AWS Advance | Project 2

Deploying Amazon RDS Multi-AZ and Read Replica, Simulate Failover:-

Lab Details :-

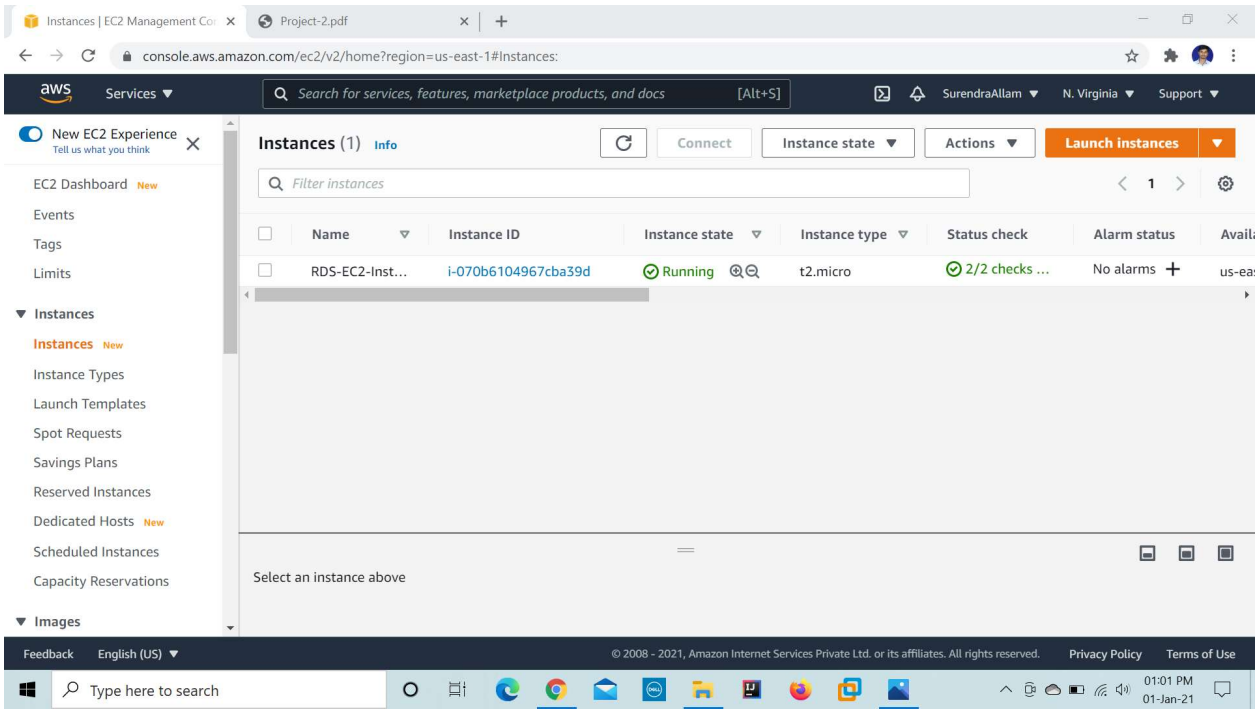
1. This lab walks through the steps to launch an Amazon Aurora RDS DB instance with multi-AZ enabled. and also simulate a database failover from one AZ to another.
2. Practice using Amazon Aurora.
3. Duration: 1 hour
4. AWS Region: US East (N. Virginia) us-east-1

Lab Tasks :-

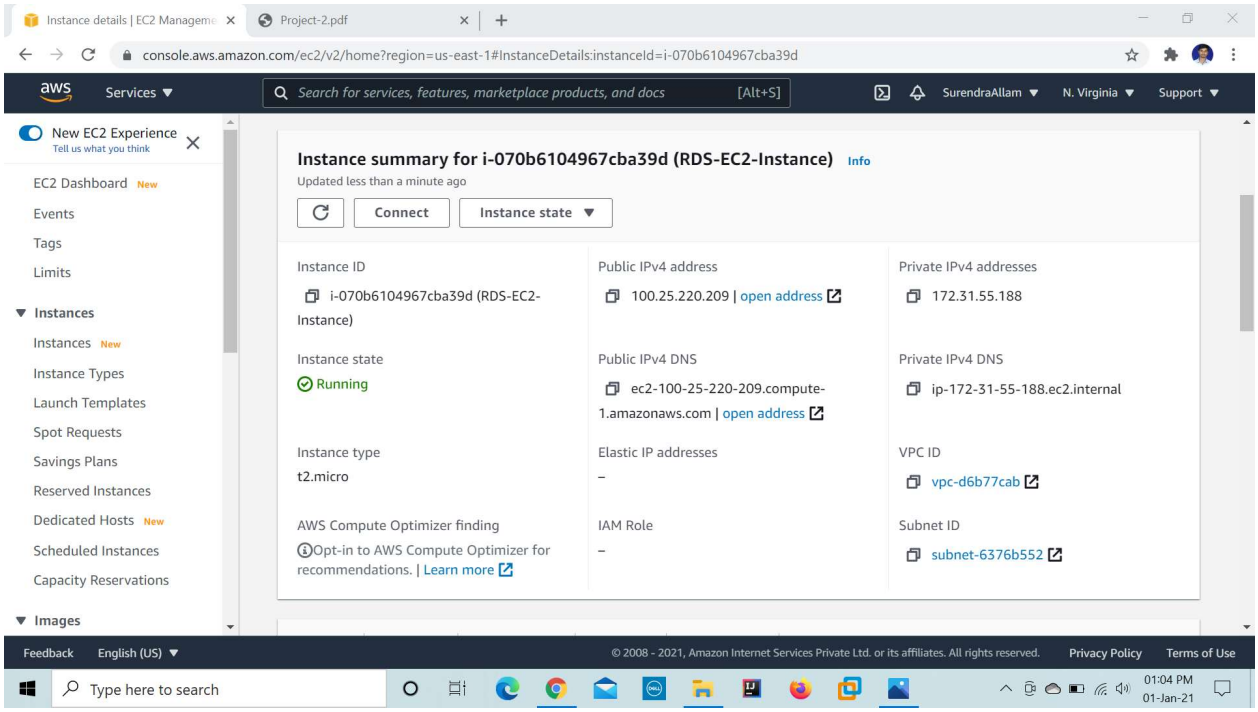
1. In this lab session, first we are going to launch an Amazon Aurora RDS DB instance with Multi-AZ enabled.
2. Connect to the RDS database instance (using its endpoint) from our local machine.
3. Create a test database and table in our Master RDS DB instance.
4. Force the Master DB instance to failover.
5. After Failover, Master will change to Reader and Reader will change to Master
6. Connect to the new Master to test the database replication.

Steps:-

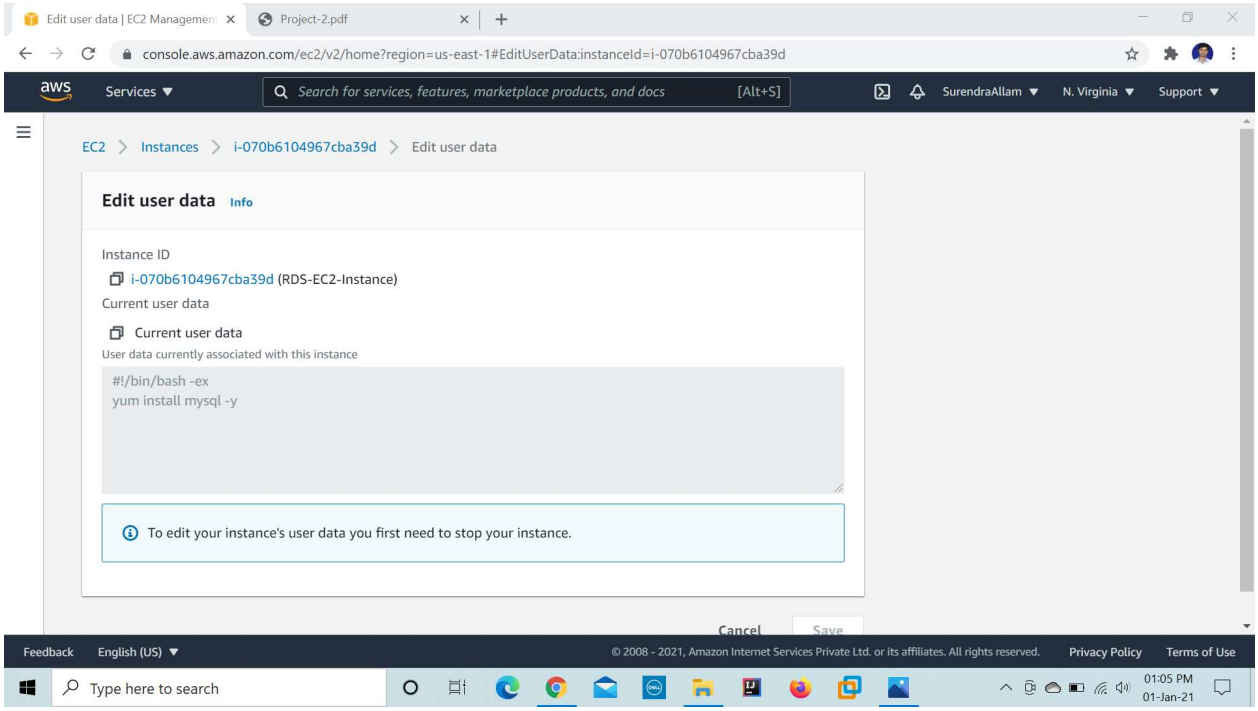
1. Creating an EC2 Instance



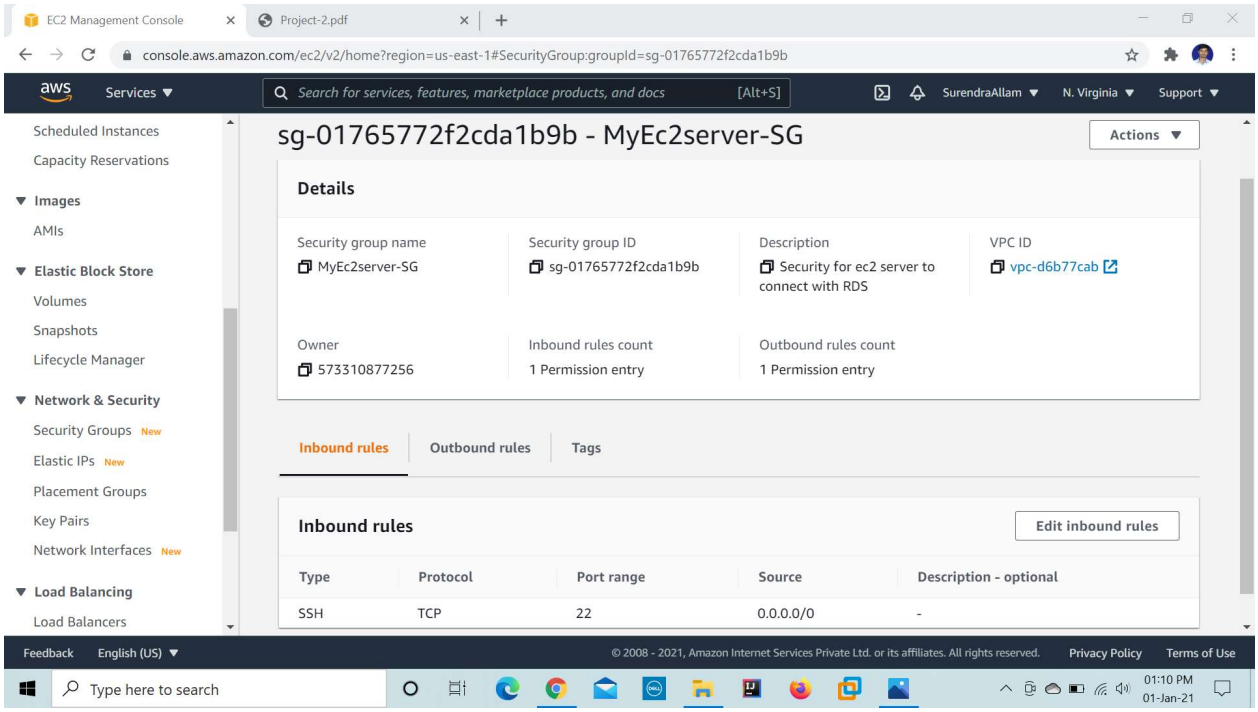
Instance Details:



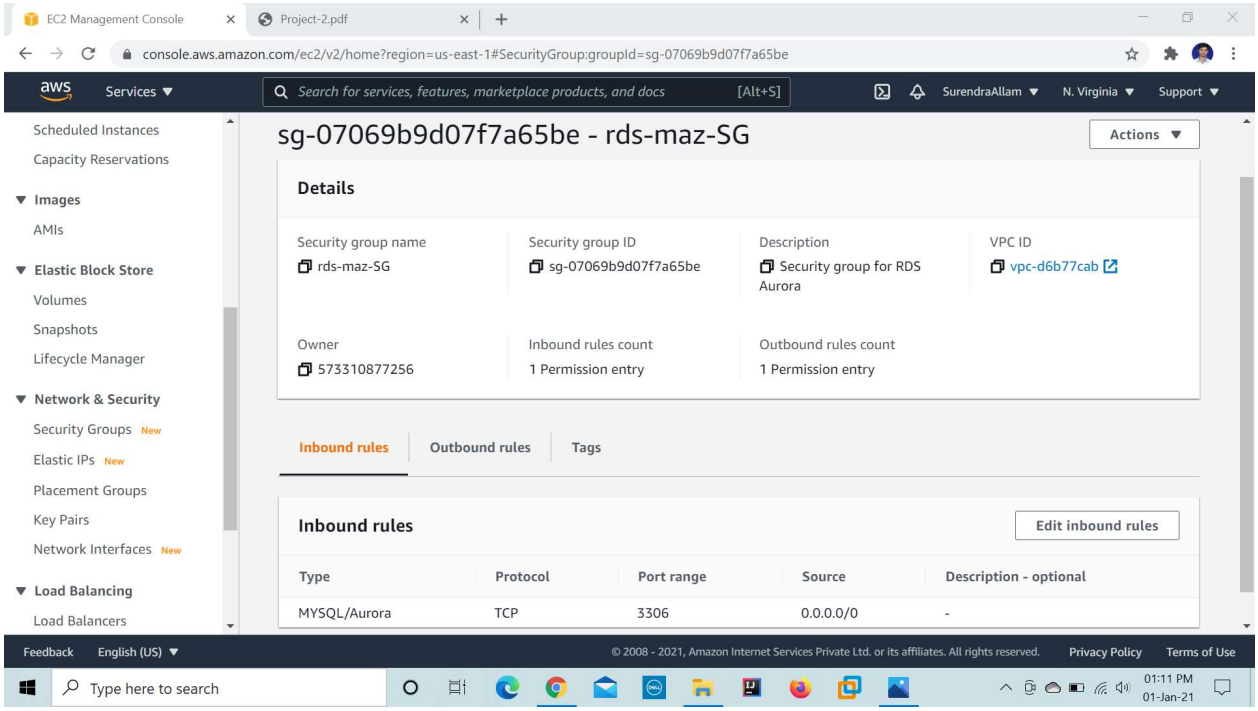
User Data field showing mysql installation.



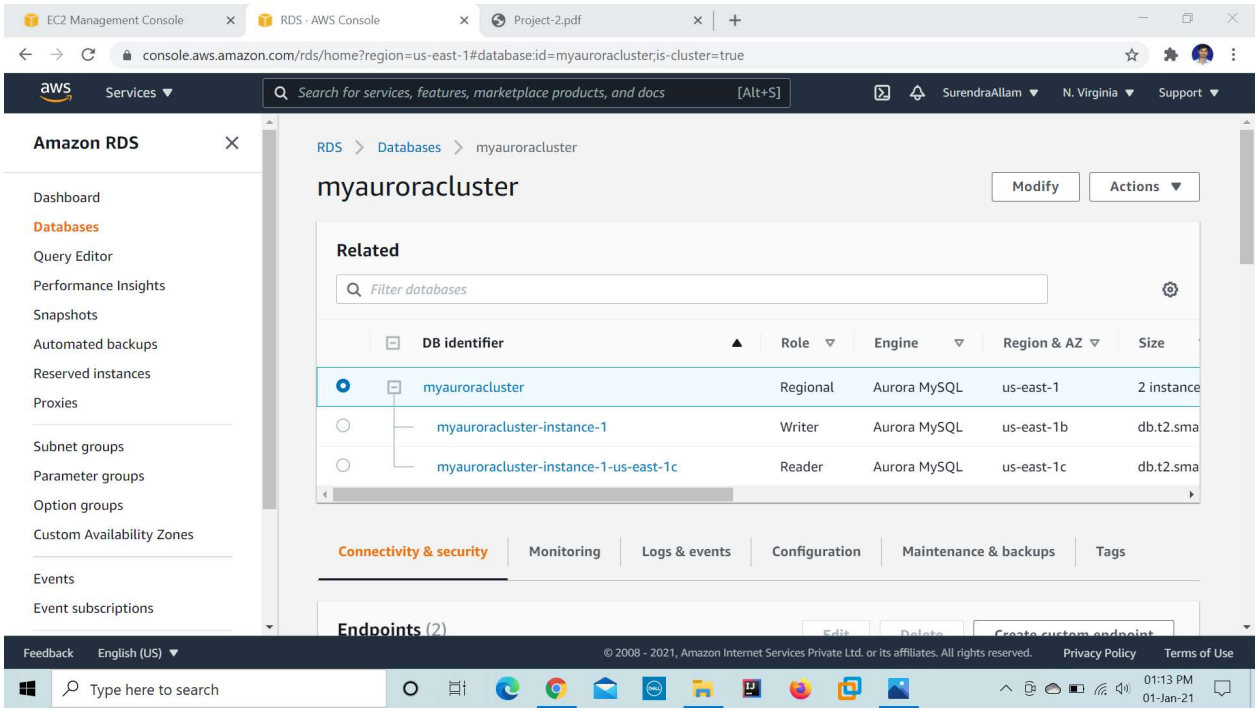
2. Create a Security Group for EC02 instance



3. Create a Security Group for RDS instance



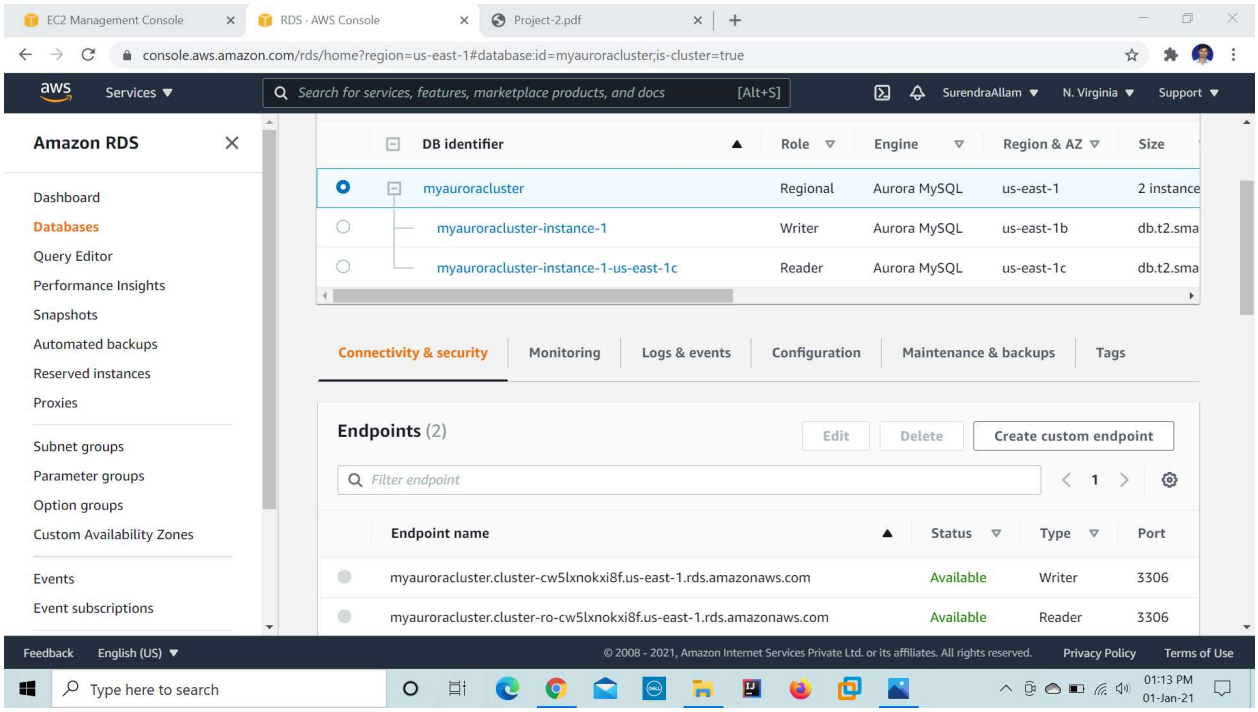
4. Create an Amazon Aurora database with Multi-AZ enabled



5. Connecting to the Aurora (MySQL) database on RDS

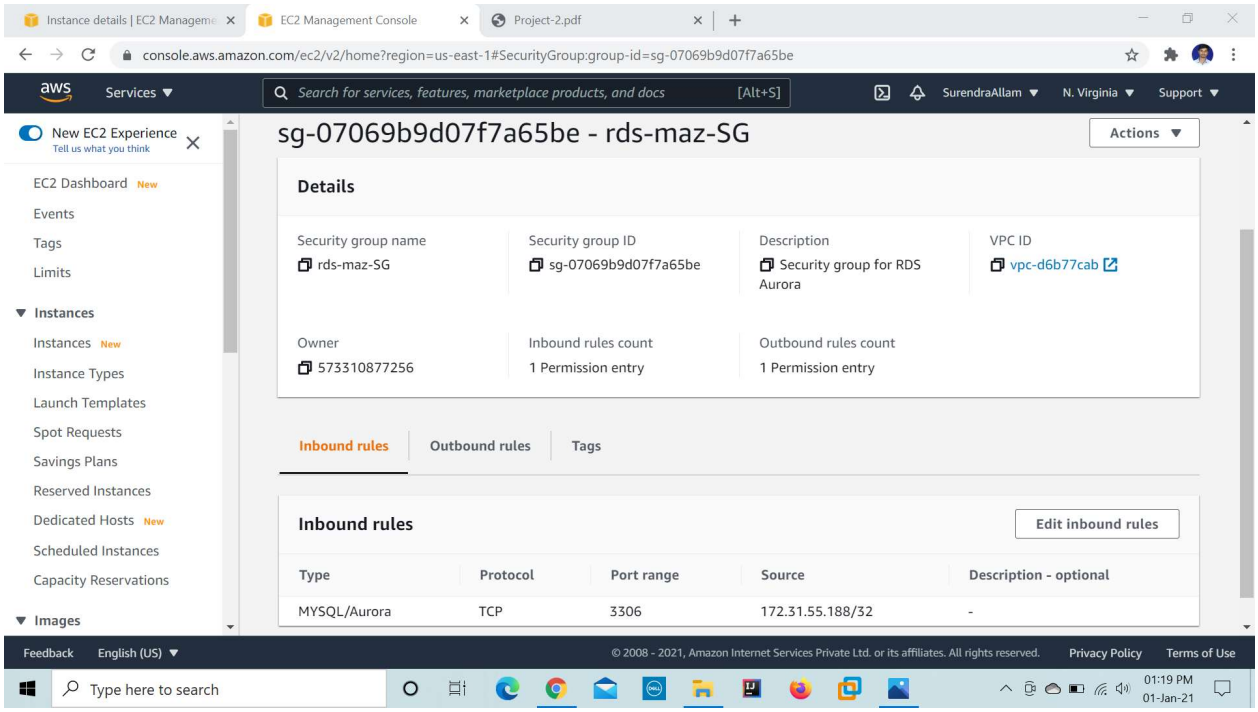
Master(Writer):
myauroracluster-instance-1.cw5lxnokxi8f.us-east-1.rds.amazonaws.com

Reader:
myauroracluster-instance-1-us-east-1c.cw5lxnokxi8f.us-east-1.rds.amazonaws.com

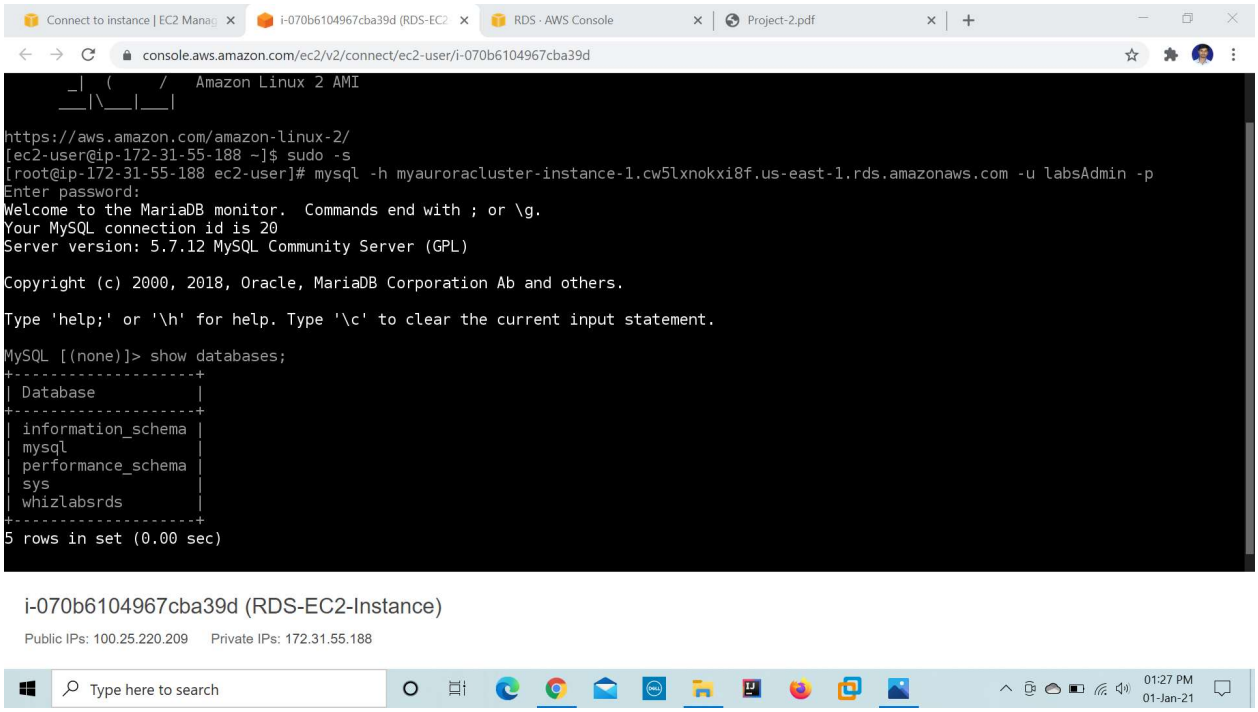


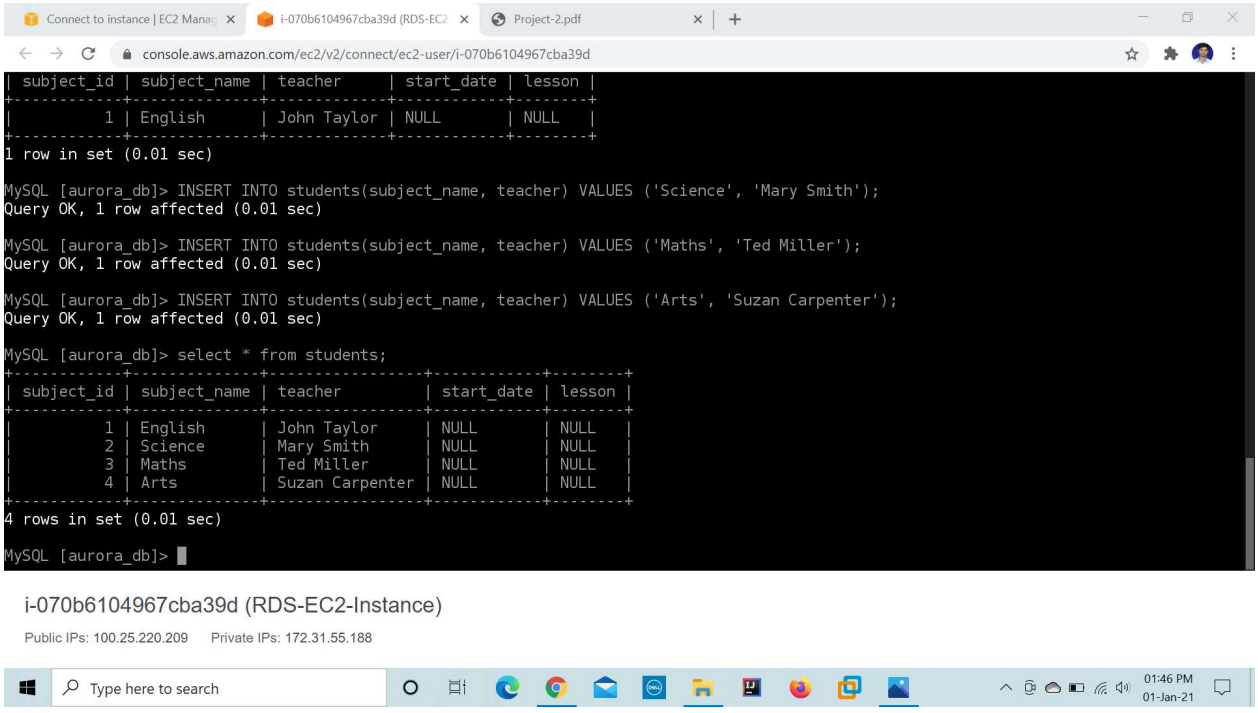
6. Connecting the EC2 Server to RDS:

In writer security group change inbound rule under source : delete any pre-populated IP Address and enter the Private IP of your MyRdsEc2server EC2 instance with CIDR /32 (EC2 instance Private IP).

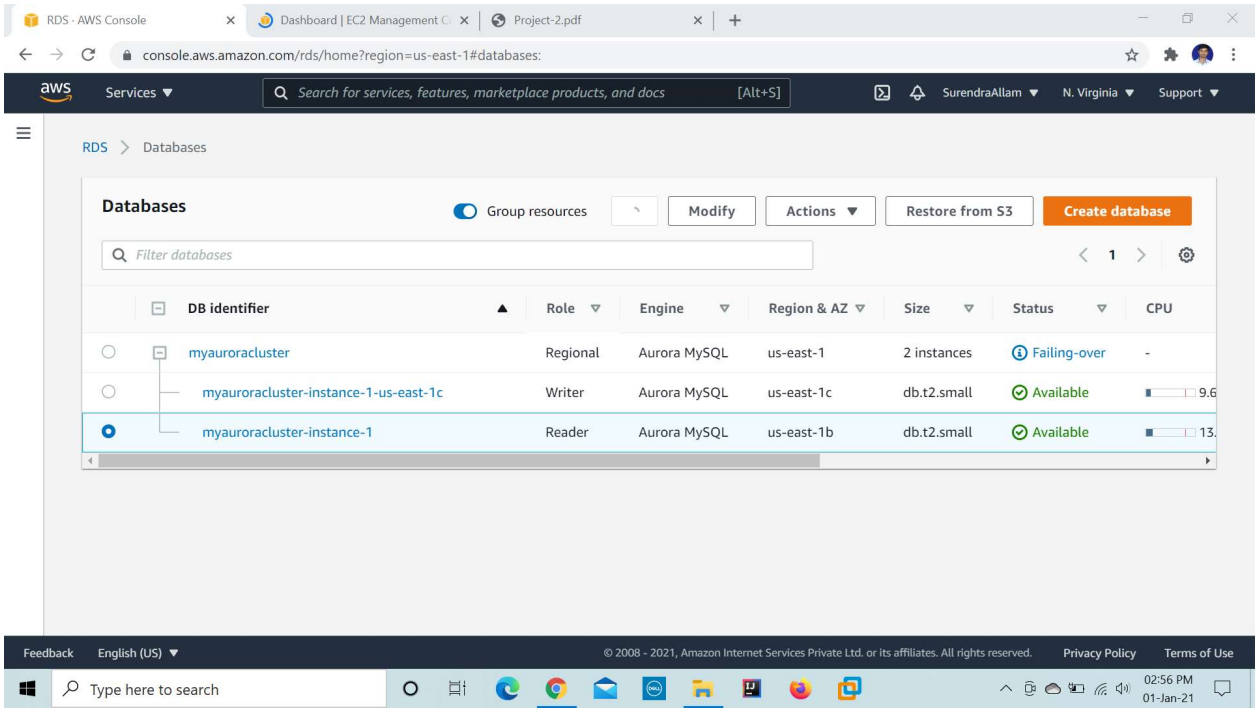


7. Execute Database Operations via SSH commands:
    1. sudo -s
    2. Syntax: mysql -h <Hostname> -u <Username> -p
    3. Hostname: Master(writer)'s endpoint
       Ex:myauroracluster-instance-1.cw5lxnokxi8f.us-east-1.rds.amazonaws.com
    4. Username: labsAdmin
    5. Password: labs123
    6. show databases;
    7. create database aurora_db;
    8. use auroro_db;
    9. CREATE TABLE students (subject_id INT AUTO_INCREMENT, subject_name VARCHAR(255) NOT NULL, teacher VARCHAR(255),start_date DATE, lesson TEXT,PRIMARY KEY (subject_id));
    10. INSERT INTO students(subject_name, teacher) VALUES ('English', 'John Taylor');
    11. select * from students;
    12. exit


Connect to instance | EC2 Manag
i-070b6104967cba39d (RDS-EC2
RDS - AWS Console
Project-2.pdf
console.aws.amazon.com/ec2/v2/connect/ec2-user/i-070b6104967cba39d
Amazon Linux 2 AMI
https://aws.amazon.com/amazon-linux-2/
[ec2-user@ip-172-31-55-188 ~]$ sudo -s
[root@ip-172-31-55-188 ec2-user]# mysql -h myauroracluster-instance-1.cw5lxnokxi8f.us-east-1.rds.amazonaws.com -u labsAdmin -p
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MySQL connection id is 20
Server version: 5.7.12 MySQL Community Server (GPL)
Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
MySQL [(none)]> show databases;
+--------------------+
| Database |
+--------------------+
| information_schema |
| mysql |
| performance_schema |
| sys |
| whizlabsrds |
+--------------------+
5 rows in set (0.00 sec)
i-070b6104967cba39d (RDS-EC2-Instance)
Public IPs: 100.25.220.209 Private IPs: 172.31.55.188
Type here to search
01:27 PM
01-Jan-21


Connect to instance | EC2 Manag
i-070b6104967cba39d (RDS-EC2
Project-2.pdf
console.aws.amazon.com/ec2/v2/connect/ec2-user/i-070b6104967cba39d
| subject_id | subject_name | teacher | start_date | lesson |
| 1 | English | John Taylor | NULL | NULL |
1 row in set (0.01 sec)
MySQL [aurora_db]> INSERT INTO students(subject_name, teacher) VALUES ('Science', 'Mary Smith');
Query OK, 1 row affected (0.01 sec)
MySQL [aurora_db]> INSERT INTO students(subject_name, teacher) VALUES ('Maths', 'Ted Miller');
Query OK, 1 row affected (0.01 sec)
MySQL [aurora_db]> INSERT INTO students(subject_name, teacher) VALUES ('Arts', 'Suzan Carpenter');
Query OK, 1 row affected (0.01 sec)
MySQL [aurora_db]> select * from students;
subject_id	subject_name	teacher	start_date	lesson
1	English	John Taylor	NULL	NULL
2	Science	Mary Smith	NULL	NULL
3	Maths	Ted Miller	NULL	NULL
4	Arts	Suzan Carpenter	NULL	NULL
4 rows in set (0.01 sec)
MySQL [aurora_db]>
i-070b6104967cba39d (RDS-EC2-Instance)
Public IPs: 100.25.220.209 Private IPs: 172.31.55.188
Type here to search
01:46 PM
01-Jan-21

8. Forcing a Failover to Test Multi-AZ

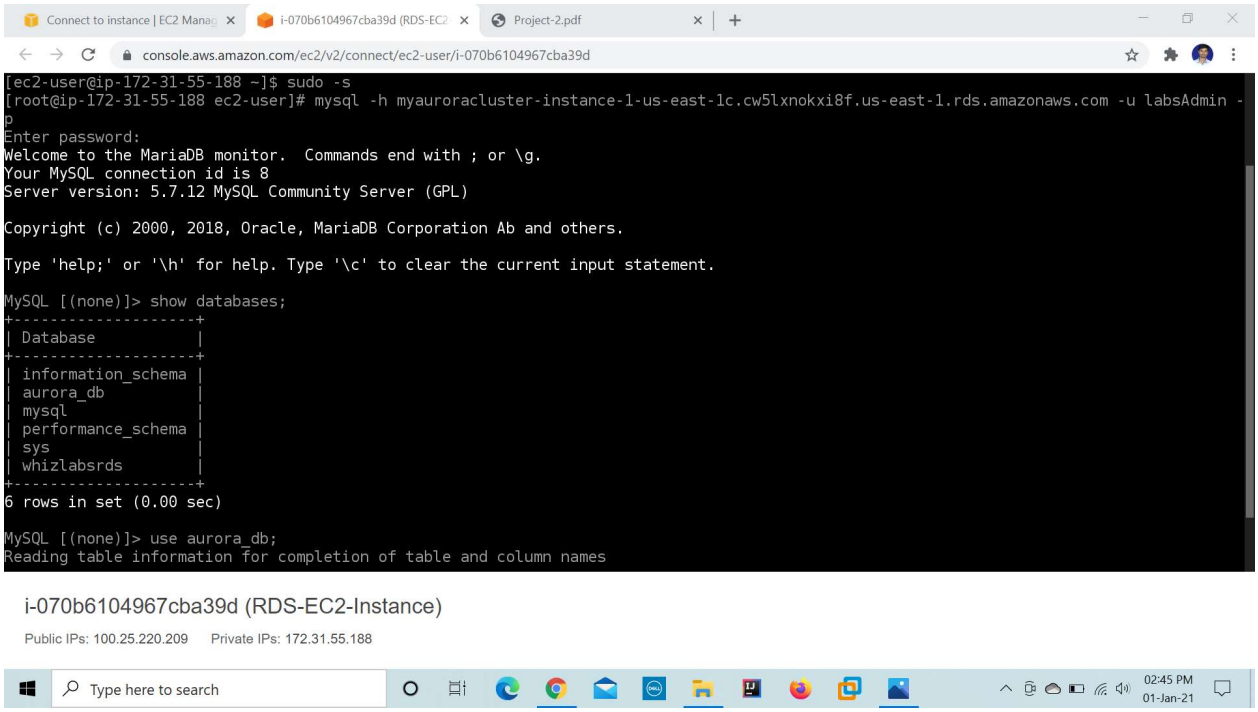


9. Testing the Failover Condition

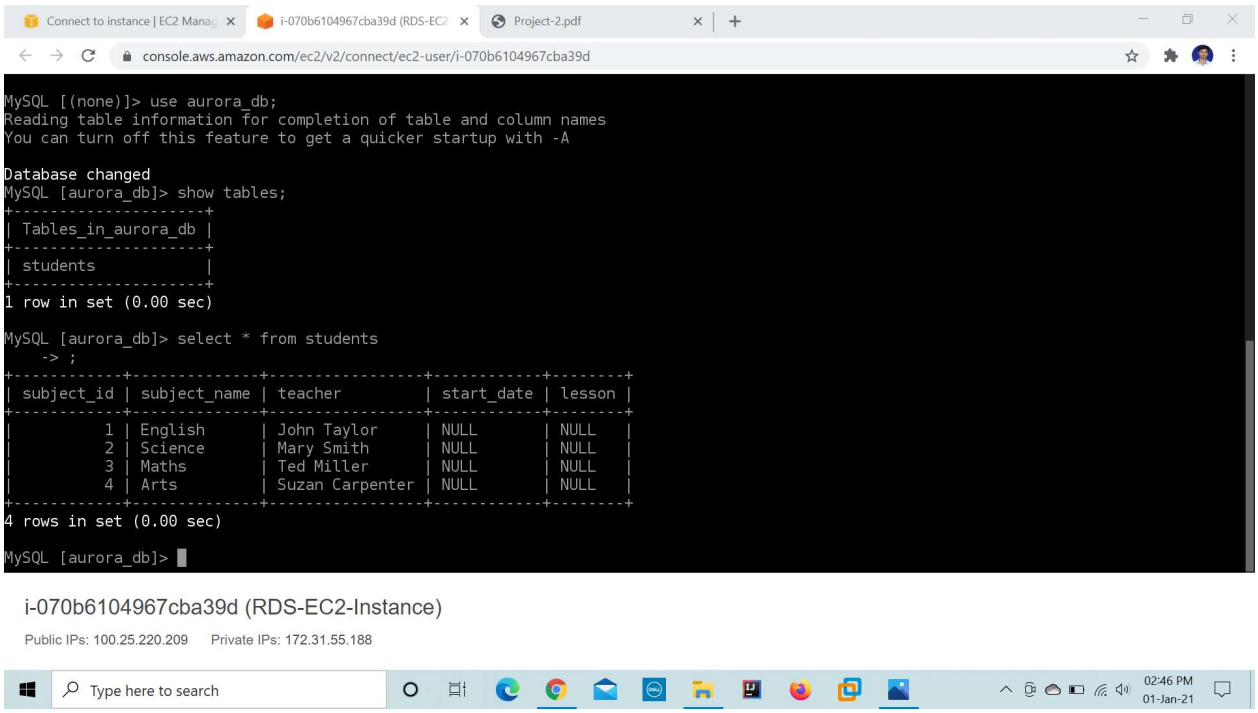
1. Now connect to RDS with new Master endpoint

Commands:

1. show databases;
2. use auroro_db;



3. show tables;
4. select * from students;



5. INSERT INTO students(subject_name, teacher) VALUES ('Spanish', 'Isabella');
6. select * from students;