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Procedures to Convert Oracle MySQL Enterprise to Oracle MySQL Community

UBC IT Database Administration



Table of Contents

Background	2
High Level Recommendations	2
Overview of Technical Conversion Steps.....	3
Pre-Installation Overview	3
Installation Overview	3
Post Installation Overview	3
Rollback Overview.....	3
Technical Conversion Steps	3
Pre-Installation.....	3
Capture Information about Current Version of OS and MySQL.....	3
Oracle MySQL Community download	4
Installation	4
Creating a backup for MySQL server host.....	4
Remove Oracle MySQL Enterprise software	5
Installing Oracle MySQL Community software	7
Post Installation	11
Start Application Services.....	11
Test Application.....	11
Decision	11
Rollback.....	11
Appendix A - Example of removing Oracle MySQL Enterprise 5.6.33:.....	12
Appendix B - Example of removing Oracle MySQL Enterprise 5.7.19:	13
Appendix C- Example of installing Oracle MySQL Community 5.6.33:.....	14
Appendix D - Example of installing Oracle MySQL Community 5.7.19:.....	16



Background

The campus agreement for Oracle MySQL Enterprise expires April, 2018. As a result UBC must migrate away from Oracle MySQL Enterprise to Oracle MySQL Community.

This document provides some guidance in converting Oracle MySQL Enterprise environment to Oracle MySQL Community. Included are examples for Red Hat Linux using Oracle MySQL Community RPM packages. Your particular conversion may have different requirements.

High Level Recommendations

- Carry out this conversion in a test environment first. This is to test your process and to confirm in advance that your application will work with the conversion.
- Develop an application test plan prior to conversion. After conversion, test your application to confirm that all functionality remains intact.
- When converting from Enterprise MySQL to Community MySQL stay at the same release level. Otherwise it may be difficult to determine the root cause of any issue, should a problem occur with the conversion.
- If you have a master slave configuration, we recommend converting the slave host first to the Community version. Monitor the slave for a minimum of a few days. Then if all is well, convert your master host to Community version.
- The conversion will require the database services to come down, so you likely need to plan for an outage. Engage and plan this with stakeholders.
- Develop a rollback plan.



Overview of Technical Conversion Steps

Pre-Installation Overview

- Capture information about your existing environment.
- Download MySQL Community Software.

Installation Overview

- Shutdown database services
- Backup VM, Database, Configuration
- Remove Oracle MySQL Enterprise
- Install Oracle MySQL Community
- Confirm installation and configuration
- Start database services
- Carry out database checks

Post Installation Overview

- Test Application Functionality, before opening up to users.
- Decision, Rollback or not
- If no Rollback, then Finished

Rollback Overview

- In event of problem, rollback to your backup. This must be done immediately.

Technical Conversion Steps

This section describes the technical steps for carrying out the conversion to Oracle MySQL Community on Red Hat Linux using RPM packages. The appendices provide supplemental detail for some example conversions. There may be other methods (MariaDB, Percona) to achieve a similar conversion.

Pre-Installation

Capture Information about Current Version of OS and MySQL

Document and capture as much information as possible about the current version.

Capture OS Version

Confirm OS version. For example on Red-Hat.

```
cat /etc/redhat-release
```

Confirm whether 32bit or 64bit

```
getconf LONG_BIT or uname -i
```

Capture MySQL Version



Sign on to the server as root.

Check Installed version of MySQL, and make note of that. If it is Enterprise then it needs to be converted.

```
rpm -qa | grep -i mysql  
or  
rpm -qa | grep -i mysql > rpm-software-before.txt
```

Also save output from the following

```
mysql -u root -p  
mysql>tee mysql_version_before.txt  
mysql>status;  
mysql>SHOW VARIABLES LIKE "%version%";  
mysql>exit
```

Oracle MySQL Community download

Connect to the server as root or sudo as root. Then create directory where you will download RPM packages on Master and Slave database hosts.

```
sudo -s  
mkdir -p /ut01/software/community (replace with your directory)
```

You may download individual RPM package or RPM bundle which contains multiple RPM packages. You can navigate to the following websites to download Oracle MySQL Community software.

To download old versions of Oracle MySQL Community software:

<https://downloads.mysql.com/archives/community/>

To download the latest release of Oracle MySQL Community software:

<https://dev.mysql.com/downloads/mysql/>

Note:

Please make sure that you download the same release and distribution format as your current Oracle MySQL Enterprise version.

Installation

Creating a backup for MySQL server host

- Monitoring – Disable any monitoring of the database in advance of the conversion.
- Have the application team shut down application services, to cleanly disconnect application connections from the database.



- Stop MySQL Server on host you are converting.

To stop MySQL on Master database host:

```
service mysql stop (5.5, 5.6)
service mysqld stop (5.7)
```

To stop MySQL on Slave database host:

```
mysql -u root -p
mysql> show slave status\G
service mysql stop (5.5, 5.6)
service mysqld stop (5.7)
```

- Make a copy of the MySQL configuration file my.cnf. On RedHat this file is typically in /etc/my.cnf but your configuration may be different. You need to save a copy of this file.
- Take a backup for your target host, with the services shutdown. We are using VMware snapshot to back up our MySQL server hosts via VMware vSphere or EduCloud web interface if they reside in EduCloud. There may be other methods to back up MySQL server host.

Remove Oracle MySQL Enterprise software

Steps to remove Oracle MySQL Enterprise 5.6 version:

Identify installed packages:

```
rpm -qa | grep -i mysql
```

To remove MySQL RPM package:

```
rpm -e packagename
```

If you have any dependencies, please remove RPM package without dependencies:

```
rpm -e --nodeps packagename
```

Please remove MySQL packages as follows:

To remove MySQL shared compat RPM package:

```
rpm -e MySQL-shared-compat-advancedxxx
```

To remove MySQL shared RPM package:

```
rpm -e MySQL-shared-advancedxxx
```

To remove MySQL embedded RPM package:



```
rpm -e MySQL-embedded-advancedxxx
```

To remove MySQL devel RPM package:

```
rpm -e MySQL-devel-advancedxxx
```

To remove MySQL client RPM package:

```
rpm -e MySQL-client-advancedxxx
```

To remove MySQL server RPM package:

```
rpm -e MySQL-server-advancedxxx
```

To remove MySQL libs without dependencies if any:

```
rpm -e --nodeps mysql-libsxxx
```

Note:

You will need to copy `/etc/my.cnf.rpmsave` to `/etc/my.cnf` if removing `mysql-libs-xxx`.

```
cp -rp /etc/my.cnf.rpmsave /etc/my.cnf
```

[Click here to go to Appendix A - example of removing Oracle MySQL Enterprise 5.6.33:](#)

[Steps to remove Oracle MySQL Enterprise 5.7 version:](#)

On each database host:

To check installed packages on the servers:

```
rpm -qa |grep -i mysql
```

To remove MySQL RPM package:

```
rpm -e packagename
```

If you have any dependencies, please remove RPM package without dependencies:

```
rpm -e --nodeps packagename
```

Please remove MySQL packages as follows:

To remove MySQL libs compat RPM package without dependencies if any:

```
rpm -e --nodeps mysql-commercial-libs-compat-xxx
```

To remove MySQL embedded devel RPM package:

```
rpm -e mysql-commercial-embedded-devel-xxx
```



To remove MySQL embedded RPM package:
`rpm -e mysql-commercial-embedded-xxx`

To remove MySQL devel RPM package:
`rpm -e mysql-commercial-devel-xxx`

To remove MySQL server RPM package:
`rpm -e mysql-commercial-server-xxx`

To remove MySQL client RPM package:
`rpm -e mysql-commercial-client-xxx`

To remove MySQL libs without dependencies if any:
`rpm -e --nodeps mysql-commercial-libs-xxx`

To remove MySQL common RPM package:
`rpm -e mysql-commercial-common-xxx`

Note:

You will need to copy `/etc/my.cnf.rpmsave` to `/etc/my.cnf` if removing `mysql-commercial-server-xxx`.

```
cp -rp /etc/my.cnf.rpmsave /etc/my.cnf
```

[Click here to go to Appendix B - Example of removing Oracle MySQL Enterprise 5.7.19:](#)

Installing Oracle MySQL Community software

In this section instructions are shown for MySQL Version 5.6 and 5.7.

Install of Oracle MySQL Community 5.6 version:

As root user, go to folder where software has been downloaded and untar the rpm-bundle file.

As root:

```
cd /ut01/software/community  
untar the rpm-bundle file
```

Example:

```
tar -xvf MySQL-5.6.28-1.el6.x86_64.rpm-bundle.tar  
MySQL-shared-compat-5.6.28-1.el6.x86_64.rpm  
MySQL-embedded-5.6.28-1.el6.x86_64.rpm  
MySQL-client-5.6.28-1.el6.x86_64.rpm
```




MySQL-server-5.6.28-1.el6.x86_64.rpm
MySQL-test-5.6.28-1.el6.x86_64.rpm
MySQL-devel-5.6.28-1.el6.x86_64.rpm
MySQL-shared-5.6.28-1.el6.x86_64.rpm

To check installed packages on the servers:

```
rpm -qa | grep -i mysql
```

Please install MySQL RPM packages as follows:

To install MySQL server RPM package:

```
rpm -ivh MySQL-server-xxx
```

To install MySQL client RPM package:

```
rpm -ivh MySQL-client-xxx
```

To install MySQL devel RPM package:

```
rpm -ivh MySQL-devel-xxx
```

To install MySQL embedded RPM package:

```
rpm -ivh MySQL-embedded-xxx
```

To install MySQL shared RPM package for MySQL 5.5.6 or later:

```
rpm -ivh MySQL-shared-xxx
```

Note:

Before MySQL 5.5.6, MySQL-shared-compat also includes the libraries for the current release, so if you install it, you should not also install MySQL-shared. As of 5.5.6, MySQL-shared-compat does not include the current library version, so there is no conflict.

To install MySQL shared compat RPM package:

```
rpm -ivh MySQL-shared-compat-xxx
```

Note:

From MySQL 5.5.31, alternatively, the removal and installation can be done using Yum.

[Click here to go to Appendix C - Example of installing Oracle MySQL Community 5.6.33:](#)

Install of Oracle MySQL Community 5.7 version

On each database host:

As root, go to folder where community software has been down loaded.



untar rpm-bundle file

To check installed packages on the servers:

```
rpm -qa | grep -i mysql
```

Please install MySQL RPM packages as follows:

To install MySQL common RPM package:

```
rpm -ivh mysql-community-common-xxx
```

To install MySQL libs RPM package:

```
rpm -ivh mysql-community-libs-xxx
```

To install MySQL client RPM package:

```
rpm -ivh mysql-community-client-xxx
```

To install MySQL server RPM package:

```
rpm -ivh mysql-community-server-xxx
```

To install MySQL devel RPM package:

```
rpm -ivh mysql-community-devel-xxx
```

To install MySQL embedded RPM package:

```
rpm -ivh mysql-community-embedded-xxx
```

To install MySQL embedded devel RPM package:

```
rpm -ivh mysql-community-embedded-devel-xxx
```

To install MySQL libs compat RPM package:

```
rpm -ivh mysql-community-libs-compat-xxx
```

Note:

From MySQL 5.5.31, alternatively, the removal and installation can be done using Yum.

[Click here for Appendix D - Example of installing Oracle MySQL Community 5.7.19:](#)

[Modify MySQL option file \(my.cnf\)](#)

Please remove any related Enterprise options from your option file (my.cnf) if there was any enterprise feature used. If options for commercial features remain in the option file, the community server will fail to start after conversion.



Start MySQL server on Master or Slave database host

To start MySQL on Master database host:

```
service mysql start (5.5, 5.6)
service mysqld start (5.7)
```

To start MySQL on Slave database host:

```
service mysql start (5.5, 5.6)
service mysqld start (5.7)
mysql -uroot -p
mysql> show slave status\G
```

Confirm MySQL version

To check MySQL version on master and slave database hosts:

```
mysql> SHOW VARIABLES LIKE "%version%";
```

Example:

```
mysql> SHOW VARIABLES LIKE "%version%";
+-----+-----+
| Variable_name          | Value                               |
+-----+-----+
| innodb_version         | 5.6.33                              |
| protocol_version       | 10                                   |
| slave_type_conversions |                                       |
| version                | 5.6.33-log                          |
| version_comment        | MySQL Community Server (GPL)       |
| version_compile_machine | x86_64                              |
| version_compile_os     | Linux                               |
+-----+-----+
7 rows in set (0.00 sec)
```

Check MySQL Error Logs

Reference your configuration file (my.cnf) to locate the error log file. Confirm there have been no errors since the startup with Oracle Community Edition MySQL.

Re-instate monitoring

If you are using enterprise MySQL Enterprise Monitoring (MEM3) monitoring tool under our Campus license agreement, stop using this by removing the node from this monitoring tool. You may add target to Monyog8 monitoring tool or other monitoring tools you would use for your target.



Post Installation

Start Application Services

Please ask your application team to start the application.

Test Application

Please ask your application team to test application and see if all of functionalities are intact.

Decision

Make decision to use Community Edition, or to Rollback to your Backup taking prior to starting.

Rollback

In the event that the application has a problem right after moving to Community Edition and you decide to rollback, re-instate the system from your VM Snapshot or backup taken.



Appendix A - Example of removing Oracle MySQL Enterprise 5.6.33:

Alert - Ensure mysql services are stopped first!

List Installed Software

```
rpm -qa|grep -i mysql
MySQL-devel-advanced-5.6.33-1.el6.x86_64
mysql-libs-5.1.73-3.el6_5.x86_64
MySQL-shared-compat-advanced-5.6.33-1.el6.x86_64
MySQL-server-advanced-5.6.33-1.el6.x86_64
MySQL-shared-advanced-5.6.33-1.el6.x86_64
MySQL-embedded-advanced-5.6.33-1.el6.x86_64
MySQL-client-advanced-5.6.33-1.el6.x86_64
```

Remove Installed Software

```
rpm -e MySQL-shared-compat-advanced-5.6.33-1.el6.x86_64
rpm -e MySQL-shared-advanced-5.6.33-1.el6.x86_64
rpm -e MySQL-embedded-advanced-5.6.33-1.el6.x86_64
rpm -e MySQL-devel-advanced-5.6.33-1.el6.x86_64
rpm -e MySQL-client-advanced-5.6.33-1.el6.x86_64
rpm -e MySQL-server-advanced-5.6.33-1.el6.x86_64
```

See what's left

```
rpm -qa|grep -i mysql
mysql-libs-5.1.73-3.el6_5.x86_64
```

Remove final one:

```
rpm -e mysql-libs-5.1.73-3.el6_5.x86_64 --nodeps
warning: /etc/my.cnf saved as /etc/my.cnf.rpmsave
```

```
cd /etc
```

```
cp my.cnf.rpmsave my.cnf
```



Appendix B - Example of removing Oracle MySQL Enterprise 5.7.19:

Alert - Ensure mysql services are stopped first!

List Installed Software

```
rpm -qa|grep -i mysql
```

```
mysql-commercial-embedded-devel-5.7.19-1.1.el6.x86_64  
mysql-commercial-libs-5.7.19-1.1.el6.x86_64  
mysql-commercial-common-5.7.19-1.1.el6.x86_64  
mysql-commercial-devel-5.7.19-1.1.el6.x86_64  
mysql-commercial-server-5.7.19-1.1.el6.x86_64  
mysql-commercial-libs-compat-5.7.19-1.1.el6.x86_64  
mysql-commercial-client-5.7.19-1.1.el6.x86_64  
mysql-commercial-embedded-5.7.19-1.1.el6.x86_64
```

Remove Installed Software

```
rpm -e --nodeps mysql-commercial-libs-compat-5.7.19-1.1.el6.x86_64  
rpm -e mysql-commercial-embedded-devel-5.7.19-1.1.el6.x86_64  
rpm -e mysql-commercial-embedded-5.7.19-1.1.el6.x86_64  
rpm -e mysql-commercial-devel-5.7.19-1.1.el6.x86_64  
rpm -e mysql-commercial-server-5.7.19-1.1.el6.x86_64  
warning: /etc/my.cnf saved as /etc/my.cnf.rpmsave
```

```
rpm -e mysql-commercial-client-5.7.19-1.1.el6.x86_64  
rpm -e --nodeps mysql-commercial-libs-5.7.19-1.1.el6.x86_64  
rpm -e mysql-commercial-common-5.7.19-1.1.el6.x86_64
```

Confirm nothing left

```
rpm -qa|grep -i mysql
```

```
cd /etc  
cp -rp my.cnf.rpmsave my.cnf
```



Appendix C- Example of installing Oracle MySQL Community 5.6.33:

cd to where you have rpm files

ls -l

```
-rw-r--r-- 1 7155 31415 18869628 Aug 29 2016 MySQL-client-5.6.33-1.el6.x86_64.rpm
-rw-r--r-- 1 7155 31415 3389348 Aug 29 2016 MySQL-devel-5.6.33-1.el6.x86_64.rpm
-rw-r--r-- 1 7155 31415 89395240 Aug 29 2016 MySQL-embedded-5.6.33-1.el6.x86_64.rpm
-rw-r--r-- 1 7155 31415 56926664 Aug 29 2016 MySQL-server-5.6.33-1.el6.x86_64.rpm
-rw-r--r-- 1 7155 31415 1962336 Aug 29 2016 MySQL-shared-5.6.33-1.el6.x86_64.rpm
-rw-r--r-- 1 7155 31415 3969760 Aug 29 2016 MySQL-shared-compat-5.6.33-1.el6.x86_64.rpm
-rw-r--r-- 1 7155 31415 51528080 Aug 29 2016 MySQL-test-5.6.33-1.el6.x86_64.rpm
```

rpm -ivh MySQL-server-5.6.33-1.el6.x86_64.rpm

warning: MySQL-server-5.6.33-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature, key ID 5072e1f5: NOKEY

```
Preparing... ##### [100%]
 1:MySQL-server ##### [100%]
```

rpm -ivh MySQL-client-5.6.33-1.el6.x86_64.rpm

warning: MySQL-client-5.6.33-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature, key ID 5072e1f5: NOKEY

```
Preparing... ##### [100%]
 1:MySQL-client ##### [100%]
```

rpm -ivh MySQL-devel-5.6.33-1.el6.x86_64.rpm

warning: MySQL-devel-5.6.33-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature, key ID 5072e1f5: NOKEY

```
Preparing... ##### [100%]
 1:MySQL-devel ##### [100%]
```

rpm -ivh MySQL-embedded-5.6.33-1.el6.x86_64.rpm

warning: MySQL-embedded-5.6.33-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature, key ID 5072e1f5: NOKEY

```
Preparing... ##### [100%]
 1:MySQL-embedded ##### [100%]
```

rpm -ivh MySQL-shared-5.6.33-1.el6.x86_64.rpm

warning: MySQL-shared-5.6.33-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature, key ID 5072e1f5: NOKEY

```
Preparing... ##### [100%]
 1:MySQL-shared ##### [100%]
```



```
rpm -ivh MySQL-shared-compat-5.6.33-1.el6.x86_64.rpm
warning: MySQL-shared-compat-5.6.33-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature, key ID
5072e1f5: NOKEY
Preparing... ##### [100%]
 1:MySQL-shared-compat ##### [100%]
```

```
rpm -qa|grep -i mysql
MySQL-shared-5.6.33-1.el6.x86_64
MySQL-devel-5.6.33-1.el6.x86_64
MySQL-client-5.6.33-1.el6.x86_64
MySQL-shared-compat-5.6.33-1.el6.x86_64
MySQL-server-5.6.33-1.el6.x86_64
MySQL-embedded-5.6.33-1.el6.x86_64
```




Appendix D - Example of installing Oracle MySQL Community 5.7.19:

Confirm nothing else is installed.

```
rpm -qa|grep -i mysql
```

Install

```
rpm -ivh mysql-community-common-5.7.19-1.el6.x86_64.rpm
```

```
warning: mysql-community-common-5.7.19-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature, key ID 5072e1f5: NOKEY
```

```
Preparing... ##### [100%]
```

```
1:mysql-community-common ##### [100%]
```

```
rpm -ivh mysql-community-libs-5.7.19-1.el6.x86_64.rpm
```

```
warning: mysql-community-libs-5.7.19-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature, key ID 5072e1f5: NOKEY
```

```
Preparing... ##### [100%]
```

```
1:mysql-community-libs ##### [100%]
```

```
rpm -ivh mysql-community-client-5.7.19-1.el6.x86_64.rpm
```

```
warning: mysql-community-client-5.7.19-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature, key ID 5072e1f5: NOKEY
```

```
Preparing... ##### [100%]
```

```
1:mysql-community-client ##### [100%]
```

```
rpm -ivh mysql-community-server-5.7.19-1.el6.x86_64.rpm
```

```
warning: mysql-community-server-5.7.19-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature, key ID 5072e1f5: NOKEY
```

```
Preparing... ##### [100%]
```

```
1:mysql-community-server warning: /etc/my.cnf created as /etc/my.cnf.rpmnew
```

```
##### [100%]
```

```
rpm -ivh mysql-community-devel-5.7.19-1.el6.x86_64.rpm
```

```
warning: mysql-community-devel-5.7.19-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature, key ID 5072e1f5: NOKEY
```

```
Preparing... ##### [100%]
```

```
1:mysql-community-devel ##### [100%]
```

```
[root@saltspring11 mysql-5.7.19-1_el6]# rpm -ivh mysql-community-embedded-5.7.19-1.el6.x86_64.rpm
```

```
warning: mysql-community-embedded-5.7.19-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature, key ID 5072e1f5: NOKEY
```

```
Preparing... ##### [100%]
```

```
1:mysql-community-embedde##### [100%]
```



```
rpm -ivh mysql-community-embedded-devel-5.7.19-1.el6.x86_64.rpm
warning: mysql-community-embedded-devel-5.7.19-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature,
key ID 5072e1f5: NOKEY
Preparing... ##### [100%]
 1:mysql-community-embedde##### [100%]

rpm -ivh mysql-community-libs-compat-5.7.19-1.el6.x86_64.rpm
warning: mysql-community-libs-compat-5.7.19-1.el6.x86_64.rpm: Header V3 DSA/SHA1 Signature, key
ID 5072e1f5: NOKEY
Preparing... ##### [100%]
 1:mysql-community-libs-co##### [100%]

rpm -qa|grep -i mysql
mysql-community-embedded-devel-5.7.19-1.el6.x86_64
mysql-community-libs-5.7.19-1.el6.x86_64
mysql-community-common-5.7.19-1.el6.x86_64
mysql-community-devel-5.7.19-1.el6.x86_64
mysql-community-server-5.7.19-1.el6.x86_64
mysql-community-libs-compat-5.7.19-1.el6.x86_64
mysql-community-client-5.7.19-1.el6.x86_64
mysql-community-embedded-5.7.19-1.el6.x86_64
```

-End-