

MySQL Replication

Introduction

Replication enables data from one MySQL database server (known as a source) to be copied to one or more MySQL database servers (known as replicas).

In this lab you will prepare and create a replica.

Estimated Lab Time: 25 minutes

Objectives

In this lab, you will:

- Install binaries on a new server
- Have that server act as a Replica

Task 1: Prepare Replica (mysql2)

Note:

- Server: mysql2
- mysql2 doesn't have binaries installed, so first part of the lab installs them. This is the same to first installation of mysql-advanced on mysql1

1. Open an SSH client to app-srv

```
<span style="color:green">shell</span> <copy>ssh -i <private_key_file>  
opc@<your_compute_instance_ip></copy>
```

2. Connect to **mysql2** server through app-srv

```
<span style="color:green">shell-app-srv$</span> <copy>ssh -i  
$HOME/sshkeys/id_rsa_mysql2 opc@mysql2</copy>
```

3. Execute below script that replicate what we did in manual installation lab (create mysqluser/mysqlgrp, folders and install binaries)

```
<span style="color:green">shell-mysql2</span>  
<copy>/workshop/support/MySQL_Replication__Prepare_replica_server.sh</copy>
```

```
<span style="color:green">shell-mysql2</span> <copy>sudo ls -l  
/mysql</copy>
```

4. **Close and reopen the SSH connection to mysql2 server** to let opc user have the new group.

```
<span style="color:green">shell-mysql2</span> <copy>exit</copy>
```

```
<span style="color:green">shell-app-srv$</span> <copy>ssh -i  
$HOME/sshkeys/id_rsa_mysql2 opc@mysql2</copy>
```

Task 2: Create Replica

Note:

- Servers:
 - mysql1 (source)
 - mysql2 (replica)
- Some commands must run inside the source, other on replica: please read carefully the instructions

1. If not already connected, open two connections, one to mysql1 and one to mysql2

```
<span style="color:green">shell-app-srv$</span> <copy>ssh -i  
$HOME/sshkeys/id_rsa_mysql1 opc@mysql1</copy>
```

And in a second shell

```
<span style="color:green">shell-app-srv$</span> <copy>ssh -i  
$HOME/sshkeys/id_rsa_mysql2 opc@mysql2</copy>
```

2. **mysql1 (source):** Create a backup of source in the shared folder to easily restore on the replica:

- take a full backup of the source using MySQL Enterprise Backup in your NFS folder /workshop/backups:

```
<span style="color:green">shell-mysql1</span> <copy>mysqlbackup --port=3307  
--host=127.0.0.1 --user=mysqlbackup --password --backup-  
dir=/workshop/backups/mysql1_source backup</copy>
```

3. **mysql2 (replica):** We now create the my.cnf for second instance.

Please note that the content is like the one on mysql1, except for server_id: it's mandatory that each

server in a replication topology have a unique server id

```
<span style="color:green">shell-mysql2</span> <copy>sudo cp  
/workshop/support/my.cnf.mysql2 /mysql/etc/my.cnf</copy>
```

```
...
```

```
shell-mysql2> sudo nano /mysql/etc/my.cnf
```

```
shell-mysql2> sudo chown mysqluser:mysqlgrp /mysql/etc/my.cnf
```

4. **mysql2 (replica)**: Then restore the backup

- restore the backup from share folder

```
<span style="color:green">shell-mysql2</span> <copy>sudo /mysql/mysql-  
latest/bin/mysqlbackup --defaults-file=/mysql/etc/my.cnf --backup-  
dir=/workshop/backups/mysql1_source copy-back-and-apply-log</copy>
```

```
<span style="color:green">shell-mysql2</span> <copy>sudo chown -R  
mysqluser:mysqlgrp /mysql</copy>
```

- start the new replica instance it and verify that it works (hostname have to be mysql2).

Don't make any change to the instance content!

```
<span style="color:green">shell-mysql2</span> <copy>sudo systemctl  
start mysqld-advanced</copy>
```

```
<span style="color:green">shell-mysql2</span> <copy>mysqlsh  
admin@mysql2:3307</copy>
```

```
<span style="color:blue">mysql-replica</span> <copy>SELECT @@hostname;
</copy>
```

```
<span style="color:blue">mysql-replica</span> <copy>SHOW DATABASES;
</copy>
```

5. mysql1 (source): Create the replication user

```
<span style="color:green">shell-mysql1</span> <copy>mysqlsh
admin@mysql1:3307</copy>
```

```
<span style="color:blue">mysql-source</span> <copy>CREATE USER 'repl'@'%'
IDENTIFIED BY 'Welcome1!' REQUIRE SSL;</copy>
```

```
<span style="color:blue">mysql-source</span> <copy>GRANT REPLICATION SLAVE
ON *.* TO 'repl'@'%';</copy>
```

6. mysql2 (replica): Time to connect and start the replica

- Configure the replica connection.

```
<span style="color:blue">mysql-replica</span> <copy>CHANGE REPLICATION
SOURCE TO SOURCE_HOST='mysql1', SOURCE_PORT=3307,SOURCE_USER='repl',
SOURCE_PASSWORD='Welcome1!', SOURCE_AUTO_POSITION=1, SOURCE_SSL=1;</copy>
```

- Start the replica threads

```
<span style="color:blue">mysql-replica</span> <copy>START REPLICA;</copy>
```

- Verify replica status, e.g. that IO_Thread and SQL_Thread are started searching the value with the following command (in case of problems check error log)

```
<span style="color:blue">mysql-replica</span> <copy>SHOW REPLICA
STATUS\G</copy>
```

7. mysql1 (source): Let's test that data are replicated. Connect to source and make some changes

```
<span style="color:blue">mysql-source</span> <copy>CREATE DATABASE newdb;  
</copy>
```

```
<span style="color:blue">mysql-source</span> <copy>USE newdb;</copy>
```

```
<span style="color:blue">mysql-source</span> <copy>CREATE TABLE t1 (c1 int  
primary key);</copy>
```

```
<span style="color:blue">mysql-source</span> <copy>INSERT INTO t1  
VALUES(1);</copy>
```

```
<span style="color:blue">mysql-source</span> <copy>INSERT INTO t1  
VALUES(2);</copy>
```

```
<span style="color:blue">mysql-source</span> <copy>DROP DATABASE employees;  
</copy>
```

8. **mysql2 (replica)**: Verify that the new database and table is on the replica, to do so connect to replica and submit

```
<span style="color:blue">mysql-replica</span> <copy>SHOW DATABASES;</copy>
```

```
<span style="color:blue">mysql-replica</span> <copy>SELECT * FROM newdb.t1;  
</copy>
```

Acknowledgements

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- **Last Updated By/Date** - Perside Foster, Partner Solutions Engineer, November 2024