

# Администрирование сетевых подсистем

## Лабораторная работа №6

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## Цель работы

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Приобретение практических навыков по установке, настройке и администрированию СУБД MariaDB.

## Выполнение лабораторной работы

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# Установка пакетов

```
Installed:
  mariadb-3:10.11.11-1.el10.x86_64
  mariadb-client-utils-3:10.11.11-1.el10.x86_64
  mariadberrmsg-3:10.11.11-1.el10.noarch
  mariadb-server-3:10.11.11-1.el10.x86_64
  mysql-selinux-1.0.14-1.el10_0.noarch
  perl-Sys-Hostname-1.25-512.2.el10_0.x86_64

  mariadb-backup-3:10.11.11-1.el10.x86_64
  mariadb-common-3:10.11.11-1.el10.noarch
  mariadb-gssapi-server-3:10.11.11-1.el10.x86_64
  mariadb-server-utils-3:10.11.11-1.el10.x86_64
  perl-DBD-MariaDB-1.23-10.el10.x86_64

Complete!
[root@server.chileshe.net ~]#
[root@server.chileshe.net ~]# ls /etc/my.cnf.d/
auth_gssapi.cnf  enable_encryption.preset  mysql-clients.cnf  provider_lz4.cnf  provider_snappy.cnf
client.cnf        mariadb-server.cnf       provider_bzip2.cnf  provider_lzo.cnf  spider.cnf
[root@server.chileshe.net ~]# cat /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

[root@server.chileshe.net ~]# systemctl start mariadb
[root@server.chileshe.net ~]# systemctl enable 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.servi
ce'.
[root@server.chileshe.net ~]# ss -tulpn | grep maria
tcp    LISTEN  0          0.0.0.0:3306          0.0.0.0:*      users:(("mariadb",pid=10990,fd=16))
                                                uid:27  ino:54644 sk:14 cgroup:/system.slice
/mariadb.service <-
tcp    LISTEN  0          [::]:3306           [::]:*      users:(("mariadb",pid=10990,fd=17))
                                                uid:27  ino:54645 sk:21 cgroup:/system.slice
/mariadb.service v6only:1 <-
[root@server.chileshe.net ~]#
```

# Установка пакетов

```
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
go a bit smoother. You should remove them before moving into a
production environment.
```

```
Remove anonymous users? [Y/n]
... Success!
```

```
Normally, root should only be allowed to connect from 'localhost'. This
ensures that someone cannot guess at the root password from the network.
```

```
Disallow root login remotely? [Y/n]
... Success!
```

```
By default, MariaDB comes with a database named 'test' that anyone can
access. This is also intended only for testing, and should be removed
before moving into a production environment.
```

```
Remove test database and access to it? [Y/n]
- Dropping test database...
... Success!
- Removing privileges on test database...
... Success!
```

```
Reloading the privilege tables will ensure that all changes made so far
will take effect immediately.
```

```
Reload privilege tables now? [Y/n]
... Success!
```

```
Cleaning up...
```

```
All done! If you've completed all of the above steps, your MariaDB
installation should now be secure.
```

```
Thanks for using MariaDB!
```

```
[root@server chilesha.net ~]#
```

# Скрипт mysql\_secure\_installation

```
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
go a bit smoother. You should remove them before moving into a
production environment.
```

```
Remove anonymous users? [Y/n]
... Success!
```

```
Normally, root should only be allowed to connect from 'localhost'. This
ensures that someone cannot guess at the root password from the network.
```

```
Disallow root login remotely? [Y/n]
... Success!
```

```
By default, MariaDB comes with a database named 'test' that anyone can
access. This is also intended only for testing, and should be removed
before moving into a production environment.
```

```
Remove test database and access to it? [Y/n]
- Dropping test database...
... Success!
- Removing privileges on test database...
... Success!
```

```
Reloading the privilege tables will ensure that all changes made so far
will take effect immediately.
```

```
Reload privilege tables now? [Y/n]
... Success!
```

```
Cleaning up...
```

```
All done! If you've completed all of the above steps, your MariaDB
installation should now be secure.
```

```
Thanks for using MariaDB!
```

```
[root@server chileshe.net ~]#
```

# Просмотр баз данных

```
charset  (\C) Switch to another charset. Might be needed for processing binlog with multi-byte charsets.
clear    (\c) Clear the current input statement.
connect  (\r) Reconnect to the server. Optional arguments are db and host.
delimiter (\d) Set statement delimiter.
edit     (\e) Edit command with $EDITOR.
ego      (\G) Send command to MariaDB server, display result vertically.
exit     (\q) Exit mysql. Same as quit.
go       (\g) Send command to MariaDB server.
help     (\h) Display this help.
nopager  (\n) Disable pager, print to stdout.
notee    (\t) Don't write into outfile.
nowarning (\w) Don't show warnings after every statement.
pager    (\P) Set PAGER [to_pager]. Print the query results via PAGER.
print    (\p) Print current command.
prompt   (\R) Change your mysql prompt.
quit     (\q) Quit mysql.
rehash   (\#) Rebuild completion hash.
sandbox  (\-) Disallow commands that access the file system (except \P without an argument and \e).
source   (\.) Execute an SQL script file. Takes a file name as an argument.
status   (\s) Get status information from the server.
system   (\!) Execute a system shell command.
tee      (\T) Set outfile [to_outfile]. Append everything into given outfile.
use     (\u) Use another database. Takes database name as argument.
warnings (\W) Show warnings after every statement.
```

**For server side help, type 'help contents'**

```
MariaDB [(none)]> SHOW DATABASES;
```

Database
information_schema
mysql
performance_schema
sys

```
4 rows in set (0.000 sec)
```

```
MariaDB [(none)]>
```

## Статус MariaDB

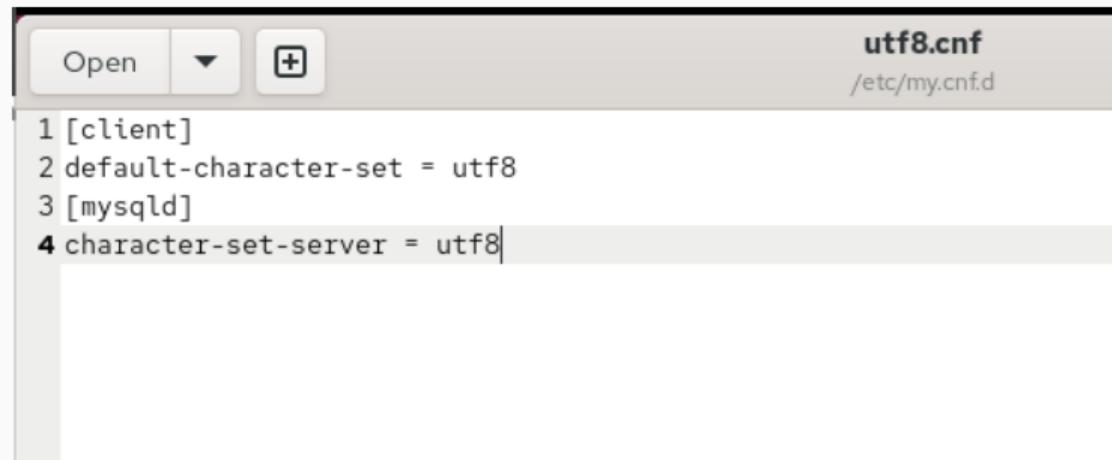
```
mysql [root@localhost] MariaDB [(none)]> status
-----
mysql Ver 15.1 Distrib 10.11.11-MariaDB, for Linux (x86_64) using EditLine wrapper

Connection id:          13
Current database:
Current user:           root@localhost
SSL:                   Not in use
Current pager:          stdout
Using outfile:
Using delimiter:         ;
Server:                 MariaDB
Server version:          10.11.11-MariaDB MariaDB Server
Protocol version:        10
Connection:              Localhost via UNIX socket
Server characterset:     latin1
Db      characterset:    latin1
Client characterset:     utf8mb3
Conn.   characterset:    utf8mb3
UNIX socket:             /var/lib/mysql/mysql.sock
Uptime:                 3 min 45 sec

Threads: 1  Questions: 25  Slow queries: 0  Opens: 20  Open tables: 13  Queries per second avg: 0.111
-----
MariaDB [(none)]>
```

Рис. 5: Статус MariaDB

## Создание файла utf8.cnf



The screenshot shows a file editor window titled "utf8.cnf" located at "/etc/my.cnf.d". The window has standard operating system controls for "Open", a dropdown menu, and a "+" button. The file content is displayed in a text area:

```
1 [client]
2 default-character-set = utf8
3 [mysqld]
4 character-set-server = utf8
```

Рис. 6: utf8.cnf

# Проверка изменений

```
[root@server.chileshe.net my.cnf.d]# systemctl restart mariadb
[root@server.chileshe.net my.cnf.d]# mysql -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 3
Server version: 10.11.11-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 10.11.11-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:          10.11.11-MariaDB MariaDB Server
Protocol version:        10
Connection:              Localhost via UNIX socket
Server characterset:     utf8mb3
Db    characterset:      utf8mb3
Client characterset:     utf8mb3
Conn. characterset:      utf8mb3
UNIX socket:             /var/lib/mysql/mysql.sock
Uptime:                  14 sec

Threads: 1  Questions: 4  Slow queries: 0  Opens: 17  Open tables: 10  Queries per second avg: 0.285
-----
MariaDB [(none)]>
```

## Создание таблицы и данных

```
MariaDB [(none)]> CREATE DATABASE addressbook CHARACTER SET utf8 COLLATE utf8_general_ci;
Query OK, 1 row affected (0.001 sec)

MariaDB [(none)]> USE addressbook;
Database changed
MariaDB [addressbook]> SHOW TABLES;
Empty set (0.001 sec)

MariaDB [addressbook]> CREATE TABLE city(name VARCHAR(40), city VARCHAR(40));
Query OK, 0 rows affected (0.007 sec)

MariaDB [addressbook]> INSERT INTO city(name, city) VALUES ('Иванов', 'Москва');
Query OK, 1 row affected (0.005 sec)

MariaDB [addressbook]> INSERT INTO city(name, city) VALUES ('Петров', 'Сочи');
Query OK, 1 row affected (0.004 sec)

MariaDB [addressbook]> INSERT INTO city(name, city) VALUES ('Сидоров', 'Дубна');
Query OK, 1 row affected (0.008 sec)

MariaDB [addressbook]> SELECT * FROM city;
+-----+-----+
| name      | city      |
+-----+-----+
| Иванов    | Москва    |
| Петров    | Сочи     |
| Сидоров   | Дубна    |
+-----+-----+
3 rows in set (0.000 sec)

MariaDB [addressbook]>
```

## Создание пользователя

```
MariaDB [addressbook]> CREATE USER chileshe@'%' IDENTIFIED BY '123456';
Query OK, 0 rows affected (0.001 sec)

MariaDB [addressbook]> GRANT SELECT,CREATE,INSERT,UPDATE<DELETE on addressbook.* TO chileshe@'%';
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 '<DELETE on addressbook.* TO chileshe@'%' at line 1
MariaDB [addressbook]> GRANT SELECT,CREATE,INSERT,UPDATE,DELETE on addressbook.* TO chileshe@'%';
Query OK, 0 rows affected (0.001 sec)

MariaDB [addressbook]> FLUSH PRIVILEGES;
Query OK, 0 rows affected (0.000 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 (0.001 sec)

MariaDB [addressbook]>
```

Рис. 9: Создание пользователя

## Создание каталога

```
[root@server.chileshe.net my.cnf.d]#  
[root@server.chileshe.net my.cnf.d]# mkdir -p /var/backup  
[root@server.chileshe.net my.cnf.d]# mysqldump -u root -p addressbook > /var/backup/addressbook.sql  
Enter password:  
[root@server.chileshe.net my.cnf.d]# mysqldump -u root -p addressbook | gzip > /var/backup/addressbook.sql.gz  
Enter password:  
[root@server.chileshe.net my.cnf.d]# mysqldump -u root -p addressbook | gzip > $(date +/var/backup/addressbook.%Y%m%d.%H%M%S.sql.gz)  
Enter password:  
[root@server.chileshe.net my.cnf.d]# mysql -u root -p addressbook < /var/backup/addressbook.sql  
Enter password:  
[root@server.chileshe.net my.cnf.d]# zcat /var/backup/addressbook.sql.gz | mysql -u root -p addressbook  
Enter password:  
[root@server.chileshe.net my.cnf.d]#
```

Рис. 10: Каталог backup

## Вывод

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## Вывод

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MariaDB была успешно установлена и настроена, создана база данных addressbook, выполнено управление пользователями и привилегиями, разработаны резервные копии и проверено восстановление. Конфигурации интегрированы в Vagrant, что обеспечивает автоматизированное развертывание окружения.