

SISTEM TERDISTRIBUSI

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



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PROGRAM STUDI SISTEM KOMPUTER

FAKULTAS ILMU KOMPUTER

UNIVERSITAS SRIWIJAYA

PALEMBANG

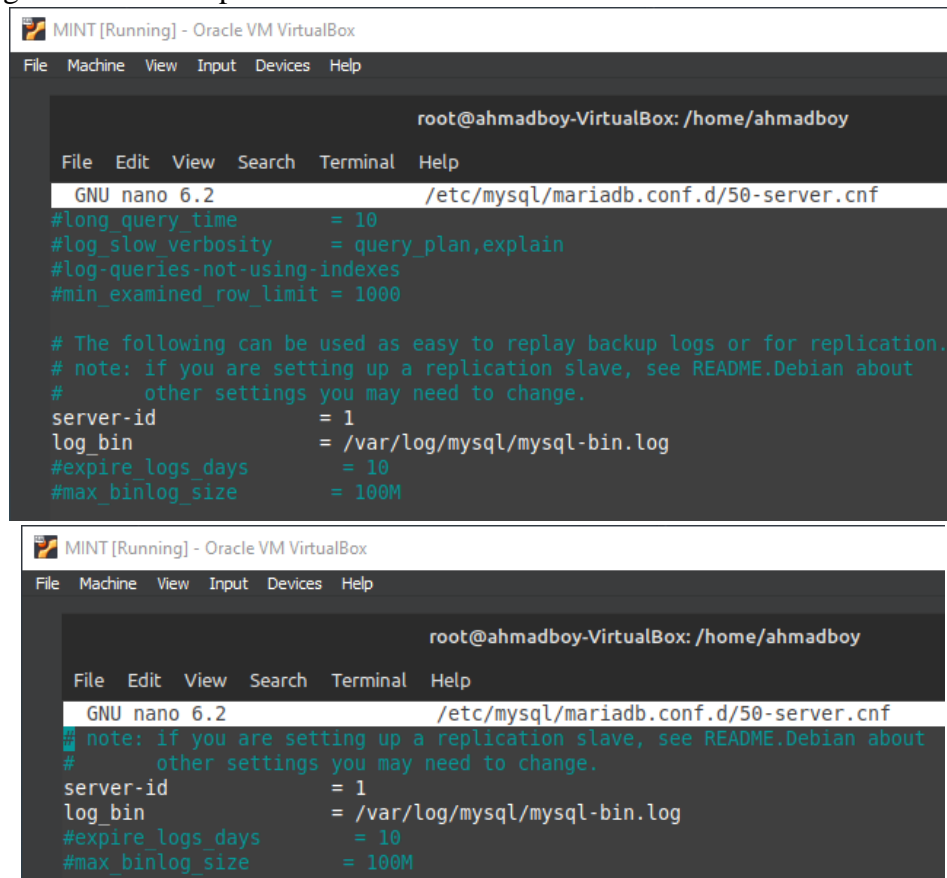
2023/2024

Perangkat yang digunakan pada percobaan replikasi:

1. Linux Mint
2. MySql / MariaDB
3. IP Master: 192.168.100.87
4. IP Slave: 192.168.100.86

Konfigurasi Server MariaDB Master

Ubah konfigurasi MariaDB pada CLI



The image shows two screenshots of a terminal window running Oracle VM VirtualBox with a Linux Mint guest. The terminal is at the root user's home directory. The first screenshot shows the nano editor editing the file /etc/mysql/mariadb.conf.d/50-server.cnf. The configuration includes settings for long_query_time, log_slow_verbosity, log_queries_not_using_indexes, min_examined_row_limit, server-id, log_bin, expire_logs_days, and max_binlog_size. The second screenshot shows the same file after some changes, with the log_bin path updated to /var/log/mysql/mysql-bin.log.

```
MINT [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

root@ahmadboy-VirtualBox: /home/ahmadboy

File Edit View Search Terminal Help
GNU nano 6.2 /etc/mysql/mariadb.conf.d/50-server.cnf
#long_query_time = 10
#log_slow_verbosity = query_plan,explain
#log_queries_not_using_indexes
#min_examined_row_limit = 1000

# 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

MINT [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

root@ahmadboy-VirtualBox: /home/ahmadboy

File Edit View Search Terminal Help
GNU nano 6.2 /etc/mysql/mariadb.conf.d/50-server.cnf
# 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

```
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 37
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'@'192.168.100.86' IDENTIFIED BY 'secret2';
```

Kunci database agar tidak ada perubahan pada saat konfigurasi replikasi

```
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
MariaDB [(none)]>
MariaDB [(none)]> GRANT REPLICATION SLAVE ON *.* TO 'replica2'@'192.168.100.86' IDENTIFIED BY 'secret2';
MariaDB [(none)]>
MariaDB [(none)]> FLUSH PRIVILEGES;
```

Menampilkan status master. File dan Position dibutuhkan pada saat konfigurasi Slave.

```
MariaDB [(none)]> SHOW MASTER STATUS;
```

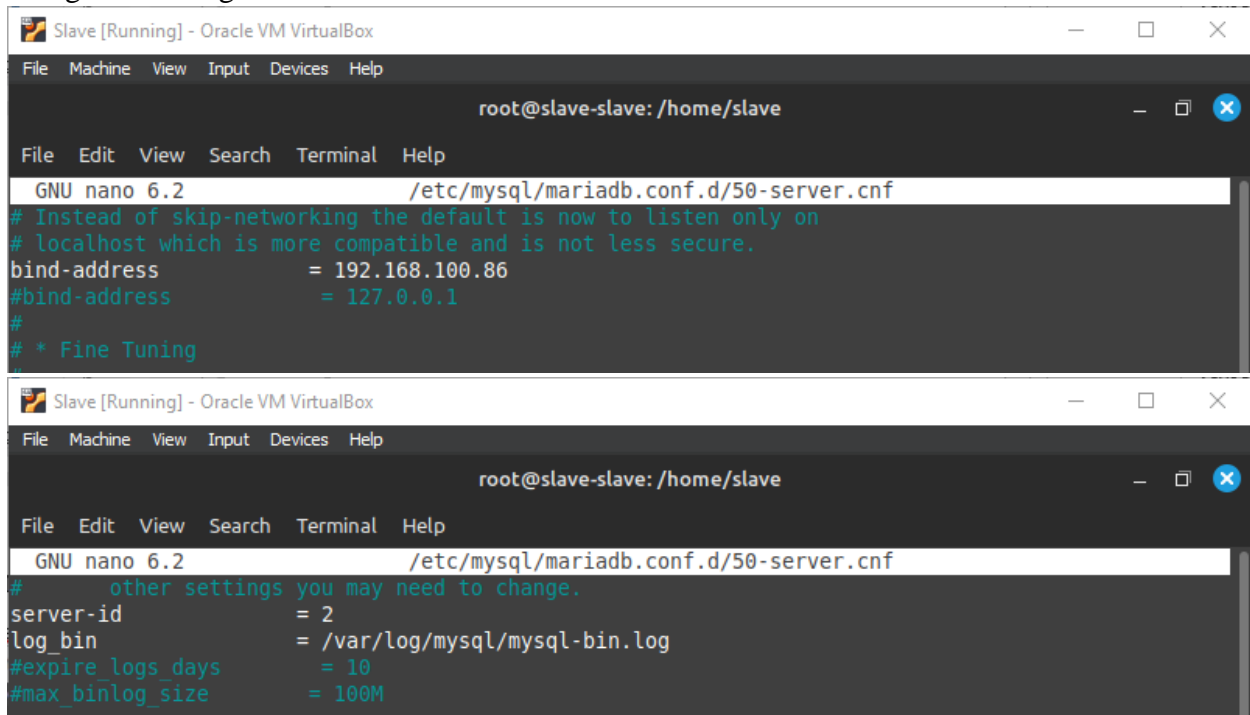
File	Position	Binlog_Do_DB	Binlog_Ignore_DB
mysql-bin.000005	669		

```
1 row in set (0,000 sec)

MariaDB [(none)]> |
```

Konfigurasi Server MariaDB Slave

Mengubah konfigurasi MariaDB



```
Slave [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

root@slave-slave: /home/slave

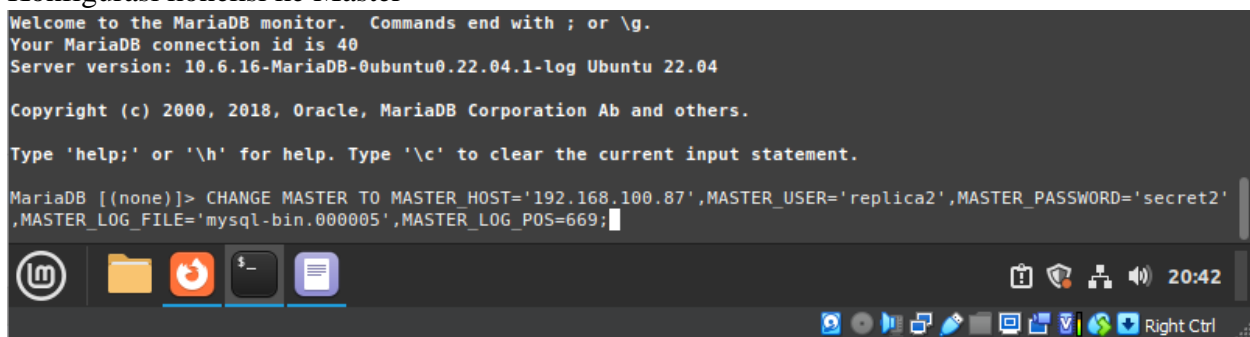
File Edit View Search Terminal Help
GNU nano 6.2 /etc/mysql/mariadb.conf.d/50-server.cnf
# Instead of skip-networking the default is now to listen only on
# localhost which is more compatible and is not less secure.
bind-address          = 192.168.100.86
#bind-address         = 127.0.0.1
#
# * Fine Tuning
#

Slave [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

root@slave-slave: /home/slave

File Edit View Search Terminal Help
GNU nano 6.2 /etc/mysql/mariadb.conf.d/50-server.cnf
# 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



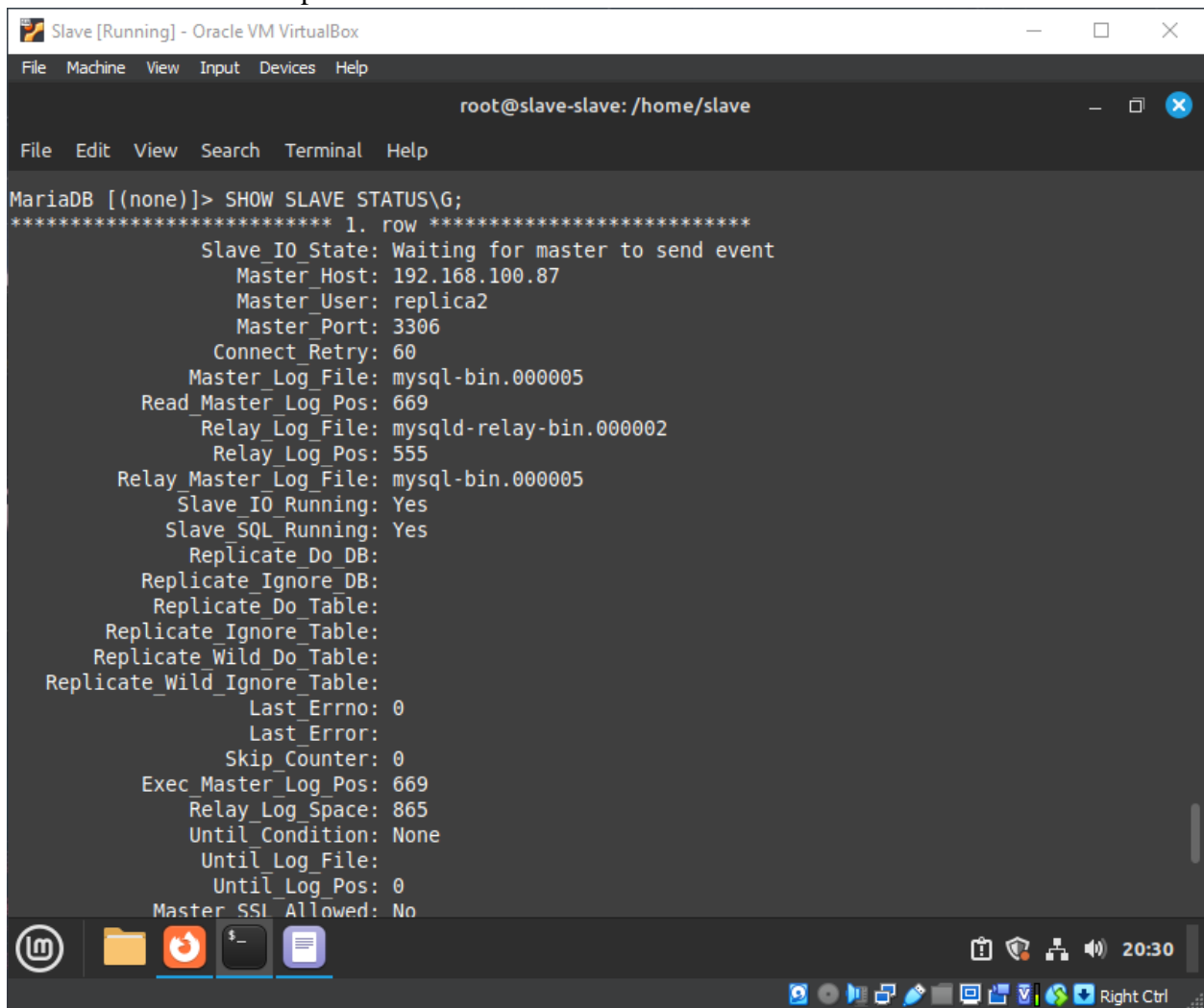
```
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 40
Server version: 10.6.16-MariaDB-0ubuntu0.22.04.1-log Ubuntu 22.04

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)]> CHANGE MASTER TO MASTER_HOST='192.168.100.87',MASTER_USER='replica2',MASTER_PASSWORD='secret2',MASTER_LOG_FILE='mysql-bin.000005',MASTER_LOG_POS=669;
```

Jalankan slave dan Tampilkan status slave



The screenshot shows a terminal window titled "Slave [Running] - Oracle VM VirtualBox". The terminal prompt is "root@slave-slave: /home/slave". The user has entered the command "MariaDB [(none)]> SHOW SLAVE STATUS\G;". The output displays the status of the slave, including its state (Waiting for master to send event), master host (192.168.100.87), master user (replica2), master port (3306), and various log files and positions. The slave is running, and the replication process is active.

```
Slave [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

root@slave-slave: /home/slave
File Edit View Search Terminal Help

MariaDB [(none)]> SHOW SLAVE STATUS\G;
***** 1. row *****
Slave_IO_State: Waiting for master to send event
Master_Host: 192.168.100.87
Master_User: replica2
Master_Port: 3306
Connect_Retry: 60
Master_Log_File: mysql-bin.000005
Read_Master_Log_Pos: 669
Relay_Log_File: mysqld-relay-bin.000002
Relay_Log_Pos: 555
Relay_Master_Log_File: mysql-bin.000005
Slave_IO_Running: Yes
Slave_SQL_Running: Yes
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: 669
Relay_Log_Space: 865
Until_Condition: None
Until_Log_File:
Until_Log_Pos: 0
Master_Ssl_Allowed: No
```

Pengujian

Pembuatan Database CRUD Record Pada Server Master.

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

```
MariaDB [(none)]> CREATE DATABASE percobaan_boyl;
Query OK, 1 row affected (0,001 sec)

MariaDB [(none)]> SHOW DATABASES;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| percobaan_boyl |
| performance_schema |
| sys |
+-----+
5 rows in set (0,001 sec)

MariaDB [(none)]>
```

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 |
| mysql |
| percobaan_boyl |
| performance_schema |
| sys |
+-----+
5 rows in set (0,094 sec)

MariaDB [(none)]>
```

Tampilan database pada Slave