



# MySQL Cluster Quick Start Guide – Windows

This guide is intended to help the reader get a simple MySQL Cluster database up and running on a single Windows 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 is an alternate approach to creating your first MySQL Cluster – MySQL Cluster Manager is a commercial tool that is available for a 30 day free trial and it allows you to deploy MySQL Cluster with a single command: <http://www.clusterdb.com/mysql-cluster/mysql-cluster-manager-1-1-2-creating-a-cluster-is-now-trivial/>

## 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, “Microsoft Windows” and then the correct architecture (for Windows 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 zip file ball that you’ve downloaded, and extract the contents (in this case to *c:\Users\user1\mysqlc*)

Optionally, you could add *c:\Users\user1\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:

```
C:\Users\user1> mkdir my_cluster my_cluster\ndb_data my_cluster\mysqld_data my_cluster\conf
my_cluster\mysqld_data\mysql my_cluster\mysqld_data\ndbinfo my_cluster\mysqld_data\performance_schema
```

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

**my.cnf:**

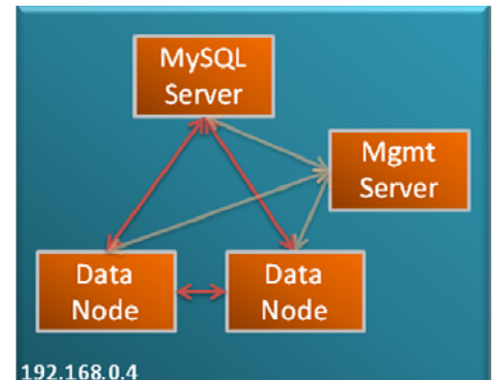
```
[mysqld]
ndbcluster
datadir=c:\\Users\\user1\\my_cluster\\mysqld_data
basedir=c:\\Users\\user1\\mysqlc
port=5000
```

**config.ini:**

```
[ndb_mgmd]
hostname=localhost
datadir=c:\\Users\\user1\\my_cluster\\ndb_data
NodeId=1

[ndbd default]
noofreplicas=2
datadir=c:\\Users\\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 (and for MySQL Cluster 7.1, you also want the new `ndbinfo` database). These can be copied from the data folder in the MySQL Cluster installation:

```
C:\Users\user1>copy mysqlc\data\mysql my_cluster\mysqld_data\mysql
C:\Users\user1>copy mysqlc\data\ndbinfo my_cluster\mysqld_data\ndbinfo
C:\Users\user1>copy mysqlc\data\performance_schema my_cluster\mysqld_data\performance_schema
```

## 4 Run

Before starting any processes, ensure that ports 5000 and 1186 are not blocked by your firewall.

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

```
C:\Users\user1>cd my_cluster
C:\Users\user1\my_cluster>start /B c:\Users\user1\mysqlc\bin\ndb_mgmd -f conf\config.ini --initial --
configdir=c:\Users\user1\my_cluster\conf
C:\Users\user1\my_cluster>start /B c:\Users\user1\mysqlc\bin\ndbd -c localhost:1186
C:\Users\user1\my_cluster>start /B c:\Users\user1\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:

```
C:\Users\user1\my_cluster> c:\Users\user1\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-5.1.44 ndb-7.1.3, starting, Nodegroup: 0, Master)
id=4 @127.0.0.1 (mysql-5.1.44 ndb-7.1.3, starting, Nodegroup: 0)

[ndb_mgmd(MGM)] 1 node(s)
id=1 @localhost (mysql-5.1.44 ndb-7.1.3)

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

c:\Users\user1\my_cluster>start /B c:\Users\user1\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:

```
c:\Users\user1\my_cluster>c:\Users\user1\mysqlc\bin\mysql -h 127.0.0.1 -P5000 -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 |
+----+
| 1 |
| 2 |
| 3 |
| 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:

```
C:\Users\user1\my_cluster> c:\Users\user1\mysqlc\bin\mysqladmin -u root -h 127.0.0.1 -P5000 shutdown
C:\Users\user1\my_cluster>c:\Users\user1\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](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](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>)