MySQL Connector/C Release Notes

Abstract

This document contains release notes for the changes in each release of MySQL Connector/C.

For additional Connector/C documentation, see MySQL Connector/C Developer Guide.

Updates to these notes occur as new product features are added, so that everybody can follow the development process. If a recent version is listed here that you cannot find on the download page (http://dev.mysql.com/downloads/), the version has not yet been released.

The documentation included in source and binary distributions may not be fully up to date with respect to release note entries because integration of the documentation occurs at release build time. For the most up-to-date release notes, please refer to the online documentation instead.

For legal information, see the Legal Notices.

For help with using MySQL, please visit either the MySQL Forums or MySQL Mailing Lists, where you can discuss your issues with other MySQL users.

For additional documentation on MySQL products, including translations of the documentation into other languages, and downloadable versions in variety of formats, including HTML and PDF formats, see the MySQL Documentation Library.

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Preface and Legal Notices

This document contains release notes for the changes in each release of MySQL Connector/C.

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Changes in MySQL Connector/C 7.0

Changes in MySQL Connector/C 7.0.0 (Not released yet)

Version 7.0.0 has no changelog entries, or they have not yet been published because the product version has not yet been released.

Changes in MySQL Connector/C 6.1

Changes in MySQL Connector/C 6.1.9 (Not released yet)

Security Notes

• The linked OpenSSL library for Connector/C Commercial has been updated to version 1.0.1q. Issues fixed in the new OpenSSL version are described at http://www.openssl.org/news/vulnerabilities.html.

This change does not affect Oracle-produced MySQL Community builds of Connector/C, which use the yaSSL library instead.

Changes in MySQL Connector/C 6.1.8 (2015-12-15)

Security Notes

• This release of Connector/C upgrades the linked OpenSSL library to version 1.0.1p. Issues fixed in the new OpenSSL version are described at http://www.openssl.org/news/vulnerabilities.html.

Changes in MySQL Connector/C 6.1.7 (2015-04-21)

Security Notes

• Security Fix: Connector/C 6.1 Commercial has been updated to use OpenSSL version 1.0.1m, which has been publicly reported as not vulnerable to CVE-2015-0286.

Since the only change in Connector/C 6.1.7 is the inclusion of OpenSSL libraries publicly reported as unaffected by CVE-2015-0286, and since Oracle-produced MySQL Community builds use YaSSL libraries which have been reported as not affected by CVE-2015-0286, Oracle will not produce builds for Connector/C Community for version 6.1.7. This means the Community edition of Connector/C will skip version 6.1.7. (Bug #20747718, CVE-2015-0286)

Changes in MySQL Connector/C 6.1.6 (2015-03-20)

- Security Notes
- · Functionality Added or Changed
- Bugs Fixed

Security Notes

 This release of Connector/C upgrades the linked OpenSSL library to version 1.0.1k. Issues fixed in the new OpenSSL version are described at http://www.openssl.org/news/vulnerabilities.html.

Functionality Added or Changed

 yaSSL sources included in Connector/C source packages and used in GPL binary distributions were upgraded to version 2.3.7. (Bug #20201864)

Bugs Fixed

- For source packages, it was not possible to build Connector/C with the client protocol test trace plugin enabled. (Bug #20316149)
- When there is no change in session state, the OK packet sent from server to the client contained an unneeded byte at the end of the packet. (Bug #19625718)
- The client protocol trace plugin did not account for the removal of the EOF packet from the client/server protocol in MySQL 5.7.5. (Bug #19512199)
- The mysql_session_track_get_first() and mysql_session_track_get_next() C API functions could cause a client crash if passed invalid arguments. (Bug #18769620)
- mysql_config --libs_r produces output containing link flags for libmysqlclient_r, even though that library was removed in MySQL 5.5 and replaced with a symlink to the underlying libmysqlclient library. The output now refers directly to libmysqlclient. (The implication is that it is no longer necessary to maintain the symlink for the sake of being able to use mysql_config -- libs_r.) (Bug #73724, Bug #19506315)
- Invalid memory access could occur when using prepared statements if a mysql client connection was lost after statement preparation was complete and there was at least one statement that was in initialized state but not prepared yet. (Bug #70429, Bug #17512527)
- Client auto-reconnect did not work for clients linked against libmysqlclient, even with MYSQL OPT RECONNECT enabled.

Also, if a FEDERATED table was accessed after wait_timeout expired, a Lost connection to MySQL server error occurred without an attempt to re-establish the connection. (Bug #70026, Bug #17309863, Bug #14874, Bug #11745408)

 mysql_real_connect() could close a file descriptor twice if the server was not running. (Bug #69423, Bug #19226740)

Changes in MySQL Connector/C 6.1.5 (2014-06-17)

- Security Notes
- Functionality Added or Changed

Bugs Fixed

Security Notes

Connector/C 6.1.5 upgrades the linked OpenSSL library from version 1.0.1g to version 1.0.1h. Versions
of OpenSSL prior to 1.0.1g are reported to be vulnerable to CVE-2014-0224.

Functionality Added or Changed

- Because there are new API functions (mysql_session_track_get_first(), mysql_session_track_get_next()), the client library ABI version is now 18.3. Shared library names now include 18.3 where appropriate.
- The server can now report session-state changes to client programs. Reportable session state consists
 of these values:
 - The default schema (database)
 - Session-specific values for system variables
 - User-defined variables
 - · Temporary tables
 - · Prepared statements

The MySQL client/server protocol now includes tracker information so that session state changes can be detected. One use for the tracker mechanism is that it provides a means for MySQL Connectors, Fabric, and client applications to determine whether any session context is available to ensure session migration from one server to another. (To change connections in a load-balanced environment, it is necessary to detect whether there is session state to take into consideration when deciding whether a switch can be made.)

The user interface to control the tracker and retrieve state-change information from it has the following components, which enable implementation of state-change tracking on the client side:

- Clients can request notification when there is a change to any of the session state-related values
 just listed, in the form of a flag that is set in the OK packet received from the server after the change
 occurs. To control notification, enable or disable the session_track_state_change system
 variable. This variable is disabled by default.
- Clients can request notification of changed values for certain specific types of session state information:
 - The default schema name. To control notification, enable or disable the session_track_schema
 system variable. This variable is enabled by default.
 - The session values of system variables. Notification occurs for the system variables named by the session_track_system_variables system variable. By default, notification is enabled for time_zone, autocommit, character_set_client, character_set_results, and character_set_connection. (The latter three variables are those affected by SET NAMES.)
- To enable applications to extract the state-change information returned by the server, the MySQL C API includes a pair of functions:
 - mysql_session_track_get_first() fetches the first state-change information received from the server.

- mysql_session_track_get_next() fetches any remaining state-change information received
 from the server. Following a successful call to mysql_session_track_get_first(), call this
 function repeatedly as long as it returns success.
- The mysqltest program has enable_session_track_info and disable_session_track_info commands to enable and disable tracking of session state-change information.

For more information, see Server System Variables and mysql_session_track_get_first(). For information about the structure of the OK packet used to convey state-change information, see OK_Packet.

Bugs Fixed

- Calling mysql_get_server_version() with an invalid connection handler argument caused the client to exit. Now it returns 0 and reports a CR COMMANDS OUT OF SYNC error. (Bug #18053212)
- On Windows, calling mysql_thread_init() call without mysql_init() caused the client to exit. Now it returns a nonzero result because it is an error to call mysql_thread_init() before the client library is initialized with mysql_library_init(). (Bug #17514920)

Changes in MySQL Connector/C 6.1.4 (2014-04-15)

- Heartbleed Bug
- · Bugs Fixed

Heartbleed Bug

Security Fix: Connector/C 6.1 Commercial has been updated to use OpenSSL version 1.0.1g, which
has been publicly reported as not vulnerable to CVE-2014-0160. Please see Oracle Note #1645479.1 for
further details.

Since the only change in Connector/C 6.1.4 is the inclusion of OpenSSL libraries publicly reported as unaffected by CVE-2014-0160, and since Oracle-produced MySQL Community builds use YaSSL libraries which have been reported as not affected by CVE-2014-0160, Oracle will not produce builds for Connector/C Community for version 6.1.4. This means the Community edition of Connector/C will skip version 6.1.4. (Bug #18533200, CVE-2014-0160)

Bugs Fixed

There was a difference in certificate handling by yaSSL and OpenSSL (used for Community and Enterprise, respectively). OpenSSL expected a blank certificate to be sent when not all of the --ssl-ca, --ssl-cert, and --ssl-key options were specified, and yaSSL did not do so. To resolve this, yaSSL has been modified to send a blank certificate when an option is missing. (Bug #68788, Bug #16715064)

Changes in MySQL Connector/C 6.1.3 (2013-12-27)

- Security Notes
- · Functionality Added or Changed
- · Bugs Fixed

Security Notes

• A new MYSQL_OPT_SSL_ENFORCE option is available for the mysql_options() C API function to indicate whether to require the connection to use SSL. If enabled, an encrypted connection is attempted. If an encrypted connection cannot be established, the connection attempt fails.

For more information, see mysql_options().

Functionality Added or Changed

- Some dependencies between client-side plugin header files were removed:
 - The MYSQL_PLUGIN_EXPORT macro required by plugin declarations is now declared directly in mysql/client_plugin.h instead of getting the definition from mysql/plugin.h. That macro was the only thing required by client-side plugins and declared in server-side header mysql/plugin.h, so including mysql/client_plugin.h in an application no longer requires the application to also include mysql/plugin.h.
 - mysql/plugin_trace.h no longer uses C_MODE_START or C_MODE_END. Consequently, including mysql/plugin_trace.h in an application no longer requires the application to also include my_global.h.

Applications might require mysql/plugin.h or my_global.h for other reasons, of course. (Bug #17582168)

- The mysql_version.h file defines two new macros, LIBMYSQL_VERSION and LIBMYSQL_VERSION_ID, that indicate the string and numeric forms of the client library version.
 - In the client library included with MySQL Server distributions, these macros have the same values as MYSQL_SERVER_VERSION and MYSQL_VERSION_ID. For example, in MySQL 5.7.4, MYSQL_SERVER_VERSION and LIBMYSQL_VERSION are "5.7.4-m14", and MYSQL_VERSION_ID and LIBMYSQL VERSION ID are 50704.
 - In the client library included with Connector/C distributions, MYSQL_SERVER_VERSION and MYSQL_VERSION_ID have the values of the MySQL version on which the Connector/C distribution is based, whereas LIBMYSQL_VERSION and LIBMYSQL_VERSION_ID indicate the Connector/C version. For example, Connector/C 6.1.3 is based on MySQL 5.7.4, so MYSQL_SERVER_VERSION and MYSQL_VERSION_ID have values of "5.7.4-m14" and 50704, whereas LIBMYSQL_VERSION and LIBMYSOL VERSION ID have values of "6.1.3" and 60103.

In addition, the <code>mysql_get_client_info()</code> and <code>mysql_get_client_version()</code> C API functions in the client library now return values that reflect the type of distribution that provides the client library:

- In MySQL distributions, mysql_get_client_info() returns MYSQL_SERVER_VERSION and mysql get client version() returns MYSQL VERSION ID. This is the same as before.
- In Connector/C distributions, mysql_get_client_info() returns LIBMYSQL_VERSION and mysql_get_client_version() returns LIBMYSQL_VERSION_ID. Previously, these functions returned the MySQL version, the same as in MySQL distributions.

(Bug #17171724)

- Because there are new API functions (mysql_get_option(), mysql_reset_connection()), the library ABI version is now 18.2. Shared library names now include 18.2 where appropriate.
- Connector/C is now included in MySQL Installer (Windows).
- When a connection is returned to the thread pool plugin, the connection thread context must be cleaned up. Previously, this was done using COM_CHANGE_USER (which is like the mysql_change_user()

C API function). However, that operation reauthenticates, which is unnecessary network roundtrip overhead in this context.

Now it is possible for client connection state to be reset in a more lightweight manner without causing reauthentication. The API is exposed publicly through these changes:

- A new COM_RESET_CONNECTION protocol command (defined in mysql_com.h)
- A new mysql_reset_connection() C API function
- A new resetconnection command for the mysql client

Resetting a connection has effects similar to <code>mysql_change_user()</code> or an auto-reconnect except that the connection is not closed and reopened, and reauthentication is not done. See <code>mysql_change_user()</code> and see Controlling Automatic Reconnection Behavior).

For more information, see mysgl_reset_connection() and mysgl — The MySQL Command-Line Tool.

• A new mysql_get_option() C API function is available that returns the current value of applicable mysql_options() options. See mysql_get_option().

Bugs Fixed

- The C client library could leak memory when client plugins were used. (Bug #17933308)
- It was not possible to build client-side plugins using Connector/C because client_plugin.h referenced a macro defined in the plugin.h file, which is not included in Connector/C distributions. (Bug #17582228)

References: See also: Bug #17582168.

- Upgrading Connector/C using the 64-bit version of the Windows MSI package occurred in the default folder because registry search logic was hardcoded to use the 32-bit registry. (Bug #17515067)
- After the fix for Bug #16409270, it was not possible to #include <mysql.h> following #include <windows.h>. (Bug #17514554)

References: See also: Bug #16409270.

• A client crash occurred if mysql_set_server_option() or several other C API functions were called before mysql_real_connect(). (Bug #17338958)

Changes in MySQL Connector/C 6.1.2 (2013-09-30)

- · Functionality Added or Changed
- Bugs Fixed

Functionality Added or Changed

• The implementation of condition variables specific to Windows XP and Windows Server 2003 was removed from the source code because MySQL is not supported on those platforms as of MySQL 5.6.



Note

This change has the following implication: Previously, Connector/C 6.1, while not officially supported on Windows XP or Windows Server 2003, could be used on those platforms. This is no longer possible.

(Bug #17332056)

- Static libraries built with VS2008, VS2010, VS2012 are now distributed as part of Connector/C packages
 for Windows: ZIP and MSI. New directories named vs9, vs10, and vs11 located under the lib
 directory contain static libraries and corresponding pdb files built with VS2008, VS2010, and VS2012,
 respectively.
- MySQL now supports the use of protocol trace plugins: client-side plugins that implement tracing of communication between a client and the server that takes place using the client/server protocol. Protocol trace plugins use the client plugin API.

In MySQL source distributions, a test protocol trace plugin is implemented in the test_trace_plugin.cc file in the libmysql directory. This can be examined as a guide to writing other protocol trace plugins.

For more information, see Writing Plugins; in particular, Writing Protocol Trace Plugins.

Bugs Fixed

- The CLIENT_CONNECT_WITH_DB flag was improperly handled in the C client library. This could lead to a malformed packet sent to the server. (Bug #17351732)
- The mysql_real_connect() C API function could leak memory if it failed. (Bug #17337684)
- The mysql_options() C API function could leak memory if called more than once with the MYSQL_SET_CLIENT_IP option. (Bug #17297012)
- The Connector/C RPM package was missing the following files: INFO_SRC, INFO_BIN, my_print_defaults, perror. (Bug #17261610)
- The Connector/C MSI package was missing the following files: ChangeLog, README, LICENSE, COPYING, INFO_SRC, INFO_BIN. (Bug #17261526)
- On Windows, a MySQL client program that simply used #include <mysql.h> could not be compiled due to missing Windows declarations in that file. The same program would compile on other platforms. (Bug #16409270)

References: See also: Bug #17514554.

• The libmysql.dll library was missing several symbols: my_init, mysql_client_find_plugin, mysql_client_register_plugin, mysql_load_plugin, mysql_load_plugin_v, and mysql_plugin_options. (Bug #69204, Bug #16797982)

Changes in MySQL Connector/C 6.1.1 (2013-08-05)

- · Functionality Added or Changed
- Bugs Fixed

Functionality Added or Changed

• The C API libmysqlclient shared-library .so files now have version 18.1.0 (up from version 18.0.0 used in 6.1.0). 18.1.0 can be used as a replacement for 18.0.0. (Bug #16809055)

Bugs Fixed

• The libmysql.dll library was missing the mysql_options4 symbol. (Bug #69204, Bug #16797982)

Changes in MySQL Connector/C 6.1.0 (2013-05-02, General Availability)

Functionality Added or Changed

- Connector/C 6.1 provides these features not present in 6.0:
 - Support for the pluggable authentication framework that enables implementation of authentication methods as plugins. This framework can be used for MySQL native authentication as well as external authentication methods. See Pluggable Authentication.
 - Client-side support for the SHA-256, PAM, and Windows native authentication plugins. See
 The SHA-256 Authentication Plugin, The PAM Authentication Plugin, and The Windows Native
 Authentication Plugin.

The older Connector/C 6.0 can connect only to accounts that use native MySQL passwords. If a client program attempts to connect to an account that requires a different authentication method, an "Access denied for user" error occurs.

- Support for connecting to accounts that have expired passwords. See Password Expiration and Sandbox Mode.
- Support for prepared CALL statements. This enables client programs to handle stored procedures that
 produce multiple result sets and to obtain the final value of OUT and INOUT procedure parameters.
 See C API Support for Prepared CALL Statements.
- Support for connecting over IPv6. See IPv6 Support.
- Support for binding client programs to a specific IP address at connect time. See mysql_options().
- Support for specifying connection attributes to pass to the server at connect time. See mysql_options(), and mysql_options4().

Changes in MySQL Connector/C 6.0

Changes in MySQL Connector/C 6.0.3 (Not released)

- · Functionality Added or Changed
- Bugs Fixed

Functionality Added or Changed

Connector/C now has the --enable-local-infile option enabled by default, which is
consistent with other MySQL products. It can be disabled at configuration time using the DDISABLE_LOCAL_INFILE CMake option. (Bug #54128)

Bugs Fixed

• The definition of the MY_INIT macro in my_sys.h included an extraneous semicolon, which could cause compilation failure. (Bug #59080)

References: See also: Bug #53906.

When run against MySQL Server 5.5, the Connector/C test suite failed in the ps_bugs test. When
executing an EXPLAIN statement, MySQL Server 5.5 returned the string "information_schema" in
metadatasdb_name, instead of an empty string. (Bug #56012)

- mysql_config reported incorrect locations for library files. (Bug #54381)
- Connector/C did not support the geostd8 character set. (Bug #54100)
- After a reconnect occurred followed by mysql_stmt_execute(), mysql_stmt_errno() always returned 0. (Bug #53311)
- When run against MySQL Server 5.0, ctest failed an sql_mode test after building Connector/C. (Bug #53289)
- mf_iocache.c failed to compile on some platforms. (Bug #46642, Bug #11754951)

Changes in MySQL Connector/C 6.0.2 (2009-08-10, General Availability)

This is the first General Availability (GA) release of MySQL Connector/C.

Bugs Fixed

- Connector/C did not support compression in the client/server protocol. (Bug #46206)
- Connector/C incorrectly linked against libstdc++. This dependency created various problems for Connector/OpenOffice.org. (Bug #45128)
- Executing the mysql_config program bundled with Connector/C resulted in a segmentation fault. (Bug #44698)

Changes in MySQL Connector/C 6.0.1 (2009-04-21)

This is a new Beta development release.

Functionality Added or Changed

• Connector/C now features a CMake-based build and packaging system.

Changes in MySQL Connector/C 6.0.0 (2009-04-02, Beta)

This is a new Beta development release.

Version 6.0.0 has no changelog entries, or they have not yet been published because the product version has not yet been released.

