

DATABASE'S

1. [PART_1.](#)
2. [PART_2 – DUMP, RDS.](#)
3. [PART_3 – MongoDB.](#)

PART 1

1. Download MySQL server for your OS on VM(CentOS 7.9).

◀ MySQL Yum Repository

Repository Setup Packages

Red Hat Enterprise Linux 9 / Oracle Linux 9 (Architecture Independent), RPM Package (mysql80-community-release-el9-1.noarch.rpm)	10.3K	Download
Red Hat Enterprise Linux 8 / Oracle Linux 8 (Architecture Independent), RPM Package (mysql80-community-release-el8-4.noarch.rpm)	14.1K	Download
Red Hat Enterprise Linux 7 / Oracle Linux 7 (Architecture Independent), RPM Package (mysql80-community-release-el7-7.noarch.rpm)	10.9K	Download

CentOS-7.9 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Applications Places Terminal

en Tue 7:09 AM

yevhen_yakymov@thestig:~

File Edit View Search Terminal Help

```
+ ~ wget https://dev.mysql.com/get/mysql80-community-release-el7-7.noarch.rpm
--2022-10-18 07:05:34-- https://dev.mysql.com/get/mysql80-community-release-el7-7.noarch.rpm
Resolving dev.mysql.com (dev.mysql.com)... 92.123.2.30, 2a02:26f0:d8:39e::2e31, 2a02:26f0:d8:383::2e31
Connecting to dev.mysql.com (dev.mysql.com)|92.123.2.30|:443... connected.
HTTP request sent, awaiting response... 302 Moved Temporarily
Location: https://repo.mysql.com//mysql80-community-release-el7-7.noarch.rpm [following]
--2022-10-18 07:05:35-- https://repo.mysql.com//mysql80-community-release-el7-7.noarch.rpm
Resolving repo.mysql.com (repo.mysql.com)... 2.18.68.230
Connecting to repo.mysql.com (repo.mysql.com)|2.18.68.230|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 11196 (11K) [application/x-redhat-package-manager]
Saving to: 'mysql80-community-release-el7-7.noarch.rpm'

100%[=====] 11,196
--K/s in 0s

2022-10-18 07:05:35 (91.0 MB/s) - 'mysql80-community-release-el7-7.noarch.rpm' saved [11196/11196]
```

```
+ ~ sudo rpm -Uvh mysql80-community-release-el7-7.noarch.rpm
[sudo] password for yevhen_yakymov:
Preparing... ##### [100%]
package mysql80-community-release-el7-7.noarch is already installed
```

```
+ ~ sudo systemctl status mysqld
● mysqld.service - MySQL Server
   Loaded: loaded (/usr/lib/systemd/system/mysqld.service; enabled; vendor preset: disabled)
   Active: active (running) since Tue 2022-10-18 06:34:32 EEST; 38min ago
     Docs: man:mysqld(8)
           http://dev.mysql.com/doc/refman/en/using-systemd.html
  Process: 1281 ExecStartPre=/usr/bin/mysqld_pre_systemd (code=exited, status=0/SUCCESS)
 Main PID: 1957 (mysqld)
    Status: "Server is operational"
      Tasks: 38
   CGroup: /system.slice/mysqld.service
           └─1957 /usr/sbin/mysqld

Oct 18 06:34:25 thestig systemd[1]: Starting MySQL Server...
Oct 18 06:34:32 thestig systemd[1]: Started MySQL Server.
```

2. Install MySQL server on VM Ubuntu 22.04 (for exapmle, because I have MYSQL installed on my main VM CentOS 7.9) .

```
~ sudo dpkg -i mysql-apt-config_0.8.23-1_all.deb
Selecting previously unselected package mysql-apt-config.
(Reading database ... 36134 files and directories currently installed.)
Preparing to unpack mysql-apt-config_0.8.23-1_all.deb ...
Unpacking mysql-apt-config (0.8.23-1) ...
Setting up mysql-apt-config (0.8.23-1) ...
Warning: apt-key should not be used in scripts (called from postinst maintainerscript of the package mysql-apt-config)
Warning: apt-key is deprecated. Manage keyring files in trusted.gpg.d instead (see apt-key(8)).
OK
```

```
Configuring mysql-apt-config
MySQL APT Repo features MySQL Server along with a variety of MySQL components. You may select the
appropriate product to choose the version that you wish to receive.

Once you are satisfied with the configuration then select last option 'Ok' to save the configuration, then
run 'apt-get update' to load package list. Advanced users can always change the configurations later,
depending on their own needs.

Which MySQL product do you wish to configure?

MySQL Server & Cluster (Currently selected: mysql-8.0)
MySQL Tools & Connectors (Currently selected: Enabled)
MySQL Preview Packages (Currently selected: Disabled)
Ok
```

```
~ sudo apt-get update
Get:1 http://repo.mysql.com/apt/ubuntu jammy InRelease [15.2 kB]
Get:2 http://repo.mysql.com/apt/ubuntu jammy/mysql-8.0 Sources [964 B]
Hit:3 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:4 http://repo.mysql.com/apt/ubuntu jammy/mysql-8.0 amd64 Packages [8,545 B]
Get:5 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:6 http://repo.mysql.com/apt/ubuntu jammy/mysql-tools amd64 Packages [7,841 B]
Get:7 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [114 kB]
Get:8 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [99.8 kB]
Get:9 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [374 kB]
Get:10 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [636 kB]
Get:11 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [84.9 kB]
Get:12 http://security.ubuntu.com/ubuntu jammy-security/restricted amd64 Packages [339 kB]
Get:13 http://archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [148 kB]
Get:14 http://security.ubuntu.com/ubuntu jammy-security/restricted Translation-en [52.2 kB]
Get:15 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadata [9,100 B]
```

```
~ sudo apt-get install mysql-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following package was automatically installed and is no longer required:
  libfreetype6
Use 'sudo apt autoremove' to remove it.
The following additional packages will be installed:
  libmecab2 mecab-ipadic mecab-ipadic-utf8 mecab-utils mysql-client mysql-common mysql-community-client
mysql-community-client-core mysql-community-client-plugins mysql-community-server mysql-community-server-core
The following NEW packages will be installed:
  libmecab2 mecab-ipadic mecab-ipadic-utf8 mecab-utils mysql-client mysql-common mysql-community-client
mysql-community-client-core mysql-community-client-plugins mysql-community-server mysql-community-server-core
mysql-server
0 upgraded, 12 newly installed, 0 to remove and 64 not upgraded.
Need to get 37.9 MB of archives.
After this operation, 272 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
```

```
Configuring mysql-community-server
Now that you have selected a password for the root account, please confirm by typing it again. Do not share the
password with anyone.

Re-enter root password:
*****
<Ok>
```

3. Select a subject area and describe the database schema, (minimum 3 tables)

*** The database schema is fictional and not tied to any real case**

	A	B	C
1	id	host_name	ip
2	1	host_1	192.167.43.58
3	2	host_2	142.250.75.14
4	3	host_3	128.33.67.25
5	4	host_4	192.168.1.213
6	5	host_5	184.35.72.95
7	6	host_6	192.168.23.78
8	7	host_7	104.30.244.2
9	8	host_8	192.168.0.1
10	9	host_9	172.18.54.141
11	10	host_10	128.255.75.3

	A	B	C
1	id	user_name	
2	1	user_1	
3	2	user_2	
4	3	user_3	
5	4	user_4	
6	5	user_5	
7	6	user_6	
8	7	user_7	
9	8	user_8	
10	9	user_9	
11	10	user_10	

	A	B	C	D
1	id	user_id	host_id	port
2	1	2	1	22
3	2	3	10	22
4	3	1	6	2222
5	4	8	7	23
6	5	9	9	2323
7	6	4	4	22
8	7	6	2	2323
9	8	5	8	2222
10	9	7	3	23
11	10	10	5	22

4. Create a database on the server through the console

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
4 rows in set (0.00 sec)

mysql> CREATE DATABASE sshconnectdb;
Query OK, 1 row affected (0.01 sec)

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sshconnectdb |
| sys |
+-----+
5 rows in set (0.01 sec)
```

```
mysql> CREATE TABLE remotehost (
  -> id INT NOT NULL AUTO_INCREMENT PRIMARY KEY,
  -> host_name VARCHAR(30) NOT NULL,
  -> ip VARCHAR(20) NOT NULL
  -> );
Query OK, 0 rows affected (0.15 sec)
```

```
mysql> CREATE TABLE user (
  -> id INT NOT NULL AUTO_INCREMENT PRIMARY KEY,
  -> user_name VARCHAR(30) NOT NULL
  -> );
Query OK, 0 rows affected (0.07 sec)
```

```
mysql> CREATE TABLE ssh (
  -> id INT NOT NULL AUTO_INCREMENT PRIMARY KEY,
  -> user_id INT NOT NULL,
  -> host_id INT NOT NULL,
  -> port INT NOT NULL,
  -> FOREIGN KEY (user_id) REFERENCES user(id),
  -> FOREIGN KEY (host_id) REFERENCES remotehost(id)
  -> );
Query OK, 0 rows affected (0.13 sec)
```

```
mysql> SHOW TABLES;
+-----+
| Tables_in_sshconnectdb |
+-----+
| remotehost |
| ssh |
| user |
+-----+
3 rows in set (0.00 sec)
```


5. Fill in tables.

```
mysql> INSERT INTO remotehost(id, host_name, ip)
-> VALUES (NULL, 'host_1', '192.167.43.58');
Query OK, 1 row affected (0.02 sec)
```

```
mysql> INSERT INTO remotehost(id, host_name, ip)
-> VALUES (NULL, 'host_2', '142.250.75.14'),
-> (NULL, 'host_3', '128.33.67.25'),
-> (NULL, 'host_4', '192.168.1.213'),
-> (NULL, 'host_5', '184.35.72.95'),
-> (NULL, 'host_6', '184.35.72.95'),
-> (NULL, 'host_7', '104.30.244.2'),
-> (NULL, 'host_8', '192.168.0.1'),
-> (NULL, 'host_9', '172.18.54.141'),
-> (NULL, 'host_10', '128.255.75.3');
Query OK, 9 rows affected (0.01 sec)
Records: 9 Duplicates: 0 Warnings: 0
```

```
mysql> INSERT INTO user(id, user_name)
-> VALUES (NULL, 'user_1'),
-> (NULL, 'user_2'),
-> (NULL, 'user_3'),
-> (NULL, 'user_4'),
-> (NULL, 'user_5'),
-> (NULL, 'user_6'),
-> (NULL, 'user_7'),
-> (NULL, 'user_8'),
-> (NULL, 'user_9'),
-> (NULL, 'user_10');
Query OK, 10 rows affected (0.02 sec)
Records: 10 Duplicates: 0 Warnings: 0
```

```
mysql> INSERT INTO ssh (id, user_id, host_id, port)
-> VALUES (NULL, '2', '1', '22'),
-> (NULL, '3', '10', '22'),
-> (NULL, '1', '6', '2222'),
-> (NULL, '8', '7', '23'),
-> (NULL, '9', '9', '2323'),
-> (NULL, '4', '4', '22'),
-> (NULL, '6', '2', '2323'),
-> (NULL, '5', '8', '2222'),
-> (NULL, '7', '3', '23'),
-> (NULL, '10', '5', '22');
Query OK, 10 rows affected (0.01 sec)
Records: 10 Duplicates: 0 Warnings: 0
```

```
mysql> SELECT * FROM remotehost;
+-----+-----+-----+
| id | host_name | ip |
+-----+-----+-----+
| 1 | host_1 | 192.167.43.58 |
| 2 | host_2 | 142.250.75.14 |
| 3 | host_3 | 128.33.67.25 |
| 4 | host_4 | 192.168.1.213 |
| 5 | host_5 | 184.35.72.95 |
| 6 | host_6 | 184.35.72.95 |
| 7 | host_7 | 104.30.244.2 |
| 8 | host_8 | 192.168.0.1 |
| 9 | host_9 | 172.18.54.141 |
| 10 | host_10 | 128.255.75.3 |
+-----+-----+-----+
10 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM user;
+-----+-----+
| id | user_name |
+-----+-----+
| 1 | user_1 |
| 2 | user_2 |
| 3 | user_3 |
| 4 | user_4 |
| 5 | user_5 |
| 6 | user_6 |
| 7 | user_7 |
| 8 | user_8 |
| 9 | user_9 |
| 10 | user_10 |
+-----+-----+
10 rows in set (0.00 sec)
```

```
mysql> SELECT * FROM ssh;
+-----+-----+-----+-----+
| id | user_id | host_id | port |
+-----+-----+-----+-----+
| 1 | 2 | 1 | 22 |
| 2 | 3 | 10 | 22 |
| 3 | 1 | 6 | 2222 |
| 4 | 8 | 7 | 23 |
| 5 | 9 | 9 | 2323 |
| 6 | 4 | 4 | 22 |
| 7 | 6 | 2 | 2323 |
| 8 | 5 | 8 | 2222 |
| 9 | 7 | 3 | 23 |
| 10 | 10 | 5 | 22 |
+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

6. Construct and execute SELECT operator with WHERE, GROUP BY and ORDER BY.

```
mysql> SELECT host_name, ip
-> FROM remotehost
-> WHERE id >= 5
-> ORDER BY ip;
+-----+-----+
| host_name | ip          |
+-----+-----+
| host_7    | 104.30.244.2 |
| host_10   | 128.255.75.3 |
| host_9    | 172.18.54.141 |
| host_5    | 184.35.72.95 |
| host_6    | 184.35.72.95 |
| host_8    | 192.168.0.1  |
+-----+-----+
6 rows in set (0.00 sec)
```

```
mysql> SELECT host_name, ip
-> FROM remotehost
-> WHERE id <= 5
-> ORDER BY host_name;
+-----+-----+
| host_name | ip          |
+-----+-----+
| host_1    | 192.167.43.58 |
| host_2    | 142.250.75.14 |
| host_3    | 128.33.67.25  |
| host_4    | 192.168.1.213 |
| host_5    | 184.35.72.95  |
+-----+-----+
5 rows in set (0.00 sec)
```

```
mysql> SELECT port, COUNT(*)
-> FROM ssh
-> where id > 5
-> GROUP BY port;
+-----+-----+
| port | COUNT(*) |
+-----+-----+
| 22   | 2        |
| 2323 | 1        |
| 2222 | 1        |
| 23   | 1        |
+-----+-----+
4 rows in set (0.00 sec)
```

```
mysql> SELECT port, COUNT(*)
-> FROM ssh
-> WHERE id <= 5
-> GROUP BY port;
+-----+-----+
| port | COUNT(*) |
+-----+-----+
| 22   | 2        |
| 2222 | 1        |
| 23   | 1        |
| 2323 | 1        |
+-----+-----+
4 rows in set (0.00 sec)
```

```
mysql> SELECT host_name, ip
-> FROM remotehost
-> WHERE id <= 5
-> ORDER BY ip;
+-----+-----+
| host_name | ip          |
+-----+-----+
| host_3    | 128.33.67.25 |
| host_2    | 142.250.75.14 |
| host_5    | 184.35.72.95 |
| host_1    | 192.167.43.58 |
| host_4    | 192.168.1.213 |
+-----+-----+
5 rows in set (0.00 sec)
```


7. Execute other different SQL queries DDL, DML, DCL.

```
mysql> ALTER TABLE remotehost
-> ADD COLUMN ip_prefix INT NOT NULL AFTER ip;
Query OK, 0 rows affected (0.05 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> SELECT * FROM remotehost;
+-----+-----+-----+-----+
| id | host_name | ip           | ip_prefix |
+-----+-----+-----+-----+
| 1 | host_1    | 192.167.43.58 | 0         |
| 2 | host_2    | 142.250.75.14 | 0         |
| 3 | host_3    | 128.33.67.25  | 0         |
| 4 | host_4    | 192.168.1.213 | 0         |
| 5 | host_5    | 184.35.72.95  | 0         |
| 6 | host_6    | 184.35.72.95  | 0         |
| 7 | host_7    | 104.30.244.2  | 0         |
| 8 | host_8    | 192.168.0.1   | 0         |
| 9 | host_9    | 172.18.54.141 | 0         |
| 10 | host_10   | 128.255.75.3  | 0         |
+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

```
mysql> UPDATE remotehost
-> SET ip_prefix = '24'
-> WHERE ip_prefix = 0
-> ;
Query OK, 10 rows affected (0.01 sec)
Rows matched: 10 Changed: 10 Warnings: 0

mysql> SELECT * FROM remotehost;
+-----+-----+-----+-----+
| id | host_name | ip           | ip_prefix |
+-----+-----+-----+-----+
| 1 | host_1    | 192.167.43.58 | 24        |
| 2 | host_2    | 142.250.75.14 | 24        |
| 3 | host_3    | 128.33.67.25  | 24        |
| 4 | host_4    | 192.168.1.213 | 24        |
| 5 | host_5    | 184.35.72.95  | 24        |
| 6 | host_6    | 184.35.72.95  | 24        |
| 7 | host_7    | 104.30.244.2  | 24        |
| 8 | host_8    | 192.168.0.1   | 24        |
| 9 | host_9    | 172.18.54.141 | 24        |
| 10 | host_10   | 128.255.75.3  | 24        |
+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

```
mysql> UPDATE remotehost
-> SET ip_prefix = '28'
-> WHERE id > 5;
Query OK, 5 rows affected (0.01 sec)
Rows matched: 5 Changed: 5 Warnings: 0

mysql> SELECT * FROM remotehost;
+-----+-----+-----+-----+
| id | host_name | ip           | ip_prefix |
+-----+-----+-----+-----+
| 1 | host_1    | 192.167.43.58 | 24        |
| 2 | host_2    | 142.250.75.14 | 24        |
| 3 | host_3    | 128.33.67.25  | 24        |
| 4 | host_4    | 192.168.1.213 | 24        |
| 5 | host_5    | 184.35.72.95  | 24        |
| 6 | host_6    | 184.35.72.95  | 28        |
| 7 | host_7    | 104.30.244.2  | 28        |
| 8 | host_8    | 192.168.0.1   | 28        |
| 9 | host_9    | 172.18.54.141 | 28        |
| 10 | host_10   | 128.255.75.3  | 28        |
+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

```
mysql> ALTER TABLE remotehost
-> CHANGE COLUMN ip_prefix prefix INT;
Query OK, 0 rows affected (0.13 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> SELECT * FROM remotehost;
+-----+-----+-----+-----+
| id | host_name | ip           | prefix |
+-----+-----+-----+-----+
| 1 | host_1    | 192.167.43.58 | 24      |
| 2 | host_2    | 142.250.75.14 | 24      |
| 3 | host_3    | 128.33.67.25  | 24      |
| 4 | host_4    | 192.168.1.213 | 24      |
| 5 | host_5    | 184.35.72.95  | 24      |
| 6 | host_6    | 184.35.72.95  | 28      |
| 7 | host_7    | 104.30.244.2  | 28      |
| 8 | host_8    | 192.168.0.1   | 28      |
| 9 | host_9    | 172.18.54.141 | 28      |
| 10 | host_10   | 128.255.75.3  | 28      |
+-----+-----+-----+-----+
10 rows in set (0.00 sec)
```

```
mysql> ALTER TABLE remotehost
-> DROP COLUMN prefix;
Query OK, 0 rows affected (0.05 sec)
Records: 0 Duplicates: 0 Warnings: 0

mysql> SELECT * FROM remotehost;
+-----+-----+-----+
| id | host_name | ip           |
+-----+-----+-----+
| 1 | host_1    | 192.167.43.58 |
| 2 | host_2    | 142.250.75.14 |
| 3 | host_3    | 128.33.67.25  |
| 4 | host_4    | 192.168.1.213 |
| 5 | host_5    | 184.35.72.95  |
| 6 | host_6    | 184.35.72.95  |
| 7 | host_7    | 104.30.244.2  |
| 8 | host_8    | 192.168.0.1   |
| 9 | host_9    | 172.18.54.141 |
| 10 | host_10   | 128.255.75.3  |
+-----+-----+-----+
10 rows in set (0.00 sec)
```

```
mysql> RENAME TABLE ssh TO new_ssh;
Query OK, 0 rows affected (0.03 sec)

mysql> show tables;
+-----+
| Tables_in_sshconnectdb |
+-----+
| new_ssh                 |
| remotehost              |
| user                    |
+-----+
3 rows in set (0.00 sec)
```

8. Create a database of new users with different privileges. Connect to the database as a new user and verify that the privileges allow or deny certain actions

```
mysql> CREATE USER 'user_1'@'%'
-> IDENTIFIED WITH mysql_native_password BY '123456';
Query OK, 0 rows affected (0.01 sec)

mysql> CREATE USER 'user_2'@'%'
-> IDENTIFIED WITH mysql_native_password BY '123456';
Query OK, 0 rows affected (0.01 sec)

mysql> SELECT User FROM mysql.user;
+-----+
| User          |
+-----+
| user_1        |
| user_2        |
| mysql.infoschema |
| mysql.session |
| mysql.sys     |
| root          |
+-----+
6 rows in set (0.00 sec)
```

```
mysql> SHOW GRANTS FOR 'user_1'@'%' ;
+-----+
| Grants for user_1@% |
+-----+
| GRANT USAGE ON *.* TO `user_1`@`%` |
+-----+
1 row in set (0.00 sec)

mysql> SHOW GRANTS FOR 'user_2'@'%' ;
+-----+
| Grants for user_2@% |
+-----+
| GRANT USAGE ON *.* TO `user_2`@`%` |
+-----+
1 row in set (0.00 sec)
```

```
mysql> GRANT CREATE, INSERT, UPDATE, SELECT on *.* TO 'user_2'@'%' ;
Query OK, 0 rows affected (0.01 sec)

mysql> SHOW GRANTS FOR 'user_2'@'%' ;
+-----+
| Grants for user_2@% |
+-----+
| GRANT SELECT, INSERT, UPDATE, CREATE ON *.* TO `user_2`@`%` |
+-----+
1 row in set (0.00 sec)
```

```
mysql> SHOW GRANTS FOR 'user_1'@'%' \G;
***** 1. row *****
Grants for user_1@%: GRANT SELECT, INSERT, UPDATE, DELETE, CREATE, DROP, RELOAD, SHUTDOWN, PROCESS, FILE, REFERENCES, INDEX, ALTER, SHOW DAT
ABASES, SUPER, CREATE TEMPORARY TABLES, LOCK TABLES, EXECUTE, REPLICATION SLAVE, REPLICATION CLIENT, CREATE VIEW, SHOW VIEW, CREATE ROUTINE,
ALTER ROUTINE, CREATE USER, EVENT, TRIGGER, CREATE TABLESPACE, CREATE ROLE, DROP ROLE ON *.* TO `user_1`@`%` WITH GRANT OPTION
***** 2. row *****
Grants for user_1@%: GRANT APPLICATION_PASSWORD_ADMIN,AUDIT_ABORT_EXEMPT,AUDIT_ADMIN,AUTHENTICATION_POLICY_ADMIN,BACKUP_ADMIN,BINLOG_ADMIN,B
INLOG_ENCRYPTION_ADMIN,CLONE_ADMIN,CONNECTION_ADMIN,ENCRYPTION_KEY_ADMIN,FIREWALL_EXEMPT,FLUSH_OPTIMIZER_COSTS,FLUSH_STATUS,FLUSH TABLES,FLU
SH USER RESOURCES,GROUP_REPLICATION_ADMIN,GROUP_REPLICATION_STREAM,INNODB REDO LOG ARCHIVE,INNODB REDO LOG ENABLE,PASSWORDLESS_USER_ADMIN,PE
RSIST RO VARIABLES_ADMIN,REPLICATION APPLIER,REPLICATION SLAVE_ADMIN,RESOURCE_GROUP_ADMIN,RESOURCE_GROUP_USER,ROLE_ADMIN,SENSITIVE_VARIABLES
_OBSERVER,SERVICE_CONNECTION_ADMIN,SESSION_VARIABLES_ADMIN,SET_USER_ID,SHOW_ROUTINE,SYSTEM_USER,SYSTEM_VARIABLES_ADMIN,TABLE_ENCRYPTION_ADMI
N,XA RECOVER_ADMIN ON *.* TO `user_1`@`%` WITH GRANT OPTION
2 rows in set (0.00 sec)
```

user 1

```
mysql> SELECT USER();
+-----+
| USER() |
+-----+
| user_1@localhost |
+-----+
1 row in set (0.00 sec)
```

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sshconnectdb |
| sys |
+-----+
5 rows in set (0.00 sec)
```

```
mysql> show tables;
+-----+
| Tables_in_sshconnectdb |
+-----+
| remotehost |
| ssh |
| user |
+-----+
3 rows in set (0.00 sec)
```

```
mysql> RENAME TABLE ssh TO new_ssh;
Query OK, 0 rows affected (0.04 sec)
```

```
mysql> show tables;
+-----+
| Tables_in_sshconnectdb |
+-----+
| new_ssh |
| remotehost |
| user |
+-----+
3 rows in set (0.00 sec)
```

```
mysql> CREATE TABLE new_table (
-> id INT NOT NULL AUTO_INCREMENT PRIMARY KEY,
-> column_1 VARCHAR(50) NOT NULL,
-> column_2 VARCHAR(50) NOT NULL,
-> column_3 VARCHAR(50) NOT NULL
-> );
Query OK, 0 rows affected (0.05 sec)
```

```
mysql> show tables;
+-----+
| Tables_in_sshconnectdb |
+-----+
| new_table |
| remotehost |
| ssh |
| user |
+-----+
4 rows in set (0.00 sec)
```

user 2

```
mysql> SELECT USER();
+-----+
| USER() |
+-----+
| user_2@localhost |
+-----+
1 row in set (0.00 sec)
```

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sshconnectdb |
| sys |
+-----+
5 rows in set (0.00 sec)
```

```
mysql> INSERT INTO new_table (id, column_1, column_2, column_3)
-> VALUES (NULL, 'value_1', 'value_2', 'value_3'),
-> (NULL, 'value_1', 'value_2', 'value_3'),
-> (NULL, 'value_1', 'value_2', 'value_3'),
-> (NULL, 'value_1', 'value_2', 'value_3'),
-> (NULL, 'value_1', 'value_2', 'value_3');
Query OK, 5 rows affected (0.02 sec)
Records: 5 Duplicates: 0 Warnings: 0
```

```
mysql> SELECT * FROM new_table;
+-----+
| id | column_1 | column_2 | column_3 |
+-----+
| 1 | value_1 | value_2 | value_3 |
| 2 | value_1 | value_2 | value_3 |
| 3 | value_1 | value_2 | value_3 |
| 4 | value_1 | value_2 | value_3 |
| 5 | value_1 | value_2 | value_3 |
+-----+
5 rows in set (0.00 sec)
```

```
mysql> show tables;
+-----+
| Tables_in_sshconnectdb |
+-----+
| new_table |
| remotehost |
| ssh |
| user |
+-----+
4 rows in set (0.00 sec)

mysql> RENAME TABLE new_table TO newest_table
-> ;
ERROR 1142 (42000): DROP, ALTER command denied to user 'user_2'@'localhost' for table 'new_table'
mysql> _
```

9. Make a selection from the main table DB MySQL.

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sshconnectdb |
| sys |
+-----+
5 rows in set (0.00 sec)

mysql> use mysql;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> show tables;
+-----+
| Tables_in_mysql |
+-----+
| columns_priv |
| component |
| db |
| default_roles |
| engine_cost |
| func |
| general_log |
| global_grants |
| gtid_executed |
| help_category |
| help_keyword |
| help_relation |
| help_topic |
| innodb_index_stats |
| innodb_table_stats |
| ndb_binlog_index |
| password_history |
| plugin |
| procs_priv |
| proxies_priv |
| replication_asynchronous_connection_failover |
| replication_asynchronous_connection_failover_managed |
| replication_group_configuration_version |
| replication_group_member_actions |
| role_edges |
| server_cost |
| servers |
| slave_master_info |
| slave_relay_log_info |
| slave_worker_info |
| slow_log |
| tables_priv |
| time_zone |
| time_zone_leap_second |
| time_zone_name |
| time_zone_transition |
| time_zone_transition_type |
| user |
+-----+
38 rows in set (0.00 sec)
```

```
mysql> SELECT user, host, plugin FROM user;
+-----+-----+-----+
| user | host | plugin |
+-----+-----+-----+
| user_1 | % | mysql_native_password |
| user_2 | % | mysql_native_password |
| mysql.infoschema | localhost | caching_sha2_password |
| mysql.session | localhost | caching_sha2_password |
| mysql.sys | localhost | caching_sha2_password |
| root | localhost | mysql_native_password |
+-----+-----+-----+
6 rows in set (0.00 sec)
```


PART 2 - DUMP, RDS

10. Make backup of your database.

```
+ ~ mysql -u root -p sshconnectdb > DBbkup.sql
Enter password:
+ ~ ls
adminer.php Desktop EPAM index.html?id=513590
bkup.sql Documents file.txt Music
DBbkup.sql Downloads GoToEPAMfolder.sh my-httpd.pp
```

11. Delete the table or part of the data in the table.

```
mysql> show tables;
+-----+
| Tables_in_sshconnectdb |
+-----+
| new_table               |
| remotehost              |
| ssh                     |
| user                    |
+-----+
4 rows in set (0.00 sec)

mysql> drop table new_table;
Query OK, 0 rows affected (0.03 sec)

mysql> show tables;
+-----+
| Tables_in_sshconnectdb |
+-----+
| remotehost              |
| ssh                     |
| user                    |
+-----+
3 rows in set (0.00 sec)
```

12. Restore your database.

```
+ ~ mysql -u root -p sshconnectdb < DBbkup.sql
Enter password:

mysql> use sshconnectdb;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A

Database changed
mysql> show tables;
+-----+
| Tables_in_sshconnectdb |
+-----+
| new_table               |
| remotehost              |
| ssh                     |
| user                    |
+-----+
4 rows in set (0.01 sec)
```

13. Transfer your local database to RDS AWS.


```

+ ~ mysql -h databasesrds.██████████.us-east-1.rds.amazonaws.com -P 3306 -u thestig1990 -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 47
Server version: 8.0.30 Source distribution

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+

+ ~ sudo mysqldump -u root \
--databases sshconnectdb \
--single-transaction \
--compress \
--order-by-primary \
--routines=0 \
--triggers=0 \
--events=0 \
-p██████████ | mysql -u thestig1990 \
--port=3306 \
--host=databasesrds.██████████.us-east-1.rds.amazonaws.com \
-p██████████
mysql: [Warning] Using a password on the command line interface can be insecure.
[sudo] password for yevhen_yakymov:
mysqldump: [Warning] Using a password on the command line interface can be insecure.
+ ~ mysql -h databasesrds.██████████.us-east-1.rds.amazonaws.com -P 3306 -u thestig1990 -p

```

14. Connect to your database.

```

+ ~ mysql -h databasesrds.██████████.us-east-1.rds.amazonaws.com -P 3306 -u thestig1990 -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 53
Server version: 8.0.30 Source distribution

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affiliates. Other names may be trademarks of their respective
owners.

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

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sshconnectdb |
| sys |
+-----+

```

15. Execute SELECT operator similar step 6

```

+-----+
| Tables_in_sshconnectdb |
+-----+
| new table |
| remotehost |
| ssh |
| user |
+-----+
4 rows in set (0.12 sec)

mysql> select * from ssh;
+-----+
| id | user_id | host_id | port |
+-----+
| 1 | 2 | 1 | 22 |
| 2 | 3 | 10 | 22 |
| 3 | 1 | 6 | 2222 |
| 4 | 8 | 7 | 23 |
| 5 | 9 | 9 | 2323 |
| 6 | 4 | 4 | 22 |
| 7 | 6 | 2 | 2323 |
| 8 | 5 | 8 | 2222 |
| 9 | 7 | 3 | 23 |
| 10 | 10 | 5 | 22 |
+-----+
10 rows in set (0.11 sec)

mysql> select * from remotehost;
ERROR 1146 (42S02): Table 'sshconnectdb.remotehost' doesn't exist
mysql> select * from remotehost;
+-----+
| id | host_name | ip |
+-----+
| 1 | host_1 | 192.167.43.58 |
| 2 | host_2 | 142.250.75.14 |
| 3 | host_3 | 128.33.67.25 |
| 4 | host_4 | 192.168.1.213 |
| 5 | host_5 | 184.35.72.95 |
| 6 | host_6 | 184.35.72.95 |
| 7 | host_7 | 104.30.244.2 |
| 8 | host_8 | 192.168.0.1 |
| 9 | host_9 | 172.18.54.141 |
| 10 | host_10 | 128.255.75.3 |
+-----+
10 rows in set (0.12 sec)

mysql> select * from user;
+-----+
| id | user_name |
+-----+
| 1 | user_1 |
| 2 | user_2 |
| 3 | user_3 |
| 4 | user_4 |
| 5 | user_5 |
| 6 | user_6 |
| 7 | user_7 |
| 8 | user_8 |
| 9 | user_9 |
| 10 | user_10 |
+-----+
10 rows in set (0.11 sec)

```

16. Create the dump of your database.

Take DB snapshot

This feature is currently supported for InnoDB storage engine only. If you are using MyISAM, refer to details [here](#).

Settings

To take a snapshot of this DB instance you must provide a name for the snapshot.

DB instance

The unique key that identifies a DB instance. This parameter isn't case-sensitive.

databasesrds

Snapshot name

The identifier for the DB snapshot.

snapshotdatabasesrds

Cancel

Take snapshot

Amazon RDS

Dashboard
Databases
Query Editor
Performance insights
Snapshots
Automated backups
Reserved instances
Proxies

Subnet groups
Parameter groups
Option groups
Custom engine versions

Snapshots

Manual

Automated

Shared with me

Public

Backup service

Exports in Amazon S3

Manual snapshots (1)



Actions

Take snapshot

Filter by manual snapshots

< 1 > ⚙

<input type="checkbox"/>	Snapshot name	DB instance or cluster	Snapshot cre
<input type="checkbox"/>	snapshotdatabasesrds	databasesrds	-

PART 3 – MongoDB

17. Create a database. Use the use command to connect to a new database (If it doesn't exist, Mongo will create it when you write to it).

```
Last login: Sat Oct 29 09:37:22 2022 from 157.159.159.159

  _|  _|_  )
  _|  (  _/  Amazon Linux 2 AMI
  _|\__|__|

https://aws.amazon.com/amazon-linux-2/
13 package(s) needed for security, out of 16 available
Run "sudo yum update" to apply all updates.
[ec2-user@ip-172-31-90-94 ~]$ mongosh "mongodb+srv://sandbox.████████.mongodb.net/Sandbox" --ap
iVersion 1 --username m001-student
Enter password: *****
Current Mongosh Log ID: 635d3b8f3b59ffa00eee4db1
Connecting to:      mongodb+srv://<credentials>@sandbox.ts8k4i4.mongodb.net/Sandbox?appNam
e=mongosh+1.6.0
Using MongoDB:      5.0.13 (API Version 1)
Using Mongosh:      1.6.0

For mongosh info see: https://docs.mongodb.com/mongodb-shell/
```

18. Create a collection. Use db.createCollection to create a collection. I'll leave the subject up to you. Run show dbs and show collections to view your database and collections.

```
Atlas atlas-fb3hru-shard-0 [primary] admin> use Cinema
switched to db Cinema
Atlas atlas-fb3hru-shard-0 [primary] Cinema> db.createCollection("movies")
{ ok: 1 }
Atlas atlas-fb3hru-shard-0 [primary] Cinema> show collections
movies
Atlas atlas-fb3hru-shard-0 [primary] Cinema> show dbs
Cinema                8.00 KiB
sample_airbnb         52.14 MiB
sample_analytics      9.14 MiB
sample_geospatial    1.37 MiB
sample_guides         40.00 KiB
sample_mflix          51.14 MiB
sample_restaurants    7.94 MiB
sample_supplies       1.12 MiB
sample_training       56.77 MiB
sample_weatherdata    2.80 MiB
admin                 336.00 KiB
local                 8.95 GiB
```


19. Create some documents. Insert a couple of documents into your collection. I'll leave the subject matter up to you, perhaps cars or hats.

```
Atlas atlas-fb3hru-shard-0 [primary] Cinema> db.movies.insertMany([
...   {
...     title: 'Titanic',
...     year: 1997,
...     genres: [ 'Drama', 'Romance' ],
...     rated: 'PG-13',
...     languages: [ 'English', 'French', 'German', 'Swedish', 'Italian', 'Russian' ],
...     released: ISODate("1997-12-19T00:00:00.000Z"),
...     awards: {
...       wins: 127,
...       nominations: 63,
...       text: 'Won 11 Oscars. Another 116 wins & 63 nominations.'
...     },
...     cast: [ 'Leonardo DiCaprio', 'Kate Winslet', 'Billy Zane', 'Kathy Bates' ],
...     directors: [ 'James Cameron' ]
...   },
...   {
...     title: 'The Dark Knight',
...     year: 2008,
...     genres: [ 'Action', 'Crime', 'Drama' ],
...     rated: 'PG-13',
...     languages: [ 'English', 'Mandarin' ],
...     released: ISODate("2008-07-18T00:00:00.000Z"),
...     awards: {
...       wins: 144,
...       nominations: 106,
...       text: 'Won 2 Oscars. Another 142 wins & 106 nominations.'
...     },
...     cast: [ 'Christian Bale', 'Heath Ledger', 'Aaron Eckhart', 'Michael Caine' ],
...     directors: [ 'Christopher Nolan' ]
...   },
...   {
...     title: 'Spirited Away',
...     year: 2001,
...     genres: [ 'Animation', 'Adventure', 'Family' ],
...     rated: 'PG',
...     languages: [ 'Japanese' ],
...     released: ISODate("2003-03-28T00:00:00.000Z"),
...     awards: {
...       wins: 52,
...       nominations: 22,
...       text: 'Won 1 Oscar. Another 51 wins & 22 nominations.'
...     },
...     cast: [ 'Rumi Hiiragi', 'Miyu Irino', 'Mari Natsuki', 'Takashi Naitè' ],
...     directors: [ 'Hayao Miyazaki' ]
...   },
...   {
...     title: 'Casablanca',
...     genres: [ 'Drama', 'Romance', 'War' ],
...     rated: 'PG',
...     cast: [ 'Humphrey Bogart', 'Ingrid Bergman', 'Paul Henreid', 'Claude Rains' ],
...     languages: [ 'English', 'French', 'German', 'Italian' ],
...     released: ISODate("1943-01-23T00:00:00.000Z"),
...     directors: [ 'Michael Curtiz' ],
...     awards: {
...       wins: 9,
...       nominations: 6,
...       text: 'Won 3 Oscars. Another 6 wins & 6 nominations.'
...     },
...     lastupdated: '2015-09-04 00:22:54.600000000',
...     year: 1942
...   }
... ])
acknowledged: true,
insertedIds: {
  '0': ObjectId("635d465a1a45405acf043191"),
  '1': ObjectId("635d465a1a45405acf043192"),
  '2': ObjectId("635d465a1a45405acf043193"),
  '3': ObjectId("635d465a1a45405acf043194")
}
```


20. Use find() to list documents out

```
Atlas atlas-fb3hru-shard-0 [primary] Cinema> db.movies.find ( { rated : "PG-13" } )
[
  {
    _id: ObjectId("635d465a1a45405acf043191"),
    title: 'Titanic',
    year: 1997,
    genres: [ 'Drama', 'Romance' ],
    rated: 'PG-13',
    languages: [ 'English', 'French', 'German', 'Swedish', 'Italian', 'Russian' ],
    released: ISODate("1997-12-19T00:00:00.000Z"),
    awards: {
      wins: 127,
      nominations: 63,
      text: 'Won 11 Oscars. Another 116 wins & 63 nominations.'
    },
    cast: [
      'Leonardo DiCaprio',
      'Kate Winslet',
      'Billy Zane',
      'Kathy Bates'
    ],
    directors: [ 'James Cameron' ]
  },
  {
    _id: ObjectId("635d465a1a45405acf043192"),
    title: 'The Dark Knight',
    year: 2008,
    genres: [ 'Action', 'Crime', 'Drama' ],
    rated: 'PG-13',
    languages: [ 'English', 'Mandarin' ],
    released: ISODate("2008-07-18T00:00:00.000Z"),
    awards: {
      wins: 144,
      nominations: 106,
      text: 'Won 2 Oscars. Another 142 wins & 106 nominations.'
    },
    cast: [
      'Christian Bale',
      'Heath Ledger',
      'Aaron Eckhart',
      'Michael Caine'
    ],
    directors: [ 'Christopher Nolan' ]
  }
]
```

```
Atlas atlas-fb3hru-shard-0 [primary] Cinema> db.movies.find ( { languages: 'Japanese' } )
[
  {
    _id: ObjectId("635d465a1a45405acf043193"),
    title: 'Spirited Away',
    year: 2001,
    genres: [ 'Animation', 'Adventure', 'Family' ],
    rated: 'PG',
    languages: [ 'Japanese' ],
    released: ISODate("2003-03-28T00:00:00.000Z"),
    awards: {
      wins: 52,
      nominations: 22,
      text: 'Won 1 Oscar. Another 51 wins & 22 nominations.'
    },
    cast: [ 'Rumi Hiiragi', 'Miyu Irino', 'Mari Natsuki', 'Takashi Naitè' ],
    directors: [ 'Hayao Miyazaki' ]
  }
]
```