How to Implement GTID Replication in MySQL 5.6

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Abdel-Mawla Gharieb

MySQL Support Engineer

abdel-mawla.gharieb@fromdual.com

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What is GTID ?

What is GTID ?

GTID is a global transaction identifier which consists of two parts separated by a column:

{source_id:transaction_id}

source_id: server's UUID.

transaction_id: sequence number.

```
b9b4712a-df64-11e3-b391-60672090eb04:3
```

GTID Benefits

GTID Benefits

- Setting up MySQL replication is so simple now!

- Consistency is guaranteed between master and slaves.

- Simple to determine inconsistency

- Fail-over process become much easier.

- Automatic fail-over script is not a pain now.

GTID Important Variables

GTID Important Variables

- **gtid-mode:** ON|OFF

- **enforce-gtid-consistency:** prevent executing the non-transactionally safe statements.

- **gtid-purged:** transactions have been purged from the binary logs.

- **gtid-executed:** transactions already executed on the server.

- **gtid-next:** GTID for the next transaction.

GTID Replication Implementation
(Fresh installation)

GTID Replication Implementation

- **Master's side configurations.**

- **Slave's side configurations.**

Master's side configurations

- **Add the following variables to my.cnf:**

```
[mysqld]

server-id        = 1
log-bin          = mysql-bin
binlog_format    = ROW
gtid_mode        = on
enforce_gtid_consistency
log_slave_updates
```

Master's side configurations

- **Restart MySQL to apply the configuration changes:**

```
shell> service mysql restart
```

- Create a MySQL user to be used by the slave:

```
SQL> GRANT REPLICATION SLAVE ON *.* TO
     'slave_user_name'@'slave_ip'
     IDENTIFIED BY 's3cret';
```

Slave's side configurations

- **Add the following variables to my.cnf:**

```
[mysqld]

server_id       = 2
log_bin         = mysql-bin
binlog_format   = ROW
skip_slave_start
gtid_mode       = on
enforce_gtid_consistency
log_slave_updates
```

Slave's side configurations

- **Restart MySQL to apply the configuration changes:**

```
shell> service mysql restart
```

- **Execute the CHANGE MASTER TO command:**

```
SQL> CHANGE MASTER TO
     MASTER_HOST='master_ip',
     MASTER_PORT=3306,
     MASTER_USER='slave_user_name',
     MASTER_PASSWORD='s3cret',
     MASTER_AUTO_POSITION=1;
```

Slave's side configurations

- **Start the replication:**

```
SQL> START SLAVE;
```

Checking the replication !!

- **Check the replication status:**

```
SQL> SHOW SLAVE STATUS\G
              Slave_IO_State: Waiting for master to send event
                 Master_Host: 127.0.0.1
                 Master_User: gtid_repl
                 Master_Port: 3320
        . . .

           Slave_IO_Running: Yes
          Slave_SQL_Running: Yes
        . . .

          Retrieved_Gtid_Set: b9b4712a-df64-11e3-b391-60672090eb04:1-2
          Executed_Gtid_Set: b9b4712a-df64-11e3-b391-60672090eb04:1-2
              Auto_Position: 1
```

Adding new slave to a GTID Replication

Adding new slave to GTID Replication

- Backup the master server:

```
shell> mysqldump -u root -p --all-databases –flush-privileges --single-transaction
--flush-logs --triggers --routines --events –hex-blob >
/path/to/backupdir/full_backup-$TIMESTAMP.sql
```

- Modify the new slave's my.cnf as described above.

- Restore the master backup file on the slave.

- Use change master to with **MASTER_AUTO_POSITION=1**

- Start the slave.

Adding new slave to GTID Replication

- mysqldump knows about GTID !!

```
--
-- GTID state at the beginning of the backup
--

SET @@GLOBAL.GTID_PURGED='b9b4712a-df64-11e3-b391-60672090eb04:1-7';
```

Q & A

Questions ?

Discussion?

We have time for some face-to-face talks...

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