

## FreeBSD Administration - Support #380

### Installing A MariaDB Galera Node in a FreeNAS Jail

04/28/2014 09:24 PM - Daniel Curtis

<b>Status:</b>	Closed	<b>Start date:</b>	04/28/2014
<b>Priority:</b>	High	<b>Due date:</b>	
<b>Assignee:</b>	Daniel Curtis	<b>% Done:</b>	100%
<b>Category:</b>	Database Server	<b>Estimated time:</b>	3.00 hours
<b>Target version:</b>	FreeNAS 9.x	<b>Spent time:</b>	10.00 hours

#### Description

This guide a is to show how to build MariaDB with WSREP and Galera for a Multi-Master SQL database cluster. It is assumed that a FreeNAS jail has been setup as per Issue [#329](#) and root access has been obtained.

- Update the ports tree:

```
portsnap fetch extract
```

- Once that is done, build mariadb55-server from the ports tree, the uninstall mariadb55-server. This is to resolve the source dependencies for recompiling the MariaDB server later on with wsrep.

```
cd /usr/ports/databases/mariadb55-server
make install clean
make deinstall clean
```

- And now resolve a few dependencies before compiling the new MariaDB server:

```
pkg install bzip2 bison boost-all scons libcheck cmake bash rsync gcc48
```

#### Download and compile MariaDB with wsrep

- Download the latest Galera patched MariaDB from launchpad

```
cd /usr/src
bzip2 -d lp:~maria-captains/maria/maria-5.5-galera maria-5.5-galera
```

- Compile MariaDB with wsrep:

```
cd maria-5.5-galera
cmake . -DBUILD_CONFIG=mysql_release -DWITH_WSREP=ON -DWITH_INNODB_DISALLOW_WRITES=1
make
make install
cd ..
```

#### Download and compile Galera

- Install Galera from the ports tree (recommended)

```
cd /usr/ports/databases/galera
make install clean
```

## Or install from the developers tree:

- Remove any existing galera packages:

```
cd /usr/ports/databases/galera
make deinstall clean
pkg remove galera
cd /usr/src
bash
```

- Modify the build environment

```
export CC=gcc48
export CXX=c++48
export CPP=cpp48
```

- Download galera source

```
bzr branch lp:galera/2.x galera-2.x
cd galera-2.x
bash ./scripts/build.sh
```

- Copy the modules:

```
cp garb/garbd /usr/local/mysql/bin/
cp libgalera_smm.so /usr/local/lib/
```

## Configure mysql

- Copy mysql config sample:

```
cp /usr/local/mysql/support-files/my-small.cnf /usr/local/etc/my.cnf
```

- Edit the mysql config file:

```
vi /usr/local/etc/my.cnf
```

- And add or modify the following:

```
[mysqld]
binlog_format=ROW
default-storage-engine=innodb
innodb_autoinc_lock_mode=2
bind-address=0.0.0.0

# Galera Provider Configuration
wsrep_provider=/usr/local/lib/libgalera_smm.so
wsrep_provider_options="gcache.size=32G"

# Galera Cluster Configuration
wsrep_cluster_name="example_cluster"

# Initialize the cluster; switch after --wsrep-new-cluster has been run and other nodes ha
```

```
ve joined.
wsrep_cluster_address="gcomm://

# Set cluster node addresses (hostnames work too)
#wsrep_cluster_address="gcomm://192.168.0.1,192.168.0.2,192.168.0.3"

# Galera Synchronization Congifuration
wsrep_sst_method=rsync
#wsrep_sst_auth=user:pass

# Galera Node Configuration
wsrep_node_address="192.168.0.1"
wsrep_node_name="db1.example.com"
```

## Setup the boot scripts

- Copy the boot mariadb boot script

```
cp /usr/local/mysql/support-files/mysql.server /usr/local/etc/rc.d/mysql.server.sh
```

- The boot script also needs to be edited, like the following example:

```
vi /usr/local/etc/rc.d/mysql.server.sh
```

- And modify the two configuration parameters:

```
basedir=/usr/local/mysql
datadir=/usr/local/mysql/data
```

- Initialize and secure the MariaDB database

```
cd /usr/local/mysql
/usr/local/mysql/scripts/mysql_install_db
chown -R mysql:mysql data/
```

- Bootstrap the new Galera cluster

```
service mysql.server.sh bootstrap
```

1. The alternate way to bootstrap the cluster is like so:

```
/usr/local/mysql/bin/mysqld --user=mysql --wsrep-new-cluster
```

- Now in a second terminal connection run the `mysql_secure_installation` script to do some post-installation hardening:

```
/usr/local/mysql/bin/mysql_secure_installation
```

- By this point MariaDB should be able to be controlled by the service command:

```
service mysql.server.sh stop
service mysql.server.sh start
```

- Check the wsrep status

```
mysql -uroot -p -e "SHOW STATUS LIKE 'wsrep_%';"
```

## Resources

- <https://mariadb.com/kb/en/getting-the-mariadb-source-code/>
- <https://mariadb.com/kb/en/generic-build-instructions/>
- <https://mariadb.com/kb/en/getting-started-with-mariadb-galera-cluster/>
- <https://code.launchpad.net/maria>
- <http://www.fromdual.ch/building-galera-replication-from-scratch>
- <https://mariadb.com/kb/en/starting-and-stopping-mariadb-automatically/>
- <http://planet.mysql.com/entry/?id=30931>
- <http://galeracluster.com/documentation-webpages/compiling.html>
- <http://www.fromdual.com/building-galera-replication-from-scratch>

## History

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### #1 - 04/28/2014 11:07 PM - Daniel Curtis

- Description updated

- % Done changed from 30 to 70

### #2 - 04/28/2014 11:10 PM - Daniel Curtis

- Description updated

- % Done changed from 70 to 80

### #3 - 04/28/2014 11:12 PM - Daniel Curtis

- Description updated

### #4 - 04/29/2014 07:59 AM - Daniel Curtis

- Description updated

### #5 - 04/29/2014 08:05 AM - Daniel Curtis

- Description updated

### #6 - 04/29/2014 03:51 PM - Daniel Curtis

- Description updated

### #7 - 12/10/2014 02:35 PM - Daniel Curtis

- Project changed from 82 to FreeBSD Administration

- Description updated

### #8 - 12/10/2014 04:12 PM - Daniel Curtis

- Description updated

### #9 - 12/11/2014 11:37 AM - Daniel Curtis

- Description updated

### #10 - 12/13/2014 06:22 PM - Daniel Curtis

- Description updated

- % Done changed from 80 to 90

### #11 - 12/13/2014 08:02 PM - Daniel Curtis

- Description updated

- Status changed from In Progress to Resolved

- % Done changed from 90 to 100

**#12 - 12/15/2014 10:00 AM - Daniel Curtis**

- *Description updated*

**#13 - 12/15/2014 01:23 PM - Daniel Curtis**

- *Description updated*

**#14 - 12/26/2014 07:20 PM - Daniel Curtis**

- *Status changed from Resolved to Closed*

**#15 - 02/14/2015 10:35 AM - Daniel Curtis**

- *Target version set to 5*

**#16 - 02/14/2015 11:25 AM - Daniel Curtis**

- *Category set to Database Server*

**#17 - 02/14/2015 11:25 AM - Daniel Curtis**

- *Target version changed from 5 to FreeNAS 9.x*