

Администрирование сетевых подсистем

Лабораторная работа №6

Машков И. Е.

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Российский университет дружбы народов, Москва, Россия

Информация

- Машков Илья Евгеньевич
- Студент 3-го курса, группа НФИбд-02-23
- Российский университет дружбы народов
- 1132231984@pfur.ru
- <https://github.com/7S7eVe7N7>

Приобретение практических навыков по установке и конфигурированию системы управления базами данных на примере программного обеспечения MariaDB.

Выполнение лабораторной работы

```

user@server ~]$ sudo -i
[sudo] password for user:
[root@server ~]# dnf -y install mariadb mariadb-server
Extra Packages for Enterprise Linux 9 - x86_64 9.7 kB/s | 35 kB 00:03
Extra Packages for Enterprise Linux 9 - x86_64 2.3 MB/s | 20 MB 00:08
Rocky Linux 9 - BaseOS 735 B/s | 4.3 kB 00:06
Rocky Linux 9 - BaseOS 5.1 MB/s | 6.3 MB 00:01
Rocky Linux 9 - AppStream 15 kB/s | 4.8 kB 00:00
Rocky Linux 9 - AppStream 6.7 MB/s | 11 MB 00:01
Rocky Linux 9 - Extras 10 kB/s | 3.1 kB 00:00
Rocky Linux 9 - Extras 45 kB/s | 16 kB 00:00
Dependencies resolved.
=====
Package Arch Version Repository Size
=====
Installing:
mariadb x86_64 3:10.5.27-1.el9_5.0.2 appstream 1.6 M
mariadb-server x86_64 3:10.5.27-1.el9_5.0.2 appstream 9.7 M
Upgrading:
selinux-policy noarch 38.1.65-1.el9 baseos 42 k
selinux-policy-targeted noarch 38.1.65-1.el9 baseos 6.5 M
Installing dependencies:
mariadb-common x86_64 3:10.5.27-1.el9_5.0.2 appstream 27 k
mariadb-errmsg x86_64 3:10.5.27-1.el9_5.0.2 appstream 211 k
mysql-selinux noarch 1.0.14-1.el9_6 appstream 36 k
perl-DBD-MariaDB x86_64 1.21-17.el9 appstream 149 k
Installing weak dependencies:
mariadb-backup x86_64 3:10.5.27-1.el9_5.0.2 appstream 6.5 M
mariadb-gssapi-server x86_64 3:10.5.27-1.el9_5.0.2 appstream 14 k
mariadb-server-utils x86_64 3:10.5.27-1.el9_5.0.2 appstream 210 k
Transaction Summary
=====
Install 9 Packages
Upgrade 2 Packages

```

Рис. 1: Установка пакетов

Выполнение лабораторной работы

```
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] n
... skipping.

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

Change the root password? [Y/n] n
... skipping.

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] y
... 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] y
... 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] y
- 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] y
... 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 ~]# cat /etc/cnf.d/
```

Рис. 2: Скрипт безопасности mariadb

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

Рис. 3: Создание БД

Выполнение лабораторной работы

```
MariaDB [addressbook]> CREATE TABLE city(name VARCHAR(40), city VARCHAR(40));
Query OK, 0 rows affected (0.009 sec)

MariaDB [addressbook]> INSERT INTO city(name,city) VALUES ('Иванов','Москва');
Query OK, 1 row affected (0.002 sec)

MariaDB [addressbook]> INSERT INTO city(name,city) VALUES ('Петров','Сочи');
Query OK, 1 row affected (0.002 sec)

MariaDB [addressbook]> INSERT INTO city(name,city) VALUES ('Сидоров','Дубна');
Query OK, 1 row affected (0.002 sec)

MariaDB [addressbook]> SELECT * FROM city;
+-----+-----+
| name      | city    |
+-----+-----+
| Иванов    | Москва  |
| Петров    | Сочи    |
| Сидоров   | Дубна   |
+-----+-----+
3 rows in set (0.001 sec)

MariaDB [addressbook]>
```

Рис. 4: Заполнение строк таблицы и обращение к ней


```
MariaDB [addressbook]> CREATE USER user@'%' IDENTIFIED BY 'password';
Query OK, 0 rows affected (0.002 sec)

MariaDB [addressbook]> GRANT SELECT,INSERT,UPDATE,DELETE ON addressbook.* TO user@'%';
Query OK, 0 rows affected (0.002 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 (0.001 sec)

MariaDB [addressbook]> █
```

Рис. 5: Настройка пользователя для работы с БД и просмотр общей информации

Выполнение лабораторной работы

```
[root@server my.cnf.d]# cd ~
[root@server ~]# mkdir -p /var/backup
[root@server ~]#
[root@server ~]# mysqldump -u root -p addressbook > /var/backup/addressbook.sql
Enter password:
[root@server ~]# mysqldump -u root -p addressbook | gzip > /var/backup/addressbook.sql.gz
Enter password:
[root@server ~]# mysqldump -u root -p addressbook | gzip > $(date +%Y%m%d.%H%M%S).sql.gz
-bash: $(date +%Y%m%d.%H%M%S).sql.gz: No such file or directory
-bash: $(date +%Y%m%d.%H%M%S).sql.gz): ambiguous redirect
Enter password:
mysqldump: Got errno 32 on write
[root@server ~]# mysqldump -u root -p addressbook | gzip > $(date
+/var/backup/addressbook.%Y%m%d.%H%M%S.sql.gz)
-bash: +/var/backup/addressbook.%Y%m%d.%H%M%S.sql.gz: No such file or directory
-bash: $(date
+/var/backup/addressbook.%Y%m%d.%H%M%S.sql.gz): ambiguous redirect
Enter password:
mysqldump: Got errno 32 on write
[root@server ~]# mysqldump -u root -p addressbook | gzip > $(date
+/var/backup/addressbook.%Y%m%d.%H%M%S.sql.gz)
-bash: +/var/backup/addressbook.%Y%m%d.%H%M%S.sql.gz: No such file or directory
Enter password: -bash: $(date
+/var/backup/addressbook.%Y%m%d.%H%M%S.sql.gz): ambiguous redirect

mysqldump: Got errno 32 on write
[root@server ~]# mysqldump -u root -p addressbook | gzip > $(date +%Y%m%d.%H%M%S).sql.gz)
Enter password:
[root@server ~]# mysqldump -u root -p addressbook | gzip > $(date +%Y%m%d.%H%M%S).sql.gz)
Enter password:
[root@server ~]# mysqldump -u root -p addressbook | gzip > $(date +%Y%m%d.%H%M%S).sql.gz)
Enter password:
[root@server ~]# mysql -u root -p addressbook < /var/backup/addressbook.sql
Enter password:
[root@server ~]# zcat /var/backup/addressbook.sql.gz | mysql -u root -p addressbook
Enter password:
[root@server ~]# cd /var/backup
[root@server backup]# ls -l
total 20
-rw-r--r--. 1 root root 797 Dec 15 19:25 addressbook.20251215.192509.sql.gz
-rw-r--r--. 1 root root 797 Dec 15 19:25 addressbook.20251215.192519.sql.gz
-rw-r--r--. 1 root root 797 Dec 15 19:25 addressbook.20251215.192535.sql.gz
-rw-r--r--. 1 root root 1997 Dec 15 19:22 addressbook.sql
-rw-r--r--. 1 root root 797 Dec 15 19:22 addressbook.sql.gz
[root@server backup]#
```

Рис. 6: Работа с резервными копиями

```
GNU nano 5.6.1 mysql.sh
#!/bin/bash

echo "Provisioning script $0"

systemctl restart named

echo "Install needed packages"
dnf -y install mariadb mariadb-server

echo "Copy configuration files"
cp -R /vagrant/provision/server/mysql/etc/* /etc
mkdir -p /var/backup
cp -R /vagrant/provision/server/mysql/var/backup/* /var/backup

echo "Start mysql service"
systemctl enable mariadb
systemctl start mariadb

if [[ ! -d /var/lib/mysql/mysql ]]
then
echo "Securing mariadb"
mysql_secure_installation <<EOF
Y
2005
2005
Y
Y
Y
Y
EOF

echo "Create database"
mysql -u root -p2005 <<EOF
CREATE DATABASE addressbook CHARACTER SET utf8 COLLATE utf8_general_ci;
EOF
mysql -u root -p2005 addressbook < /var/backup/addressbook.sql

fi
```

Рис. 7: mysql.sh

```
server.vm.provision "server mysql",  
  type: "shell",  
  preserve_order: true,  
  path: "provision/server/mysql.sh"
```

Рис. 8: Изменения Vagrantfile

В процессе выполнения лабораторной работы я получил практические навыки по установке и конфигурированию системы управления базами данных на примере программного обеспечения MariaDB.