Project 1

Data Migration From ON-premises(VM,CMD) Server To AWS Cloud.

Migrating data from on-premises servers to the AWS Cloud involves several steps.

STEP 1: Data Transfer Methods:

- Use the AWS DataSync service, AWS Storage Gateway, or AWS Snowball for large-scale data transfer.
- For smaller datasets, you can use the AWS Command Line Interface (CLI) or SDKs to transfer data directly.

Here we are using the awscli mecthod to transfer our data from vm to cloud.

Our data base name is 'student' in mariadb on VM.

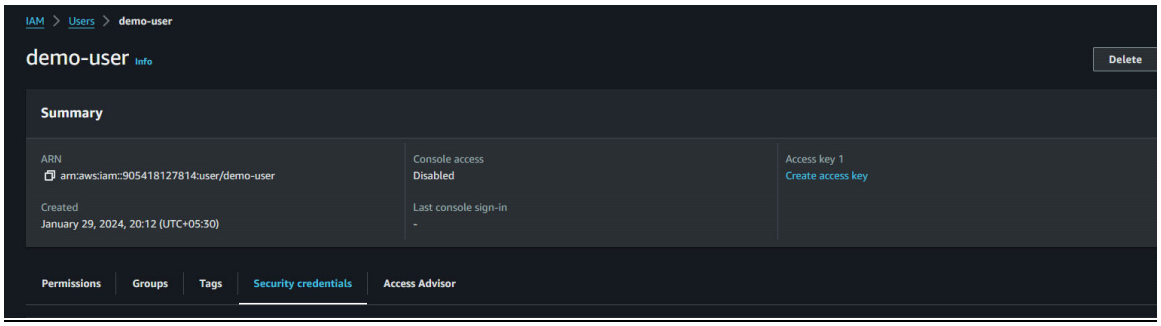
```
File  Edit  View  Search  Terminal  Help
MariaDB [student]> show tables;
+--------------------+
| Tables_in_student |
+--------------------+
| student_users     |
+--------------------+
1 row in set (0.01 sec)

MariaDB [student]> select * from student_users
    -> select * from student_users;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresp
onds to your MariaDB server version for the right syntax to use near 'select * from stu
dent_users' at line 2
MariaDB [student]> select * from student_users;
+------+-------+----------+----------+
| id   | name  | email    | password |
+------+-------+----------+----------+
|    1 | Amin  | amin@ok  | 123      |
|    1 | Amin  | amin@ok  | 123      |
|    1 | mikal | mikal@ok | 123      |
|    1 | jaoun | jaoun@ok | 123      |
+------+-------+----------+----------+
4 rows in set (0.00 sec)

MariaDB [student]>
```

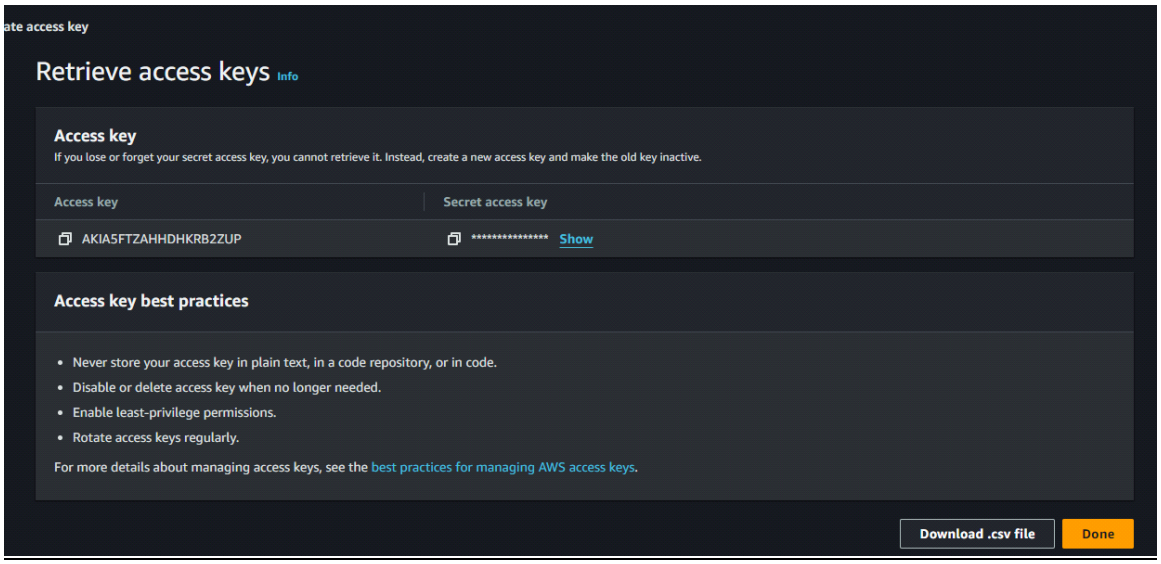
STEP 2: Install awscli and configure it in VM:

- command is : yum install awscli

```
[root@localhost /]# yum install awscli
Loaded plugins: fastestmirror, langpacks
Loading mirror speeds from cached hostfile
 * base: mirrors.nxtgen.com
 * extras: mirrors.nxtgen.com
 * updates: mirror-hk.koddos.net
Package awscli-1.23.2-1.el7_9.1.noarch already installed and latest version
Nothing to do
```

STEP 3: Create User in Iam role AWS and create its cradential like access key and secret key:





- Copy the Access key and Secret Key

STEP 4: AWS configure in on-premises machine to access s3 bucket:

command : aws configure

Access key ID :

Secret Access Key :

```
File  Edit  View  Search  Terminal  Help
[root@localhost /]# aws configure
AWS Access Key ID [None]: AKIA5FTZAHHDHKRB2ZUP
AWS Secret Access Key [None]: FhSfeCh0gUgU1nLaJ+sCtGlld1rAPGMIu6QUpgi0Q
Default region name [None]: eu-west-1
Default output format [None]:
[root@localhost /]#
```

-After configuration aws cli in our on-premises machine then we can accesss cloud s3 bucket to transfer our data.

```
[root@localhost backupdata]# aws s3 ls
2024-01-29 21:31:33 backupdata100
2024-01-21 16:56:03 cloudfront-demo5050
2024-01-26 22:11:28 logof
2024-01-29 14:47:50 my-s3-bukcett
2024-01-27 14:50:41 s3-student100
```

STEP 5: <u>Now we have to dump file from the database by using the dump command in on-premises machine:</u>

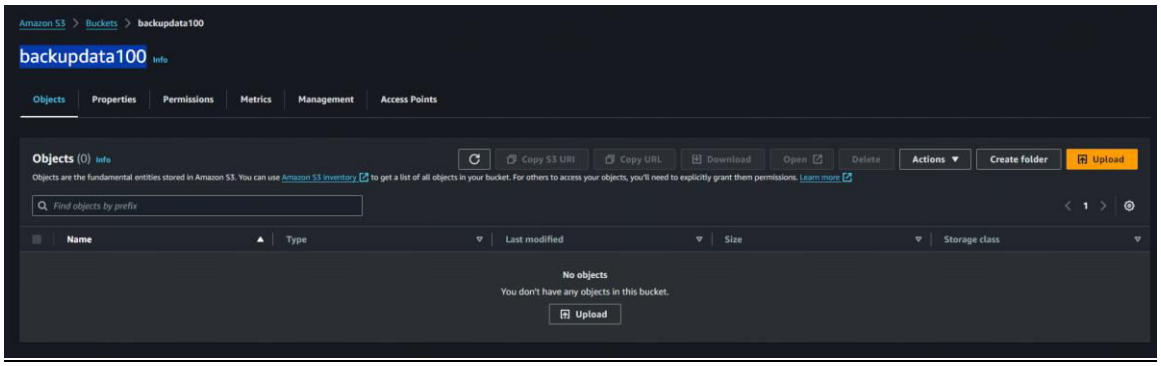
- First create the directory in '/ ' for storing the backup data file from the database 'student'

- we create the directory by the name of 'backupdata'

```
File  Edit  View  Search  Terminal  Help
[root@localhost backupdata]# mysqldump -u root -p student > student_withdata.sql
```

STEP 6: <u>Create the s3 bucket in aws cloud and make it public :</u>

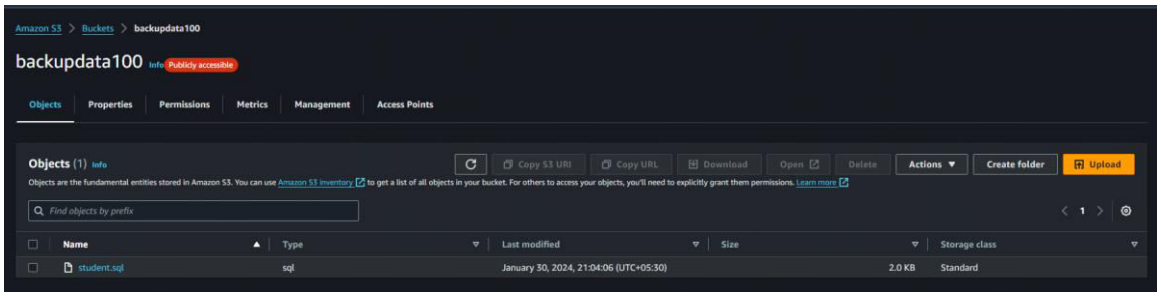
- create the bucket in s3 of name 'backupdata100'



STEP 7: <u>Transer the dump file in s3 bucket of cloud from the on-premises machine:</u>

command : aws s3 sync ---------- ----------

```
[root@localhost backupdata]# aws s3 sync /backupdata s3://backupdata100
upload: ./dumpfile.sql to s3://backupdata100/dumpfile.sql
[root@localhost backupdata]# ls
dumpfile.sql
```



STEP 8: Create instance and attached role of s3 full access :

- Create The instances and attached the role with provide the s3 full access.

- And connect it.

STEP 9: Transfer the data from the s3 bucket to the ec2 instances :

- first create the directory in ec2 -instances and copy the s3 bucket to instances by using the command aws s3 cp.

```
[root@ip-172-31-30-243 /]#  aws s3 cp  s3://backupdata100/student.sql samplefroms3.txt
download: s3://backupdata100/student.sql to ./samplefroms3.txt
[root@ip-172-31-30-243 /]#
```

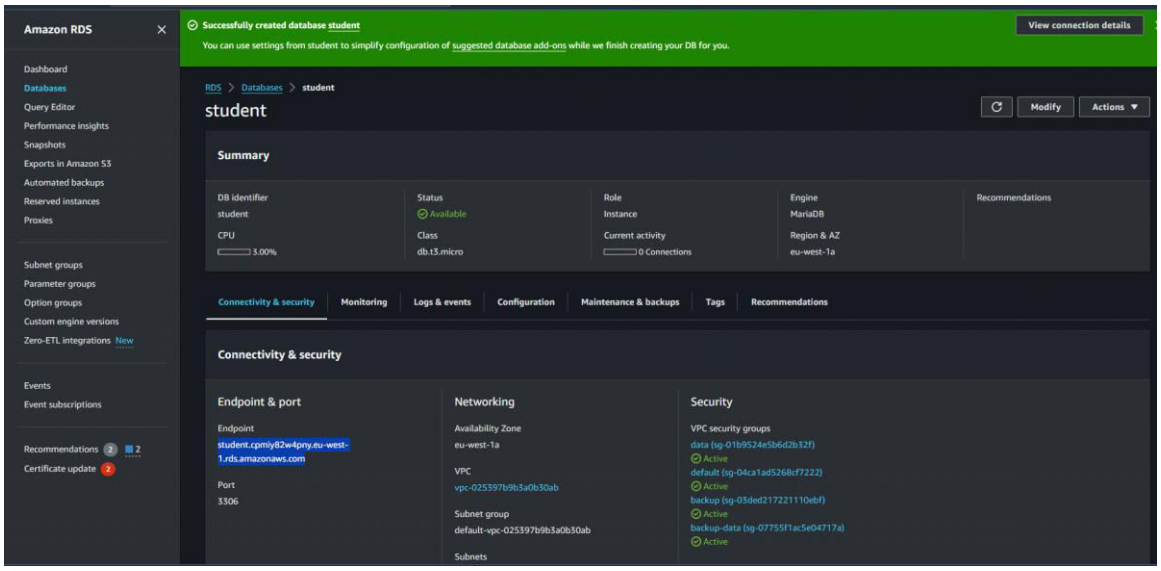
```
[root@ip-172-31-30-243 /]# ls
bin  boot  data_table  dev  etc  home  lib  lib64  local  media  mnt  opt  proc  root  run  samplefroms3.txt  sbin  srv  sys  tmp  usr  var
[root@ip-172-31-30-243 /]# mysql -h student.cpmiy82w4pny.eu-west-1.rds.amazonaws.com -u admin -padmin123 student <samplefroms3.txt
[root@ip-172-31-30-243 /]# mysql -h student.cpmiy82w4pny.eu-west-1.rds.amazonaws.com -u admin -padmin123
```

you can see the directory by the command 'ls'.

STEP 10: Create the RDS select the mariadb and generate the endpoint :

-Create the RDS with the name of 'student'

- select the engine name mariadb.



STEP 11: Install the mariadb and create the 'student' database(Same name as the database name of on-premises machine) :

```
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 126
Server version: 10.5.20-MariaDB-log managed by https://aws.amazon.com/rds/

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 |
| innodb             |
| mysql              |
| performance_schema |
| student            |
+--------------------+
5 rows in set (0.001 sec)

MariaDB [(none)]> use student;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A
```

STEP 12: Transfer the data from directory to mariadb data base name 'student' :

- should have proper pattern

```
[root@ip-172-31-30-243 /]# mysql -h student.cpmiy82w4pny.eu-west-1.rds.amazonaws.com -u admin -padmin123 student < samplefroms3.txt
[root@ip-172-31-30-243 /]# mysql -h student.cpmiy82w4pny.eu-west-1.rds.amazonaws.com -u admin -padmin123
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 136
```

STEP 13: Now Database Table created successfully :

```
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 136
Server version: 10.5.20-MariaDB-log managed by https://aws.amazon.com/rds/

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 |
| innodb             |
| mysql              |
| performance_schema |
| student            |
+--------------------+
5 rows in set (0.001 sec)

MariaDB [(none)]> use student;
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
MariaDB [student]> show tables;
+------------------+
| Tables_in_student |
+------------------+
| student_users    |
+------------------+
1 row in set (0.001 sec)

MariaDB [student]> describe student_users
    -> describe student_users;
```

i-066c17c9eecc4cb7d (backup-data)

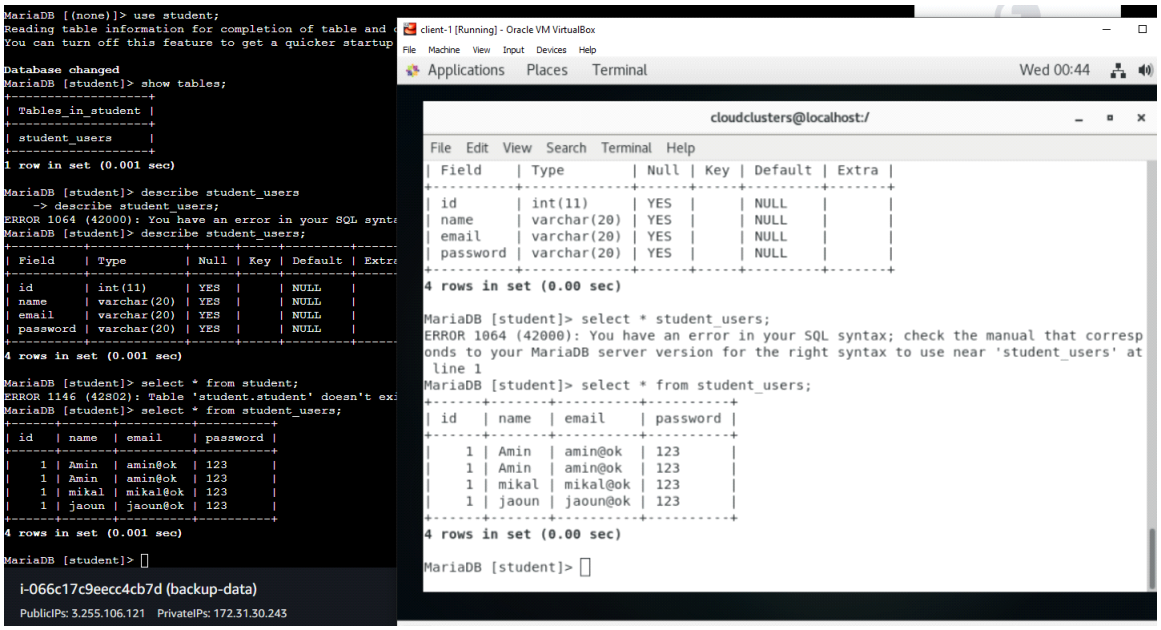
PublicIPs: 3.255.106.121 PrivateIPs: 172.31.30.243

STEP 14: Now The Data Migration completed successfully from on-premises machine to cloud :

```
MariaDB [(none)]> use student;
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
MariaDB [student]> show tables;
+------------------+
| Tables_in_student |
+------------------+
| student_users    |
+------------------+
1 row in set (0.001 sec)

MariaDB [student]> describe student_users
    -> describe student_users;
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 'describe student_users' at line 2
MariaDB [student]> describe student_users;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| id       | int(11)     | YES  |     | NULL    |       |
| name     | varchar(20) | YES  |     | NULL    |       |
| email    | varchar(20) | YES  |     | NULL    |       |
| password | varchar(20) | YES  |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
4 rows in set (0.001 sec)

MariaDB [student]> select * from student;
ERROR 1146 (42S02): Table 'student.student' doesn't exist
MariaDB [student]> select * from student_users;
+------+-------+----------+----------+
| id   | name  | email    | password |
+------+-------+----------+----------+
|    1 | Amin  | amin@ok  | 123      |
|    1 | Amin  | amin@ok  | 123      |
|    1 | mikal | mikal@ok | 123      |
|    1 | jsoun | jsoun@ok | 123      |
+------+-------+----------+----------+
4 rows in set (0.001 sec)

MariaDB [student]>
```

i-066c17c9eecc4cb7d (backup-data)

PublicIPs: 3.255.106.121 PrivateIPs: 172.31.30.243


MariaDB [(none)]> use student;
Reading table information for completion of table and c
You can turn off this feature to get a quicker startup
Database changed
MariaDB [student]> show tables;
| Tables_in_student |
| student_users |
1 row in set (0.001 sec)
MariaDB [student]> describe student_users
-> describe student_users;
ERROR 1064 (42000): You have an error in your SQL synta
MariaDB [student]> describe student_users;
Field	Type	Null	Key	Default	Extra
id	int(11)	YES		NULL	
name	varchar(20)	YES		NULL	
email	varchar(20)	YES		NULL	
password	varchar(20)	YES		NULL	
4 rows in set (0.001 sec)
MariaDB [student]> select * from student;
ERROR 1146 (42S02): Table 'student.student' doesn't exi
MariaDB [student]> select * from student_users;
id	name	email	password
1	Amin	amin@ok	123
1	Amin	amin@ok	123
1	mikal	mikal@ok	123
1	jaoun	jaoun@ok	123
4 rows in set (0.001 sec)
MariaDB [student]>
i-066c17c9eecc4cb7d (backup-data)
PublicIPs: 3.255.106.121 PrivateIPs: 172.31.30.243
client-1 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Applications Places Terminal
Wed 00:44
cloudclusters@localhost:/
File Edit View Search Terminal Help
Field	Type	Null	Key	Default	Extra
id	int(11)	YES		NULL	
name	varchar(20)	YES		NULL	
email	varchar(20)	YES		NULL	
password	varchar(20)	YES		NULL	
4 rows in set (0.00 sec)
MariaDB [student]> select * student_users;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresp
onds to your MariaDB server version for the right syntax to use near 'student_users' at
line 1
MariaDB [student]> select * from student_users;
id	name	email	password
1	Amin	amin@ok	123
1	Amin	amin@ok	123
1	mikal	mikal@ok	123
1	jaoun	jaoun@ok	123
4 rows in set (0.00 sec)
MariaDB [student]>