# MySQL Router 2.1 Release Notes

**Abstract**

This document contains release notes for the changes in each release of MySQL Router 2.1.

For additional MySQL Router documentation, see https://dev.mysql.com/doc/mysql-router/en/.

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 (https://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 the MySQL Forums, where you can discuss your issues with other MySQL users.

Document generated on: 2023-05-12 (revision: 26567)

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# Preface and Legal Notices

This document contains release notes for the changes in each release of MySQL Router 2.1.

## Legal Notices

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# Changes in MySQL Router 2.1.6 (2018-03-05, General Availability)

## Bugs Fixed

- Router's `connect_timeout` configuration option was measured in milliseconds instead of seconds in v2.1.5. (Bug #27597561, Bug #89740)

- Router's `max_connect_errors` option did not function in v2.1.5. (Bug #27559218, Bug #89700)

- On Windows, the returned POLLHUP returned by WSAPoll() was not handed properly. This caused high CPU utilization after several opened/closed connections. (Bug #27532709)

# Changes in MySQL Router 2.1.5 (2018-02-02, General Availability)

- Functionality Added or Changed

- Bugs Fixed

## Functionality Added or Changed

- Bootstrap now accepts any member of an InnoDB cluster and automatically finds and reconnects to a writable primary. (Bug #25489509, WL #11157)

## Bugs Fixed

- Configuring MySQL Router with sockets would create a socket that was only accessible by the MySQL Router user. (Bug #27179456, Bug #88667)

- The apt purge process did not remove the `/var/{lib,log,run}/mysqlrouter` directories. (Bug #26955232)

- Router assumed that a resulting socket from accepting a socket would be always blocking. On Solaris and Windows this assumption is not valid, and this resulted in broken connections with large result sets. (Bug #26834769)

- Defining a `[logger]` section in the configuration file was invalid because the logging mechanism is not a plugin as of Router 2.1. `[logger]` was used in MySQL Router 2.0, but now logging definitions are defined under the `[DEFAULT]` section. To provide backward compatibility, `[logger]` section support was added. (Bug #26441587)

- The maximum number of concurrent client connections was increased from about 500 to over 5000, a limit now dependent on the operation system. To achieve this, select() based fd event calls were replaced by poll() (or WSAPoll() on Windows). (Bug #22661705, Bug #80260, WL #9857)

# Changes in MySQL Router 2.1.4 (2017-07-24, General Availability)

- Functionality Added or Changed

- Bugs Fixed

## Functionality Added or Changed

- MySQL passwords generated by MySQL Router during bootstrapping were not guarantied to work with the `validate_password` plugin, but now generate passwords to pass the `STRONG validate_password` level by checking the generated password against `VALIDATE_PASSWORD_STRENGTH`.

  Related to this are the new `--force-password-validation` and `--password-retries` command line options that were added in Router 2.1.4. (Bug #25858394, WL #10749)

- A new `--bootstrap-socket` command line option was added.

  Used in conjunction with the `--bootstrap` command line option, it's used to connect using a Unix domain socket instead of TCP/IP. (Bug #25450756, WL #10698)

- Added support to bootstrap the router using IPv6 addresses, along with support for RFC 3986. (Bug #25225260, Bug #25828663, WL #10699)

## Bugs Fixed

- The sample configuration file defined keyring_path and master_key_path under a nonexistent "[keyring]" section instead of under the "[DEFAULT]" section. (Bug #26449960)

- Bootstrapping a MySQL Router instance did not work when DNS lookups were unsuccessful on the host where the bootstrap operation was performed. (Bug #26100966)

- After a primary failure within an InnoDB Cluster, MySQL Router required an extended amount of time to reconnect. (Bug #26044181, Bug #86259)

- An incorrect profile setting produced permission-denied errors during MySQL Router bootstrap operations when AppArmor was enabled. (Bug #26041542)

- Stand-alone routing failed and produced errors when used with a valid URI. (Bug #25973199, WL #10699)

- The bootstrap procedure for the system-wide bootstrap now creates the proper directory ownership required to start the router, when before it failed to start in some cases. (Bug #25956532, Bug #86050)

- Difficulties observed when installing and starting MySQL Router on older Windows platforms due to missing libraries are now resolved. (Bug #25853059, Bug #25494942)

- Passing in a directory to the `--config` option instead of a MySQL Router configuration file now reports a more relevant error, when before it did not mention that a file is required. (Bug #25800863)

- Sample MySQL Router configuration files were generated with the `.ini` extension instead of with the `.conf` file extension as expected. (Bug #25616924)

- Specifying an invalid user account in the `metadata_cache` section of the MySQL Router configuration file after bootstrapping now issues an appropriate error message. (Bug #25460958)

- Omitting a MySQL Router configuration file when using the `--config` option now displays an error indicating an empty path instead of throwing an exception. (Bug #25449685)

- The commercial version of MySQL Router did not have the correct setting for the AppArmor profile configuration file `/etc/apparmor.d/usr.sbin.mysqlrouter`. (Bug #25253001, Bug #84074)

- Invalid configuration variables in the MySQL Router configuration file that expect numeric values, such as the expiration time (TTL), now report errors. (Bug #24756621)

- MySQL Router did not exit after failing to bind a port. (Bug #23501906, Bug #81643)

# Changes in MySQL Router 2.1.3 (2017-04-12, General Availability)

A known limitation of this release:

> **Note**
>
> The `--bootstrap` command line option does not accept IPv6 addresses.

- Functionality Added or Changed

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## Functionality Added or Changed

- Added functionality to also scan for Router configuration files with the *.ini* extension, to provide backward compatibility with previous Router installations.

  Router looks in the initial directory for the *.conf* version, then checks for a *.ini* version, and then repeats the process in the second directory that's typically the user's home directory. (Bug #25688333)

## Bugs Fixed

- On Linux, *systemd* based distributions defaulted to *mysqlrouter.ini* instead of `mysqlrouter.conf`. (Bug #25688333)

- Bootstrapping as a super user (uid==0) without the `--user` option would generate files and directories that were owned by root an not accessible by others. Now, super users are required to pass in the `--user` option. Also while not recommended, the super user name can be passed in to force using the super user, such as `--user=root`. (Bug #25682736)

- Router would compile against yaSSL but not OpenSSL. (Bug #25672823, Bug #85068)

- On Solaris, MySQL Router would not start as it could not find the required `logger.so`. (Bug #25638708)

- On FreeBSD, a unit-test would always fail with "Bad Suki". (Bug #25549490)

- Executing bootstrap with "ssl-mode VERIFY_CA" would not report an error when the corresponding certificate was not passed through ssl-ca. (Bug #25511157)

  References: See also: Bug #24732452.

# Changes in MySQL Router 2.1.2 (2017-03-06, Release Candidate)

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## Functionality Added or Changed

- New *SSL* command line options: `--ssl-mode`, `--ssl-ca`, `--ssl-capath`, `--ssl-cipher`, `--ssl-crl`, `--ssl-crlpath`, and `--tls-version`. (Bug #25036324, WL #10320, WL #9827)

- Windows: downloads now require Visual C++ Redistributable for Visual Studio 2015, when before the 2013 version was required.

- MySQL Fabric support was removed. (WL #9757)

- `mysqlrouter --help` output was improved to include the current default folder locations for the system, and also usage examples.

- X Protocol support was added.

  The new `protocol` configuration option was added to support the X Protocol. Setting `protocol` to `x` enables the X Protocol for connections, otherwise the default `classic` protocol is used. (WL #9477)

- Keyring key management was added to securely manage passwords.

  With this, the new `master_key_path` and `keyring_path` configuration options were added. (WL #9610)

- Bootstrapping support was added.

  New *bootstrapping* command line options: `--bootstrap`, `--conf-base-port`, `--conf-bind-address`, `--conf-use-sockets`, `--conf-skip-tcp`, `--directory`, `--force`, and `--name` (WL #9483)

## Bugs Fixed

- After starting a Router instance, starting a second Router instance using the same configuration file as the first, would cause the second Router instance to exit due to `bind_port` conflicts. (Bug #25493968)

- While bootstrapping router, the process to discover local interfaces had a memory leak. (Bug #25456674)

- Fixed "use of uninitialized bytes" issues as discovered by valgrind. (Bug #25455825)

- Bootstrapping did not throw errors when passing an empty string to any of the following options: `tls-version`, `ssl-cipher`, `ssl-ca`, `ssl-capath`, `ssl-crl`, `ssl-crlpath` succeeds, without throwing an proper error. In addition, `ssl-mode VERIFY_CA` would continue without requiring `ssl-ca`. (Bug #25436768)

- After bootstrapping router with the `--conf-use-sockets` and `--directory` options, the socket path configuration value defined in the generated configuration file was invalid. This was because it used the `socketsdir` value in the socket path, but the directory was not created as part of the bootstrap process or when router was started. (Bug #25391460)

- With SSL disabled on MySQL instances in a MySQL InnoDB cluster, passing in `--ssl-mode REQUIRED` along with a `--tls-version` version did not exit and emit an error. This now stops the bootstrap process and reports an error about requiring SSL. (Bug #25390144)

- On Windows, immediately starting a bootstrapped Router installation would fail to load the generated configuration file.

  In addition, the generated text for missing configuration files was improved to also include the paths that were checked. (Bug #25343904)

- On Windows, `--bootstrap` would not function if Router was compiled from source due to unresolved underlying paths. (Bug #25039423)

- On Windows, `--bootstrap` failed to function without also passing in `--directory`. (Bug #25038772)

- Bootstrapping with `--config` would overwrite an existing configuration file without warning. Now, if the generated configuration file is different, a backup file is created with the *.bak* file extension. (Bug #24763468)

- Fixed memory leaks that were observed while bootstrapping with metadata cache configured. (Bug #24733015)

- Improved group replication related error text. (Bug #24703342)

# Changes in MySQL Router 2.1.1 (2016-12-15, Labs)

Published to labs.mysql.com as part of the **MySQL InnoDB Cluster 5.7.17 Preview 2** bundle.

- Functionality Added or Changed

- Bugs Fixed

## Functionality Added or Changed

- A `--user` command line option was added to define the user to run Router as. This option is required if Router is bootstrapped or started as a super user, such as root. This option is also defined as `user` under the `[DEFAULT]` namespace. This option is not available on Windows.

  In addition, the packaging scripts (Debian and RPM packages) now create a Router-specific system user named *mysqlrouter* that Router runs as by default. This account does not have shell access, and its home directory points to the directory where the default Router configuration file is stored. Previously, the user named *mysql* was used by default. (Bug #25070949, WL #9859)

## Bugs Fixed

- No quorum did not cause the connections to be blocked. (Bug #25134206)

- The `--help` text referred to a nonexistent option named "--master-key-path", instead of "--master-key-file". (Bug #25074305)

- After dissolving a MySQL InnoDB cluster that was bootstrapped, bootstrapping to the old primary server and port would not function. (Bug #25069674)

- On Linux, the default `keyring_path` path included `/var/run`, but because some Linux distributions mount `/var/run/` to `tmpfs`, this definition was lost when the host was restarted. Now, `/var/lib/` is used on most systems. (Bug #25045182)

- An existing configuration file with a missing *[metadata_cache]* section (including empty files) would cause *--bootstrap* to fail. (Bug #25045119)

- Having multiple `metadata_cache` definitions (with different section keys) would cause Router to unexpectedly exit. This error is now handled, and Router is closed with an error message. (Bug #24962552)

- Routing to the default destination port for the x protocol (33060) did not function for standalone routing. (Bug #24955339)

- X-Protocol routing treated errors from the server as handshake failures, which caused each invalid authentication request to increment the connect error counter. Now, it behaves like the classic protocol, so during the handshake when the server sends an error to the client (even if it Access Denied error), this is not considered a failed handshake. This is also how MySQL Server behaves. (Bug #24911725)

- Metadata cache section's did not allow the optional section keys definitions. (Bug #24909259)

- After performing a successful `--bootstrap` operation, immediately executing a second and failed bootstrap operation (against a different URI) could cause Router to not connect to the metadata cache for the first bootstrap configuration due to internal changes made by the second. (Bug #24902404)

- `--bootstrap` now sets `bind_address=0.0.0.0` for each route in the generated Router configuration file, when before it did not set it and relied upon the `bind_address` default value of 127.0.0.1. In addition, the `--conf-bind-address` command line option was added to modify the `bind_address` value set by bootstrap. (Bug #24846715)

- Bootstrapping router with the `--conf-use-sockets` option was not defining the `socket` option in the generated configuration file. (Bug #24842143)

- After bootstrapping Router with the `--conf-skip-tcp --conf-use-sockets` options, neither MySQL Shell or the MySQL client could connect to Router. (Bug #24841281)

- The keyring plugin is only loaded if either configured, or if there is a password involved in the configuration. Previously, Router would always load the plugin and then prompt for a password. (Bug #24840690)

- The `--name` option is now optional. (Bug #24807941)

- Configuring the router for using more than one routing rule with UNIX domain sockets and no TCP ports would fail with a "duplicate IP or name found" configuration error. This made it impossible to configure R/W splitting using Unix sockets. (Bug #24799417)

- Fixed compilation related warnings. (Bug #24701344)

- Router was not able to connect (function) after stopping group replication on the primary node. This affected both read-only and read-write routing sections. (Bug #24659690, WL #9616)

- Error logging for metadata connections and routed client connections were improved to be more descriptive, and they were changed to warnings instead of debug messages. (Bug #22010817)

# Changes in MySQL Router 2.1.0 (2016-09-20, Labs)

Published to labs.mysql.com as part of the **MySQL InnoDB cluster** bundle.

- Functionality Added or Changed

- Bugs Fixed

## Functionality Added or Changed

- Implemented an interface to support iterating over the options of a configuration section. (Bug #23337654)

- The `logging_folder` configuration option now defaults to the MySQL Router base path instead of "". This also means that logs are no longer sent to *stdout* by default.

## Bugs Fixed

- A get_options() function was added to iterate over all options in a configuration section. (Bug #23337654, Bug #81569)

- Fixed CMake compilation warnings that were generated when building Router with tests enabled. (Bug #22276210)

- Introduced support for Unix domain sockets for connections.

  This adds a new optional configuration option named `socket` that can be used with connection routing. The name `socket` was borrowed from MySQL Server.

  For example:

  ```
  [routing:dev]
  socket = /tmp/mysqlrouter_dev.sock
  ```

  The `socket` option does not have a default value, and this option will not be used if empty. Both the `bind_address` and `socket` options can be defined at the same time. (Bug #21874593)