### **MariaDB Column Store Multi Cluster Deployment**

Preparing for ColumnStore Installation

OverView

The purpose of this document was creating a MariaDB column Store Multi-node Cluster With root access.

Configuration preparation

Before installing MariaDB ColumnStore, there is some preparation necessary. You will need to determine the following. Please refer to the MariaDB ColumnStore Architecture Document for additional information.

* How many User Modules (UMs) will your system need?
* How many Performance Modules (PMs) will your system need?
* How much disk space will your system need?
* Would you have passwordless ssh access between PMs?
* Do you want to run the install as root or an unprivileged user? In this Case we are using Root user deployment

#### OS information

* OS : Debian 9 x64
* RAM : 2 GB or more
* Processor : 1 core or more
* Disk : 4 GB Free space needed

#### System administration information

* We need to add the SSH footprint of PM1 to All UM and PM systems. In this case we Assume we have 1 UM and 2 PM servers
  + UM1
  + PM1
  + PM2
* We need to Add PM1’s ssh public key to the UM1 and PM2 and verify the key/connection working fine from PM1

#### Network configuration

MariaDB ColumnStore is quite flexible regarding networking. Some options are as follows:

* The interconnect between UMs and PMs can be one or more private VLANs. In this case MariaDB ColumnStore will automatically trunk the individual LANs together to provide greater effective bandwidth between the UMs and PMs.
* The PMs do not require a public LAN access as they only need to communicate with the UMs, unless the local query feature is desired.
* The UMs most likely require at least one public interface to access the MySQL server front end from the site LAN. This interface can be a separate physical or logical connection from the PM interconnect.
* You can use whatever security your site requires on the public access to the MySQL server front end on the UMs. By default it is listening on port 3306.

MariaDB ColumnStore port usage

The MariaDB ColumnStore daemon uses port 3306.

You must reserve the following ports to run the MariaDB ColumnStore software: 8600 - 8630, 8700, and 8800

Package dependencies (Do this Step in All clusters)

Update the Debian apt repo

# apt update

#### libjemalloc dependency

#### ColumnStore 1.2.3 onward requires libjemalloc to be installed. For Ubuntu & Debian based distributions this is installed using the package "libjemalloc1" in the standard repositories.

# apt-get -y install libboost-all-dev

Additional packages are required on each ColumnStore node.

# apt-get install expect perl openssl file sudo libdbi-perl libboost-all-dev libreadline-dev rsync net-tools libsnappy1v5 libreadline5 libaio1 libnuma1 nmap

Download location (Do this steps in PM1)

The standard ColumnStore RPM and DEB packages are available at  <https://mariadb.com/downloads/columnstore>

#### Distributed Install

With the Distributed option, MariaDB ColumnStore will distribute and install the packages automatically on each node. The user installs ColumnStore on Performance Module 1, then during the postConfigure step, ColumnStore will handle the rest.

This option would be used on system with multi-nodes where the package only had to be installed on 1 node, the Performance Module 1, the app 'postConfigure' would distribute and all down to all of the other nodes.

The Pre-install setup time would be shorter with the Non-Distributed Installation, but the system Install and startup via the install app 'postConfigure' will be take longer.

Steps:

Switch to root user : sudo su –

Go to the root directory : cd /root/

Download the packages : <https://downloads.mariadb.com/ColumnStore/latest/debian/dists/stretch/main/binary_amd64/mariadb-columnstore-1.2.5-1-stretch.amd64.deb.tar.gz>

Extract the tar.gz : tar -zxvf maridb-columnstore-1.2.5\*

Remove the Source packages : rm mariadb-columnstore-1.2.5-1-stretch.amd64.deb.tar.gz

Install the packages : dpkg -I mariadb-columnstore\*

Create symlink important things:

mkdir /etc/columnstore && \

ln -s /usr/local/mariadb/columnstore/bin/postConfigure /bin/postConfigure && \

ln -s /usr/local/mariadb/columnstore/bin/columnstore /bin/columnstore && \

ln -s /usr/local/mariadb/columnstore/bin/mcsadmin /bin/mcsadmin && \

ln -s /usr/local/mariadb/columnstore/mysql/bin/mysql /bin/mysql && \

ln -s /usr/local/mariadb/columnstore/etc/Columnstore.xml /etc/columnstore/Columnstore.xml

POSTCONFIGURE with Distributed deployment (Run this step in PM1)

Replace the IP address and run the command under root mode. This postconfigure will install the required packages in all the server and activate it.

Basically, this step takes 15 to 20 mints depends on the server capacity

# /usr/local/mariadb/columnstore/bin/postConfigure -d -qm -um-ip-addrs=<UM1 IP>,<UM2 IP> -pm-ip-addrs=<PM1 IP>,<PM2 IP>

### Testing

Run the below command and check the all node status will be active

mcsadmin getsysteminfo