MySQL Cluster Manager 1.4 Release Notes

Abstract

This document contains information about changes in successive versions of MySQL Cluster Manager 1.4, starting with the most recent release (MySQL Cluster Manager 1.4.0). Changes in previous MySQL Cluster Manager releases can be found afterwards, ordered from newest to oldest.

For additional MySQL Cluster Manager 1.4 documentation, see http://dev.mysql.com/doc/mysql-cluster-manager/1.4/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 (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

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Legal Notices

Changes in MySQL Cluster Manager 1.4.1 (2016-11-24)

This section documents all changes and bug fixes that have been applied in MySQL Cluster Manager 1.4.1 since the release of MySQL Cluster Manager version 1.4.0.

- Functionality Added or Changed

- Bugs Fixed

Functionality Added or Changed

- **Microsoft Windows:** A 64-bit Windows installer package for MySQL Cluster Manager is now available.

- **Agent:** Quotes used in specifying an mcmd option were interpreted literally as parts of the option value. With this fix, `mcmd` now handles the quotes properly for the following options by stripping the quotes before interpreting the option values:

  - `--basedir`

  - `--pid-file`

  - `--plugin-dir`

  - `--log-file`

  - `--manager-username`

  - `--manager-password`

  - `--manager-directory`

  (Bug #24529142)

- **Agent:** When an `mcmd` agent failed to shutdown a `mysqld` node, it kept on retrying until the process timed out, at which point the error code from `mysqld` was returned to the client. With this fix, the error is returned immediately after the first shutdown attempt has failed. (Bug #24418005)

- **Agent:** After a `start process --added` command was executed, if a `show status --operational` command was then run, in the `Command` column of the output, the ID for only one of the added nodes was shown even if multiple nodes had been added and started. With this fix, nodeids are no longer shown in the command output in that case, to avoid any possible confusions. (Bug #24372861)

- **Agent:** The `restore cluster` command now supports a new option, `--promote-attributes`, which allows attributes to be promoted when MySQL Cluster Manager restores data from a backup. (Bug #24295481)

- **Agent:** The `collect logs` command now also collects trace files, to provide more information in the event of a cluster failure. (Bug #23746394)

- **Agent:** Information that is unrelated to debugging is no longer included into the agent log when `--log-level` is set to `debug`, but is included when `--log-level` is set to `info`. (Bug #23716969)

- **Agent:** The capability for MySQL Cluster Manager to set the cluster parameter `ndbinfo_table_prefix` has been removed, as setting it might cause a timeout when `mcmd` tries to start a `mysqld` node. (Bug #23632067)

- **Agent:** The `import cluster` command now supports the import of cluster nodes that have been started with options specified on the command line using underscores (_) instead of dashes (-) in the option names (for example, `--ndb-connectstring` instead of `--ndb-connectstring`). (Bug #23535372)

- **Agent:** The `--initial` option can now be used with the `start cluster` command for starting clusters in the "created" status. (Bug #23138442)

- **Agent:** The timer in `mcmd` is now monotonic, so interval measures are no longer affected by clock changes on the host. (Bug #22699245)

- **Agent:** The version number for the `mcmd` agent and the name of the host it is running on are now always recorded in the agent log (`mcmd.log`) at startups or log rotations, irrespective of the `--log-level` setting. (Bug #22616530)

- **Agent:** The `backup cluster` command now creates a logical backup for the metadata of the NDB tables in a MySQL Cluster, allowing more flexibility for cluster reconfiguration during a restore. See the description for `backup cluster` for more details. (Bug #21200829)

- **Agent:** The `--backupid` option can now be used with the `list backups` command to specify the ID of the backup to be listed.

- **Client:** Execution of the .mcm file created by the `import config --dryrun` command failed when a relative file path was given for a file-path attribute to be imported for a `mysqld` node. The `mcm` client now accepts relative file paths for those attributes, except for the `socket` value, and for any paths for a directory value (for example, `plugin_dir`). (Bug #18650848)

- **Client:** Creating a single-host site with `localhost` as the argument for `--hosts` now results in a site that cannot be scaled up by the `add hosts` command; a warning for that is given by the `mcm` client at the creation of the site. See the description for the `create site` command for details. (Bug #18389510)

- MySQL Cluster Manager now supports MySQL Cluster 7.5. At the same time, support for MySQL Cluster 7.2 has been deprecated. (Bug #24940329)

Bugs Fixed

- **Agent:** When the `backup agents` command failed to copy some files, it finished without erroring out, but caused the subsequent `mcmd` agent restart to fail. This fix adds proper error-handling function to the `backup agents` command. (Bug #25057056)

- **Agent:** When a `start cluster` or `stop cluster` command was run, if it took more than two minutes for any data node to be started or stopped, the `mcmd` agent threw a timeout for the command, and sometimes did that more than once, even though the data node was still in a normal process of being started or stopped. It was because the timeout extension needed was never granted within two minutes. With this fix, a timeout extension is granted at a much earlier time, and the amount of the extension is calculated based on the cluster's `DataMemory` size. (Bug #24749459)

- **Agent:** When `mcmd` failed to create the users it needs on a mysqld node, it just kept retrying until a timeout was reached, and without notifying the `mcm` client. With this fix, a failure is declared immediately to the client in the situation, and there are no more retries. (Bug #24511041)

- **Agent:** After a failure by `mcmd` to configure a cluster, the progress message from the process caused the next attempt to configure the cluster to fail. With this fix, the progress message from the last attempt only causes a warning to be issued to the agent log, and is then ignored. (Bug #24499097)

- **Agent:** Attempts to upgrade MySQL Cluster Manager to version 1.4.0 by starting the 1.4.0 executables on pre-1.4 data failed, as the automatic upgrades for backup configurations were not successful. (Bug #24433400)

- **Agent:** `mcmd` exited unexpectedly after failing to parse correctly a message of an unexpected format from a `mysqld` node. With this fix, sanity check is performed on the received message first, in order to avoid parsing the wrong information out of it. (Bug #24430610)

- **Agent:** When attempting to set a global system variable on a `mysqld` node, the `mcmd` agent always returned a success message, even if it failed to contact the `mysqld` node actually. (Bug #24417856)

- **Agent:** When running the `list backups` command, if one of the `mcmd` agents ran into permission errors on some of the backups' file paths, the returned results for the command became incomplete. With this fix, complete results are returned in those situations. (Bug #24414682)

- **Agent:** When the `mcm` client and the `mcmd` agent it connected to were on the same host whose loopback address was not 127.0.0.1, if the host's name or loopback address was not explicitly contained in the host list in the `create site` command, attempts to restart the cluster later would fail with the complaint that the host name for the agent could not be resolved in the host list. With this fix, a warning is given in the situation when the `create site` command is issued, asking the user to include the proper host name. (Bug #24411504)

- **Agent:** `mcmd` sometimes failed to report errors for its executions of SQL statements to the `mcmd` log. This fix tries to ensures that those errors are captured. (Bug #24375344)

- **Agent:** When an `add package` command failed due to an error in loading the cluster configuration, `mcmd` exited unexpectedly on Windows platforms, and falsely reported that the package was added successfully on Unix-like platforms. (Bug #24361901)

- **Agent:** When `mcmd` failed to write to the configuration file `config.ini` or `my.cnf`, `mcmd` either quit unexpectedly (for most Unix-like platforms), or returned a success message without actually writing to the file (on Solaris). (Bug #23632067)

- **Agent:** When a configuration parameter was imported from a `mysqld` node using the `import config` command, the value got truncated when it was a quoted value containing a hash sign and was followed by a comment when listed inside the configuration file. (Bug #23591849)

- **Agent:** On Windows platforms, the value for the system variable `wait_timeout` for mysqld nodes cannot be made larger than "2147483" using the `set` command. (Bug #23503256)

- **Agent:** On Windows platforms, the `import cluster` command failed when a 32-bit `mcmd` was working a 64-bit MySQL Cluster, or vice versa. (Bug #23503256)

- **Agent:** The `import config --dryrun` command produced `set` commands of wrong syntax for instance-level TCP configuration settings specified inside the `config.ini` file. (Bug #23341146)

- **Agent:** When `NoOfReplicas` was "4" for a cluster and only one forth of all the data nodes were available, `mcmd` reported that the cluster was "non-operational" when the `show status --cluster` command was run. (Bug #23330032)

- **Agent:** `mcmd` ignored status update from an `ndbapi` (or unmanaged `mysqld`) node when it reported an LSN lower than one already reported by some other agent. This was due to an unnecessary check on the reported LSNs, which has been removed by this fix. (Bug #23320387)

- **Agent:** When working with MySQL Cluster 7.5, resetting the Datadir parameter for a `mysqld` node using a `reset` command caused an error when the default data directory had contents inside. (Bug #23283577)

- **Agent:** The command `start process --added` failed with the error "`Unable to create nodegroup ...`" when the parameter `NoOfReplicas` was set to "3" or "4." (Bug #23257723)

- **Agent:** Some `ndbmtd` processes were being excluded from rolling restarts when the parameter `NoOfReplicas` was set to "3" or "4." (Bug #23251630)

- **Agent:** With the parameter `NoOfReplicas` set to "3" or "4," even when there was still one mirror node left in a nodegroup for a `ndbmtd` process, the `stop process` command issued for the `ndbmtd` node was rejected by `mcmd`. (Bug #23250053)

- **Agent:** When a quorum of majority of `mcmd` agents no longer existed (due to, for example, a network failure), an `mcmd` agent reported wrong statuses of failed processes even when those processes were local to its own host and were accessible by the agent. (Bug #23222658)

- **Agent:** When network connection to a host with a data node running was lost and then reestablished, the `show status` command reported falsely that the data node was running again even though it had actually stopped. This fix makes sure the current status of the data node is properly reflected. (Bug #23220981)

- **Agent:** When there was a failure in setting the value of the parameter `LogDestination`, `mcmd`, when returning an error, also issued sometimes a warning that an earlier runtime error had been overwritten. This is now prevented by putting in proper checking and handling for any existing error as a new error is being thrown. (Bug #23211849)

- **Agent:** If a warning was returned by `mcmd` after it executed a `SET GLOBAL` statement to a `mysqld` node, the same warning was issued to the agent log (`mcmd.log`) again and again each time a new `SET GLOBAL` statement was executed. (Bug #23211783)

- **Agent:** When the parameter `ArbitrationRank` was being set for a `mysqld` node, the data nodes and management nodes were not restarted, so they had no knowledge that the arbitration rank for the `mysqld` node has been changed. (Bug #23148368)

- **Agent:** After a failed execution of the `import config` command using an older version of MySQL Cluster Manager, if MySQL Cluster Manager was then upgraded, restarting would fail afterward for some of the `mcmd` agents. (Bug #23148061)

- **Agent:** In the case where there was only one `ndb_mgmd` node in a cluster, during a rolling restart, after the `ndb_mgmd` node was just restarted and a first data node was stopped, a second data node might fail before it got restarted, complaining that there was no arbitrator for the cluster. It was because the management node was still in the process of asserting itself as an arbitrator. With this fix, the restarting of data nodes only begin after they have all seen an arbitrator established. (Bug #23148061)

- **Agent:** A new `ndbd` or `ndbmtd` node could not be added to a cluster if `BackupDataDir` specified a non-default location for cluster backups, and there were backups existing at that location. (Bug #23123364)

- **Agent:** When already existing nodes were added again to a cluster without being started and the cluster was stopped, a subsequent `start cluster --initial` command failed. This was because `mcmd` attempted to recreate the already existing node groups, which this fix prevents. (Bug #23024367)

- **Agent:** While the `my.cnf` configuration files for added `mysqld` processes generated by `mcmd` used group suffixes for group titles in the files (for example `[mysqld.50]`), the mysqld nodes were started without using the `--defaults-group-suffix` option, causing the generated configurations to be unread by the `mysqld` node. With this fix, the group suffixes are no longer used. (Bug #22931198)

- **Agent:** On Windows platforms, an `mcmd` agent quit unexpectedly after it was unable to open a process handler to a PID. This fix makes `mcmd` able to handle the situation and not quit. (Bug #22886512)

- **Agent:** During the time when an `upgrade cluster` command is being performed, if a `mysqld` node that had not yet been upgraded failed somehow, it was mistakenly restarted with the newer instead of the older binary package. With this fix, the node is restarted with the original binary package it was running on. (Bug #22880634)

- **Agent:** Under some conditions, setting a configuration attribute for a cluster using the `set` command made `mcmd` quit unexpectedly, as more than one thread in MySQL Cluster Manager tried to change the cluster configurations together within a very short period of time, with one thread running into a checksum error for the repository directory and causing the agent to quit. This fix adds error checks, retries, and also exponential backoffs to handle the situation, in order to allow proper execution of the `set` command. (Bug #22865068)

- **Agent:** A `restore cluster` command failed because one of the management nodes in the cluster was in the "starting" status, which should not prevent a cluster from being restored. (Bug #22755257)

- **Agent:** When the `start process --added` command was used to start data nodes that were newly added, the command failed if there was an `ndbapi` node that was in the "connected" status, with the complaint that the `ndbapi` node was "already running." (Bug #22726592)

- **Agent:** If an earlier attempt to stop a `mysqld` node failed and left the node in a status of "stopping," a subsequent `stop cluster` command failed with a timeout. With this fix, the `stop cluster` command actually reattempts twice the shutdown of the "stopping" process, and throws a proper error if the attempts fail. The timeout period for each attempt is also reduced to 5 seconds. (Bug #22682222, Bug #24735542)

  References: See also: Bug #19805950.

- **Agent:** When performing a `create cluster` command for a large cluster with many processes, `mcmd` tried to resolve the host name and check the validity of the package name for every single process, which could take a long time and cause the `create cluster` command to fail with a timeout. `mcmd` now avoids repeated lookups for the same host name or package name, so the timeouts are prevented. (Bug #22671177)

- **Agent:** When a backup was actually completed after an `abort backup` command had just been issued through the `mcmd` agent, the agent failed to respond to the backup completion, resulting in a timeout for the `abort backup` command. With this fix, the `abort backup` command will error out under the situation. (Bug #22655696)

- **Agent:** When setting a value for the `log-error` attribute for a `mysqld` node using the `set` command, `mcmd` failed to, as expected, append the extension `.err` to the supplied file name when it did not have an extension. (Bug #22588267)

- **Agent:** The `mysql` client hung as a `status` command was issued through it to a `mysqld` node, due to some communication packages remaining unhandled by `mcmd`. (Bug #22539167)

- **Agent:** The `autotune --dryrun` command did not write to the `.mcm` script file the TCP connection attributes (for example, `SendBufferMemory` and `ReceiveBufferMemory`) it would set for the cluster when the `--dryrun` option was not used. (Bug #22517603)

- **Agent:** With two clusters running separately on two different hosts in the same site, the `autotune --dryrun` command for a cluster failed with an internal error, complaining that a dump file [for the other cluster running on the other host] could not be opened because it did not exist on the host—which was to be expected. (Bug #22465053, Bug #79586)

- **Agent:** If a cluster log rotation happened while MySQL Cluster Manager was starting the cluster, an `mcmd` agent failure would occur. This fix makes sure log rotation is properly detected and handled by `mcmd`. (Bug #22296243)

- **Agent:** If distributed privileges for `mysqld` nodes were used and the `root` password has been set on the cluster's `mysqld` nodes, after a new `mysqld` process was added, MySQL Cluster Manager failed to connect to it, as `mcmd` tried in vain to log on to the new `mysqld` node as `root` with an empty password. With this fix, `mcmd` then attempts in that situation to log on to the node as the user `mcmd`. Also, even if the `root` account is not secured, when distributed privileges are used, `mcmd` now attempts first to connect to a new `mysqld` node as `mcmcd` before it tries to create the `mcmd` user on the new node. (Bug #22274785, Bug #81391)

- **Agent:** For MySQL Cluster 7.4.8 and later, the `import config` command imported the deprecated `PortNumber` attribute under the [tcp] section of the cluster configuration file as "0.". The attribute is now skipped during a configuration import. (Bug #22274785)

- **Agent:** A `create cluster` command failed with an error when one of the `mcmd` agents was down, even if that agent was not needed for the process. (Bug #22245706)

- **Agent:** When the utility `mysql_install_db` was run by the `mcmd` agent at the creation of a `mysqld` node, it was not run asynchronously, resulting sometimes in unnecessary delay for other `mcmd` processes. With this fix, the utility is now run asynchronously. (Bug #22238508)

- **Agent:** After a new host has been added to a cluster without a package being added for it, `mcmd` returned an error message to any `get` and `set` command, saying that the parameter to be get or set did not exist. With this fix, a proper error message is returned. (Bug #21894353)

- **Agent:** On Windows platform, setting the `datadir` option for a `mysqld` node in the Windows file path format caused the `mcmd` agent to stop unexpectedly after it failed to restart the `mysqld` node. It was due to a mishandling of the Windows format file path, which has now been fixed. (Bug #19209870)

- **Agent:** A rolling restart of the cluster performed by `mcmd` timed out while waiting for GCP and LCP takeover events to complete among the data nodes. With this fix, the timeout is avoided by having mcmd check for the status of the takeover events and wait until the involved data nodes are ready before trying to stop them. (Bug #14230789)

- **Client:** Spaces in quoted option values for MySQL Cluster Manager were lost (for example, with "--prompt='mcm1.4.1> '," the prompt for the `mcm` client became "mcm1.4.1>" [with no space at the end]). (Bug #24528495)

- **Client:** When the `mcm` client was being started with the `--debug` option, if the `mysql` client could not be found at the expected location, the `mcm` client failed with a segmentation fault. (Bug #24522244)

- **Client:** The success messages returned by the `autotune --dryrun` and `import config --dryrun` commands referred users to the agent log file for the proposed settings to be applied to the cluster, but the settings were not actually in the file. The success messages now give the path to the `.mcm` script file that contains the settings. (Bug #22280689)

- **Client:** After the `mcmd` agent on a certain host failed, the `mcm` client continued to report the statuses of the processes on the host to "running" while the `mcmd` agent log and the `ndb_mgmd` queries already showed their statuses to be "unknown.". (Bug #22174415)

Changes in MySQL Cluster Manager 1.4.0 (2015-12-07)

This section documents all changes and bug fixes that have been applied in MySQL Cluster Manager 1.4.0 since the release of MySQL Cluster Manager version 1.3.6.

- [Functionality Added or Changed](#)

- [Bugs Fixed](#)

Functionality Added or Changed

- **Packaging:** MySQL Cluster Manager is now built and shipped with GLib-2.44.0, OpenSSL 1.0.1p, and the MySQL 5.6 client library. (Bug #22202878)

- **Agent:** When using the `import cluster` command, if a `mysqld` node was started on the command line with options outside of a special, pre-defined set, the import failed with the complaint that those options were unsupported. Now, the import continues, as long as those options and their values are also included in the node's configuration created by MySQL Cluster Manager for import. (Bug #21943518)

- **Agent:** A warning is now logged (if `log-level=warning`) when a failed process is not restarted because the parameter `StopOnError` is set to `true`. (Bug #21575241)

- **Agent:** Two new options have been introduced for the `upgrade cluster` command: `--retry` and `--nodeid`. They, together with the `--force` option, allow a retry after an initial attempt to upgrade a cluster has failed. See the description for `upgrade cluster` for details. (Bug #20469067, Bug #16932006, Bug #21200698)

- **Client:** The `get` command now returns attributes in the same order as the MySQL Cluster `ndb_mgmd` command does when the `--print-full-config` option is used, with the non-data nodes being listed first and other nodes listed in increasing order of their node IDs. (Bug #22202973)

- **Client:** A new `autotune` command has been introduced, which tunes a number of parameters of the cluster to optimize its performance. (Bug #22202855)

- **Client:** The `show settings` command has a new `--hostinfo` option, with which the command prints out information on the host the `mcm` client is connected to. (Bug #21923561)

- **Client:** You can now use the wildcard `*` (asterisk character) to match attribute names in a `get` command. See The `get` Command for examples. (Bug #18069656)

Bugs Fixed

- **Agent:** On Windows platform, after a cluster import, the subsequent cluster restart timed out if a non-default value of the option `--pid-file` had been imported for a `mysqld` node. (Bug #21943518)

  References: This issue is a regression of: Bug #21111944.

- **Agent:** When a data node could not be restarted after a `set` command because some attributes were set wrongly, another set command could not be used to correct the attributes, because the `set` command required the data node to be running. With this fix, the second `set` command can now be executed even when the data node is not running, as long as the `--force` option is used. The failed node is then restarted, followed by a rolling restart of the cluster. (Bug #21943518)

- **Agent:** `restore cluster` timed out when the number of tables in the cluster was huge (>1000). It was because a timeout extension was blocked. This fix unblocks the extension. (Bug #21393857)

- **Agent:** At the initial startup of a large cluster (with memory size on the order of 10GB), the process might time out while waiting for a data node to start. This fix makes the transaction timeout longer for data node initiation. (Bug #21355383)

- **Agent:** Under some conditions, a `show status` command might report negative node group ID values for processes after an `add process` command was completed. That was because the agent reported

the node group IDs before their proper values had arrived, after the creation of new node groups. This fix makes the agent wait for the correct node group IDs before reporting them. (Bug #21346804)

- **Agent:** After successful the execution of an `add process` and a subsequent `start process --added` command, a third command that was issued very shortly afterward might fail. This was due to the way the updates for the processes' statuses were handled after the new nodes were added, which has now been corrected. (Bug #21138604)

  References: See also: Bug #21346804.

- **Agent:** Setting a value for a "key-only" option for a MySQL node (that is, an option that does not take a value—for example, `skip_show_database`) with the `set` command and restarting the cluster afterward caused `mcmd` to attempt a cluster upgrade and back up the cluster. (Bug #21098403)

- **Agent:** The `create site` command sometimes failed with the error message "Lost connection to MySQL server during query." It was due to an error in the code that handled the socket, which has now been fixed. (Bug #21027818)

- **Agent:** Parameters listed under the `[mysqld default]` or `[tcp default]` section of the `config.ini` file were not imported as configuration parameters for unmanaged API nodes. (Bug #20889471)

- **Client:** Output of the `get` command used with the `--include-defaults` (`-d`) option did not include matching TCP attributes that had default values. (Bug #21895322)