

### **Install Tiebreaker 1.4**

**ONTAP MetroCluster** 

NetApp July 26, 2024

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## **Install Tiebreaker 1.4**

### Install MetroCluster Tiebreaker 1.4 dependencies

Depending on your host Linux operating system, install a MySQL or MariaDB server before installing or upgrading the Tiebreaker software.

#### Steps

- 1. Install JDK.
- 2. Install MySQL or MariaDB server:

If the Linux host is	Then
Red Hat Enterprise Linux 7/CentOS 7	Install MySQL Server 5.5.30 or later and 5.6.x versions on Red Hat Enterprise Linux 7 or CentOS 7
Red Hat Enterprise Linux 8	Install MariaDB server on Red Hat Enterprise Linux 8

#### **Install JDK**

You must install JDK on your host system before installing or upgrading the Tiebreaker software. Tiebreaker 1.4 and earlier supports JDK 1.8.0. (JRE 8).

#### Steps

1. Log in as a "root" user.

```
login as: root
root@mcctb's password:
Last login: Fri Jan 8 21:33:00 2017 from host.domain.com
```

2. Install JDK 1.8.0:

yum install java-1.8.0-openjdk.x86\_64

```
[root@mcctb ~] # yum install java-1.8.0-openjdk.x86 64
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
... shortened....
Dependencies Resolved
Package
               Arch Version
                                     Repository
                                              Size
_____
Installing:
java-1.8.0-openjdk x86 64 1:1.8.0.144-0.b01.el7 4 updates
                                              238 k
. .
. .
Transaction Summary
Install 1 Package (+ 4 Dependent packages)
Total download size: 34 M
Is this ok [y/d/N]: y
Installed:
java-1.8.0-openjdk.x86 64 1:1.8.0.144-0.b01.el7 4
Complete!
```

# Install MySQL Server 5.5.30 or later and 5.6.x versions on Red Hat Enterprise Linux 7 or CentOS 7

You must install MySQL Server 5.5.30 or later and 5.6.x version on your host system before installing or upgrading the Tiebreaker software. For Red Hat Enterprise Linux 8, Install the MariaDB server.

#### Steps

1. Log in as a root user.

```
login as: root
root@mcctb's password:
Last login: Fri Jan 8 21:33:00 2016 from host.domain.com
```

2. Add the MySQL repository to your host system:

```
[root@mcctb ~]# yum localinstall https://dev.mysql.com/get/mysql57-community-
release-el6-11.noarch.rpm
```

```
Loaded plugins: product-id, refresh-packagekit, security, subscription-
manager
Setting up Local Package Process
Examining /var/tmp/yum-root-LLUw0r/mysql-community-release-el6-
5.noarch.rpm: mysql-community-release-el6-5.noarch
Marking /var/tmp/yum-root-LLUw0r/mysql-community-release-el6-
5.noarch.rpm to be installed
Resolving Dependencies
--> Running transaction check
---> Package mysql-community-release.noarch 0:el6-5 will be installed
--> Finished Dependency Resolution
Dependencies Resolved
_____
=======
Package
                 Arch Version
                             Repository
Size
_____
=======
Installing:
mysql-community-release
                   noarch el6-5 /mysql-community-release-el6-
5.noarch 4.3 k
Transaction Summary
_____
Install 1 Package(s)
Total size: 4.3 k
Installed size: 4.3 k
Is this ok [y/N]: y
Downloading Packages:
Running rpm check debug
Running Transaction Test
Transaction Test Succeeded
Running Transaction
 Installing : mysql-community-release-el6-5.noarch
1/1
 Verifying : mysql-community-release-el6-5.noarch
1/1
Installed:
 mysql-community-release.noarch 0:el6-5
Complete!
```

3. Disable the MySQL 57 repository:

[root@mcctb ~] # yum-config-manager --disable mysql57-community

4. Enable the MySQL 56 repository:

[root@mcctb ~]# yum-config-manager --enable mysql56-community

5. Enable the repository:

[root@mcctb ~]# yum repolist enabled | grep "mysql.-community."

```
mysql-connectors-community MySQL Connectors Community
21
mysql-tools-community MySQL Tools Community
35
mysql56-community MySQL 5.6 Community Server
231
```

6. Install the MySQL Community server:

```
[root@mcctb ~] # yum install mysql-community-server
```

```
Loaded plugins: product-id, refresh-packagekit, security, subscription-
manager
This system is not registered to Red Hat Subscription Management. You
can use subscription-manager
to register.
Setting up Install Process
Resolving Dependencies
--> Running transaction check
....Output truncated.....
---> Package mysql-community-libs-compat.x86 64 0:5.6.29-2.el6 will be
obsoleting
--> Finished Dependency Resolution
Dependencies Resolved
======
                          Arch Version
Package
                                          Repository
Size
______
_____
Installing:
mysql-community-client x86 64 5.6.29-2.el6 mysql56-community
18 M
   replacing mysql.x86 64 5.1.71-1.el6
mysql-community-libs
                         x86 64 5.6.29-2.el6 mysql56-community
1.9 M
```

```
replacing mysql-libs.x86 64 5.1.71-1.el6
mysql-community-libs-compat x86 64 5.6.29-2.el6 mysql56-community
1.6 M
    replacing mysql-libs.x86 64 5.1.71-1.el6
mysql-community-server
                            x86 64 5.6.29-2.el6 mysql56-community
53 M
    replacing mysql-server.x86 64 5.1.71-1.el6
Installing for dependencies:
mysql-community-common
                      x86 64 5.6.29-2.el6 mysql56-community
308 k
Transaction Summary
=======
Install 5 Package(s)
Total download size: 74 M
Is this ok [y/N]: y
Downloading Packages:
(1/5): mysql-community-client-5.6.29-2.el6.x86 64.rpm | 18 MB
00:28
(2/5): mysql-community-common-5.6.29-2.el6.x86 64.rpm
                                                      | 308 kB
00:01
(3/5): mysql-community-libs-5.6.29-2.el6.x86 64.rpm | 1.9 MB
00:05
(4/5): mysql-community-libs-compat-5.6.29-2.el6.x86 64.rpm | 1.6 MB
00:05
(5/5): mysql-community-server-5.6.29-2.el6.x86 64.rpm | 53 MB
03:42
_____
Total
                                               289 kB/s | 74 MB
04:24
warning: rpmts HdrFromFdno: Header V3 DSA/SHA1 Signature, key ID
<key id> NOKEY
Retrieving key from file:/etc/pki/rpm-gpg/RPM-GPG-KEY-mysql
Importing GPG key 0x5072E1F5:
Userid : MySQL Release Engineering <mysql-build@oss.oracle.com>
Package: mysql-community-release-el6-5.noarch
       (@/mysql-community-release-el6-5.noarch)
From : file:/etc/pki/rpm-gpg/RPM-GPG-KEY-mysql
Is this ok [y/N]: y
Running rpm check debug
Running Transaction Test
Transaction Test Succeeded
Running Transaction
 Installing : mysql-community-common-5.6.29-2.el6.x86 64
```

```
....Output truncated....
1.el6.x86 64
7/8
 Verifying : mysql-5.1.71-1.el6.x86 64
8/8
Installed:
 mysql-community-client.x86 64 0:5.6.29-2.el6
 mysql-community-libs.x86 64 0:5.6.29-2.el6
 mysql-community-libs-compat.x86_64 0:5.6.29-2.el6
 mysql-community-server.x86_64 0:5.6.29-2.el6
Dependency Installed:
 mysql-community-common.x86 64 0:5.6.29-2.el6
Replaced:
 mysql.x86_64 0:5.1.71-1.el6 mysql-libs.x86_64 0:5.1.71-1.el6
 mysql-server.x86_64 0:5.1.71-1.el6
Complete!
```

#### 7. Start MySQL server:

[root@mcctb ~]# service mysqld start

Initializing MySQL database: 2016-04-05 19:44:38 0 [Warning] TIMESTAMP with implicit DEFAULT value is deprecated. Please use --explicit defaults for timestamp server option (see documentation for more details). 2016-04-05 19:44:38 0 [Note] /usr/sbin/mysqld (mysqld 5.6.29) starting as process 2487 ... 2016-04-05 19:44:38 2487 [Note] InnoDB: Using atomics to ref count buffer pool pages 2016-04-05 19:44:38 2487 [Note] InnoDB: The InnoDB memory heap is disabled ....Output truncated.... 2016-04-05 19:44:42 2509 [Note] InnoDB: Shutdown completed; log sequence number 1625987 PLEASE REMEMBER TO SET A PASSWORD FOR THE MySQL root USER! To do so, start the server, then issue the following commands: /usr/bin/mysqladmin -u root password 'new-password' /usr/bin/mysqladmin -u root -h mcctb password 'new-password' Alternatively, you can run: /usr/bin/mysql secure installation which will also give you the option of removing the test databases and anonymous user created by default. This is strongly recommended for production servers. .....Output truncated..... WARNING: Default config file /etc/my.cnf exists on the system This file will be read by default by the MySQL server If you do not want to use this, either remove it, or use the --defaults-file argument to mysqld safe when starting the server [ OK ] Starting mysqld: [ OK ]

8. Confirm that MySQL server is running:

[root@mcctb ~]# service mysqld status

mysqld (pid 2739) is running...

#### 9. Configure security and password settings:

[root@mcctb ~]# mysql secure installation

NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MySQL SERVERS IN PRODUCTION USE! PLEASE READ EACH STEP CAREFULLY!

In order to log into MySQL to secure it, we'll need the current password for the root user. If you've just installed MySQL, and you haven't set the root password yet, the password will be blank, so you should just press enter here.

Enter current password for root (enter for none): <== on default
install</pre>

hit enter here

OK, successfully used password, moving on...

Setting the root password ensures that nobody can log into the MySQL root user without the proper authorization.

Set root password? [Y/n] y New password: Re-enter new password: Password updated successfully! Reloading privilege tables..

... Success!

By default, a MySQL installation has an anonymous user, allowing anyone to log into MySQL without having to have a user account created for them. This is intended only for testing, and to make the installation go a bit smoother. You should remove them before moving into a production environment.

#### Remove anonymous users? [Y/n] y

... Success!

Normally, root should only be allowed to connect from 'localhost'. This

ensures that someone cannot guess at the root password from the network.

#### Disallow root login remotely? [Y/n] y

... Success!

By default, MySQL comes with a database named 'test' that anyone can access. This is also intended only for testing, and should be removed before moving into a production environment.

#### Remove test database and access to it? [Y/n] y

- Dropping test database... ERROR 1008 (HY000) at line 1: Can't drop database 'test';

```
database doesn't exist
... Failed! Not critical, keep moving...
- Removing privileges on test database...
... Success!
Reloading the privilege tables will ensure that all changes made so far
will take effect immediately.
Reload privilege tables now? [Y/n] y
... Success!
All done! If you've completed all of the above steps, your MySQL
installation should now be secure.
Thanks for using MySQL!
Cleaning up...
```

10. Verify that the MySQL login is working:

[root@mcctb ~]# mysql -u root -p

```
Enter password: <configured_password>
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 17
Server version: 5.6.29 MySQL Community Server (GPL)
Copyright (c) 2000, 2016, Oracle and/or its affiliates. All rights
reserved.
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affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or '\h' for help. Type '\c' to clear the current input
statement.
mysql>
```

When the MySQL login is working as expected, the output ends at the mysql> prompt.

#### Enable the MySQL autostart setting

You should verify that the autostart feature is turned on for the MySQL daemon. Turning on the MySQL daemon automatically restarts MySQL if the system on which the MetroCluster Tiebreaker software resides reboots. If the MySQL daemon is not running, the Tiebreaker software continues running, but it cannot be restarted and configuration changes cannot be made.

#### Step

1. Verify that MySQL is enabled to autostart when booted:

```
[root@mcctb ~]# systemctl list-unit-files mysqld.service
```

```
UNIT FILE State

mysqld.service enabled
```

If MySQL is not enabled to autostart when booted, see the MySQL documentation to enable the autostart feature for your installation.

#### Install MariaDB server on Red Hat Enterprise Linux 8

You must install MariaDB server on your host system before installing or upgrading the Tiebreaker software. For Red Hat Enterprise Linux 7 or CentOS 7, Install MySQL Server.

#### Before you begin

Your host system must be running on Red Hat Enterprise Linux (RHEL) 8.

#### Steps

1. Log in as a root user.

```
login as: root
root@mcctb's password:
Last login: Fri Jan 8 21:33:00 2017 from host.domain.com
```

2. Install the MariaDB server:

[root@mcctb ~] # yum install mariadb-server.x86\_64

```
[root@mcctb ~]# yum install mariadb-server.x86_64
Loaded plugins: fastestmirror, langpacks
...
...
...
====
Package Arch Version Repository
Size
====
Installing:
mariadb-server x86_64 1:5.5.56-2.el7 base
11 M
```

```
Installing for dependencies:
Transaction Summary
______
===
Install 1 Package (+8 Dependent packages)
Upgrade
                  ( 1 Dependent package)
Total download size: 22 M
Is this ok [y/d/N]: y
Downloading packages:
No Presto metadata available for base warning:
/var/cache/yum/x86 64/7/base/packages/mariadb-libs-5.5.56-
2.el7.x86 64.rpm:
Header V3 RSA/SHA256 Signature,
key ID f4a80eb5: NOKEY] 1.4 MB/s | 3.3 MB 00:00:13 ETA
Public key for mariadb-libs-5.5.56-2.el7.x86 64.rpm is not installed
(1/10): mariadb-libs-5.5.56-2.el7.x86 64.rpm | 757 kB 00:00:01
. .
. .
(10/10): perl-Net-Daemon-0.48-5.el7.noarch.rpm| 51 kB 00:00:01
_____
 _____
Installed:
 mariadb-server.x86 64 1:5.5.56-2.el7
Dependency Installed:
mariadb.x86 64 1:5.5.56-2.el7
perl-Compress-Raw-Bzip2.x86 64 0:2.061-3.el7
perl-Compress-Raw-Zlib.x86 64 1:2.061-4.el7
perl-DBD-MySQL.x86 64 0:4.023-5.el7
perl-DBI.x86 64 0:1.627-4.el7
perl-IO-Compress.noarch 0:2.061-2.el7
perl-Net-Daemon.noarch 0:0.48-5.el7
perl-PlRPC.noarch 0:0.2020-14.el7
Dependency Updated:
  mariadb-libs.x86 64 1:5.5.56-2.el7
Complete!
```

3. Start MariaDB server:

[root@mcctb ~]# systemctl start mariadb

4. Verify that the MariaDB server has started:

```
[root@mcctb ~]# systemctl status mariadb
mariadb.service - MariaDB database server
...
Nov 08 21:28:59 mcctb systemd[1]: Starting MariaDB database server...
...
Nov 08 21:29:01 mcctb systemd[1]: Started MariaDB database server.
```

5. Configure the security and password settings:



When you are prompted for the root password, leave it empty and press enter to continue to configure the security and password settings.

[root@mcctb ~]# mysql secure installation

root@localhost systemd]# mysql secure installation

NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MariaDB SERVERS IN PRODUCTION USE! PLEASE READ EACH STEP CAREFULLY!

In order to log into MariaDB to secure it, we'll need the current password for the root user. If you've just installed MariaDB, and you haven't set the root password yet, the password will be blank, so you should just press enter here.

Enter current password for root (enter for none): OK, successfully used password, moving on...

Setting the root password ensures that nobody can log into the MariaDB root user without the proper authorisation.

Set root password? [Y/n] y
New password:
Re-enter new password:
Password updated successfully!
Reloading privilege tables..
... Success!

By default, a MariaDB installation has an anonymous user, allowing anyone to log into MariaDB without having to have a user account created for them. This is intended only for testing, and to make the installation go a bit smoother. You should remove them before moving into a

```
production environment.
Remove anonymous users? [Y/n] y
 ... Success!
Normally, root should only be allowed to connect from 'localhost'. This
ensures that someone cannot guess at the root password from the network.
Disallow root login remotely? [Y/n] y
 ... Success!
By default, MariaDB comes with a database named 'test' that anyone can
access. This is also intended only for testing, and should be removed
before moving into a production environment.
Remove test database and access to it? [Y/n] y
 - Dropping test database ...
  ... Success!
 - Removing privileges on test database...
   ... Success!
Reloading the privilege tables will ensure that all changes made so far
will take effect immediately.
Reload privilege tables now? [Y/n]
  ... Success!
Cleaning up...
All done! If you've completed all of the above steps, your MariaDB
installation should now be secure.
Thanks for using MariaDB!
```

#### Enable the autostart setting for the MariaDB server

You should verify that the autostart feature is turned on for the MariaDB server. If you do not enable the autostart feature, and the system on which the MetroCluster Tiebreaker software resides has to reboot, then the Tiebreaker software continues running, but the MariaDB service cannot be restarted and configuration changes cannot be made.

#### Steps

1. Enable the autostart service:

```
[root@mcctb ~]# systemctl enable mariadb.service
```

2. Verify that MariaDB is enabled to autostart when booted:

```
[root@mcctb ~]# systemctl list-unit-files mariadb.service
```

### Install or upgrade to Tiebreaker 1.4

Perform a new installation or upgrade to Tiebreaker 1.4 on your host Linux operating system to monitor MetroCluster configurations.

#### About this task

- Your storage system must be running a supported version of ONTAP. See the Software requirements table for more details.
- You must have installed OpenJDK by using the yum install java-x.x.x-openjdk command. Tiebreaker 1.4 and earlier supports JDK 1.8.0 (JRE 8).

#### Steps

1. Download the MetroCluster Tiebreaker software.

MetroCluster Tiebreaker (Downloads) - NetApp Support Site

- 2. Log in to the host as the root user.
- 3. Install or upgrade the Tiebreaker software:

Select the correct procedure depending on whether you're performing a new installation or upgrading an existing installation.

#### Perform a new installation

a. Install the Tiebreaker software by running the :

```
rpm -ivh NetApp-MetroCluster-Tiebreaker-Software-1.4-1.x86 64.rpm
```

The system displays the following output for a successful installation:

```
Verifying...
Preparing...
Updating / installing...
  1:NetApp-MetroCluster-Tiebreaker-
Post installation start Fri Apr 5 02:28:09 EDT 2024
Enter MetroCluster Tiebreaker user password:
Please enter mysql root password when prompted
Enter password:
Synchronizing state of netapp-metrocluster-tiebreaker-
software.service with SysV service script with
/usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable netapp-
metrocluster-tiebreaker-software
Created symlink /etc/systemd/system/multi-
user.target.wants/netapp-metrocluster-tiebreaker-software.service
→ /etc/systemd/system/netapp-metrocluster-tiebreaker-
software.service.
Attempting to start NetApp MetroCluster Tiebreaker software
services
Started NetApp MetroCluster Tiebreaker software services
Enabled autostart of NetApp MetroCluster Tiebreaker software
daemon during boot
Created symbolic link for NetApp MetroCluster Tiebreaker software
CLI
Post installation end Fri Apr 5 02:28:22 EDT 2024
Successfully installed NetApp MetroCluster Tiebreaker software
version 1.4.
```

#### Upgrade an existing installation

a. Upgrade the Tiebreaker software.

```
[root@mcctb ~] # rpm -Uvh NetApp-MetroCluster-Tiebreaker-Software-
1.4-1.x86_64.rpm
```

The system displays the following output for a successful upgrade:

```
Verifying...
Preparing...
Upgrading NetApp MetroCluster Tiebreaker software....
Stopping NetApp MetroCluster Tiebreaker software services before
upgrade.
Updating / installing...
  1:NetApp-MetroCluster-Tiebreaker-
Post installation start Mon Apr 8 06:29:51 EDT 2024
Synchronizing state of netapp-metrocluster-tiebreaker-
software.service with SysV service script with
/usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable netapp-
metrocluster-tiebreaker-software
Attempting to start NetApp MetroCluster Tiebreaker software
services
Started NetApp MetroCluster Tiebreaker software services
Enabled autostart of NetApp MetroCluster Tiebreaker software
daemon during boot
Created symbolic link for NetApp MetroCluster Tiebreaker software
CLI
Post upgrade end Mon Apr 8 06:29:51 EDT 2024
Successfully upgraded NetApp MetroCluster Tiebreaker software to
version 1.4.
Cleaning up / removing...
  2:NetApp-MetroCluster-Tiebreaker-
```



If you enter the wrong MySQL root password, the Tiebreaker software indicates that it was installed successfully, but displays "Access denied" messages. To resolve the issue, you must uninstall the Tiebreaker software by using the rpm -e command, and then reinstall the software by using the correct MySQL root password.

4. Check the Tiebreaker connectivity to the MetroCluster software by opening an SSH connection from the Tiebreaker host to each of the node management LIFs and cluster management LIFs.

#### **Related information**

NetApp Support

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