definitions. See [mysqlpump Object Selection](#_bookmark575).

To reload a dump file, execute the statements that it contains. For example, use the [mysql](#_bookmark29) client:

mysqlpump [options] > dump.sql

mysql < dump.sql

The following discussion provides additional [mysqlpump](#_bookmark56) usage examples.

To see a list of the options [mysqlpump](#_bookmark56) supports, issue the command [--](#_bookmark56)mysqlpumphelp.

**mysqlpump** **Option** **Summary**

[mysqlpump](#_bookmark56) supports the following options, which can be specified on the command line or in the

[mysqlpump] and [client] groups of an option file. (Prior to MySQL 8.0.20, [mysqlpump](#_bookmark56) read the [mysql\_dump] group rather than [mysqlpump]. As of 8.0.20, [mysql\_dump] is still accepted but is deprecated.) For information about option files used by MySQL programs, see Section 4.2.2.2, “Using Option Files” .

**Table** **4.16** **mysqlpump** **Options**

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--add-drop-database](#_bookmark583) | Add DROP DATABASE  statement before each  CREATE DATABASE  statement |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--add-drop-table](#_bookmark584) | Add DROP TABLE  statement before each CREATE TABLE statement |  |  |
| [--add-drop-user](#_bookmark585) | Add DROP USER  statement before each CREATE USER statement |  |  |
| [--add-locks](#_bookmark586) | Surround each table dump with LOCK TABLES and UNLOCK TABLES statements |  |  |
| [--all-databases](#_bookmark579) | Dump all databases |  |  |
| [--bind-address](#_bookmark587) | Use specified network interface to connect to MySQL Server |  |  |
| [--character-sets-dir](#_bookmark588) | Directory where  character sets are  installed |  |  |
| [--column-statistics](#_bookmark589) | Write ANALYZE TABLE  statements to generate statistics histograms |  |  |
| [--complete-insert](#_bookmark590) | Use complete INSERT statements that include column names |  |  |
| [--compress](#_bookmark591) | Compress all  information sent  between client and  server |  | 8.0.18 |
| [--compress-output](#_bookmark592) | Output compression algorithm |  |  |
| [--compression-](#_bookmark593)  [algorithms](#_bookmark593) | Permitted compression algorithms for connections to server | 8.0.18 |  |
| [--databases](#_bookmark580) | Interpret all name arguments as database names |  |  |
| [--debug](#_bookmark594) | Write debugging log |  |  |
| [--debug-check](#_bookmark595) | Print debugging  information when  program exits |  |  |
| [--debug-info](#_bookmark596) | Print debugging information, memory, and CPU statistics when program exits |  |  |
| [--default-auth](#_bookmark597) | Authentication plugin to use |  |  |
| [--default-character-set](#_bookmark598) | Specify default  character set |  |  |

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| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--default-parallelism](#_bookmark599) | Default number of  threads for parallel  processing |  |  |
| [--defaults-extra-file](#_bookmark600) | Read named option file in addition to usual option files |  |  |
| [--defaults-file](#_bookmark601) | Read only named option file |  |  |
| [--defaults-group-suffix](#_bookmark602) | Option group suffix  value |  |  |
| [--defer-table-indexes](#_bookmark603) | For reloading, defer index creation until after loading table rows |  |  |
| [--events](#_bookmark604) | Dump events from  dumped databases |  |  |
| [--exclude-databases](#_bookmark582) | Databases to exclude from dump |  |  |
| [--exclude-events](#_bookmark605) | Events to exclude from dump |  |  |
| [--exclude-routines](#_bookmark606) | Routines to exclude  from dump |  |  |
| [--exclude-tables](#_bookmark607) | Tables to exclude from dump |  |  |
| [--exclude-triggers](#_bookmark608) | Triggers to exclude from dump |  |  |
| [--exclude-users](#_bookmark609) | Users to exclude from dump |  |  |
| [--extended-insert](#_bookmark610) | Use multiple-row  INSERT syntax |  |  |
| [--get-server-public-key](#_bookmark611) | Request RSA public key from server |  |  |
| [--help](#_bookmark612) | Display help message and exit |  |  |
| [--hex-blob](#_bookmark613) | Dump binary columns using hexadecimal notation |  |  |
| [--host](#_bookmark614) | Host on which MySQL server is located |  |  |
| [--include-databases](#_bookmark615) | Databases to include in dump |  |  |
| [--include-events](#_bookmark616) | Events to include in  dump |  |  |
| [--include-routines](#_bookmark617) | Routines to include in dump |  |  |
| [--include-tables](#_bookmark618) | Tables to include in  dump |  |  |
| [--include-triggers](#_bookmark619) | Triggers to include in dump |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--include-users](#_bookmark620) | Users to include in  dump |  |  |
| [--insert-ignore](#_bookmark621) | Write INSERT IGNORE  rather than INSERT  statements |  |  |
| [--log-error-file](#_bookmark622) | Append warnings and errors to named file |  |  |
| [--login-path](#_bookmark623) | Read login path options from .mylogin.cnf |  |  |
| [--max-allowed-packet](#_bookmark624) | Maximum packet length to send to or receive from server |  |  |
| [--net-buffer-length](#_bookmark625) | Buffer size for  TCP/IP and socket  communication |  |  |
| [--no-create-db](#_bookmark626) | Do not write CREATE DATABASE statements |  |  |
| [--no-create-info](#_bookmark627) | Do not write CREATE TABLE statements that re-create each dumped table |  |  |
| [--no-defaults](#_bookmark628) | Read no option files |  |  |
| [--parallel-schemas](#_bookmark629) | Specify schema- processing parallelism |  |  |
| [--password](#_bookmark630) | Password to use when connecting to server |  |  |
| [--password1](#_bookmark631) | First multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password2](#_bookmark632) | Second multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password3](#_bookmark633) | Third multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--plugin-dir](#_bookmark634) | Directory where plugins are installed |  |  |
| [--port](#_bookmark635) | TCP/IP port number for connection |  |  |
| [--print-defaults](#_bookmark636) | Print default options |  |  |
| [--protocol](#_bookmark637) | Transport protocol to use |  |  |
| [--replace](#_bookmark638) | Write REPLACE  statements rather than INSERT statements |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--result-file](#_bookmark639) | Direct output to a given file |  |  |
| [--routines](#_bookmark640) | Dump stored routines (procedures and functions) from dumped databases |  |  |
| [--server-public-key-path](#_bookmark641) | Path name to file containing RSA public key |  |  |
| [--set-charset](#_bookmark642) | Add SET NAMES  default\_character\_set to output |  |  |
| [--set-gtid-purged](#_bookmark643) | Whether to add SET @@GLOBAL.GTID\_PUR to output | GED |  |
| [--single-transaction](#_bookmark578) | Dump tables within  single transaction |  |  |
| [--skip-definer](#_bookmark644) | Omit DEFINER and  SQL SECURITY  clauses from view and stored program CREATE statements |  |  |
| [--skip-dump-rows](#_bookmark645) | Do not dump table rows |  |  |
| [--skip-generated-](#_bookmark646) [invisible-primary-key](#_bookmark646) | Do not dump information about generated invisible primary keys | 8.0.30 |  |
| [--socket](#_bookmark647) | Unix socket file or Windows named pipe to use |  |  |
| [--ssl-ca](#_bookmark648) | File that contains list of trusted SSL Certificate  Authorities |  |  |
| [--ssl-capath](#_bookmark648) | Directory that contains trusted SSL Certificate Authority certificate files |  |  |
| [--ssl-cert](#_bookmark648) | File that contains X.509 certificate |  |  |
| [--ssl-cipher](#_bookmark648) | Permissible ciphers for connection encryption |  |  |
| [--ssl-crl](#_bookmark648) | File that contains certificate revocation lists |  |  |
| [--ssl-crlpath](#_bookmark648) | Directory that contains certificate revocation-list files |  |  |
| [--ssl-fips-mode](#_bookmark649) | Whether to enable FIPS mode on client side |  |  |
| [--ssl-key](#_bookmark648) | File that contains X.509 key |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--ssl-mode](#_bookmark648) | Desired security state of connection to server |  |  |
| [--ssl-session-data](#_bookmark648) | File that contains SSL session data | 8.0.29 |  |
| [--ssl-session-data-](#_bookmark648) [continue-on-failed-reuse](#_bookmark648) | Whether to establish connections if session reuse fails | 8.0.29 |  |
| [--tls-ciphersuites](#_bookmark650) | Permissible TLSv1.3  ciphersuites for encrypted connections | 8.0.16 |  |
| [--tls-version](#_bookmark651) | Permissible TLS  protocols for encrypted connections |  |  |
| [--triggers](#_bookmark652) | Dump triggers for each dumped table |  |  |
| [--tz-utc](#_bookmark653) | Add SET  TIME\_ZONE='+00:00' to dump file |  |  |
| [--user](#_bookmark654) | MySQL user name to use when connecting to server |  |  |
| [--users](#_bookmark581) | Dump user accounts |  |  |
| [--version](#_bookmark655) | Display version  information and exit |  |  |
| [--watch-progress](#_bookmark656) | Display progress  indicator |  |  |
| [--zstd-compression-level](#_bookmark657) | Compression level  for connections to  server that use zstd  compression | 8.0.18 |  |

**mysqlpump** **Option** **Descriptions**

• [--help](#_bookmark612), -?

Display a help message and exit.

• [--add-drop-database](#_bookmark583)

Write a DROP DATABASE statement before each CREATE DATABASE statement.

 **Note**

 In MySQL 8.0, the mysql schema is considered a system schema that



• [--add-drop-table](#_bookmark584)

cannot be dropped by end users. If [--add-drop-database](#_bookmark583) is used with [--all-databases](#_bookmark579) or with [--databases](#_bookmark580) where the list of schemas to be dumped includes mysql, the dump file contains a DROP DATABASE `mysql` statement that causes an error when the dump file is reloaded.

Instead, to use [--add-drop-database](#_bookmark583), use [--databases](#_bookmark580) with a list of schemas to be dumped, where the list does not include mysql.



Write a DROP TABLE statement before each CREATE TABLE statement.

• [--add-drop-user](#_bookmark585)

Write a DROP USER statement before each CREATE USER statement.

• [--add-locks](#_bookmark586)

Surround each table dump with LOCK TABLES and UNLOCK TABLES statements. This results in faster inserts when the dump file is reloaded. See Section 8.2.5.1, “Optimizing INSERT Statements” .

This option does not work with parallelism because INSERT statements from different tables can be interleaved and UNLOCK TABLES following the end of the inserts for one table could release locks on tables for which inserts remain.

[--add-locks](#_bookmark586) and [--single-transaction](#_bookmark578) are mutually exclusive.

• [--all-databases](#_bookmark579), -A

Dump all databases (with certain exceptions noted in [mysqlpump Restrictions](#_bookmark577)). This is the default behavior if no other is specified explicitly.

[--all-databases](#_bookmark579) and [--databases](#_bookmark580) are mutually exclusive.

**Note**

See the [--add-drop-database](#_bookmark583) description for information about an incompatibility of that option with [--all-databases](#_bookmark579).

Prior to MySQL 8.0, the [--](#_bookmark496)routines and [--](#_bookmark452)events options for [mysqldump](#_bookmark37) and [mysqlpump](#_bookmark56) were not required to include stored routines and events when using the [--all-databases](#_bookmark418) option: The dump included the mysql system database, and therefore also the mysql.proc and mysql.event tables containing stored routine and event definitions. As of MySQL 8.0, the mysql.event and mysql.proc tables are not used. Definitions for the corresponding objects are stored in data dictionary tables, but those tables are not dumped. To include stored routines and events in a dump made using [--all-databases](#_bookmark418), use the [--routines](#_bookmark496) and [--events](#_bookmark452) options explicitly.

• [--bind-address=*ip\_address*](#_bookmark587)

On a computer having multiple network interfaces, use this option to select which interface to use for connecting to the MySQL server.

• [--character-sets-dir=*path*](#_bookmark588)

The directory where character sets are installed. See Section 10.15, “Character Set Configuration” .

• [--column-statistics](#_bookmark589)

Add ANALYZE TABLE statements to the output to generate histogram statistics for dumped tables when the dump file is reloaded. This option is disabled by default because histogram generation for large tables can take a long time.

• [--complete-insert](#_bookmark590)

Write complete INSERT statements that include column names.



• [--compress](#_bookmark591), -C

Compress all information sent between the client and the server if possible. See [Section 4.2.8,](#_bookmark31) [“Connection Compression Control”](#_bookmark31) .

As of MySQL 8.0.18, this option is deprecated. Expect it to be removed in a future version of MySQL. See [Configuring Legacy Connection Compression](#_bookmark35).

• [--compress-output=*algorithm*](#_bookmark592)

By default, [mysqlpump](#_bookmark56) does not compress output. This option specifies output compression using the specified algorithm. Permitted algorithms are LZ4 and ZLIB.

To uncompress compressed output, you must have an appropriate utility. If the system commands lz4 and openssl zlib are not available, MySQL distributions include lz4\_decompress and zlib\_decompress utilities that can be used to decompress [mysqlpump](#_bookmark56) output that was compressed using the [--compress-output=LZ4](#_bookmark592) and [--compress-output=ZLIB](#_bookmark592) options. For more information, see Section 4.8.1, “lz4\_decompress — Decompress mysqlpump LZ4-Compressed Output” , and Section 4.8.3, “zlib\_decompress — Decompress mysqlpump ZLIB-Compressed Output” .

• [--compression-algorithms=*value*](#_bookmark593)

The permitted compression algorithms for connections to the server. The available algorithms are the same as for the protocol\_compression\_algorithms system variable. The default value is uncompressed.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

• [--databases](#_bookmark580), -B

Normally, [mysqlpump](#_bookmark56) treats the first name argument on the command line as a database name and any following names as table names. With this option, it treats all name arguments as database names. CREATE DATABASE statements are included in the output before each new database.

[--all-databases](#_bookmark579) and [--databases](#_bookmark580) are mutually exclusive.

**Note**

See the [--add-drop-database](#_bookmark583) description for information about an incompatibility of that option with [--databases](#_bookmark580).

• [--debug[=*debug\_options*]](#_bookmark594), -# [*debug\_options*]

Write a debugging log. A typical *debug\_options* string is d:t:o,*file\_name*. The default is d:t:O,/tmp/mysqlpump.trace.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-check](#_bookmark595)

Print some debugging information when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-info](#_bookmark596), -T

Print debugging information and memory and CPU usage statistics when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--default-auth=*plugin*](#_bookmark597)

A hint about which client-side authentication plugin to use. See Section 6.2.17, “Pluggable

Authentication” .

• [--default-character-set=*charset\_name*](#_bookmark598)

Use *charset\_name* as the default character set. See Section 10.15, “Character Set Configuration” . If no character set is specified, [mysqlpump](#_bookmark56) uses utf8mb4.

• [--default-parallelism=*N*](#_bookmark599)

The default number of threads for each parallel processing queue. The default is 2.

The [--parallel-schemas](#_bookmark629) option also affects parallelism and can be used to override the default number of threads. For more information, see [mysqlpump Parallel Processing](#_bookmark576).

With [-- -parallelism=0](#_bookmark599)default and no [-- -](#_bookmark629)parallelschemas options, [mysqlpump](#_bookmark56) runs as a single-threaded process and creates no queues.

With parallelism enabled, it is possible for output from different databases to be interleaved.

• [--defaults-extra-file=*file\_name*](#_bookmark600)

Read this option file after the global option file but (on Unix) before the user option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-file=*file\_name*](#_bookmark601)

Use only the given option file. If the file does not exist or is otherwise inaccessible, an error occurs. If

*file\_name* is not an absolute path name, it is interpreted relative to the current directory. Exception: Even with --defaults-file, client programs read .mylogin.cnf.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-group-suffix=*str*](#_bookmark602)

Read not only the usual option groups, but also groups with the usual names and a suffix of *str*. For example, [mysqlpump](#_bookmark56) normally reads the [client] and [mysqlpump] groups. If this option is given as [-- - -](#_bookmark602)defaultsgroupsuffix=\_other, [mysqlpump](#_bookmark56) also reads the [client\_other] and [mysqlpump\_other] groups.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defer-table-indexes](#_bookmark603)

In the dump output, defer index creation for each table until after its rows have been loaded. This works for all storage engines, but for InnoDB applies only for secondary indexes.

This option is enabled by default; use [--skip-defer-table-indexes](#_bookmark603) to disable it.

• [--events](#_bookmark604)

Include Event Scheduler events for the dumped databases in the output. Event dumping requires the EVENT privileges for those databases.

The output generated by using [--events](#_bookmark604) contains CREATE EVENT statements to create the events.

This option is enabled by default; use [--skip-events](#_bookmark604) to disable it.

• [--exclude-databases=*db\_list*](#_bookmark582)

Do not dump the databases in *db\_list*, which is a list of one or more comma-separated database names. Multiple instances of this option are additive. For more information, see [mysqlpump Object](#_bookmark575) [Selection](#_bookmark575).

• [--exclude-events=*event\_list*](#_bookmark605)

Do not dump the databases in *event\_list*, which is a list of one or more comma-separated event names. Multiple instances of this option are additive. For more information, see [mysqlpump Object](#_bookmark575) [Selection](#_bookmark575).

• [--exclude-routines=*routine\_list*](#_bookmark606)

Do not dump the events in *routine\_list*, which is a list of one or more comma-separated routine (stored procedure or function) names. Multiple instances of this option are additive. For more information, see [mysqlpump Object Selection](#_bookmark575).

• [--exclude-tables=*table\_list*](#_bookmark607)

Do not dump the tables in *table\_list*, which is a list of one or more comma-separated table names. Multiple instances of this option are additive. For more information, see [mysqlpump Object](#_bookmark575) [Selection](#_bookmark575).

• [--exclude-triggers=*trigger\_list*](#_bookmark608)

Do not dump the triggers in *trigger\_list*, which is a list of one or more comma-separated trigger names. Multiple instances of this option are additive. For more information, see [mysqlpump Object](#_bookmark575) [Selection](#_bookmark575).

• [--exclude-users=*user\_list*](#_bookmark609)

Do not dump the user accounts in *user\_list*, which is a list of one or more comma-separated account names. Multiple instances of this option are additive. For more information, see [mysqlpump](#_bookmark575) [Object Selection](#_bookmark575).

• [--extended-insert=*N*](#_bookmark610)

Write INSERT statements using multiple-row syntax that includes several VALUES lists. This results in a smaller dump file and speeds up inserts when the file is reloaded.

The option value indicates the number of rows to include in each INSERT statement. The default is 250. A value of 1 produces one INSERT statement per table row.

• [--get-server-public-key](#_bookmark611)

Request from the server the public key required for RSA key pair-based password exchange. This option applies to clients that authenticate with the caching\_sha2\_password authentication plugin. For that plugin, the server does not send the public key unless requested. This option is ignored for accounts that do not authenticate with that plugin. It is also ignored if RSA-based

password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark641) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark611).

For information about the caching\_sha2\_password plugin, see Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--hex-blob](#_bookmark613)

Dump binary columns using hexadecimal notation (for example, 'abc' becomes 0x616263). The affected data types are BINARY, VARBINARY, BLOB types, BIT, all spatial data types, and other non- binary data types when used with the binary character set.

• [--host=*host\_name*](#_bookmark614), -h *host\_name*

Dump data from the MySQL server on the given host.

• [--include-databases=*db\_list*](#_bookmark615)

Dump the databases in *db\_list*, which is a list of one or more comma-separated database names. The dump includes all objects in the named databases. Multiple instances of this option are additive. For more information, see [mysqlpump Object Selection](#_bookmark575).

• [--include-events=*event\_list*](#_bookmark616)

Dump the events in *event\_list*, which is a list of one or more comma-separated event names. Multiple instances of this option are additive. For more information, see [mysqlpump Object Selection](#_bookmark575).

• [--include-routines=*routine\_list*](#_bookmark617)

Dump the routines in *routine\_list*, which is a list of one or more comma-separated routine (stored procedure or function) names. Multiple instances of this option are additive. For more information, see [mysqlpump Object Selection](#_bookmark575).

• [--include-tables=*table\_list*](#_bookmark618)

Dump the tables in *table\_list*, which is a list of one or more comma-separated table names. Multiple instances of this option are additive. For more information, see [mysqlpump Object Selection](#_bookmark575).

• [--include-triggers=*trigger\_list*](#_bookmark619)

Dump the triggers in *trigger\_list*, which is a list of one or more comma-separated trigger names. Multiple instances of this option are additive. For more information, see [mysqlpump Object Selection](#_bookmark575).

• [--include-users=*user\_list*](#_bookmark620)

Dump the user accounts in *user\_list*, which is a list of one or more comma-separated user names. Multiple instances of this option are additive. For more information, see [mysqlpump Object](#_bookmark575) [Selection](#_bookmark575).

• [--insert-ignore](#_bookmark621)

Write INSERT IGNORE statements rather than INSERT statements.

• [--log-error-file=*file\_name*](#_bookmark622)

Log warnings and errors by appending them to the named file. If this option is not given, [mysqlpump](#_bookmark56) writes warnings and errors to the standard error output.

• [--login-path=*name*](#_bookmark623)

Read options from the named login path in the .mylogin.cnf login path file. A “login path” is an option group containing options that specify which MySQL server to connect to and which account to authenticate as. To create or modify a login path file, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--max-allowed-packet=*N*](#_bookmark624)

The maximum size of the buffer for client/server communication. The default is 24MB, the maximum is 1GB.

• [--net-buffer-length=*N*](#_bookmark625)

The initial size of the buffer for client/server communication. When creating multiple-row INSERT statements (as with the [-- -](#_bookmark610)extendedinsert option), [mysqlpump](#_bookmark56) creates rows up to *N* bytes long. If you use this option to increase the value, ensure that the MySQL server net\_buffer\_length system variable has a value at least this large.

• [--no-create-db](#_bookmark626)

Suppress any CREATE DATABASE statements that might otherwise be included in the output. • [--no-create-info](#_bookmark627), -t

Do not write CREATE TABLE statements that create each dumped table.

• [--no-defaults](#_bookmark628)

Do not read any option files. If program startup fails due to reading unknown options from an option file, [--no-defaults](#_bookmark628) can be used to prevent them from being read.

The exception is that the .mylogin.cnf file is read in all cases, if it exists. This permits passwords to be specified in a safer way than on the command line even when [--no-defaults](#_bookmark628) is used. To create .mylogin.cnf, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--parallel-schemas=[*N*:]*db\_list*](#_bookmark629)

Create a queue for processing the databases in *db\_list*, which is a list of one or more comma- separated database names. If *N* is given, the queue uses *N*threads. If *N* is not given, the [--](#_bookmark599) [default-parallelism](#_bookmark599) option determines the number of queue threads.

Multiple instances of this option create multiple queues. [mysqlpump](#_bookmark56) also creates a default queue to use for databases not named in any [--parallel-schemas](#_bookmark629) option, and for dumping user definitions if command options select them. For more information, see [mysqlpump Parallel](#_bookmark576) [Processing](#_bookmark576).

• [password[=*password*]](#_bookmark630)--, -p[*password*]

The password of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysqlpump](#_bookmark56) prompts for one. If given, there must be *no* *space* between [--](#_bookmark630)



[password=](#_bookmark630) or -p and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqlpump](#_bookmark56) should not prompt for one, use the [--skip-password](#_bookmark630) option.

• [--password1[=*pass\_val*]](#_bookmark631)

The password for multifactor authentication factor 1 of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysqlpump](#_bookmark56) prompts for one. If given, there must be *no* *space* between [--password1=](#_bookmark631) and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqlpump](#_bookmark56) should not prompt for one, use the [--skip-password1](#_bookmark631) option.

[--password1](#_bookmark631) and [--password](#_bookmark630) are synonymous, as are [--skip-password1](#_bookmark631) and [--skip-](#_bookmark630) [password](#_bookmark630).

• [--password2[=*pass\_val*]](#_bookmark632)

The password for multifactor authentication factor 2 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark631); see the description of that option for details.

• [--password3[=*pass\_val*]](#_bookmark633)

The password for multifactor authentication factor 3 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark631); see the description of that option for details.

• [--plugin-dir=*dir\_name*](#_bookmark634)

The directory in which to look for plugins. Specify this option if the [--default-auth](#_bookmark597) option is used to specify an authentication plugin but [mysqlpump](#_bookmark56) does not find it. See Section 6.2.17, “Pluggable

Authentication” .

• [--port=*port\_num*](#_bookmark635), -P *port\_num*

For TCP/IP connections, the port number to use.

• [--print-defaults](#_bookmark636)

Print the program name and all options that it gets from option files.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--protocol={TCP|SOCKET|PIPE|MEMORY}](#_bookmark637)

The transport protocol to use for connecting to the server. It is useful when the other connection parameters normally result in use of a protocol other than the one you want. For details on the permissible values, see [Section 4.2.7, “Connection Transport Protocols”](#_bookmark8) .

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• [--replace](#_bookmark638)

Write REPLACE statements rather than INSERT statements.

• [--result-file=*file\_name*](#_bookmark639)

Direct output to the named file. The result file is created and its previous contents overwritten, even if an error occurs while generating the dump.

This option should be used on Windows to prevent newline \n characters from being converted to \r\n carriage return/newline sequences.

• [--routines](#_bookmark640)

Include stored routines (procedures and functions) for the dumped databases in the output. This option requires the global SELECT privilege.

The output generated by using [--routines](#_bookmark640) contains CREATE PROCEDURE and CREATE FUNCTION statements to create the routines.

This option is enabled by default; use [--skip-routines](#_bookmark640) to disable it.

• [--server-public-key-path=*file\_name*](#_bookmark641)

The path name to a file in PEM format containing a client-side copy of the public key required by the server for RSA key pair-based password exchange. This option applies to clients that authenticate with the sha256\_password or caching\_sha2\_password authentication plugin. This option is ignored for accounts that do not authenticate with one of those plugins. It is also ignored if RSA- based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark641) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark611).

For sha256\_password, this option applies only if MySQL was built using OpenSSL.

For information about the sha256\_password and caching\_sha2\_password plugins, see Section 6.4.1.3, “SHA-256 Pluggable Authentication” , and Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--set-charset](#_bookmark642)

Write SET NAMES *default\_character\_set* to the output.

This option is enabled by default. To disable it and suppress the SET NAMES statement, use [--](#_bookmark642) [skip-set-charset](#_bookmark642).

• --set-gtid-purged=*value*

This option enables control over global transaction ID (GTID) information written to the dump file, by indicating whether to add a SET @@GLOBAL.gtid\_purged statement to the output. This option may also cause a statement to be written to the output that disables binary logging while the dump file is being reloaded.

The following table shows the permitted option values. The default value is AUTO.

|  |  |
| --- | --- |
| **Value** | **Meaning** |
| OFF | Add no SET statement to the output. |

|  |  |
| --- | --- |
| **Value** | **Meaning** |
| AUTO | Add a SET statement to the output if GTIDs are enabled on the server. |

The --set-gtid-purged option has the following effect on binary logging when the dump file is reloaded:

• --set-gtid-purged=OFF: SET @@SESSION.SQL\_LOG\_BIN=0; is not added to the output.

• --set-gtid-purged=ON: SET @@SESSION.SQL\_LOG\_BIN=0; is added to the output.

• --set-gtid-purged=AUTO: SET @@SESSION.SQL\_LOG\_BIN=0; is added to the output if GTIDs are enabled on the server you are backing up (that is, if AUTO evaluates to ON).

• [--single-transaction](#_bookmark578)

This option sets the transaction isolation mode to REPEATABLE READ and sends a START TRANSACTION SQL statement to the server before dumping data. It is useful only with transactional tables such as InnoDB, because then it dumps the consistent state of the database at the time when START TRANSACTION was issued without blocking any applications.

When using this option, you should keep in mind that only InnoDB tables are dumped in a consistent state. For example, any MyISAM or MEMORY tables dumped while using this option may still change state.

While a [--single-transaction](#_bookmark578) dump is in process, to ensure a valid dump file (correct table contents and binary log coordinates), no other connection should use the following statements: ALTER TABLE, CREATE TABLE, DROP TABLE, RENAME TABLE, TRUNCATE TABLE. A consistent read is not isolated from those statements, so use of them on a table to be dumped can cause the SELECT that is performed by [mysqlpump](#_bookmark56) to retrieve the table contents to obtain incorrect contents or fail.

[--add-locks](#_bookmark586) and [--single-transaction](#_bookmark578) are mutually exclusive.

• [--skip-definer](#_bookmark644)

Omit DEFINER and SQL SECURITY clauses from the CREATE statements for views and stored programs. The dump file, when reloaded, creates objects that use the default DEFINER and SQL SECURITY values. See Section 25.6, “Stored Object Access Control” .

• [--skip-dump-rows](#_bookmark645), -d Do not dump table rows.

• [--skip-generated-invisible-primary-key](#_bookmark646)

This option is available beginning with MySQL 8.0.30, and causes generated invisible primary keys (GIPKs) to be excluded from the dump. See Section 13.1.20.11, “Generated Invisible Primary Keys” , for more information about GIPKs and GIPK mode.

• [--socket=*path*](#_bookmark647), -S *path*

For connections to localhost, the Unix socket file to use, or, on Windows, the name of the named pipe to use.

On Windows, this option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• --ssl\*



Options that begin with --ssl specify whether to connect to the server using encryption and indicate where to find SSL keys and certificates. See [Command Options for Encrypted Connections](#_bookmark12).

• [--ssl-fips-mode={OFF|ON|STRICT}](#_bookmark649)

Controls whether to enable FIPS mode on the client side. The [--ssl-fips-mode](#_bookmark649) option differs from other --ssl-*xxx* options in that it is not used to establish encrypted connections, but rather to affect which cryptographic operations to permit. See Section 6.8, “FIPS Support” .

These [--ssl-fips-mode](#_bookmark649) values are permitted:

• OFF: Disable FIPS mode.

• ON: Enable FIPS mode.

• STRICT: Enable “strict” FIPS mode.

**Note**

If the OpenSSL FIPS Object Module is not available, the only permitted value for [--ssl-fips-mode](#_bookmark649) is OFF. In this case, setting [--ssl-fips-mode](#_bookmark649) to ON or STRICT causes the client to produce a warning at startup and to operate in non-FIPS mode.

• [--tls-ciphersuites=*ciphersuite\_list*](#_bookmark650)

The permissible ciphersuites for encrypted connections that use TLSv1.3. The value is a list of one or more colon-separated ciphersuite names. The ciphersuites that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

This option was added in MySQL 8.0.16.

• [--tls-version=*protocol\_list*](#_bookmark651)

The permissible TLS protocols for encrypted connections. The value is a list of one or more comma- separated protocol names. The protocols that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

• [--triggers](#_bookmark652)

Include triggers for each dumped table in the output.

This option is enabled by default; use [--skip-triggers](#_bookmark652) to disable it.

• [--tz-utc](#_bookmark653)

This option enables TIMESTAMP columns to be dumped and reloaded between servers

in different time zones. [mysqlpump](#_bookmark56) sets its connection time zone to UTC and adds SET TIME\_ZONE='+00:00' to the dump file. Without this option, TIMESTAMP columns are dumped and reloaded in the time zones local to the source and destination servers, which can cause the values to change if the servers are in different time zones. [--tz-utc](#_bookmark653) also protects against changes due to daylight saving time.

This option is enabled by default; use [--skip-tz-utc](#_bookmark653) to disable it.

• [--user=*user\_name*](#_bookmark654), -u *user\_name*

The user name of the MySQL account to use for connecting to the server.

If you are using the Rewriter plugin with MySQL 8.0.31 or later, you should grant this user the SKIP\_QUERY\_REWRITE privilege.

• [--users](#_bookmark581)

Dump user accounts as logical definitions in the form of CREATE USER and GRANT statements.

User definitions are stored in the grant tables in the mysql system database. By default, [mysqlpump](#_bookmark56) does not include the grant tables in mysql database dumps. To dump the contents of the grant tables as logical definitions, use the [--users](#_bookmark581) option and suppress all database dumping:

mysqlpump --exclude-databases=% --users

• [--version](#_bookmark655), -V

Display version information and exit.

• [--watch-progress](#_bookmark656)

Periodically display a progress indicator that provides information about the completed and total number of tables, rows, and other objects.

This option is enabled by default; use [--skip-watch-progress](#_bookmark656) to disable it.

• [--zstd-compression-level=*level*](#_bookmark657)

The compression level to use for connections to the server that use the zstd compression algorithm. The permitted levels are from 1 to 22, with larger values indicating increasing levels of compression. The default zstd compression level is 3. The compression level setting has no effect on connections that do not use zstd compression.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

**mysqlpump** **Object** **Selection**

[mysqlpump](#_bookmark56) has a set of inclusion and exclusion options that enable filtering of several object types and provide flexible control over which objects to dump:

• [--include-databases](#_bookmark615) and [--exclude-databases](#_bookmark582) apply to databases and all objects within them.

• [--include-tables](#_bookmark618) and [--exclude-tables](#_bookmark607) apply to tables. These options also affect triggers associated with tables unless the trigger-specific options are given.

• [--include-triggers](#_bookmark619) and [--exclude-triggers](#_bookmark608) apply to triggers.

• [--include-routines](#_bookmark617) and [--exclude-routines](#_bookmark606) apply to stored procedures and functions. If a routine option matches a stored procedure name, it also matches a stored function of the same

name.

• [--include-events](#_bookmark616) and [--exclude-events](#_bookmark605) apply to Event Scheduler events.

• [--include-users](#_bookmark620) and [--exclude-users](#_bookmark609) apply to user accounts.

Any inclusion or exclusion option may be given multiple times. The effect is additive. Order of these options does not matter.

The value of each inclusion and exclusion option is a list of comma-separated names of the appropriate object type. For example:

--exclude-databases=test,world

--include-tables=customer,invoice

Wildcard characters are permitted in the object names:

• % matches any sequence of zero or more characters.

• \_ matches any single character.

For example, [--include-tables=t%,\_\_tmp](#_bookmark618) matches all table names that begin with t and all five- character table names that end with tmp.

For users, a name specified without a host part is interpreted with an implied host of %. For example, u1 and u1@% are equivalent. This is the same equivalence that applies in MySQL generally (see Section 6.2.4, “Specifying Account Names” ).

Inclusion and exclusion options interact as follows:

• By default, with no inclusion or exclusion options, [mysqlpump](#_bookmark56) dumps all databases (with certain exceptions noted in [mysqlpump Restrictions](#_bookmark577)).

• If inclusion options are given in the absence of exclusion options, only the objects named as included are dumped.

• If exclusion options are given in the absence of inclusion options, all objects are dumped except those named as excluded.

• If inclusion and exclusion options are given, all objects named as excluded and not named as included are not dumped. All other objects are dumped.

If multiple databases are being dumped, it is possible to name tables, triggers, and routines in a specific database by qualifying the object names with the database name. The following command dumps databases db1 and db2, but excludes tables db1.t1 and db2.t2:

mysqlpump --include-databases=db1,db2 --exclude-tables=db1.t1,db2.t2

The following options provide alternative ways to specify which databases to dump:

• The [-- -](#_bookmark579)alldatabases option dumps all databases (with certain exceptions noted in [mysqlpump](#_bookmark577) [Restrictions](#_bookmark577)). It is equivalent to specifying no object options at all (the default [mysqlpump](#_bookmark56) action is to dump everything).

[--include-databases=%](#_bookmark615) is similar to [--all-databases](#_bookmark579), but selects all databases for dumping, even those that are exceptions for [--all-databases](#_bookmark579).

• The [--](#_bookmark580)databases option causes [mysqlpump](#_bookmark56) to treat all name arguments as names of databases to dump. It is equivalent to an [--include-databases](#_bookmark615) option that names the same databases.

**mysqlpump** **Parallel** **Processing**

[mysqlpump](#_bookmark56) can use parallelism to achieve concurrent processing. You can select concurrency between databases (to dump multiple databases simultaneously) and within databases (to dump multiple objects from a given database simultaneously).

By default, [mysqlpump](#_bookmark56) sets up one queue with two threads. You can create additional queues and control the number of threads assigned to each one, including the default queue:

• [--default-parallelism=*N*](#_bookmark599)specifies the default number of threads used for each queue. In the absence of this option, *N* is 2.

The default queue always uses the default number of threads. Additional queues use the default number of threads unless you specify otherwise.

• [--parallel-schemas=[*N*:]*db\_list*](#_bookmark629) sets up a processing queue for dumping the databases named in *db\_list* and optionally specifies how many threads the queue uses. *db\_list* is a list of comma-separated database names. If the option argument begins with *N*:, the queue uses *N*threads. Otherwise, the [--default-parallelism](#_bookmark599) option determines the number of queue threads.

Multiple instances of the [--parallel-schemas](#_bookmark629) option create multiple queues.

Names in the database list are permitted to contain the same % and \_ wildcard characters supported for filtering options (see [mysqlpump Object Selection](#_bookmark575)).

[mysqlpump](#_bookmark56) uses the default queue for processing any databases not named explicitly with a [--](#_bookmark629) [parallel-schemas](#_bookmark629) option, and for dumping user definitions if command options select them.

In general, with multiple queues, [mysqlpump](#_bookmark56) uses parallelism between the sets of databases processed by the queues, to dump multiple databases simultaneously. For a queue that uses multiple threads, [mysqlpump](#_bookmark56) uses parallelism within databases, to dump multiple objects from a given database simultaneously. Exceptions can occur; for example, [mysqlpump](#_bookmark56) may block queues while it obtains from the server lists of objects in databases.

With parallelism enabled, it is possible for output from different databases to be interleaved. For example, INSERT statements from multiple tables dumped in parallel can be interleaved; the statements are not written in any particular order. This does not affect reloading because output statements qualify object names with database names or are preceded by USE statements as required.

The granularity for parallelism is a single database object. For example, a single table cannot be dumped in parallel using multiple threads.

Examples: mysqlpump --parallel-schemas=db1,db2 --parallel-schemas=db3

[mysqlpump](#_bookmark56) sets up a queue to process db1 and db2, another queue to process db3, and a default queue to process all other databases. All queues use two threads.

mysqlpump --parallel-schemas=db1,db2 --parallel-schemas=db3

--default-parallelism=4

This is the same as the previous example except that all queues use four threads. mysqlpump --parallel-schemas=5:db1,db2 --parallel-schemas=3:db3

The queue for db1 and db2 uses five threads, the queue for db3 uses three threads, and the default queue uses the default of two threads.

As a special case, with [--default-parallelism=0](#_bookmark599) and no [--parallel-schemas](#_bookmark629) options, [mysqlpump](#_bookmark56) runs as a single-threaded process and creates no queues.

**mysqlpump** **Restrictions**

[mysqlpump](#_bookmark56) does not dump the performance\_schema, ndbinfo, or sys schema by default. To dump any of these, name them explicitly on the command line. You can also name them with the [--](#_bookmark580) [databases](#_bookmark580) or [-- -](#_bookmark615)includedatabases option.

[mysqlpump](#_bookmark56) does not dump the INFORMATION\_SCHEMA schema.

[mysqlpump](#_bookmark56) does not dump InnoDB CREATE TABLESPACE statements.

[mysqlpump](#_bookmark56) dumps user accounts in logical form using CREATE USER and GRANT statements (for example, when you use the [--include-users](#_bookmark620) or [--users](#_bookmark581) option). For this reason, dumps of the mysql system database do not by default include the grant tables that contain user definitions: user, db, tables\_priv, columns\_priv, procs\_priv, or proxies\_priv. To dump any of the grant tables, name the mysql database followed by the table names:

mysqlpump mysql user db ...

**4.5.7** **mysqlshow** **—** **Display** **Database,** **Table,** **and** **Column** **Information**

The [mysqlshow](#_bookmark40) client can be used to quickly see which databases exist, their tables, or a table's columns or indexes.

[mysqlshow](#_bookmark40) provides a command-line interface to several SQL SHOW statements. See Section 13.7.7, “SHOW Statements” . The same information can be obtained by using those statements directly. For

example, you can issue them from the [mysql](#_bookmark29) client program.

Invoke [mysqlshow](#_bookmark40) like this:

mysqlshow [*options*] [*db\_name* [*tbl\_name* [*col\_name*]]]

• If no database is given, a list of database names is shown.

• If no table is given, all matching tables in the database are shown.

• If no column is given, all matching columns and column types in the table are shown.

The output displays only the names of those databases, tables, or columns for which you have some privileges.

If the last argument contains shell or SQL wildcard characters (\*, ?, %, or \_), only those names that are matched by the wildcard are shown. If a database name contains any underscores, those should be escaped with a backslash (some Unix shells require two) to get a list of the proper tables or columns. \* and ? characters are converted into SQL % and \_ wildcard characters. This might cause some confusion when you try to display the columns for a table with a \_ in the name, because in this case, [mysqlshow](#_bookmark40) shows you only the table names that match the pattern. This is easily fixed by adding an extra % last on the command line as a separate argument.

[mysqlshow](#_bookmark40) supports the following options, which can be specified on the command line or in the [mysqlshow] and [client] groups of an option file. For information about option files used by MySQL programs, see Section 4.2.2.2, “Using Option Files” .

**Table** **4.17** **mysqlshow** **Options**

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--bind-address](#_bookmark658) | Use specified network interface to connect to MySQL Server |  |  |
| [--compress](#_bookmark659) | Compress all  information sent  between client and  server |  | 8.0.18 |
| [--compression-](#_bookmark660)  [algorithms](#_bookmark660) | Permitted compression algorithms for connections to server | 8.0.18 |  |
| [--count](#_bookmark661) | Show the number of rows per table |  |  |
| [--debug](#_bookmark662) | Write debugging log |  |  |
| [--debug-check](#_bookmark663) | Print debugging  information when  program exits |  |  |
| [--debug-info](#_bookmark664) | Print debugging information, memory, and CPU statistics when program exits |  |  |
| [--default-auth](#_bookmark665) | Authentication plugin to use |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--default-character-set](#_bookmark666) | Specify default  character set |  |  |
| [--defaults-extra-file](#_bookmark667) | Read named option file in addition to usual option files |  |  |
| [--defaults-file](#_bookmark668) | Read only named option file |  |  |
| [--defaults-group-suffix](#_bookmark669) | Option group suffix  value |  |  |
| [--enable-cleartext-plugin](#_bookmark670) | Enable cleartext authentication plugin |  |  |
| [--get-server-public-key](#_bookmark671) | Request RSA public key from server |  |  |
| [--help](#_bookmark672) | Display help message and exit |  |  |
| [--host](#_bookmark673) | Host on which MySQL server is located |  |  |
| [--keys](#_bookmark674) | Show table indexes |  |  |
| [--login-path](#_bookmark675) | Read login path options from .mylogin.cnf |  |  |
| [--no-defaults](#_bookmark676) | Read no option files |  |  |
| [--password](#_bookmark677) | Password to use when connecting to server |  |  |
| [--password1](#_bookmark678) | First multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password2](#_bookmark679) | Second multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password3](#_bookmark680) | Third multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--pipe](#_bookmark681) | Connect to server using named pipe (Windows only) |  |  |
| [--plugin-dir](#_bookmark682) | Directory where plugins are installed |  |  |
| [--port](#_bookmark683) | TCP/IP port number for connection |  |  |
| [--print-defaults](#_bookmark684) | Print default options |  |  |
| [--protocol](#_bookmark685) | Transport protocol to use |  |  |
| [--server-public-key-path](#_bookmark686) | Path name to file containing RSA public key |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--shared-memory-base-](#_bookmark687) [name](#_bookmark687) | Shared-memory name for shared-memory connections (Windows only) |  |  |
| [--show-table-type](#_bookmark688) | Show a column indicating the table type |  |  |
| [--socket](#_bookmark689) | Unix socket file or Windows named pipe to use |  |  |
| [--ssl-ca](#_bookmark690) | File that contains list of trusted SSL Certificate  Authorities |  |  |
| [--ssl-capath](#_bookmark690) | Directory that contains trusted SSL Certificate Authority certificate files |  |  |
| [--ssl-cert](#_bookmark690) | File that contains X.509 certificate |  |  |
| [--ssl-cipher](#_bookmark690) | Permissible ciphers for connection encryption |  |  |
| [--ssl-crl](#_bookmark690) | File that contains certificate revocation lists |  |  |
| [--ssl-crlpath](#_bookmark690) | Directory that contains certificate revocation-list files |  |  |
| [--ssl-fips-mode](#_bookmark691) | Whether to enable FIPS mode on client side |  |  |
| [--ssl-key](#_bookmark690) | File that contains X.509 key |  |  |
| [--ssl-mode](#_bookmark690) | Desired security state of connection to server |  |  |
| [--ssl-session-data](#_bookmark690) | File that contains SSL session data | 8.0.29 |  |
| [--ssl-session-data-](#_bookmark690) [continue-on-failed-reuse](#_bookmark690) | Whether to establish connections if session reuse fails | 8.0.29 |  |
| [--status](#_bookmark692) | Display extra information about each table |  |  |
| [--tls-ciphersuites](#_bookmark693) | Permissible TLSv1.3  ciphersuites for encrypted connections | 8.0.16 |  |
| [--tls-version](#_bookmark694) | Permissible TLS  protocols for encrypted connections |  |  |
| [--user](#_bookmark695) | MySQL user name to use when connecting to server |  |  |
| [--verbose](#_bookmark696) | Verbose mode |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--version](#_bookmark697) | Display version  information and exit |  |  |
| [--zstd-compression-level](#_bookmark698) | Compression level  for connections to  server that use zstd  compression | 8.0.18 |  |

• [--help](#_bookmark672), -?

Display a help message and exit.

• [--bind-address=*ip\_address*](#_bookmark658)

On a computer having multiple network interfaces, use this option to select which interface to use for connecting to the MySQL server.

• [--character-sets-dir=*dir\_name*](#_bookmark699)

The directory where character sets are installed. See Section 10.15, “Character Set Configuration” .

• [--compress](#_bookmark659), -C

Compress all information sent between the client and the server if possible. See [Section 4.2.8,](#_bookmark31) [“Connection Compression Control”](#_bookmark31) .

As of MySQL 8.0.18, this option is deprecated. Expect it to be removed in a future version of MySQL. See [Configuring Legacy Connection Compression](#_bookmark35).

• [--compression-algorithms=*value*](#_bookmark660)

The permitted compression algorithms for connections to the server. The available algorithms are the same as for the protocol\_compression\_algorithms system variable. The default value is uncompressed.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

• [--count](#_bookmark661)

Show the number of rows per table. This can be slow for non-MyISAM tables.

• [--debug[=*debug\_options*]](#_bookmark662), -# [*debug\_options*]

Write a debugging log. A typical *debug\_options* string is d:t:o,*file\_name*. The default is d:t:o.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-check](#_bookmark663)

Print some debugging information when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-info](#_bookmark664)

Print debugging information and memory and CPU usage statistics when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--default-character-set=*charset\_name*](#_bookmark666)

Use *charset\_name* as the default character set. See Section 10.15, “Character Set Configuration” .

• [--default-auth=*plugin*](#_bookmark665)

A hint about which client-side authentication plugin to use. See Section 6.2.17, “Pluggable

Authentication” .

• [--defaults-extra-file=*file\_name*](#_bookmark667)

Read this option file after the global option file but (on Unix) before the user option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-file=*file\_name*](#_bookmark668)

Use only the given option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

Exception: Even with --defaults-file, client programs read .mylogin.cnf.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-group-suffix=*str*](#_bookmark669)

Read not only the usual option groups, but also groups with the usual names and a suffix of *str*. For example, [mysqlshow](#_bookmark40) normally reads the [client] and [mysqlshow] groups. If this option is given as [-- - -](#_bookmark669)defaultsgroupsuffix=\_other, [mysqlshow](#_bookmark40) also reads the [client\_other] and [mysqlshow\_other] groups.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--enable-cleartext-plugin](#_bookmark670)

Enable the mysql\_clear\_password cleartext authentication plugin. (See Section 6.4.1.4, “Client- Side Cleartext Pluggable Authentication” .)

• [--get-server-public-key](#_bookmark671)

Request from the server the RSA public key that it uses for key pair-based password exchange. This option applies to clients that connect to the server using an account that authenticates with the caching\_sha2\_password authentication plugin. For connections by such accounts, the server does not send the public key to the client unless requested. The option is ignored for accounts that do not authenticate with that plugin. It is also ignored if RSA-based password exchange is not needed, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark686) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark671).

For information about the caching\_sha2\_password plugin, see Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--host=*host\_name*](#_bookmark673), -h *host\_name*

Connect to the MySQL server on the given host.

• [--keys](#_bookmark674), -k

Show table indexes.

• [--login-path=*name*](#_bookmark675)

Read options from the named login path in the .mylogin.cnf login path file. A “login path” is an option group containing options that specify which MySQL server to connect to and which account to authenticate as. To create or modify a login path file, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--no-defaults](#_bookmark676)

Do not read any option files. If program startup fails due to reading unknown options from an option file, [--no-defaults](#_bookmark676) can be used to prevent them from being read.

The exception is that the .mylogin.cnf file is read in all cases, if it exists. This permits passwords to be specified in a safer way than on the command line even when [--no-defaults](#_bookmark676) is used. To create .mylogin.cnf, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [password[=*password*]](#_bookmark677)--, -p[*password*]

The password of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysqlshow](#_bookmark40) prompts for one. If given, there must be *no* *space* between [--](#_bookmark677) [password=](#_bookmark677) or -p and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqlshow](#_bookmark40) should not prompt for one, use the [--skip-password](#_bookmark677) option.

• [--password1[=*pass\_val*]](#_bookmark678)

The password for multifactor authentication factor 1 of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysqlshow](#_bookmark40) prompts for one. If given, there must be *no* *space* between [--password1=](#_bookmark678) and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqlshow](#_bookmark40) should not prompt for one, use the [--skip-password1](#_bookmark678) option.

[--password1](#_bookmark678) and [--password](#_bookmark677) are synonymous, as are [--skip-password1](#_bookmark678) and [--skip-](#_bookmark677) [password](#_bookmark677).

• [--password2[=*pass\_val*]](#_bookmark679)

The password for multifactor authentication factor 2 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark678); see the description of that option for details.

• [--password3[=*pass\_val*]](#_bookmark680)

The password for multifactor authentication factor 3 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark678); see the description of that option for details.

• [--pipe](#_bookmark681), -W

On Windows, connect to the server using a named pipe. This option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• [--plugin-dir=*dir\_name*](#_bookmark682)

The directory in which to look for plugins. Specify this option if the [--default-auth](#_bookmark665) option is used to specify an authentication plugin but [mysqlshow](#_bookmark40) does not find it. See Section 6.2.17, “Pluggable

Authentication” .

• [--port=*port\_num*](#_bookmark683), -P *port\_num*

For TCP/IP connections, the port number to use.

• [--print-defaults](#_bookmark684)

Print the program name and all options that it gets from option files.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--protocol={TCP|SOCKET|PIPE|MEMORY}](#_bookmark685)

The transport protocol to use for connecting to the server. It is useful when the other connection parameters normally result in use of a protocol other than the one you want. For details on the permissible values, see [Section 4.2.7, “Connection Transport Protocols”](#_bookmark8) .

• [--server-public-key-path=*file\_name*](#_bookmark686)

The path name to a file in PEM format containing a client-side copy of the public key required by the server for RSA key pair-based password exchange. This option applies to clients that authenticate with the sha256\_password or caching\_sha2\_password authentication plugin. This option is ignored for accounts that do not authenticate with one of those plugins. It is also ignored if RSA- based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark686) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark671).

For sha256\_password, this option applies only if MySQL was built using OpenSSL.

For information about the sha256\_password and caching\_sha2\_password plugins, see Section 6.4.1.3, “SHA-256 Pluggable Authentication” , and Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .



• [--shared-memory-base-name=*name*](#_bookmark687)

On Windows, the shared-memory name to use for connections made using shared memory to a local server. The default value is MYSQL. The shared-memory name is case-sensitive.

This option applies only if the server was started with the shared\_memory system variable enabled to support shared-memory connections.

• [--show-table-type](#_bookmark688), -t

Show a column indicating the table type, as in SHOW FULL TABLES. The type is BASE TABLE or

VIEW.

• [--socket=*path*](#_bookmark689), -S *path*

For connections to localhost, the Unix socket file to use, or, on Windows, the name of the named pipe to use.

On Windows, this option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• --ssl\*

Options that begin with --ssl specify whether to connect to the server using encryption and indicate where to find SSL keys and certificates. See [Command Options for Encrypted Connections](#_bookmark12).

• [--ssl-fips-mode={OFF|ON|STRICT}](#_bookmark691)

Controls whether to enable FIPS mode on the client side. The [--ssl-fips-mode](#_bookmark691) option differs from other --ssl-*xxx* options in that it is not used to establish encrypted connections, but rather to affect which cryptographic operations to permit. See Section 6.8, “FIPS Support” .

These [--ssl-fips-mode](#_bookmark691) values are permitted:

• OFF: Disable FIPS mode.

• ON: Enable FIPS mode.

• STRICT: Enable “strict” FIPS mode.

**Note**

If the OpenSSL FIPS Object Module is not available, the only permitted value for [--ssl-fips-mode](#_bookmark691) is OFF. In this case, setting [--ssl-fips-mode](#_bookmark691) to ON or STRICT causes the client to produce a warning at startup and to operate in non-FIPS mode.

• [--status](#_bookmark692), -i

Display extra information about each table.

• [--tls-ciphersuites=*ciphersuite\_list*](#_bookmark693)

The permissible ciphersuites for encrypted connections that use TLSv1.3. The value is a list of one or more colon-separated ciphersuite names. The ciphersuites that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

This option was added in MySQL 8.0.16.

• [--tls-version=*protocol\_list*](#_bookmark694)

The permissible TLS protocols for encrypted connections. The value is a list of one or more comma- separated protocol names. The protocols that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

• [--user=*user\_name*](#_bookmark695), -u *user\_name*

The user name of the MySQL account to use for connecting to the server.

• [--verbose](#_bookmark696), -v

Verbose mode. Print more information about what the program does. This option can be used multiple times to increase the amount of information.

• [--version](#_bookmark697), -V

Display version information and exit.

• [--zstd-compression-level=*level*](#_bookmark698)

The compression level to use for connections to the server that use the zstd compression algorithm. The permitted levels are from 1 to 22, with larger values indicating increasing levels of compression. The default zstd compression level is 3. The compression level setting has no effect on connections that do not use zstd compression.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

**4.5.8** **mysqlslap** **—** **A** **Load** **Emulation** **Client**

[mysqlslap](#_bookmark57) is a diagnostic program designed to emulate client load for a MySQL server and to report the timing of each stage. It works as if multiple clients are accessing the server.

Invoke [mysqlslap](#_bookmark57) like this:

mysqlslap [*options*]

Some options such as [--create](#_bookmark700) or [--query](#_bookmark701) enable you to specify a string containing an SQL statement or a file containing statements. If you specify a file, by default it must contain one statement per line. (That is, the implicit statement delimiter is the newline character.) Use the [--delimiter](#_bookmark702) option to specify a different delimiter, which enables you to specify statements that span multiple lines or place multiple statements on a single line. You cannot include comments in a file; [mysqlslap](#_bookmark57) does not understand them.

[mysqlslap](#_bookmark57) runs in three stages:

1. Create schema, table, and optionally any stored programs or data to use for the test. This stage uses a single client connection.

2. Run the load test. This stage can use many client connections.

3. Clean up (disconnect, drop table if specified). This stage uses a single client connection.

Examples:

Supply your own create and query SQL statements, with 50 clients querying and 200 selects for each (enter the command on a single line):

mysqlslap --delimiter=";"

--create="CREATE TABLE a (b int);INSERT INTO a VALUES (23)"

--query="SELECT \* FROM a" --concurrency=50 --iterations=200

Let [mysqlslap](#_bookmark57) build the query SQL statement with a table of two INT columns and three VARCHAR columns. Use five clients querying 20 times each. Do not create the table or insert the data (that is, use the previous test's schema and data):

mysqlslap --concurrency=5 --iterations=20

--number-int-cols=2 --number-char-cols=3

--auto-generate-sql

Tell the program to load the create, insert, and query SQL statements from the specified files, where the create.sql file has multiple table creation statements delimited by ';' and multiple insert statements delimited by ';'. The --query file should contain multiple queries delimited by ';'. Run all the load statements, then run all the queries in the query file with five clients (five times each):

mysqlslap --concurrency=5

--iterations=5 --query=query .sql --create=create .sql

--delimiter=";"

[mysqlslap](#_bookmark57) supports the following options, which can be specified on the command line or in the

[mysqlslap] and [client] groups of an option file. For information about option files used by MySQL programs, see Section 4.2.2.2, “Using Option Files” .

**Table** **4.18** **mysqlslap** **Options**

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--auto-generate-sql](#_bookmark703) | Generate SQL  statements automatically when they are not supplied in files or using command options |  |  |
| [--auto-generate-sql-add-](#_bookmark704) [autoincrement](#_bookmark704) | Add  AUTO\_INCREMENT column to automatically generated tables |  |  |
| [--auto-generate-sql-](#_bookmark705)  [execute-number](#_bookmark705) | Specify how many  queries to generate  automatically |  |  |
| [--auto-generate-sql-](#_bookmark706)  [guid-primary](#_bookmark706) | Add a GUID-based primary key to automatically generated tables |  |  |
| [--auto-generate-sql-](#_bookmark707)  [load-type](#_bookmark707) | Specify the test load type |  |  |
| [--auto-generate-sql-](#_bookmark708)  [secondary-indexes](#_bookmark708) | Specify how many secondary indexes to add to automatically generated tables |  |  |
| [--auto-generate-sql-](#_bookmark709) [unique-query-number](#_bookmark709) | How many different queries to generate for automatic tests |  |  |
| [--auto-generate-sql-](#_bookmark710) [unique-write-number](#_bookmark710) | How many different queries to generate for --auto-generate-sql- write-number |  |  |
| [--auto-generate-sql-](#_bookmark711)  [write-number](#_bookmark711) | How many row inserts to perform on each thread |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--commit](#_bookmark712) | How many statements to execute before committing |  |  |
| [--compress](#_bookmark713) | Compress all  information sent  between client and  server |  | 8.0.18 |
| [--compression-](#_bookmark714)  [algorithms](#_bookmark714) | Permitted compression algorithms for connections to server | 8.0.18 |  |
| [--concurrency](#_bookmark715) | Number of clients to simulate when issuing the SELECT statement |  |  |
| [--create](#_bookmark700) | File or string containing the statement to use for creating the table |  |  |
| [--create-schema](#_bookmark716) | Schema in which to run the tests |  |  |
| [--csv](#_bookmark717) | Generate output in  comma-separated  values format |  |  |
| [--debug](#_bookmark718) | Write debugging log |  |  |
| [--debug-check](#_bookmark719) | Print debugging  information when  program exits |  |  |
| [--debug-info](#_bookmark720) | Print debugging information, memory, and CPU statistics when program exits |  |  |
| [--default-auth](#_bookmark721) | Authentication plugin to use |  |  |
| [--defaults-extra-file](#_bookmark722) | Read named option file in addition to usual option files |  |  |
| [--defaults-file](#_bookmark723) | Read only named option file |  |  |
| [--defaults-group-suffix](#_bookmark724) | Option group suffix  value |  |  |
| [--delimiter](#_bookmark702) | Delimiter to use in SQL statements |  |  |
| [--detach](#_bookmark725) | Detach (close and reopen) each connection after each N statements |  |  |
| [--enable-cleartext-plugin](#_bookmark726) | Enable cleartext authentication plugin |  |  |
| [--engine](#_bookmark727) | Storage engine to use for creating the table |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--get-server-public-key](#_bookmark728) | Request RSA public key from server |  |  |
| [--help](#_bookmark729) | Display help message and exit |  |  |
| [--host](#_bookmark730) | Host on which MySQL server is located |  |  |
| [--iterations](#_bookmark731) | Number of times to run the tests |  |  |
| [--login-path](#_bookmark732) | Read login path options from .mylogin.cnf |  |  |
| [--no-defaults](#_bookmark733) | Read no option files |  |  |
| [--no-drop](#_bookmark734) | Do not drop any schema created during the test run |  |  |
| [--number-char-cols](#_bookmark735) | Number of VARCHAR columns to use if --auto- generate-sql is specified |  |  |
| [--number-int-cols](#_bookmark736) | Number of INT columns to use if --auto- generate-sql is specified |  |  |
| [--number-of-queries](#_bookmark737) | Limit each client to  approximately this  number of queries |  |  |
| [--only-print](#_bookmark738) | Do not connect to databases. mysqlslap only prints what it would have done |  |  |
| [--password](#_bookmark739) | Password to use when connecting to server |  |  |
| [--password1](#_bookmark740) | First multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password2](#_bookmark741) | Second multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--password3](#_bookmark742) | Third multifactor authentication password to use when connecting to server | 8.0.27 |  |
| [--pipe](#_bookmark743) | Connect to server using named pipe (Windows only) |  |  |
| [--plugin-dir](#_bookmark744) | Directory where plugins are installed |  |  |
| [--port](#_bookmark745) | TCP/IP port number for connection |  |  |

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| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--post-query](#_bookmark746) | File or string containing the statement to execute after the tests have completed |  |  |
| [--post-system](#_bookmark747) | String to execute using system() after the tests have completed |  |  |
| [--pre-query](#_bookmark748) | File or string containing the statement to execute before running the tests |  |  |
| [--pre-system](#_bookmark749) | String to execute using system() before running the tests |  |  |
| [--print-defaults](#_bookmark750) | Print default options |  |  |
| [--protocol](#_bookmark751) | Transport protocol to use |  |  |
| [--query](#_bookmark701) | File or string containing the SELECT statement to use for retrieving data |  |  |
| [--server-public-key-path](#_bookmark752) | Path name to file containing RSA public key |  |  |
| [--shared-memory-base-](#_bookmark753) [name](#_bookmark753) | Shared-memory name for shared-memory connections (Windows only) |  |  |
| [--silent](#_bookmark754) | Silent mode |  |  |
| [--socket](#_bookmark755) | Unix socket file or Windows named pipe to use |  |  |
| [--sql-mode](#_bookmark756) | Set SQL mode for client session |  |  |
| [--ssl-ca](#_bookmark757) | File that contains list of trusted SSL Certificate  Authorities |  |  |
| [--ssl-capath](#_bookmark757) | Directory that contains trusted SSL Certificate Authority certificate files |  |  |
| [--ssl-cert](#_bookmark757) | File that contains X.509 certificate |  |  |
| [--ssl-cipher](#_bookmark757) | Permissible ciphers for connection encryption |  |  |
| [--ssl-crl](#_bookmark757) | File that contains certificate revocation lists |  |  |
| [--ssl-crlpath](#_bookmark757) | Directory that contains certificate revocation-list files |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Option** **Name** | **Description** | **Introduced** | **Deprecated** |
| [--ssl-fips-mode](#_bookmark758) | Whether to enable FIPS mode on client side |  |  |
| [--ssl-key](#_bookmark757) | File that contains X.509 key |  |  |
| [--ssl-mode](#_bookmark757) | Desired security state of connection to server |  |  |
| [--ssl-session-data](#_bookmark757) | File that contains SSL session data | 8.0.29 |  |
| [--ssl-session-data-](#_bookmark757) [continue-on-failed-reuse](#_bookmark757) | Whether to establish connections if session reuse fails | 8.0.29 |  |
| [--tls-ciphersuites](#_bookmark759) | Permissible TLSv1.3  ciphersuites for encrypted connections | 8.0.16 |  |
| [--tls-version](#_bookmark760) | Permissible TLS  protocols for encrypted connections |  |  |
| [--user](#_bookmark761) | MySQL user name to use when connecting to server |  |  |
| [--verbose](#_bookmark762) | Verbose mode |  |  |
| [--version](#_bookmark763) | Display version  information and exit |  |  |
| [--zstd-compression-level](#_bookmark764) | Compression level  for connections to  server that use zstd  compression | 8.0.18 |  |

• [--help](#_bookmark729), -?

Display a help message and exit.

• [--auto-generate-sql](#_bookmark703), -a

Generate SQL statements automatically when they are not supplied in files or using command options.

• [--auto-generate-sql-add-autoincrement](#_bookmark704)

Add an AUTO\_INCREMENT column to automatically generated tables.

• [--auto-generate-sql-execute-number=*N*](#_bookmark705) Specify how many queries to generate automatically.

• [--auto-generate-sql-guid-primary](#_bookmark706)

Add a GUID-based primary key to automatically generated tables.

• [--auto-generate-sql-load-type=*type*](#_bookmark707)

Specify the test load type. The permissible values are read (scan tables), write (insert into tables), key (read primary keys), update (update primary keys), or mixed (half inserts, half scanning selects). The default is mixed.



• [--auto-generate-sql-secondary-indexes=*N*](#_bookmark708)

Specify how many secondary indexes to add to automatically generated tables. By default, none are added.

• [--auto-generate-sql-unique-query-number=*N*](#_bookmark709)

How many different queries to generate for automatic tests. For example, if you run a key test that performs 1000 selects, you can use this option with a value of 1000 to run 1000 unique queries, or with a value of 50 to perform 50 different selects. The default is 10.

• [--auto-generate-sql-unique-write-number=*N*](#_bookmark710)

How many different queries to generate for [--auto-generate-sql-write-number](#_bookmark711). The default is 10.

• [--auto-generate-sql-write-number=*N*](#_bookmark711) How many row inserts to perform. The default is 100.

• [--commit=*N*](#_bookmark712)

How many statements to execute before committing. The default is 0 (no commits are done).

• [--compress](#_bookmark713), -C

Compress all information sent between the client and the server if possible. See [Section 4.2.8,](#_bookmark31) [“Connection Compression Control”](#_bookmark31) .

As of MySQL 8.0.18, this option is deprecated. Expect it to be removed in a future version of MySQL. See [Configuring Legacy Connection Compression](#_bookmark35).

• [--compression-algorithms=*value*](#_bookmark714)

The permitted compression algorithms for connections to the server. The available algorithms are the same as for the protocol\_compression\_algorithms system variable. The default value is uncompressed.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

• [--concurrency=*N*](#_bookmark715), -c *N*

The number of parallel clients to simulate.

• [--create=*value*](#_bookmark700)

The file or string containing the statement to use for creating the table.

• [--create-schema=*value*](#_bookmark716) The schema in which to run the tests.

**Note**

If the [-- - -](#_bookmark703)autogeneratesql option is also given, [mysqlslap](#_bookmark57) drops the schema at the end of the test run. To avoid this, use the [--no-drop](#_bookmark734) option as well.

• [--csv[=*file\_name*]](#_bookmark717)

Generate output in comma-separated values format. The output goes to the named file, or to the standard output if no file is given.

• [--debug[=*debug\_options*]](#_bookmark718), -# [*debug\_options*]

Write a debugging log. A typical *debug\_options* string is d:t:o,*file\_name*. The default is d:t:o,/tmp/mysqlslap.trace.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-check](#_bookmark719)

Print some debugging information when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--debug-info](#_bookmark720), -T

Print debugging information and memory and CPU usage statistics when the program exits.

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--default-auth=*plugin*](#_bookmark721)

A hint about which client-side authentication plugin to use. See Section 6.2.17, “Pluggable

Authentication” .

• [--defaults-extra-file=*file\_name*](#_bookmark722)

Read this option file after the global option file but (on Unix) before the user option file. If the file does not exist or is otherwise inaccessible, an error occurs. If *file\_name* is not an absolute path name, it is interpreted relative to the current directory.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-file=*file\_name*](#_bookmark723)

Use only the given option file. If the file does not exist or is otherwise inaccessible, an error occurs. If

*file\_name* is not an absolute path name, it is interpreted relative to the current directory. Exception: Even with --defaults-file, client programs read .mylogin.cnf.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--defaults-group-suffix=*str*](#_bookmark724)

Read not only the usual option groups, but also groups with the usual names and a suffix of *str*. For example, [mysqlslap](#_bookmark57) normally reads the [client] and [mysqlslap] groups. If this option is given as [-- - -](#_bookmark724)defaultsgroupsuffix=\_other, [mysqlslap](#_bookmark57) also reads the [client\_other] and [mysqlslap\_other] groups.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--delimiter=*str*](#_bookmark702), -F *str*

The delimiter to use in SQL statements supplied in files or using command options.

• [--detach=*N*](#_bookmark725)

Detach (close and reopen) each connection after each *N*statements. The default is 0 (connections are not detached).

• [--enable-cleartext-plugin](#_bookmark726)

Enable the mysql\_clear\_password cleartext authentication plugin. (See Section 6.4.1.4, “Client- Side Cleartext Pluggable Authentication” .)

• [--engine=*engine\_name*](#_bookmark727), -e *engine\_name* The storage engine to use for creating tables.

• [--get-server-public-key](#_bookmark728)

Request from the server the RSA public key that it uses for key pair-based password exchange. This option applies to clients that connect to the server using an account that authenticates with the caching\_sha2\_password authentication plugin. For connections by such accounts, the server does not send the public key to the client unless requested. The option is ignored for accounts that do not authenticate with that plugin. It is also ignored if RSA-based password exchange is not needed, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark752) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark728).

For information about the caching\_sha2\_password plugin, see Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--host=*host\_name*](#_bookmark730), -h *host\_name*

Connect to the MySQL server on the given host.

• [--iterations=*N*](#_bookmark731), -i *N* The number of times to run the tests.

• [--login-path=*name*](#_bookmark732)

Read options from the named login path in the .mylogin.cnf login path file. A “login path” is an option group containing options that specify which MySQL server to connect to and which account to authenticate as. To create or modify a login path file, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--no-drop](#_bookmark734)

Prevent [mysqlslap](#_bookmark57) from dropping any schema it creates during the test run.

• [--no-defaults](#_bookmark733)

Do not read any option files. If program startup fails due to reading unknown options from an option file, [--no-defaults](#_bookmark733) can be used to prevent them from being read.

The exception is that the .mylogin.cnf file is read in all cases, if it exists. This permits passwords to be specified in a safer way than on the command line even when [--no-defaults](#_bookmark733) is used. To create .mylogin.cnf, use the mysql\_config\_editor utility. See Section 4.6.7, “mysql\_config\_editor — MySQL Configuration Utility” .

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--number-char-cols=*N*](#_bookmark735), -x *N*

The number of VARCHAR columns to use if [--auto-generate-sql](#_bookmark703) is specified. • [--number-int-cols=*N*](#_bookmark736), -y *N*

The number of INT columns to use if [--auto-generate-sql](#_bookmark703) is specified.

• [--number-of-queries=*N*](#_bookmark737)

Limit each client to approximately this many queries. Query counting takes into account the statement delimiter. For example, if you invoke [mysqlslap](#_bookmark57) as follows, the ; delimiter is recognized so that each instance of the query string counts as two queries. As a result, 5 rows (not 10) are inserted.

mysqlslap --delimiter=";" --number-of-queries=10

--query="use test;insert into t values(null)"

• [--only-print](#_bookmark738)

Do not connect to databases. [mysqlslap](#_bookmark57) only prints what it would have done.

• [password[=*password*]](#_bookmark739)--, -p[*password*]

The password of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysqlslap](#_bookmark57) prompts for one. If given, there must be *no* *space* between [--](#_bookmark739) [password=](#_bookmark739) or -p and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqlslap](#_bookmark57) should not prompt for one, use the [--skip-password](#_bookmark739) option.

• [--password1[=*pass\_val*]](#_bookmark740)

The password for multifactor authentication factor 1 of the MySQL account used for connecting to the server. The password value is optional. If not given, [mysqlslap](#_bookmark57) prompts for one. If given, there must be *no* *space* between [--password1=](#_bookmark740) and the password following it. If no password option is specified, the default is to send no password.

Specifying a password on the command line should be considered insecure. To avoid giving the password on the command line, use an option file. See Section 6.1.2.1, “End-User Guidelines for Password Security” .

To explicitly specify that there is no password and that [mysqlslap](#_bookmark57) should not prompt for one, use the [--skip-password1](#_bookmark740) option.

[--password1](#_bookmark740) and [--password](#_bookmark739) are synonymous, as are [--skip-password1](#_bookmark740) and [--skip-](#_bookmark739) [password](#_bookmark739).

• [--password2[=*pass\_val*]](#_bookmark741)

The password for multifactor authentication factor 2 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark740); see the description of that option for details.

• [--password3[=*pass\_val*]](#_bookmark742)

The password for multifactor authentication factor 3 of the MySQL account used for connecting to the server. The semantics of this option are similar to the semantics for [--password1](#_bookmark740); see the description of that option for details.

• [--pipe](#_bookmark743), -W

On Windows, connect to the server using a named pipe. This option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• [--plugin-dir=*dir\_name*](#_bookmark744)

The directory in which to look for plugins. Specify this option if the [--default-auth](#_bookmark721) option is used to specify an authentication plugin but [mysqlslap](#_bookmark57) does not find it. See Section 6.2.17, “Pluggable

Authentication” .

• [--port=*port\_num*](#_bookmark745), -P *port\_num*

For TCP/IP connections, the port number to use.

• [--post-query=*value*](#_bookmark746)

The file or string containing the statement to execute after the tests have completed. This execution is not counted for timing purposes.

• [--post-system=*str*](#_bookmark747)

The string to execute using system() after the tests have completed. This execution is not counted for timing purposes.

• [--pre-query=*value*](#_bookmark748)

The file or string containing the statement to execute before running the tests. This execution is not counted for timing purposes.

• [--pre-system=*str*](#_bookmark749)

The string to execute using system() before running the tests. This execution is not counted for timing purposes.

• [--print-defaults](#_bookmark750)

Print the program name and all options that it gets from option files.

For additional information about this and other option-file options, see Section 4.2.2.3, “Command- Line Options that Affect Option-File Handling” .

• [--protocol={TCP|SOCKET|PIPE|MEMORY}](#_bookmark751)

The transport protocol to use for connecting to the server. It is useful when the other connection parameters normally result in use of a protocol other than the one you want. For details on the permissible values, see [Section 4.2.7, “Connection Transport Protocols”](#_bookmark8) .

• [--query=*value*](#_bookmark701), -q *value*

The file or string containing the SELECT statement to use for retrieving data.

• [--server-public-key-path=*file\_name*](#_bookmark752)

The path name to a file in PEM format containing a client-side copy of the public key required by the server for RSA key pair-based password exchange. This option applies to clients that authenticate with the sha256\_password or caching\_sha2\_password authentication plugin. This option is ignored for accounts that do not authenticate with one of those plugins. It is also ignored if RSA- based password exchange is not used, as is the case when the client connects to the server using a secure connection.

If [--server-public-key-path=*file\_name*](#_bookmark752) is given and specifies a valid public key file, it takes precedence over [--get-server-public-key](#_bookmark728).

For sha256\_password, this option applies only if MySQL was built using OpenSSL.

For information about the sha256\_password and caching\_sha2\_password plugins, see Section 6.4.1.3, “SHA-256 Pluggable Authentication” , and Section 6.4.1.2, “Caching SHA-2 Pluggable Authentication” .

• [--shared-memory-base-name=*name*](#_bookmark753)

On Windows, the shared-memory name to use for connections made using shared memory to a local server. The default value is MYSQL. The shared-memory name is case-sensitive.

This option applies only if the server was started with the shared\_memory system variable enabled to support shared-memory connections.

• [--silent](#_bookmark754), -s

Silent mode. No output.

• [--socket=*path*](#_bookmark755), -S *path*

For connections to localhost, the Unix socket file to use, or, on Windows, the name of the named pipe to use.

On Windows, this option applies only if the server was started with the named\_pipe system variable enabled to support named-pipe connections. In addition, the user making the connection must be a member of the Windows group specified by the named\_pipe\_full\_access\_group system variable.

• [--sql-mode=*mode*](#_bookmark756)

Set the SQL mode for the client session.

• --ssl\*

Options that begin with --ssl specify whether to connect to the server using encryption and indicate where to find SSL keys and certificates. See [Command Options for Encrypted Connections](#_bookmark12).

• [--ssl-fips-mode={OFF|ON|STRICT}](#_bookmark758)

Controls whether to enable FIPS mode on the client side. The [--ssl-fips-mode](#_bookmark758) option differs from other --ssl-*xxx* options in that it is not used to establish encrypted connections, but rather to affect which cryptographic operations to permit. See Section 6.8, “FIPS Support” .

These [--ssl-fips-mode](#_bookmark758) values are permitted:

• OFF: Disable FIPS mode.

• ON: Enable FIPS mode.

• STRICT: Enable “strict” FIPS mode.



**Note**

If the OpenSSL FIPS Object Module is not available, the only permitted value for [--ssl-fips-mode](#_bookmark758) is OFF. In this case, setting [--ssl-fips-mode](#_bookmark758) to ON or STRICT causes the client to produce a warning at startup and to operate in non-FIPS mode.

• [--tls-ciphersuites=*ciphersuite\_list*](#_bookmark759)

The permissible ciphersuites for encrypted connections that use TLSv1.3. The value is a list of one or more colon-separated ciphersuite names. The ciphersuites that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

This option was added in MySQL 8.0.16.

• [--tls-version=*protocol\_list*](#_bookmark760)

The permissible TLS protocols for encrypted connections. The value is a list of one or more comma- separated protocol names. The protocols that can be named for this option depend on the SSL library used to compile MySQL. For details, see Section 6.3.2, “Encrypted Connection TLS Protocols and Ciphers” .

• [--user=*user\_name*](#_bookmark761), -u *user\_name*

The user name of the MySQL account to use for connecting to the server.

• [--verbose](#_bookmark762), -v

Verbose mode. Print more information about what the program does. This option can be used multiple times to increase the amount of information.

• [--version](#_bookmark763), -V

Display version information and exit.

• [--zstd-compression-level=*level*](#_bookmark764)

The compression level to use for connections to the server that use the zstd compression algorithm. The permitted levels are from 1 to 22, with larger values indicating increasing levels of compression. The default zstd compression level is 3. The compression level setting has no effect on connections that do not use zstd compression.

For more information, see [Section 4.2.8, “Connection Compression Control”](#_bookmark31) .

This option was added in MySQL 8.0.18.

**4.6** **Administrative** **and** **Utility** **Programs**

This section describes administrative programs and programs that perform miscellaneous utility operations.

**4.6.1** **ibd2sdi** **—** **InnoDB** **Tablespace** **SDI** **Extraction** **Utility**

[ibd2sdi](#_bookmark765) is a utility for extracting serialized dictionary information (SDI) from InnoDB tablespace files. SDI data is present in all persistent InnoDB tablespace files.

[ibd2sdi](#_bookmark765) can be run on file-per-table tablespace files (\*.ibd files), general tablespace files (\*.ibd files), system tablespace files (ibdata\* files), and the data dictionary tablespace (mysql.ibd). It is not supported for use with temporary tablespaces or undo tablespaces.

[ibd2sdi](#_bookmark765) can be used at runtime or while the server is offline. During DDL operations, ROLLBACK operations, and undo log purge operations related to SDI, there may be a short interval of time when [ibd2sdi](#_bookmark765) fails to read SDI data stored in the tablespace.

[ibd2sdi](#_bookmark765) performs an uncommitted read of SDI from the specified tablespace. Redo logs and undo logs are not accessed.

Invoke the [ibd2sdi](#_bookmark765) utility like this:

ibd2sdi [*options*] *file\_name1* [*file\_name2* *file\_name3* *...*]

[ibd2sdi](#_bookmark765) supports multi-file tablespaces like the InnoDB system tablespace, but it cannot be run on more than one tablespace at a time. For multi-file tablespaces, specify each file:

ibd2sdi ibdata1 ibdata2

The files of a multi-file tablespace must be specified in order of the ascending page number. If two successive files have the same space ID, the later file must start with the last page number of the previous file + 1.

[ibd2sdi](#_bookmark765) outputs SDI (containing id, type, and data fields) in JSON format.

**ibd2sdi** **Options**

[ibd2sdi](#_bookmark765) supports the following options:

• [--help](#_bookmark766), -h

Display a help message and exit. For example:

Usage: ./ibd2sdi [-v] [-c <strict-check>] [-d <dump file name>] [-n] filename1 [filenames]

See http://dev .mysql .com/doc/refman/8 .0/en/ibd2sdi .html for usage hints .

-h, --help Display this help and exit .

-v, --version Display version information and exit .

-#, --debug[=name] Output debug log . See

<http://dev.mysql.com/doc/refman/8.0/en/dbug-package.html>

-d, --dump-file=name

Dump the tablespace SDI into the file passed by user .

Without the filename, it will default to stdout

Skip retrieving data from SDI records . Retrieve only id

-s, --skip-data

and type .

SDI record matching the id passed by user .

-i, --id=#

-t, --type=#

Retrieve the

Retrieve the

user.

SDI records matching the type passed by

-c, --strict-check=name

checksum algorithm by the user .

Specify the strict

Allowed values are

innodb, crc32, none .

-n, --no-check

Ignore the checksum verification.

Pretty format the SDI output .If false, SDI would be not

-p, --pretty

human readable but it will be of less size

(Defaults to on; use --skip-pretty to disable.)

Variables (--variable-name=value)

Value (after reading options)

and boolean options {FALSE |TRUE}

----------------------------------------

---------------------------------

(No default value)

debug

dump-file

skip-data

id

type

strict-check

no-check

pretty

(No default value)

FALSE

0

0

crc32

FALSE

TRUE

• [--version](#_bookmark767), -v

Display version information and exit. For example:

ibd2sdi Ver 8.0.3-dmr for Linux on x86\_64 (Source distribution)

• [--debug[=*debug\_options*]](#_bookmark768), -# [*debug\_options*]

Prints a debug log. For debug options, refer to Section 5.9.4, “The DBUG Package” . ibd2sdi --debug=d:t /tmp/ibd2sdi.trace

This option is available only if MySQL was built using WITH\_DEBUG. MySQL release binaries provided by Oracle are *not* built using this option.

• [--dump-file=](#_bookmark769), -d

Dumps serialized dictionary information (SDI) into the specified dump file. If a dump file is not specified, the tablespace SDI is dumped to stdout.

ibd2sdi --dump-file=*file\_name* ../data/test/t1.ibd

• [--skip-data](#_bookmark770), -s

Skips retrieval of data field values from the serialized dictionary information (SDI) and only retrieves the id and type field values, which are primary keys for SDI records.

$> **ibd2sdi** **--skip-data** **../data/test/t1.ibd**

["ibd2sdi"

,

{

"type": 1,

"id": 330

}

,

{

"type": 2,

"id": 7

}

]

• [--id=*#*](#_bookmark771), -i *#*

Retrieves serialized dictionary information (SDI) matching the specified table or tablespace object id. An object id is unique to the object type. Table and tablespace object IDs are also found in the id column of the mysql.tables and mysql.tablespace data dictionary tables. For information about data dictionary tables, see Section 14.1, “Data Dictionary Schema” .

$> **ibd2sdi** **--id=7** **../data/test/t1.ibd**

["ibd2sdi"

,

{

"type": 2,

"id": 7,

"object":

{

"mysqld\_version\_id": 80003,

"dd\_version": 80003,

"sdi\_version": 1,

"dd\_object\_type": "Tablespace",

"dd\_object": {

"name": "test/t1",

"comment": "",

"options": "",

"se\_private\_data": "flags=16417;id=2;server\_version=80003;space\_version=1;",

"engine": "InnoDB",

"files": [

{

"ordinal\_position": 1,

"filename": " ./test/t1 .ibd",

"se\_private\_data": "id=2;"

}

]

}

}

}

]

• [--type=*#*](#_bookmark772), -t *#*

Retrieves serialized dictionary information (SDI) matching the specified object type. SDI is provided for table (type=1) and tablespace (type=2) objects.

$> **ibd2sdi** **--type=2** **../data/test/t1.ibd**

["ibd2sdi"

,

{

"type": 2,

"id": 7,

"object":

{

"mysqld\_version\_id": 80003,

"dd\_version": 80003,

"sdi\_version": 1,

"dd\_object\_type": "Tablespace",

"dd\_object": {

"name": "test/t1",

"comment": "",

"options": "",

"se\_private\_data": "flags=16417;id=2;server\_version=80003;space\_version=1;",

"engine": "InnoDB",

"files": [

{

"ordinal\_position": 1,

"filename": " ./test/t1 .ibd",

"se\_private\_data": "id=2;"

}

]

}

}

}

]

• [--strict-check](#_bookmark773), -c

Specifies a strict checksum algorithm for validating the checksum of pages that are read. Options include innodb, crc32, and none.

In this example, the strict version of the innodb checksum algorithm is specified: ibd2sdi --strict-check=innodb ../data/test/t1.ibd In this example, the strict version of crc32 checksum algorithm is specified: ibd2sdi -c crc32 ../data/test/t1.ibd

If you do not specify the [--strict-check](#_bookmark773) option, validation is performed against non-strict innodb, crc32 and none checksums.

• [--no-check](#_bookmark774), -n

Skips checksum validation for pages that are read. ibd2sdi --no-check ../data/test/t1.ibd

• [--pretty](#_bookmark775), -p

Outputs SDI data in JSON pretty print format. Enabled by default. If disabled, SDI is not human readable but is smaller in size. Use --skip-pretty to disable.

ibd2sdi --skip-pretty ../data/test/t1.ibd

**4.6.2** **innochecksum** **—** **Offline** **InnoDB** **File** **Checksum** **Utility**

[innochecksum](#_bookmark776) prints checksums for InnoDB files. This tool reads an InnoDB tablespace file, calculates the checksum for each page, compares the calculated checksum to the stored checksum, and reports mismatches, which indicate damaged pages. It was originally developed to speed up verifying the integrity of tablespace files after power outages but can also be used after file copies. Because checksum mismatches cause InnoDB to deliberately shut down a running server, it may be preferable to use this tool rather than waiting for an in-production server to encounter the damaged pages.

[innochecksum](#_bookmark776) cannot be used on tablespace files that the server already has open. For such files, you should use CHECK TABLE to check tables within the tablespace. Attempting to run [innochecksum](#_bookmark776) on a tablespace that the server already has open results in an Unable to lock file error.

If checksum mismatches are found, restore the tablespace from backup or start the server and attempt

to use [mysqldump](#_bookmark37) to make a backup of the tables within the tablespace.

Invoke [innochecksum](#_bookmark776) like this:

innochecksum [*options*] *file\_name*

**innochecksum** **Options**

[innochecksum](#_bookmark776) supports the following options. For options that refer to page numbers, the numbers are zero-based.

• [--help](#_bookmark777), -?

Displays command line help. Example usage: innochecksum --help

• [--info](#_bookmark778), -I

Synonym for [--help](#_bookmark777). Displays command line help. Example usage: innochecksum --info

• [--version](#_bookmark779), -V

Displays version information. Example usage: innochecksum --version

• [--verbose](#_bookmark780), -v

Verbose mode; prints a progress indicator to the log file every five seconds. In order for the progress indicator to be printed, the log file must be specified using the --log option. To turn on verbose mode, run:

innochecksum --verbose To turn off verbose mode, run: innochecksum --verbose=FALSE The --verbose option and --log option can be specified at the same time. For example: innochecksum --verbose --log=/var/lib/mysql/test/logtest.txt To locate the progress indicator information in the log file, you can perform the following search: cat ./logtest.txt | grep -i "okay" The progress indicator information in the log file appears similar to the following: