

ASSIGNMENT - 5

- **Task 1: Create an Aurora Database and connect to it from an EC2**

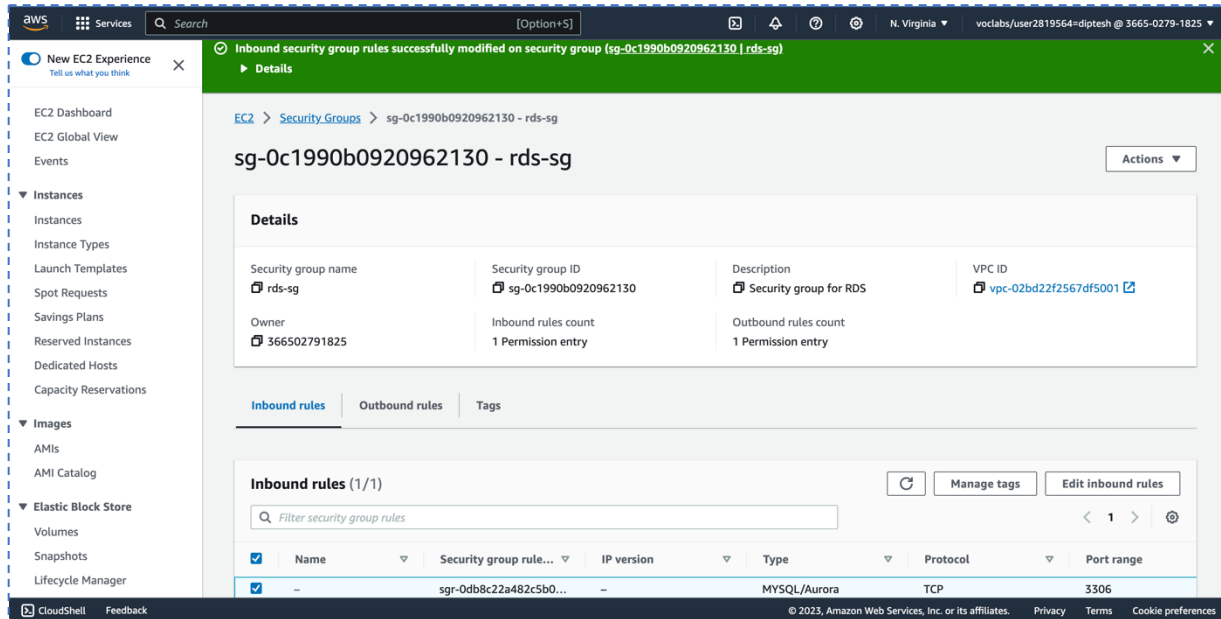


Image - 1: Security group created for RDS.

*(*Forgot to take the initial screenshot so screenshot taken after updating the RDS security group was updated to allow access only from EC2 instance).*

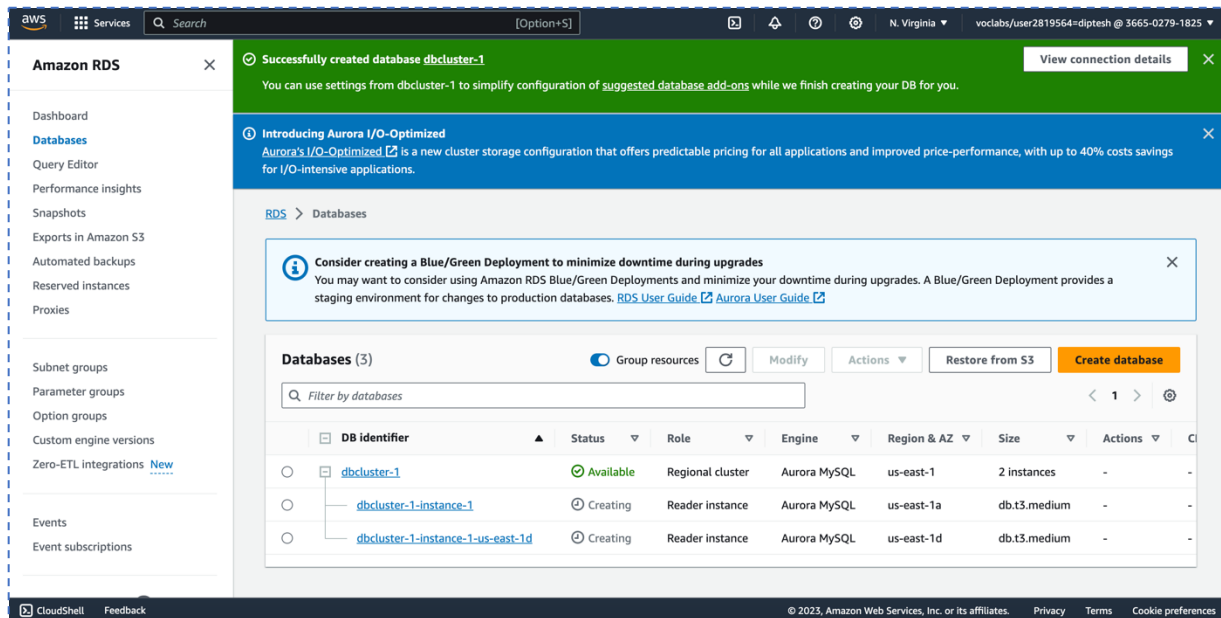


Image - 2: Created RDS with Aurora (MySQL compatible) engine containing "university" database and root database user.

```
aws Services Search [Option+S] N. Virginia voclabs/user2819564=diptesh @ 3665-0279-1825

Installed:
mariadb-connector-c-3.1.13-1.amzn2023.0.3.x86_64 mariadb-connector-c-config-3.1.13-1.amzn2023.0.3.noarch mariadb105-3:10.5.20-1.amzn2023.0.1.x86_64
mariadb105-common-3:10.5.20-1.amzn2023.0.1.x86_64 perl-Sys-Hostname-1.23-477.amzn2023.0.5.x86_64

Complete!
[root@ip-172-31-37-18 ec2-user]# mysql -h dbcluster-1.cluster-cd64zhtvgox.us-east-1.rds.amazonaws.com -P 3306 -u root -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MySQL connection id is 1324
Server version: 8.0.23 Source distribution

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 |
| university |
+-----+
5 rows in set (0.001 sec)

MySQL [(none)]>
```

Image - 3: After the MySQL client was installed, got connected to primary instance of our database server, showing databases.

```
aws Services Search [Option+S] N. Virginia voclabs/user2819564=diptesh @ 3665-0279-1825

university
+-----+
| Tables_in_university |
+-----+
| Student |
+-----+
1 row in set (0.004 sec)

MySQL [(none)]> CREATE TABLE Student (
  -> Id INT AUTO INCREMENT PRIMARY KEY,
  -> firstname VARCHAR(255),
  -> lastname VARCHAR(255),
  -> email VARCHAR(255)
  -> );
ERROR 1046 (3D000): No database selected
MySQL [(none)]> use university;
Database changed
MySQL [university]> CREATE TABLE Student (
  -> Id INT AUTO INCREMENT PRIMARY KEY,
  -> firstname VARCHAR(255),
  -> lastname VARCHAR(255),
  -> email VARCHAR(255)
  -> );
Query OK, 0 rows affected (0.035 sec)

MySQL [university]> show tables;
+-----+
| Tables_in_university |
+-----+
| Student |
+-----+
1 row in set (0.004 sec)

MySQL [university]>
```

Image - 4: Created a table name Student under the university database.

```
AWS Services Search [Option+S] N. Virginia voclabs/user2819564=diptesh @ 3665-0279-1825

-> );
Query OK, 0 rows affected (0.035 sec)

MySQL [university]> show tables;
+-----+
| Tables_in_university |
+-----+
| Student               |
+-----+
1 row in set (0.004 sec)

MySQL [university]> INSERT INTO Student (firstname, lastname, email)
-> VALUES
-> ('John', 'Doe', 'john.doe@example.com'),
-> ('Jane', 'Smith', 'jane.smith@example.com'),
-> ('Alice', 'Johnson', 'alice.johnson@example.com');
Query OK, 3 rows affected (0.004 sec)
Records: 3 Duplicates: 0 Warnings: 0

MySQL [university]> SELECT * FROM Student;
+----+-----+-----+-----+
| Id | firstname | lastname | email |
+----+-----+-----+-----+
| 1  | John      | Doe      | john.doe@example.com |
| 2  | Jane      | Smith    | jane.smith@example.com |
| 3  | Alice     | Johnson  | alice.johnson@example.com |
+----+-----+-----+-----+
3 rows in set (0.001 sec)

MySQL [university]>

i-098e5e378dc1f0f8b (ec2-instance-1)
PublicIPs: 54.162.72.97 PrivateIPs: 172.31.37.18
```

Image - 5: Inserted some dummy data into the Student table.

```
Records: 3 Duplicates: 0 Warnings: 0

MySQL [university]> SELECT * FROM Student;
+----+-----+-----+-----+
| Id | firstname | lastname | email |
+----+-----+-----+-----+
| 1  | John      | Doe      | john.doe@example.com |
| 2  | Jane      | Smith    | jane.smith@example.com |
| 3  | Alice     | Johnson  | alice.johnson@example.com |
+----+-----+-----+-----+
3 rows in set (0.001 sec)

MySQL [university]> CREATE TABLE Grades (
-> GradeId INT AUTO_INCREMENT PRIMARY KEY,
-> StudentId INT,
-> Grade VARCHAR(2),
-> FOREIGN KEY (StudentId) REFERENCES Student(Id)
-> );
Query OK, 0 rows affected (0.066 sec)

MySQL [university]> show tables;
+-----+
| Tables_in_university |
+-----+
| Grades               |
| Student              |
+-----+
2 rows in set (0.002 sec)

MySQL [university]>

i-098e5e378dc1f0f8b (ec2-instance-1)
PublicIPs: 54.162.72.97 PrivateIPs: 172.31.37.18
```

Image - 6: Created second table called Grades.

```
Query OK, 0 rows affected (0.066 sec)

MySQL [university]> show tables;
+-----+
| Tables_in_university |
+-----+
| Grades                |
| Student               |
+-----+
2 rows in set (0.002 sec)

MySQL [university]> INSERT INTO Grades (StudentId, Grade)
-> VALUES
-> (1, 'A'),
-> (2, 'B+'),
-> (3, 'A-');
Query OK, 3 rows affected (0.004 sec)
Records: 3 Duplicates: 0 Warnings: 0

MySQL [university]> SELECT * FROM Grades;
+-----+
| GradeId | StudentId | Grade |
+-----+
| 1       | 1         | A     |
| 2       | 2         | B+    |
| 3       | 3         | A-    |
+-----+
3 rows in set (0.001 sec)

MySQL [university]>
```

i-098e5e378dc1f0f8b (ec2-instance-1)
PublicIPs: 54.162.72.97 PrivateIPs: 172.31.37.18

Image - 7: Inserted dummy data into the Grades table.

```
-> Student.firstname AS FirstName,
-> Student.lastname AS LastName,
-> Student.email AS Email,
-> Grades.Grade
-> FROM
-> Student
-> LEFT JOIN
-> Grades ON Student.Id = Grades.StudentId;
+-----+
| StudentId | FirstName | LastName | Email | Grade |
+-----+
| 1         | John     | Doe      | john.doe@example.com | A     |
| 2         | Jane     | Smith    | jane.smith@example.com | B+    |
| 3         | Alice    | Johnson  | alice.johnson@example.com | A-    |
+-----+
3 rows in set (0.002 sec)

MySQL [university]> quit;
Bye
[root@ip-172-31-37-18 ec2-user]# mysql -h dbcluster-1.cluster-ro-cd64zhtvgox3.us-east-1.rds.amazonaws.com -P 3306 -u root -p
Enter password:
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MySQL connection id is 1346
Server version: 8.0.23 Source distribution

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)]>
```

i-098e5e378dc1f0f8b (ec2-instance-1)
PublicIPs: 54.162.72.97 PrivateIPs: 172.31.37.18

Image - 8: Disconnected from the primary instance of our database server and connected to the read instance of our database server.

```
aws
Services
Search
[Option+S]
N. Virginia
voclabs/user2819564=diptesh @ 3665-0279-1825

sys
university
-----
5 rows in set (0.012 sec)

MySQL [(none)]> use university;
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 [university]> SELECT
-> Student.Id AS StudentId,
-> Student.firstname AS FirstName,
-> Student.lastname AS LastName,
-> Student.email AS Email,
-> Grades.Grade
-> FROM
-> Student
-> LEFT JOIN
-> Grades ON Student.Id = Grades.StudentId;
-----
| StudentId | FirstName | LastName | Email | Grade |
|-----|-----|-----|-----|-----|
| 1 | John | Doe | john.doe@example.com | A |
| 2 | Jane | Smith | jane.smith@example.com | B+ |
| 3 | Alice | Johnson | alice.johnson@example.com | A- |
|-----|-----|-----|-----|-----|
3 rows in set (0.007 sec)

MySQL [university]>
i-098e5e378dc1f0f8b (ec2-instance-1)
PublicIPs: 54.162.72.97 PrivateIPs: 172.31.37.18
```

Image - 9: Running a joined query to view the Student and their Grades information.