

# Лабораторная работа 6

---

Генералов Даниил, НПИбд-01-21, 1032202280

2023

<sup>1</sup>RUDN University, Moscow, Russian Federation

## Задача

---

1. Установите необходимые для работы MariaDB пакеты (см. раздел 6.4.1).

1. Установите необходимые для работы MariaDB пакеты (см. раздел 6.4.1).
2. Настройте в качестве кодировки символов по умолчанию utf8 в базах данных.

1. Установите необходимые для работы MariaDB пакеты (см. раздел 6.4.1).
2. Настройте в качестве кодировки символов по умолчанию utf8 в базах данных.
3. В базе данных MariaDB создайте тестовую базу addressbook, содержащую таблицу city с полями name и city, т.е., например, для некоторого сотрудника указан город, в котором он работает (см. раздел 6.4.1).

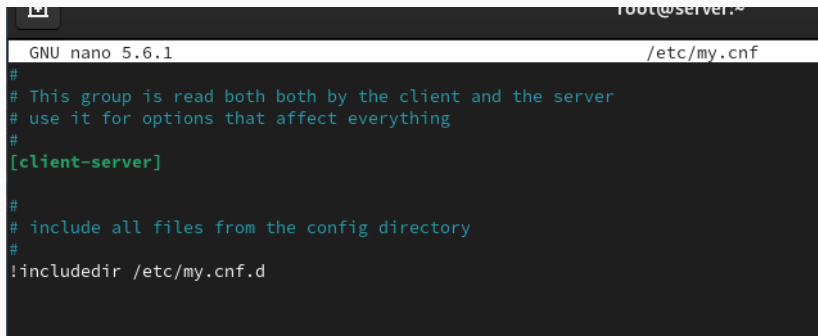
1. Установите необходимые для работы MariaDB пакеты (см. раздел 6.4.1).
2. Настройте в качестве кодировки символов по умолчанию utf8 в базах данных.
3. В базе данных MariaDB создайте тестовую базу addressbook, содержащую таблицу city с полями name и city, т.е., например, для некоторого сотрудника указан город, в котором он работает (см. раздел 6.4.1).
4. Создайте резервную копию базы данных addressbook и восстановите из неё данные (см. раздел 6.4.1).

1. Установите необходимые для работы MariaDB пакеты (см. раздел 6.4.1).
2. Настройте в качестве кодировки символов по умолчанию utf8 в базах данных.
3. В базе данных MariaDB создайте тестовую базу addressbook, содержащую таблицу city с полями name и city, т.е., например, для некоторого сотрудника указан город, в котором он работает (см. раздел 6.4.1).
4. Создайте резервную копию базы данных addressbook и восстановите из неё данные (см. раздел 6.4.1).
5. Напишите скрипт для Vagrant, фиксирующий действия по установке и настройке базы данных MariaDB во внутреннем окружении виртуальной машины server. Соответствующим образом внести изменения в Vagrantfile (см. раздел 6.4.5).

## Выполнение

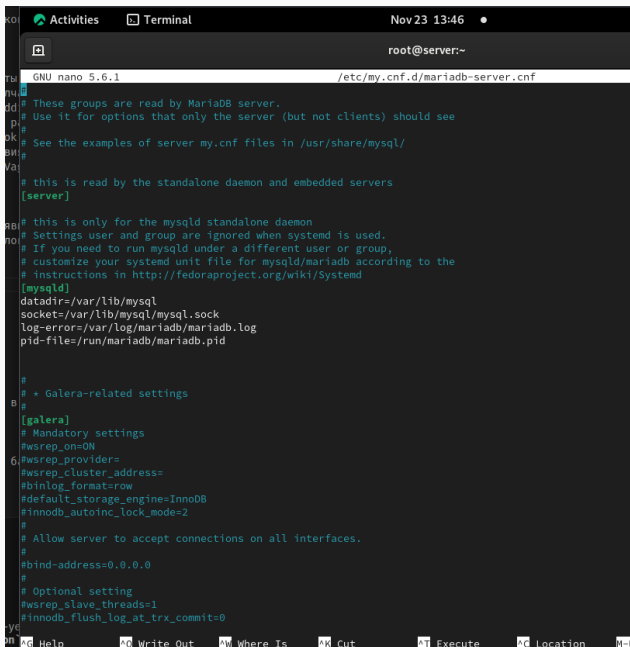
---





```
root@server:~
GNU nano 5.6.1 /etc/my.cnf
#
# This group is read both both by the client and the server
# use it for options that affect everything
#
[client-server]
#
# include all files from the config directory
#
!includedir /etc/my.cnf.d
```

Рис. 1: mariadb



```
Activities Terminal Nov 23 13:46
root@server:~
GNU nano 5.6.1 /etc/my.cnf.d/mariadb-server.cnf
# These groups are read by MariaDB server.
# Use it for options that only the server (but not clients) should see
#
# See the examples of server my.cnf files in /usr/share/mysql/
#
# this is read by the standalone daemon and embedded servers
[server]
# this is only for the mysqld standalone daemon
# Settings user and group are ignored when systemd is used.
# If you need to run mysqld under a different user or group,
# customize your systemd unit file for mysqld/mariadb according to the
# instructions in http://fedoraproject.org/wiki/Systemd
[mysqld]
datadir=/var/lib/mysql
socket=/var/lib/mysql/mysql.sock
log-error=/var/log/mariadb/mariadb.log
pid-file=/run/mariadb/mariadb.pid
#
# * Galera-related settings
#
[galera]
# Mandatory settings
wsrep_on=ON
wsrep_provider=
wsrep_cluster_address=
binlog_format=row
default_storage_engine=InnoDB
innodb_autoinc_lock_mode=2
#
# Allow server to accept connections on all interfaces.
#
bind-address=0.0.0.0
#
# Optional setting
wsrep_slave_threads=1
innodb_flush_log_at_trx_commit=0
```

```
root@server ~]# nano /etc/my.cnf.d/mariadb-server.cnf
root@server ~]# systemctl enable --now mariadb
Created symlink /etc/systemd/system/mysql.service → /usr/lib/systemd/system/mariadb.service.
Created symlink /etc/systemd/system/mysqld.service → /usr/lib/systemd/system/mariadb.service.
Created symlink /etc/systemd/system/multi-user.target.wants/mariadb.service → /usr/lib/systemd/system/mariadb.service.
root@server ~]# ss -tulpen | grep mysql
root@server ~]# ss -tulpen | grep maria
cp LISTEN 0      80          *:*        users:((("mariadb",pid=9676,fd=16)) uid:27 ino:42012 sk:13 cgroup
:/system.slice/mariadb.service v6only:0 <->
root@server ~]# mysql_secure_installation
```

```
NOTE: RUNNING ALL PARTS OF THIS SCRIPT IS RECOMMENDED FOR ALL MariaDB
SERVERS IN PRODUCTION USE! PLEASE READ EACH STEP CAREFULLY!
```

In order to log into MariaDB to secure it, we'll need the current password for the root user. If you've just installed MariaDB, and haven't set the root password yet, you should just press enter here.

Enter current password for root (enter for none):  
OK, successfully used password, moving on...

Setting the root password or using the unix\_socket ensures that nobody can log into the MariaDB root user without the proper authorisation.

You already have your root account protected, so you can safely answer 'n'.

Switch to unix\_socket authentication [Y/n] y  
Enabled successfully!  
Reloading privilege tables..  
... Success!

You already have your root account protected, so you can safely answer 'n'.

Change the root password? [Y/n] y  
New password:  
Re-enter new password:  
Password updated successfully!  
Reloading privilege tables..  
... Success!

By default, a MariaDB installation has an anonymous user, allowing anyone to log into MariaDB without having to have a user account created for them. This is intended only for testing, and to make the installation

```
[root@server ~]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 13
Server version: 10.5.22-MariaDB MariaDB Server

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)]> SHOW DATABASES;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
+-----+
3 rows in set (0.001 sec)

MariaDB [(none)]> exit;
Bye
[root@server ~]#
```

Рис. 4: mariadb

```
root@server:~  
Connection: Localhost via UNIX socket  
Server characterset: latin1  
Db characterset: latin1  
Client characterset: utf8  
Conn. characterset: utf8  
UNIX socket: /var/lib/mysql/mysql.sock  
Uptime: 5 min 5 sec  
  
Threads: 1 Questions: 29 Slow queries: 0 Opens: 20 Open tables: 13 Queries per second avg  
-----  
MariaDB [(none)]> exit  
Bye  
[root@server ~]# cat > /etc/my.cnf.d/utf8.cnf  
[client]  
default-character-set = utf8  
[mysqld]  
character-set-server = utf8  
[root@server ~]# systemctl restart mariadb  
[root@server ~]# mysql -u root -p  
Enter password:  
Welcome to the MariaDB monitor. Commands end with ; or \g.  
Your MariaDB connection id is 3  
Server version: 10.5.22-MariaDB MariaDB Server  
  
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)]> status  
-----  
mysql Ver 15.1 Distrib 10.5.22-MariaDB, for Linux (x86_64) using EditLine wrapper  
  
Connection id: 3  
Current database:  
Current user: root@localhost  
SSL: Not in use  
Current pager: stdout  
Using outfile: ''  
Using delimiter: ;  
Server: MariaDB  
Server version: 10.5.22-MariaDB MariaDB Server  
Protocol version: 10  
Connection: Localhost via UNIX socket  
Server characterset: utf8
```

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

```
MariaDB [(none)]> CREATE DATABASE addressbook CHARACTER SET utf8 COLLATE utf8_general_ci;
Query OK, 1 row affected (0.000 sec)
```

```
MariaDB [(none)]> USE addressbook;
Database changed
MariaDB [addressbook]> SHOW TABLES;
Empty set (0.000 sec)
```

```
MariaDB [addressbook]> CREATE TABLE city(name VARCHAR(40), city VARCHAR(40));
Query OK, 0 rows affected (0.006 sec)
```

```
MariaDB [addressbook]> INSERT INTO city VALUES ('Иванов', 'Москва') ('Петров','Сочи') ('Сидоров','Дубна');
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MariaDB server version for the
right syntax to use near '('Петров','Сочи') ('Сидоров','Дубна')' at line 1
MariaDB [addressbook]> INSERT INTO city VALUES ('Иванов', 'Москва'), ('Петров','Сочи'), ('Сидоров','Дубна');
Query OK, 3 rows affected (0.007 sec)
Records: 3 Duplicates: 0 Warnings: 0
```

```
MariaDB [addressbook]> SELECT * FROM city;
```

name	city
Иванов	Москва
Петров	Сочи
Сидоров	Дубна

3 rows in set (0.001 sec)

```
MariaDB [addressbook]> CREATE USER dmgeneralov@%' IDENTIFIED BY 'dmgeneralov';
Query OK, 0 rows affected (0.004 sec)
```

```
MariaDB [addressbook]> GRANT SELECT,INSERT,UPDATE,DELETE ON addressbook.* TO dmgeneralov@'%';
Query OK, 0 rows affected (0.003 sec)
```

```
MariaDB [addressbook]> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.001 sec)
```

```
MariaDB [addressbook]> DESCRIBE city;
```

Field	Type	Null	Key	Default	Extra
name	varchar(40)	YES		NULL	
city	varchar(40)	YES		NULL	

2 rows in set (0.002 sec)

```
MariaDB [addressbook]>
```

```
[root@server ~]# mysqlshow -u root -p
Enter password:
+-----+
| Databases |
+-----+
| addressbook |
| information_schema |
| mysql |
| performance_schema |
+-----+
[root@server ~]# mysqlshow -u root -p addressbook
Enter password:
Database: addressbook
+-----+
| Tables |
+-----+
| city |
+-----+
[root@server ~]# mysqlshow -u dmgeneralov -p addressbook
Enter password:
Database: addressbook
+-----+
| Tables |
+-----+
| city |
+-----+
[root@server ~]#
```

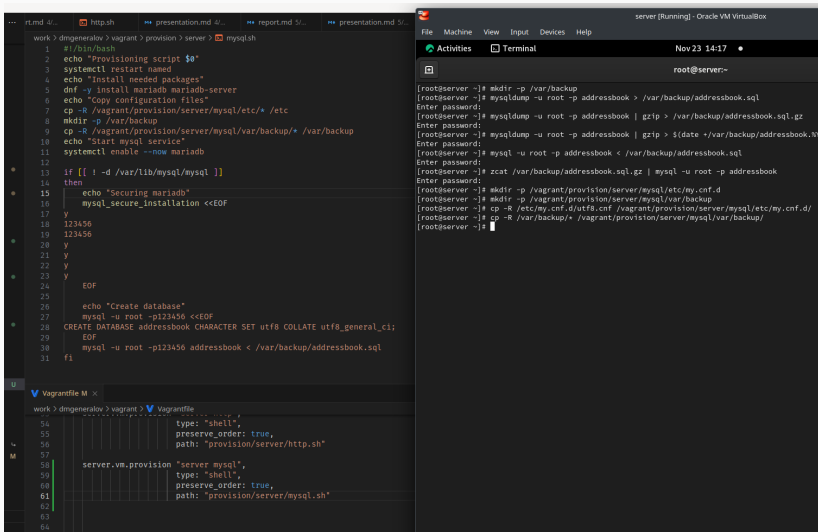


Рис. 8: vagrant



*Я получил опыт настройки и использования СУБД MariaDB.*