



# MySQL Cluster Quick Start Guide – LINUX

This guide is intended to help the reader get a simple MySQL Cluster database up and running on a single LINUX server. Note that for a live deployment multiple hosts should be used to provide redundancy but a single host can be used to gain familiarity with MySQL Cluster; please refer to the final section for links to material that will help turn this into a production system.

Note that there are two alternate tools-based approaches to automatically configuring and running MySQL Cluster:

1. MySQL Cluster Manager is a commercial tool that is available for a 30 day free trial and it allows you to deploy your first, single host, experimental MySQL Cluster with a single command: <http://www.clusterdb.com/mysql-cluster/mysql-cluster-manager-1-1-2-creating-a-cluster-is-now-trivial/>
2. A preview release of a browser-based MySQL Auto-Installer is available, this hides the complexity of setting up a multi-host Cluster and uses best practices to appropriately configure the available platform resources and supplied hints about your application requirements: <http://www.clusterdb.com/mysql-cluster/auto-installer-labs-release/>

The rest of this guide focuses on getting your first MySQL Cluster up and running manually.

## 1 Get the software

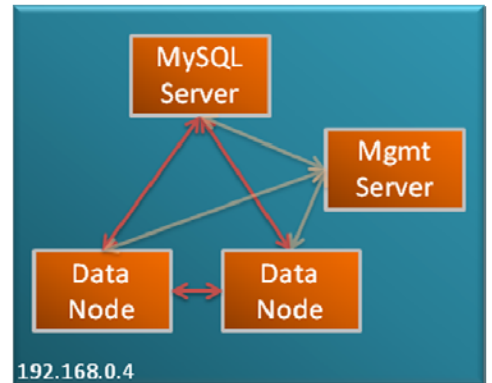
For Generally Available (GA), supported versions of the software, download from <http://www.mysql.com/downloads/cluster/>

Make sure that you select the correct platform – in this case, “Linux – Generic” and then the correct architecture (for LINUX this means x86 32 or 64 bit).

If you want to try out a pre-GA version then check <http://dev.mysql.com/downloads/cluster/>

For commercial versions of the MySQL Cluster download from <https://edelivery.oracle.com/>

**Note:** Only use MySQL Server executables (*mysqlds*) that come with the MySQL Cluster installation.



## 2 Install

Locate the tar ball that you’ve downloaded, extract it and then create a link to it:

```
[user1@ws2 ~]$ tar xvf Downloads/4839919.mysql-cluster-advanced-7.2.4-linux2.6-x86_64.tar.gz
[user1@ws2 ~]$ ln -s mysql-cluster-advanced-7.2.4-linux2.6-x86_64 mysqlc
```

Optionally, you could add `~/mysqlc/bin` to your path to avoid needing the full path when running the processes.

## 3 Configure

For a first Cluster, start with a single MySQL Server (*mysqld*), a pair of Data Nodes (*ndbd*) and a single management node (*ndb\_mgmd*) – all running on the same server.

Create folders to store the configuration files and the data files:

```
[user1@ws2 ~]$ mkdir my_cluster my_cluster/ndb_data my_cluster/mysqld_data my_cluster/conf
```

In the `conf` folder, create 2 files (note that `“/home/user1”` should be replaced with your home directory).

**my.cnf:**

```
[mysqld]
ndbcluster
datadir=/home/user1/my_cluster/mysqld_data
basedir=/home/user1/mysqlc
port=5000
```

**config.ini:**



```
[ndb_mgmd]
hostname=localhost
datadir=/home/user1/my_cluster/ndb_data
NodeId=1

[ndbd default]
noofreplicas=2
datadir=/home/user1/my_cluster/ndb_data

[ndbd]
hostname=localhost
NodeId=3

[ndbd]
hostname=localhost
NodeId=4

[mysqld]
NodeId=50
```

Note that in a production system there are other parameters that you would set to tune the configuration.

Just like any other MySQL Server, the `mysqld` process requires a 'mysql' database to be created and populated with essential system data:

```
[user1@ws2 ~]$ cd mysqlc
[user1@ws2 mysqlc]$ scripts/mysql_install_db --no-defaults --datadir=$HOME/my_cluster/mysqld_data/
```

## 4 Run

The processes should be started in the order of management node, data nodes & then MySQL Server:

```
[user1@ws2 mysqlc]$ cd ../my_cluster/
[user1@ws2 my_cluster]$ $HOME/mysqlc/bin/ndb_mgmd -f conf/config.ini --initial --
configdir=$HOME/my_cluster/conf/
[user1@ws2 my_cluster]$ $HOME/mysqlc/bin/ndbd -c localhost:1186
[user1@ws2 my_cluster]$ $HOME/mysqlc/bin/ndbd -c localhost:1186
```

Check the status of the Cluster and wait for the Data Nodes to finish starting before starting the MySQL Server:

```
[user1@ws2 my_cluster]$ $HOME/mysqlc/bin/ndb_mgm -e show

Connected to Management Server at: localhost:1186
Cluster Configuration
-----
[ndbd(NDB)] 2 node(s)
id=3 @127.0.0.1 (mysql-5.5.19 ndb-7.2.4, Nodegroup: 0, Master)
id=4 @127.0.0.1 (mysql-5.5.19 ndb-7.2.4, Nodegroup: 0)

[ndb_mgmd(MGM)] 1 node(s)
id=1 @127.0.0.1 (mysql-5.5.19 ndb-7.2.4)

[mysqld(API)] 1 node(s)
id=50 (not connected, accepting connect from any host)

[user1@ws2 my_cluster]$ $HOME/mysqlc/bin/mysqld --defaults-file=conf/my.cnf &
```

## 5 Test

Connect to the MySQL Server and confirm that a table can be created that uses the ndb (MySQL Cluster) storage engine:

```
[user1@ws2 my_cluster]$ $HOME/mysqlc/bin/mysql -h 127.0.0.1 -P 5000 -u root
mysql> create database clusterdb;use clusterdb;
mysql> create table simples (id int not null primary key) engine=ndb;
mysql> insert into simples values (1),(2),(3),(4);
mysql> select * from simples;
```



id
3
1
2
4

## 6 Safely shut down

The MySQL Server must be shut down manually but then the other Cluster nodes can be stopped using the `ndb_mgm` tool:

```
[user1@ws2 my_cluster]$ $HOME/mysqlc/bin/mysqladmin -u root -h 127.0.0.1 -P 5000 shutdown
[user1@ws2 my_cluster]$ $HOME/mysqlc/bin/ndb_mgm -e shutdown
```

## 7 For further information

[MySQL Cluster Evaluation Guide \(http://www.mysql.com/why-mysql/white-papers/mysql\\_cluster\\_eval\\_guide.php\)](http://www.mysql.com/why-mysql/white-papers/mysql_cluster_eval_guide.php) In this whitepaper learn the fundamentals of how to design and select the proper components for a successful MySQL Cluster evaluation.

[MySQL Cluster Performance Optimization Guide \(http://www.mysql.com/why-mysql/white-papers/mysql\\_wp\\_cluster\\_performance.php\)](http://www.mysql.com/why-mysql/white-papers/mysql_wp_cluster_performance.php) In this guide, learn how to tune and optimize the MySQL Cluster database to handle diverse workload requirements.

MySQL Cluster Documentation (<http://dev.mysql.com/doc/index-cluster.html>)