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.

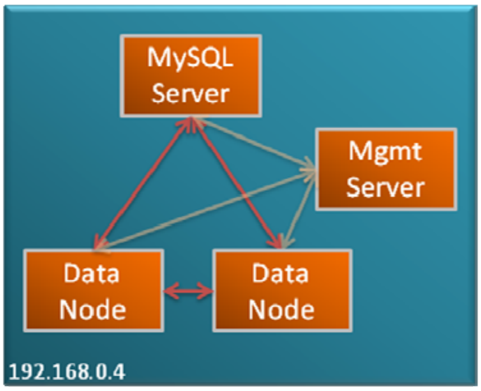
1 Get the software

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/

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
```

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
id=1

[ndbd default]
noofreplicas=2
datadir=c:\Users\user1\my_cluster\ndb_data

[ndbd]
hostname=localhost
id=3

[ndbd]
hostname=localhost
id=4

[mysqld]
Id=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
```

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) 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_perfomance.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)

Configurator (http://www.severalnines.com/config/index.php) is a community tool which can generate good configuration files based on information you provide about the required deployment.