

SISTEM TERDISTRIBUSI

“Membuat Replikasi Master-Slave untuk Database MySQL atau MariaDB”



Disusun oleh :

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PROGRAM STUDI SISTEM KOMPUTER

FAKULTAS ILMU KOMPUTER

UNIVERSITAS SRIWIJAYA

PALEMBANG

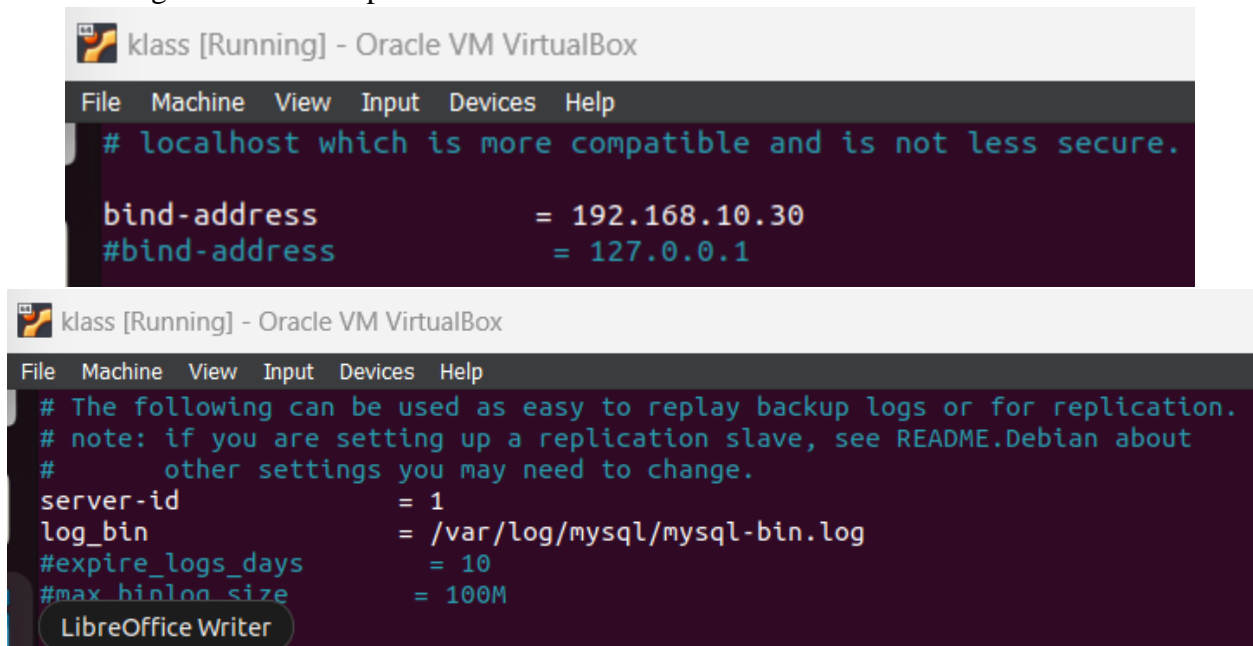
2023/2024

Perangkat yang digunakan pada percobaan replikasi:

1. Linux Ubuntu
2. MySql / MariaDB
3. IP Master: 192.168.10.30
4. IP Slave: 192.168.10.32

Konfigurasi Server MariaDB Master

Ubah konfigurasi MariaDB pada CLI



The first screenshot shows the terminal window titled 'klass [Running] - Oracle VM VirtualBox'. The terminal output displays the configuration for the 'bind-address' parameter, showing it is set to '192.168.10.30' and the commented-out default '127.0.0.1'.

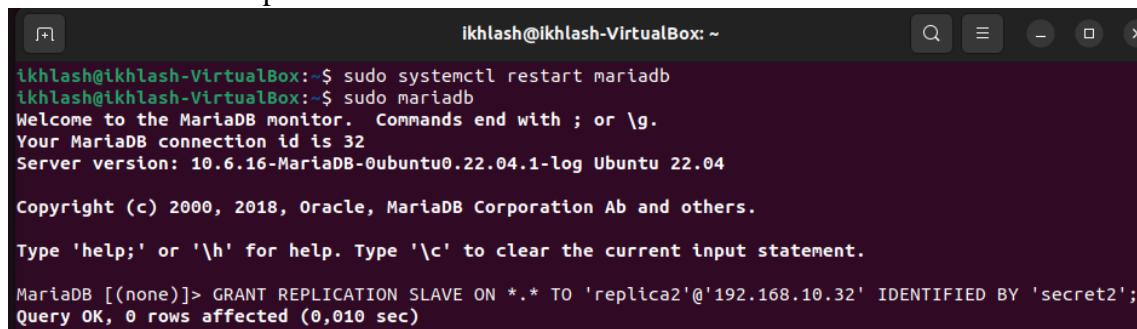
```
File Machine View Input Devices Help
# localhost which is more compatible and is not less secure.

bind-address            = 192.168.10.30
#bind-address           = 127.0.0.1
```

The second screenshot shows the same terminal window with more configuration details. It includes comments about backup logs and replication, and sets 'server-id' to 1, 'log_bin' to '/var/log/mysql/mysql-bin.log', 'expire_logs_days' to 10, and 'max_binlog_size' to 100M.

```
File Machine View Input Devices Help
# The following can be used as easy to replay backup logs or for replication.
# note: if you are setting up a replication slave, see README.Debian about
#      other settings you may need to change.
server-id               = 1
log_bin                 = /var/log/mysql/mysql-bin.log
#expire_logs_days       = 10
#max_binlog_size        = 100M
```

Buat user untuk akses replikasi



The screenshot shows a terminal window titled 'ikhlash@ikhlash-VirtualBox: ~'. The user runs 'sudo systemctl restart mariadb' and 'sudo mariadb'. The terminal output shows the MariaDB monitor welcome message, connection ID 32, and server version 10.6.16-MariaDB-0ubuntu0.22.04.1-log Ubuntu 22.04. The user then enters the command 'GRANT REPLICATION SLAVE ON *.* TO 'replica2'@'192.168.10.32' IDENTIFIED BY 'secret2';' and the query is successful.

```
ikhlash@ikhlash-VirtualBox: ~
ikhlash@ikhlash-VirtualBox:~$ sudo systemctl restart mariadb
ikhlash@ikhlash-VirtualBox:~$ sudo mariadb
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 32
Server version: 10.6.16-MariaDB-0ubuntu0.22.04.1-log Ubuntu 22.04

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)]> GRANT REPLICATION SLAVE ON *.* TO 'replica2'@'192.168.10.32' IDENTIFIED BY 'secret2';
Query OK, 0 rows affected (0,010 sec)
```

Kunci database agar tidak ada perubahan pada saat konfigurasi replikasi, Menampilkan status master. File dan Position dibutuhkan pada saat konfigurasi Slave.

```
ikhlash@ikhlash-VirtualBox: ~  
  
MariaDB [(none)]>  
MariaDB [(none)]> FLUSH PRIVILEGES;  
Query OK, 0 rows affected (0,001 sec)  
  
MariaDB [(none)]> SHOW MASTER STATUS;  
+-----+-----+-----+-----+  
| File           | Position | Binlog_Do_DB | Binlog_Ignore_DB |  
+-----+-----+-----+-----+  
| mysql-bin.000001 |        654 |              |                  |  
+-----+-----+-----+-----+  
1 row in set (0,000 sec)
```

Konfigurasi Server MariaDB Slave

Mengubah konfigurasi MariaDB

```
klass2@klass2-VirtualBox: ~  
GNU nano 6.2 /etc/mysql/mariadb.conf.d/50-server.cnf  
# Instead of skip-networking the default is now to listen only on  
# localhost which is more compatible and is not less secure.  
bind-address            = 192.168.10.132  
  
klass2@klass2-VirtualBox: ~  
GNU nano 6.2 /etc/mysql/mariadb.conf.d/50-server.cnf  
## The following can be used as easy to replay backup logs or for replica  
# note: if you are setting up a replication slave, see README.Debian about  
# other settings you may need to change.  
server-id               = 2  
log_bin                 = /var/log/mysql/mysql-bin.log  
#expire_logs_days       = 10  
#max_binlog_size        = 100M
```

Konfigurasi koneksi ke Master

```
klass2@klass2-VirtualBox: ~  
MariaDB [(none)]> CHANGE MASTER TO MASTER_HOST='192.168.10.30',MASTER_USER='replica2',MASTER_PASSWORD='secret2',MASTER_LOG_FILE='mysql-bin.000001',MASTER_LOG_POS=654;  
Query OK, 0 rows affected (0,164 sec)
```

Jalankan slave dan Tampilkan status slave

```
klass2@klass2-VirtualBox: ~  
MariaDB [(none)]> SHOW SLAVE STATUS\G;  
***** 1. row *****  
Slave_IO_State:  
  Master_Host: 192.168.10.30  
  Master_User: replica2  
  Master_Port: 3306  
  Connect_Retry: 60  
  Master_Log_File: mysql-bin.000001  
  Read_Master_Log_Pos: 654  
  Relay_Log_File: mysqld-relay-bin.000001  
  Relay_Log_Pos: 4  
  Relay_Master_Log_File: mysql-bin.000001  
  Slave_IO_Running: No  
  Slave_SQL_Running: No  
  Replicate_Do_DB:  
  Replicate_Ignore_DB:  
  Replicate_Do_Table:  
  Replicate_Ignore_Table:  
  Replicate_Wild_Do_Table:  
  Replicate_Wild_Ignore_Table:  
    Last_Errno: 0  
    Last_Error:  
    Skip_Counter: 0  
  Exec_Master_Log_Pos: 654  
  Relay_Log_Space: 256  
  Until_Condition: None  
  Until_Log_File:  
  Until_Log_Pos: 0  
  Master_SSL_Allowed: No  
  Master_SSL_CA_File:  
  Master_SSL_CA_Path:  
  Master_SSL_Cert:  
  Master_SSL_Cipher:  
  Master_SSL_Key:  
  Seconds_Behind_Master: NULL  
  Master_SSL_Verify_Server_Cert: No
```

Pengujian

Pembuatan Database CRUD Record Pada Server Master.

```
MariaDB [(none)]> SHOW DATABASES;  
+-----+  
| Database |  
+-----+  
| information_schema |  
| mysql |  
| performance_schema |  
| sys |  
+-----+  
4 rows in set (0,015 sec)
```

```
MariaDB [(none)]> CREATE DATABASE klass2003;  
Query OK, 1 row affected (0,002 sec)  
  
MariaDB [(none)]> SHOW DATABASES;  
+-----+  
| Database |  
+-----+  
| information_schema |  
| klass2003 |  
| mysql |  
| performance_schema |  
| sys |  
+-----+  
5 rows in set (0,000 sec)
```

Setiap selesai menjalankan satu perintah pada server Master periksa server Slave apakah ada terjadi hal yang sama pada server Master.

```
MariaDB [(none)]> SHOW DATABASES;  
+-----+  
| Database |  
+-----+  
| information_schema |  
| klass2003 |  
| mysql |  
| performance_schema |  
| sys |  
+-----+  
5 rows in set (0,000 sec)
```

Tampilan database pada Slave