

## MySQL Cluster Quick Start Guide: Windows, Linux & Solaris

This guide is intended to help the reader get a well configured MySQL Cluster database up and running on a single host or across multiple hosts – whether they be running Windows, Linux, or Solaris. The guide will step through using the MySQL Auto-Installer – a browser-based GUI to perform this. Alternatively, MySQL Cluster Manager is available – a commercial CLI that in addition to creating the cluster can be used for its ongoing management – this blog post explains how to use MCM to configure and deploy MySQL Cluster. http://mysqlhighavailability.com/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 ("Linux – Generic" for Linux). If you want to try out a pre-GA version then check <a href="http://dev.mysgl.com/downloads/cluster/">http://dev.mysgl.com/downloads/cluster/</a>. For commercial versions of the MySQL Cluster download from <a href="https://dev.mysgl.com/downloads/cluster/">https://dev.mysgl.com/downloads/cluster/</a>. For commercial versions of the MySQL Cluster download from <a href="https://dev.mysgl.com/downloads/cluster/">https://dev.mysgl.com/downloads/cluster/</a>. For commercial versions of the MySQL Cluster download from <a href="https://dev.mysgl.com/downloads/cluster/">https://dev.mysgl.com/downloads/cluster/</a>.

From MySQL Cluster 7.3 and later, the auto-installer is part of the MySQL Cluster packages.

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

### 2 Launch the installer

A single command launches the installer (for Linux or Solaris):

```
$ bin/ndb setup.py # Linux or Solaris
```

or on Windows just double-click setup.bat from the top directory.

If you launch the installer from a desktop environment then the first page of the wizard will automatically be opened in your web

browser, if not then just browse to the URL that is displayed on the command line.

## 3 Follow the wizard

After the initial splash-screen you're presented with the page shown in Figure 1 where you specify the list of servers that will form part of the cluster.

You also get to specify what "type" of cluster you want; if you're experimenting for the first time then it's probably safest to stick with "Simple testing" but for a production system you'd want to specify the application type and query profile, i.e. write-intensive.

ORACLE My	ORACLE MySQL Cluster Installer					
Define cluster >	Define hosts 📏 D	efine processes 〉 Define parameters 🖒 Deploy configuration				
		Settings 💌 Help 💌				
MySQL Cluster is ab	and SSH Credentials ble to operate in various con	S figurations. Please specify the settings below to define the right cluster type that fits your				
use case. If you inte must submit your us	end to use remote hosts for er name and password belo	deploying MySQL Cluster, SSH must be enabled. Unless key based SSH is possible, you ow.				
	,					
Cluste	er property	Value				
Clust	er name [?]	MvCluster				
Host	list [?]	black, blue, green, brown				
Appli	ication area [?]	simple testing				
Write	load [?]	medium 👻				
SSH p	roperty	Value				
Key I	based SSH [?]					
User	name [?]	billy				
Pass	word [?]					
		Previous Next Finish				

Figure 1 Specify hosts and application type





On the next page (Figure 2), you will see the wizard attempt to auto-detect the resources on your target machines. If this fails (e.g. if you don't have an accessible SSH server on the target hosts<sup>1</sup>) then you can enter the data manually. You can also overwrite the resource-values - for example, if you don't want the cluster to use up a big share of the memory on the target systems then just overwrite the amount of memory.

It's also on this page that you can specify where the MySQL Cluster software is stored on each of the hosts (if the defaults aren't correct) - this should be the path to where you installed the MySQL Cluster package files - as well as where the data (and configuration files) should be stored. You can just overwrite the values or select multiple rows and hit the "edit" button.

ORACLE MySQL Cluster Installer

Define cluster > Define hosts > Define processes > Define parameters > Deploy configuration Settings 💌 Help 💌

#### Select and Edit Hosts

MySQL Cluster can be deployed on several hosts. Please select the desired hosts by pressing the Add host button below and enter a comma separated list of host names or ip addresses. Resource information is automatically retrieved from the added host if this is checked in the settinge menu, and if the required SSH credentials have been submitted. When a host has been added, the corresponding information can be edited by double clicking a cell in the grid. If you want to apply the same changes to several hosts, multiple rows can be selected and the Edit selected host(s) button can be pressed, which shows a dialog where the editing can be done. Hosts can be deleted by selected the corresponding rows in the table and pressing the Remove selected host(s) button. If a host is removed, processes configured to run on that host will also be removed from the configuration.

Host	Resourc e info	Platfo rm	Memory (MB)	CPU cores	MySQL Cluster install directory	MySQL Cluster data directory
black	ок	Linux	996	2	/usr/local/bin/	/var/lib/mysql-cluster-data/
blue	ок	Linux	996	2	/usr/local/bin/	/var/lib/mysql-cluster-data/
green	ок	Linux	996	2	/usr/local/bin/	/var/lib/mysql-cluster-data/
brown	ок	Linux	996	2	/usr/local/bin/	/var/lib/mysql-cluster-data/
ist Remove selected host(s)						



	Define cluster > Define hosts > Define processes > Define parameters > Deploy configuration					
he following page (Figure 3) presents ou with a default set of nodes processes) and how they'll be istributed across all of the target hosts if you're happy with the proposal then ist advance to the next page.	Settings V Help V Define Processes and Cluster Topology Various processes may be part of a MySQL Cluster configuration. Please refer to the MySQL Cluster Documentation for a description of the different process types. If you have added hosts previously, a default configuration will be suggested the first time you enter this page. This configuration may be modified by moving processes between hosts by drag and drop, or by adding and removing processes. You may also go back to the previous page and add more hosts before editing the topology. The special entry labelled <i>Any host</i> in the tree below represents an arbitrary host. On this special tree entry, only <i>API</i> processes can be moved or added. These processes will not be required to run on a particular host, but may execute anywhere.					
Iternatively, you can add extra nodes, love nodes from one host to another ust drag and drop), delete nodes or nange a node from one type to nother.	MyCluster topology ☆ Any host © black @ Management node 1 @ API node 1 @ API node 2 @ SQL node 1 @ SQL node 2 © SQL node 2 © blue ♥ Delete process					



Windows typically doesn't include an SSH server by default and so for auto-discovery and deployment to work, one will need to be installed - for example, freeSSHd.



# My<mark>SQL</mark> Cluster

#### ORACLE MySQL Cluster Installer

Define cluster ightarrow Define hosts ightarrow Define processes ightarrow Define parameters ightarrow Deploy configuration

#### Settings 🔻 Help 🔻

#### **Define Processes Parameters**

The processes in your MySQL Cluster configuration can be tuned by setting a number of configuration parameters. Please refer to the MySQL Cluster Documentation for a description of the different process parameters. This page allows you to define a subset of the configuration parameters. Below, you will see your processes to the left grouped by process type. If you select a process type entry in the tree, you may set parameters that will be applied to all instances of that process. However, if you want to set a parameter specifically for one process, you may do so by selecting the process instance in the tree and set the desired parameter. This tool suggests predefined settings for the different parameters based on the hardware resources and the cluster topology. The predefined settings may be overridden by pressing the *Override* button to the very right of the configuration parameter. If you want to cancel your setting, you may revert to the predefined value by pressing the *Revert* button which shows up when a parameter is overridden.

Data laver Nodeld (?) 1
Multi threaded data node 1     Multi threaded data node 2     Multi threaded data node 2     Show advanced configuration options

#### Figure 4 Review configuration parameters

Define cluster > Define hosts > Define processes > Define parameters > Deploy configuration Settings • Help •					
Deploy Configuration and start MySQL C Your MySQL Cluster configuration can be reviewed below view its startup command(s) and configuration file. Note it Start and Stop your cluster. Please note that starting the reflect the status of the process as reported by the mana starting or shutting down, and $O$ . not connected or stop	ituster v. To the left are the processes you have defined, ordered by their startup sequence. Please select a process to hat some processes do not have configuration files. At the bottom of the center panel, there are buttons to <i>Deploy</i> , butter muy take up to several minutes depending on the configuration you have defined. In the process there, the icons gement daemon: P: unknown or if the management daemon does not reply, O: connected or started, O: ped				
MyCluster processes	Startup command				
Management layer Management node 1 Management node 2 Management node 2 Multi threaded data node 2 Multi threaded data node 2 Multi threaded data node 2 SOL layer SOL layer SOL node 1 SOL node 1 SOL node 2 Point note 3 Met Deploy cluster Poppoy and si	Starting cluster				
	Previous     Previous     Previous     Previous				

Figure 5 Deploy the Cluster

## 4 For further information

http://mysqlhighavailability.com/mysql-cluster-7-3-auto-installer/ Demo video: using the MySQL Cluster Auto-Installer.

MySQL Cluster Evaluation Guide (http://www.mysql.com/why-mysql/white-papers/guide-to-optimizing-performance-of-the-mysqlcluster/) 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/guide-to-optimizing-performanceof-the-mysql-cluster/) 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).



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With the click of a button, the final screen (Figure 5) lets you deploy (copy the correct configuration settings to the hosts and create the directory structures) and start the Cluster.

If you prefer or need to start the processes manually, this page also shows you the commands that you'd need to run (as well as the configuration files if you need to create them manually).

A traffic light display shows the various Cluster nodes (processes) coming into service.

On the next screen (Figure 4) you're presented with some of the key configuration parameters that have been configured (behind the scenes, the installer sets many more) that you might want to override; if you're happy then just progress to the next screen. If you do want to make any changes then make them here before continuing. Note that you can enable the advanced configuration option here in order to view/modify more parameters.