Database Replication from Production to DR (MySQL)

Step-by-Step Process to Replicate MySQL Database from Production (Prod) to Disaster Recovery (DR)

Step 1: Pre-requisites

1. Two MySQL servers:
   - Production (Master): Main database server.
   - Disaster Recovery (Slave): Backup database server for replication.
2. Network connectivity: Ensure both servers can communicate with each other.
3. Same MySQL version for compatibility.

Step 2: Backup Production Database

1. Lock the Production Database (Optional but Recommended):

```
FLUSH TABLES WITH READ LOCK;
```

2. Check the current binary log file and position:

```
SHOW MASTER STATUS;
```

3. Create a Backup (Using mysqldump):

```
mysqldump -u root -p --all-databases --master-data=2 --single-transaction --quick --flush-logs --triggers --routines --events > prod_backup.sql
```

4. Unlock the Production Database:

```
UNLOCK TABLES;
```

Step 3: Restore Backup on DR Server

1. Copy prod_backup.sql to the DR server.

2. Restore the backup:

```
mysql -u root -p < prod_backup.sql
```

Step 4: Configure the Master (Production Server)

1. Edit the my.cnf (MySQL configuration file):

```
[mysqld]
log-bin=mysql-bin
server-id=1
```

2. Restart MySQL:

```
sudo systemctl restart mysql
```

Step 5: Configure the Slave (DR Server)

1. Edit the my.cnf file on the DR server:

```
[mysqld]
server-id=2
relay-log=relay-bin
log-bin=mysql-bin
```

2. Restart MySQL:

```
sudo systemctl restart mysql
```

Step 6: Set Up Replication on the DR Server

1. Configure replication:

```
CHANGE MASTER TO MASTER_HOST='PROD_IP', MASTER_USER='replica_user', MASTER_PASSWORD='replica_password', MASTER_LOG_FILE='mysql-bin.000001', MASTER_LOG_POS=1203;
```

2. Start Replication:

START SLAVE;

3. Verify Replication:

SHOW SLAVE STATUS\G;

Step 7: Monitor Replication

1. Periodically check the slave status:

SHOW SLAVE STATUS\G;

2. Monitor logs for replication issues.

Step 8: Test Failover (Optional)

To simulate failover, shut down the production server and ensure DR server has the latest data.