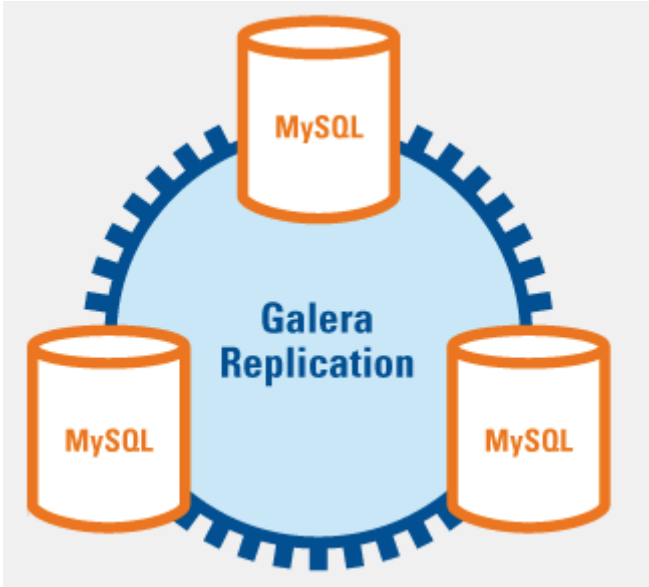


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MySQL/MariaDB Galera Cluster

DBMS 가 MySQL Synchronous Multi-Master Cluster Galera Cluster



MySQL Cluster CGE NDB Storage Engine MySQL/InnoDB
InnoDB
, Galera Cluster 3node 2node
:)

Galera Cluster

- Active-Active 가
-
- (Failover)가
- InnoDB
- 가 / 가
- 가
-
- 가
-
- 가 .()

Galera Network Port

- Standard MariaDB Port(default : 3306) : MariaDB , State Snapshot Transfers(mysql_dump)
- Galera Replication Port(default : 4567) : Galera Cluster replication traffic, UDP & TCP
- IST Port(default : 4568) : Incremental State Transfers()
- SST Port(default : 4444) : 3306 State Snapshot Transfers

1. MariaDB
- 2.
3. Clustering
4. Cluster 가
5. Clustering
6. DB Sync

MariaDB Clustering

- OS : CentOS-7.3-64
- DB : MariaDB 10.2
- Server One IP : 10.41.226.226
- Server Two IP : 10.41.227.100

Port Test in/out .
Part 1 가 Galera Cluster 3 node Clustering
2 node 가 2 ^^

Install MariaDB

MariaDB 가 .

- MariaDB Site : <https://mariadb.org/>
- MariaDB Repositories Download :
<https://downloads.mariadb.org/mariadb/repositories/#mirror=iweb>

To generate the entries select an item from each of the boxes below. Once an item is selected in each box, your customized repository configuration will appear below.

1. Choose a Distro

- SLES
- openSUSE
- Arch Linux
- Mageia
- Fedora
- **CentOS**
- RedHat
- Mint
- Ubuntu
- Debian

2. Choose a Release

- CentOS 8 (ppc64le)
- CentOS 8 (x86_64)
- CentOS 7 (ppc64le)
- CentOS 7 (ppc64)
- **CentOS 7 (x86_64)**
- CentOS 6 (x86_64)
- CentOS 6 (x86)

3. Choose a Version

- 10.5 [Beta]
- 10.4 [Stable]
- 10.3 [Old Stable]
- **10.2 [Old Stable]**
- 10.1 [Old Stable]
- 5.5 [Old Stable]

Here is your custom MariaDB YUM repository entry for CentOS. Copy and paste it into a file under `/etc/yum.repos.d/` (we suggest naming the file `MariaDB.repo` or something similar).

```
# MariaDB 10.2 CentOS repository list - created 2020-06-04 00:32 UTC
# http://downloads.mariadb.org/mariadb/repositories/
[mariadb]
name = MariaDB
baseurl = http://yum.mariadb.org/10.2/centos7-amd64
gpgkey=https://yum.mariadb.org/RPM-GPG-KEY-MariaDB
gpgcheck=1
```

After the file is in place, install MariaDB with:

```
sudo yum install MariaDB-server MariaDB-client
```

If you haven't already accepted the MariaDB GPG key, you will be prompted to do so. See "[Installing MariaDB with yum](#)" for detailed information.

Please see [Installing OQGraph](#) for details on additional install steps needed for that storage engine.

MariaDB (Server One, Server Two)

```
# Repository
[root@galera-01 ~]# vi /etc/yum.repo.d/MariaDB.repo

# MariaDB.repo
# MariaDB 10.2 CentOS repository list - created 2020-06-04 00:40 UTC
# http://downloads.mariadb.org/mariadb/repositories/
[mariadb]
name = MariaDB
baseurl = http://yum.mariadb.org/10.2/centos7-amd64
gpgkey=https://yum.mariadb.org/RPM-GPG-KEY-MariaDB
gpgcheck=1
```

```
# Install MariaDB
[root@galera-01 ~]# yum install MariaDB-server MariaDB-client
```

```
=====
Package                               Arch      Version
Repository                            Size
=====
```

```
=====
Installing:
  MariaDB-client                x86_64                10.2.32-1.el7.centos
mariadb                        11 M
  MariaDB-compat                x86_64                10.2.32-1.el7.centos
mariadb                        2.2 M
  replacing mariadb-libs.x86_64 1:5.5.52-1.el7
  MariaDB-server                x86_64                10.2.32-1.el7.centos
mariadb                        24 M
Installing for dependencies:
  MariaDB-common                x86_64                10.2.32-1.el7.centos
mariadb                        81 k
  boost-program-options        x86_64                1.53.0-28.el7
base                          156 k
  galera                        x86_64                25.3.29-1.rhel7.el7.centos
mariadb                        8.2 M
  perl-Compress-Raw-Bzip2      x86_64                2.061-3.el7
base                          32 k
  perl-Compress-Raw-Zlib       x86_64                1:2.061-4.el7
base                          57 k
  perl-DBI                     x86_64                1.627-4.el7
base                          802 k
  perl-IO-Compress             noarch                2.061-2.el7
base                          260 k
  perl-Net-Daemon              noarch                0.48-5.el7
base                          51 k
  perl-PlRPC                   noarch                0.2020-14.el7
base                          36 k
Updating for dependencies:
  openssl                      x86_64                1:1.0.2k-19.el7
base                          493 k
  openssl-libs                 x86_64                1:1.0.2k-19.el7
base                          1.2 M

Transaction Summary
=====
=====

# MariaDB version
[root@galera-01 ~]# mysql --version
mysql Ver 15.1 Distrib 10.2.32-MariaDB, for Linux (x86_64) using readline
5.1
```

MariaDB Setup Root (Server One, Server

Two)

MariaDB

Setup

. Setting

DB Stop

.

```

# Start MariaDB
[root@galera-01 ~]# service mysql start
Starting mysql (via systemctl): [ OK ]
[root@galera-01 ~]# mysql_secure_installation

# Setting
Enter current password for root (enter for none):
OK, successfully used password, moving on...

Set root password? [Y/n] y
New password:
Re-enter new password:
Password updated successfully!
Reloading privilege tables..
... Success!

Remove anonymous users? [Y/n] y
... Success!

Disallow root login remotely? [Y/n] n
... skipping.

Remove test database and access to it? [Y/n] y
- Dropping test database...
... Success!
- Removing privileges on test database...
... Success!

Reload privilege tables now? [Y/n] y
... Success!

Thanks for using MariaDB!

# Stop MariaDB
[root@galera-01 ~]# service mysql stop
Stopping mysql (via systemctl): [ OK ]

```

Galera Cluster

Galera Cluster

Node

가

Node

가

. /etc/my.cnf.d/server.xml

[galera]

Node1(Server One) Galera Cluster

```
# Config node1(Server One) galera clutser
[root@galera-01 ~]# vi /etc/my.cnf.d/server.cnf

[galera]
# Mandatory settings
wsrep_on=ON
wsrep_provider=/usr/lib64/galera/libgalera_smm.so      #
wsrep_cluster_address='gcomm://'                      # Galera

wsrep_cluster_name='cluster'                           # Node1/2
wsrep_node_address='10.41.226.226'                     # Node1(Server One) IP
wsrep_node_name='galera01'                             # Node1 Name
wsrep_sst_method=rsync
binlog_format=row
default_storage_engine=InnoDB
innodb_autoinc_lock_mode=2
bind-address=0.0.0.0
```

Node2(Server Two) Galera Cluster

```
# Config node2(Server Two) galera clutser
[root@galera-02 ~]# vi /etc/my.cnf.d/server.cnf

[galera]
# Mandatory settings
wsrep_on=ON
wsrep_provider=/usr/lib64/galera/libgalera_smm.so      #
wsrep_cluster_address='gcomm://10.41.226.226'          # Galera Clustering
IP(node1)
wsrep_cluster_name='cluster'                           # Node1/2
wsrep_node_address='10.41.227.100'                     # Node2(Server One) IP
wsrep_node_name='galera02'                             # Node2 Name
wsrep_sst_method=rsync
binlog_format=row
default_storage_engine=InnoDB
innodb_autoinc_lock_mode=2
bind-address=0.0.0.0
```

Galera Clustering

Node1,2 Clustering

DB가

가 Node1(Server One)

Node 1 Galera Cluster

Node 1,2

node1

cluster

```
# Galera Cluster
[root@galera-01 ~]# service mysql start --wsrep-new-cluster
Starting mysql (via systemctl): [ OK ]

# node1(Server One)
[root@galera-01 ~]# ps -ef | grep mysql
mysql      14773  14619  0 13:30 ?          00:00:00 /usr/sbin/mysqld
--basedir=/usr
--datadir=/var/lib/mysql
--plugin-dir=/usr/lib64/mysql/plugin
--user=mysql
--wsrep_on=ON
--wsrep_provider=/usr/lib64/galera/libgalera_smm.so
--log-error=/var/lib/mysql/galera-01.err
--pid-file=/var/lib/mysql/galera-01.pid
--wsrep_start_position=a4fe716e-a609-11ea-95ab-fa16ac4cfe80:0
```

Node 2 Galera Cluster 가

```
# Galera Cluster
[root@galera-02 ~]# service mysql start
Starting mysql (via systemctl): [ OK ]

# node2(Server Two)
[root@galera-02 ~]# ps -ef | grep mysql
mysql      16041  15887  0 13:46 ?          00:00:00 /usr/sbin/mysqld
--basedir=/usr
--datadir=/var/lib/mysql
--plugin-dir=/usr/lib64/mysql/plugin
--user=mysql
--wsrep_on=ON
--wsrep_provider=/usr/lib64/galera/libgalera_smm.so
--log-error=/var/lib/mysql/galera-02.err
--pid-file=/var/lib/mysql/galera-02.pid
--wsrep_start_position=00000000-0000-0000-0000-000000000000:-1
```

Clustering

MariaDB

Cluster가

Cluster가

. 'wsrep%'

```
# MariaDB
[root@galera-01 ~]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 12
Server version: 10.2.32-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input
statement.
```

```
MariaDB [(none)]> show status like 'wsrep%';
```

Variable_name	Value
wsrep_cluster_status	Primary
wsrep_connected	ON
wsrep_incoming_addresses	10.41.226.226:3306,10.41.227.100:3306
wsrep_local_state_comment	Synced
wsrep_provider_name	Galera
wsrep_ready	ON

DB**sync**

node1 galeradb database

node2

```
# node1      database
[root@galera-01 ~]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 12
Server version: 10.2.32-MariaDB MariaDB Server

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input
statement.
```

```
MariaDB [(none)]> show databases;
```

Database

```
| information_schema |
| mysql              |
| performance_schema |
+-----+
```

```
MariaDB [(none)]> create database galeradb;
Query OK, 1 row affected (0.00 sec)
```

```
MariaDB [(none)]> show databases;
```

```
+-----+
| Database          |
+-----+
| galeradb          |
| information_schema |
| mysql             |
| performance_schema |
+-----+
```

```
4 rows in set (0.00 sec)
```

```
# node2 sync
```

```
[root@galera-02 ~]# mysql -u root -p
```

```
Enter password:
```

```
Welcome to the MariaDB monitor.  Commands end with ; or \g.
```

```
Your MariaDB connection id is 13
```

```
Server version: 10.2.32-MariaDB MariaDB Server
```

```
Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.
```

```
Type 'help;' or '\h' for help. Type '\c' to clear the current input
statement.
```

```
MariaDB [(none)]>
```

```
MariaDB [(none)]>
```

```
MariaDB [(none)]> show databases;
```

```
+-----+
| Database          |
+-----+
| information_schema |
| mysql             |
| performance_schema |
+-----+
```

```
3 rows in set (0.00 sec)
```

```
MariaDB [(none)]> show databases;
```

```
+-----+
| Database          |
+-----+
| galeradb          |
| information_schema |
| mysql             |
| performance_schema |
+-----+
```

```
+-----+
4 rows in set (0.00 sec)
```

* * node1(Server One)

Test가
DB restart 가 node1
wsrep_cluster_address='gcomm://' cluster
IP 가

```
# Config node1(Server One) galera clutser
[root@galera-01 ~]# vi /etc/my.cnf.d/server.cnf

[galera]
# Mandatory settings
wsrep_on=ON
wsrep_provider=/usr/lib64/galera/libgalera_smm.so
wsrep_cluster_address='gcomm://10.41.227.100' # Galera Cluster IP
가
wsrep_cluster_name='cluster'
wsrep_node_address='10.41.226.226'
wsrep_node_name='galera01'
wsrep_sst_method=rsync
binlog_format=row
default_storage_engine=InnoDB
innodb_autoinc_lock_mode=2
bind-address=0.0.0.0
```

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