Module 7

1. MariaDB Assignment

Problem Statement:

You work for XYZ Corporation. Their application requires a SQL service that can store data which can be retrieved if required. Implement a suitable RDS engine for the same. While migrating, you are asked to perform the following tasks:

1. Create a MariaDB Engine based RDS Database.

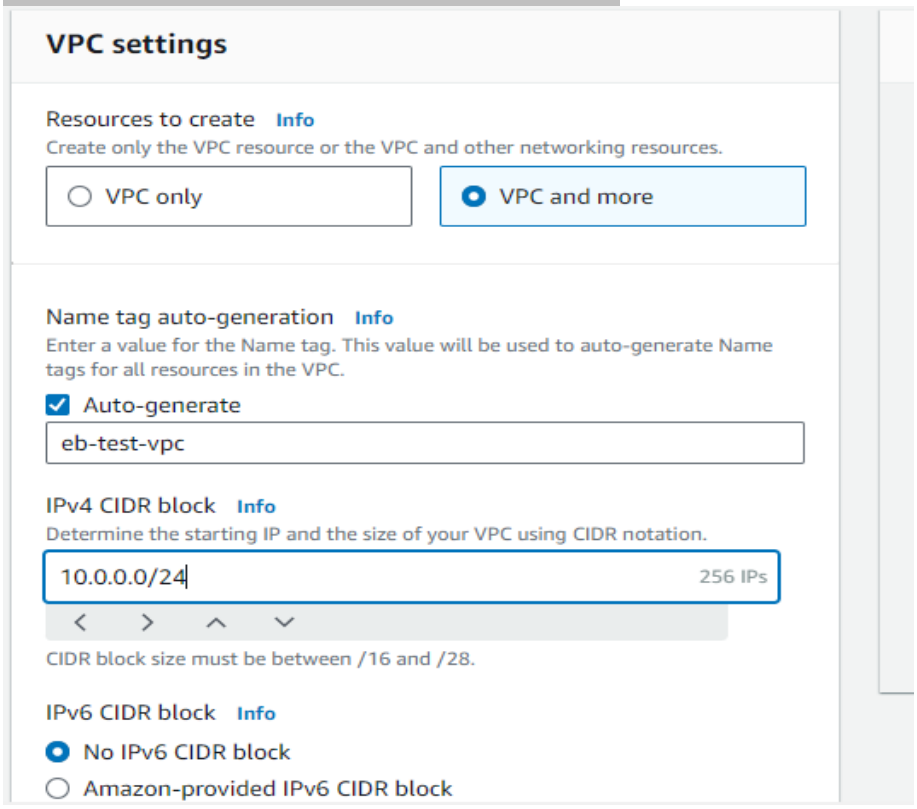
2. Connect to the DB using the following ways:

a. SQL Client for Windows

b. Linux based EC2 Instance

Solutions:

Create VPC with following configurations



Number of public subnets Info

The number of public subnets to add to your VPC. Use public subnets for web applications that need to be publicly accessible over the internet.

0 | 2

Number of private subnets Info

The number of private subnets to add to your VPC. Use private subnets to secure backend resources that don't need public access.

0 | 2 | 4

▶ Customize subnets CIDR blocks

NAT gateways ($) Info

Choose the number of Availability Zones (AZs) in which to create NAT gateways. Note that there is a charge for each NAT gateway

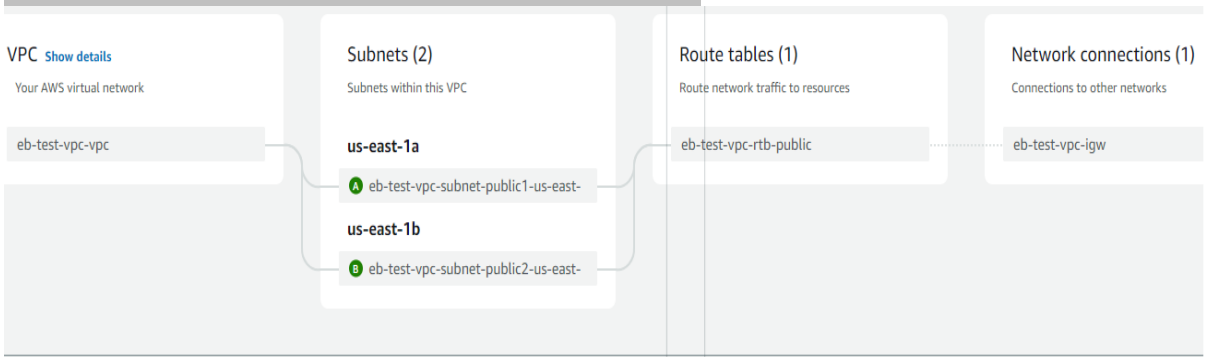
None | In 1 AZ | 1 per AZ

VPC endpoints Info

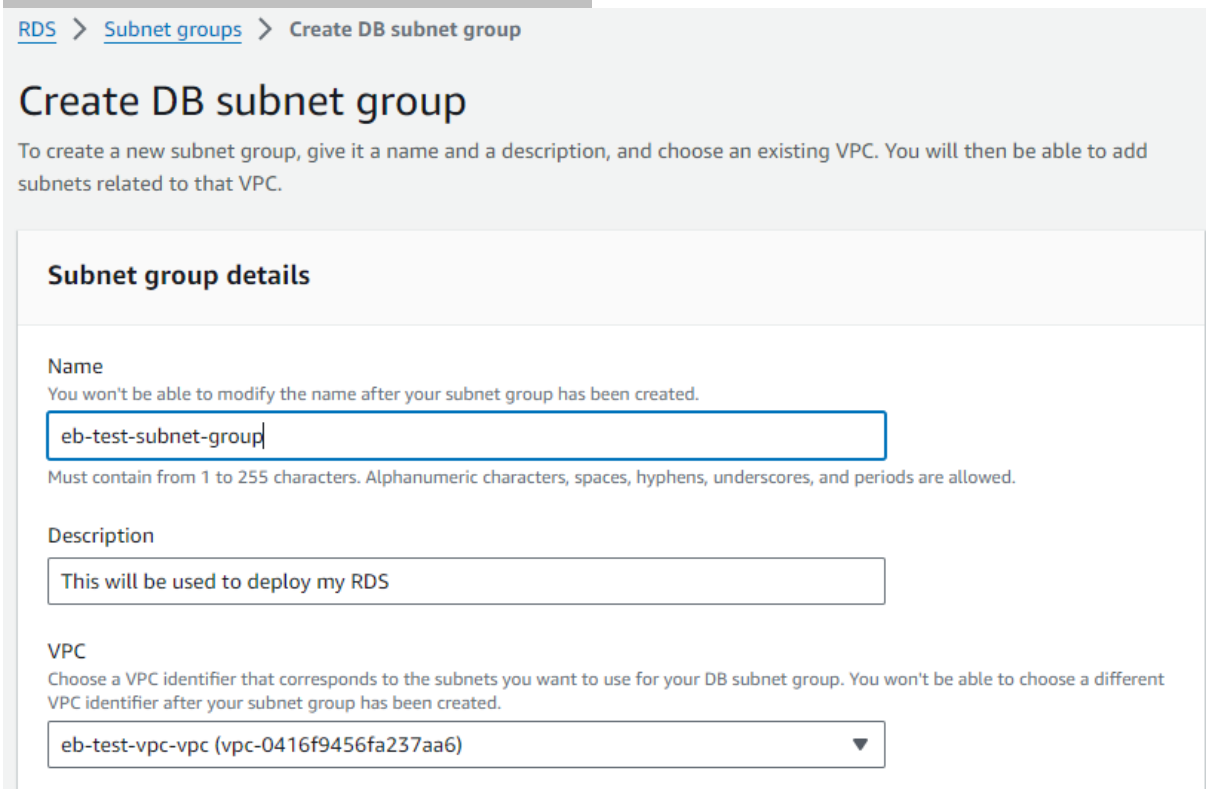
Endpoints can help reduce NAT gateway charges and improve security by accessing S3 directly from the VPC. By default, full access policy is used. You can customize this policy at any time.

None | S3 Gateway

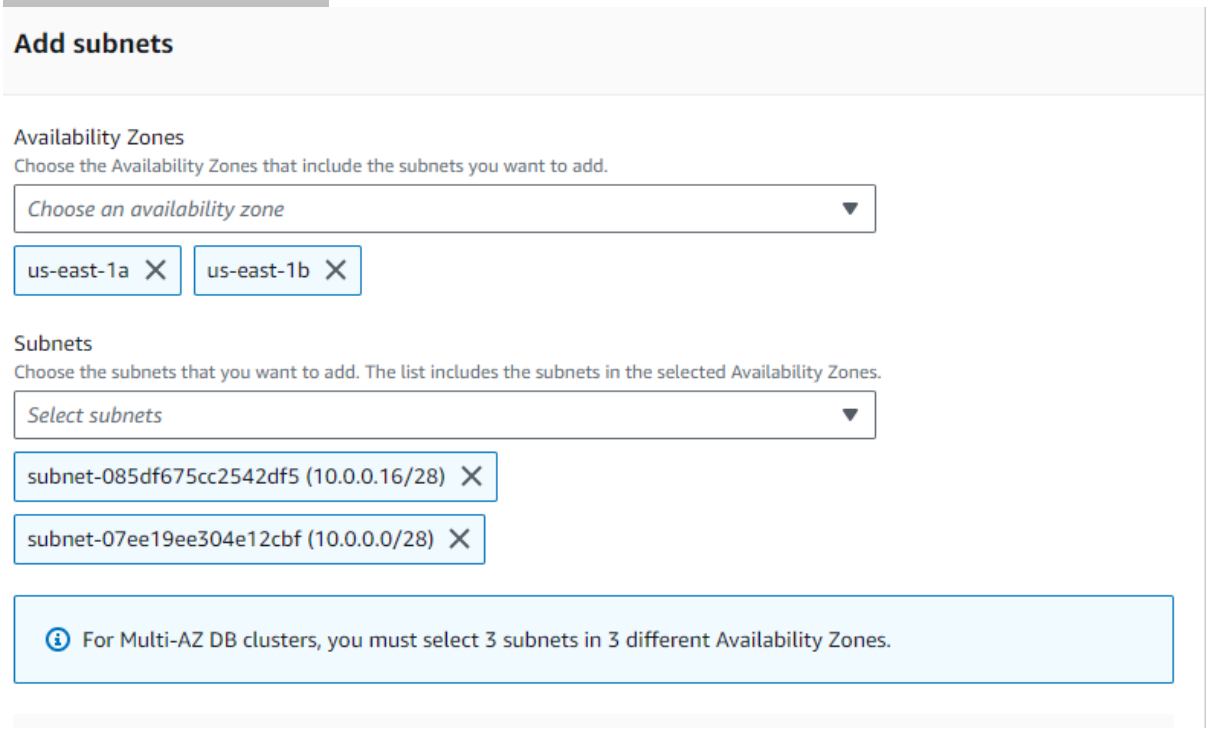
VPC is created with 2 subnets, 1 RT and 1 IGW



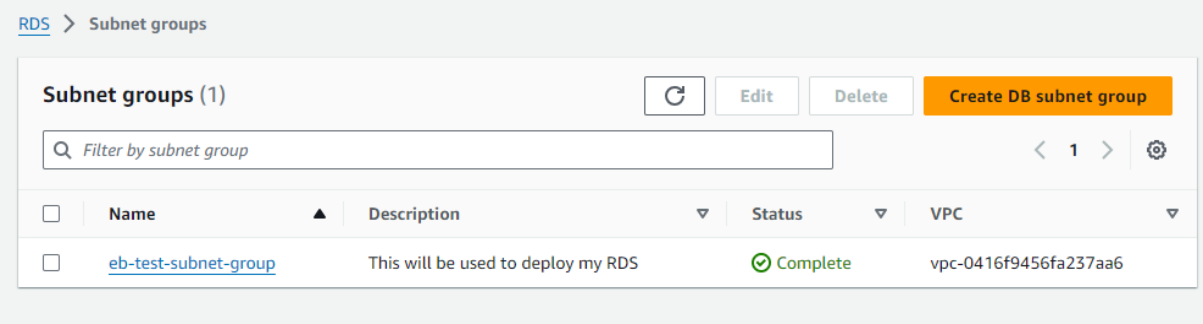
Creating RDS, first create Subnet group



Add VPC and Subnets

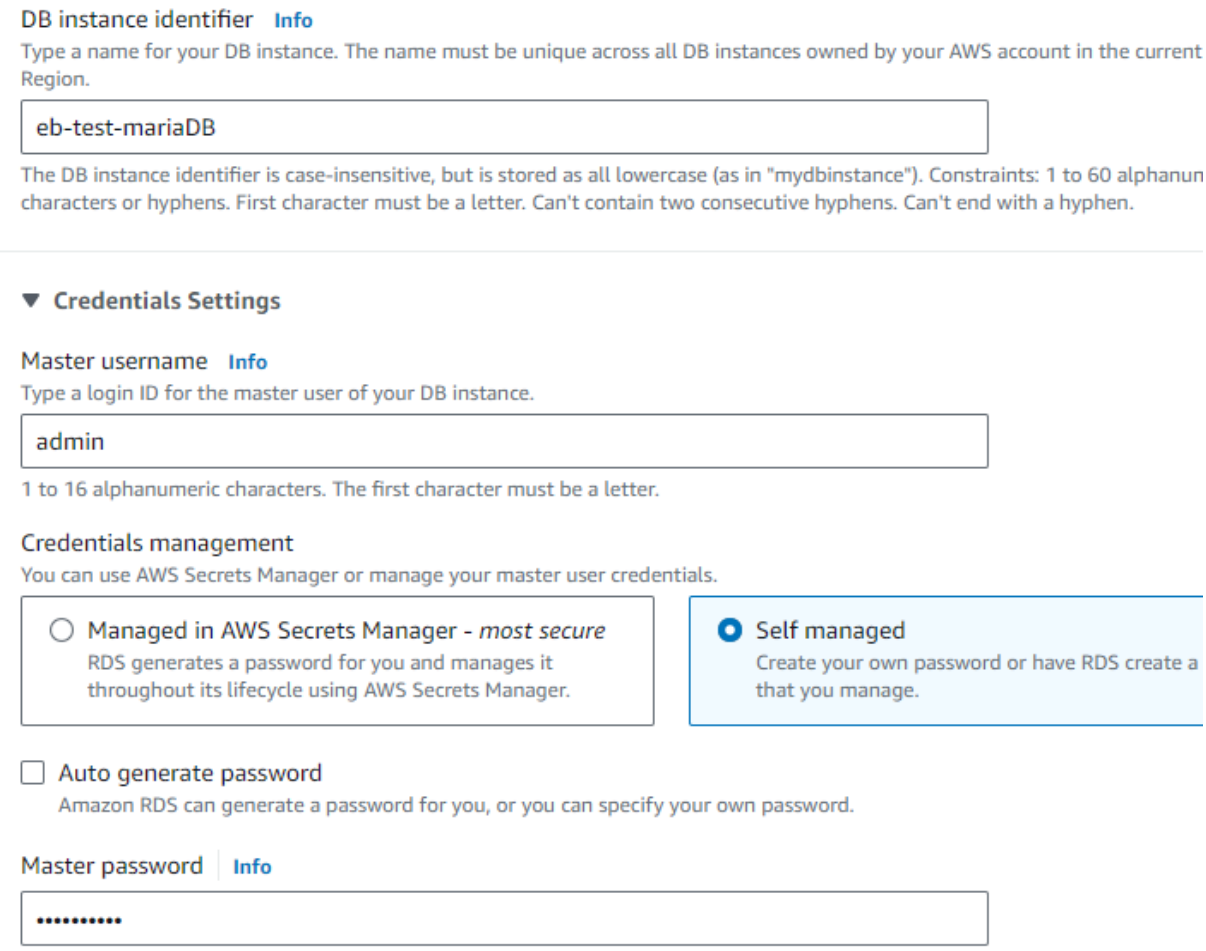


Subnet group is created



Now create RDS > Data base > MariaDB > Standard Method > Free Tier

Give Name and password



Provide Username and password

Select Created VPC and Subnets

Virtual private cloud (VPC) **Info**

Choose the VPC. The VPC defines the virtual networking environment for this DB instance.

eb-test-vpc-vpc (vpc-0416f9456fa237aa6)
2 Subnets, 2 Availability Zones

Only VPCs with a corresponding DB subnet group are listed.

After a database is created, you can't change its VPC.

DB subnet group **Info**

Choose the DB subnet group. The DB subnet group defines which subnets and IP ranges the DB instance can use in the VPC that you selected.

eb-test-subnet-group
2 Subnets, 2 Availability Zones

Enable Public access and create new Security group

Public access **Info**

- (●) Yes
  RDS assigns a public IP address to the database. Amazon EC2 instances and other resources outside of the VPC can connect to your database. Resources inside the VPC can also connect to the database. Choose one or more VPC security groups that specify which resources can connect to the database.
- ( ) No
  RDS doesn't assign a public IP address to the database. Only Amazon EC2 instances and other resources inside the VPC can connect to your database. Choose one or more VPC security groups that specify which resources can connect to the database.

VPC security group (firewall) **Info**

Choose one or more VPC security groups to allow access to your database. Make sure that the security group rules allow the appropriate incoming traffic.

- ( ) Choose existing
  Choose existing VPC security groups
- (●) Create new
  Create new VPC security group

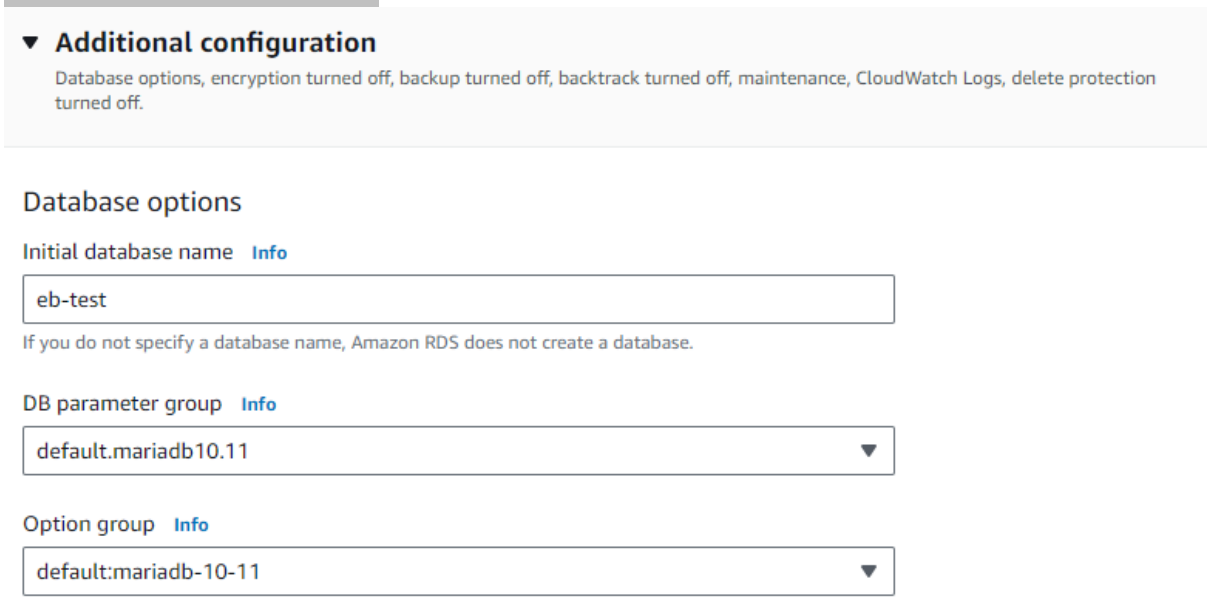
New VPC security group name

eb-test-sg

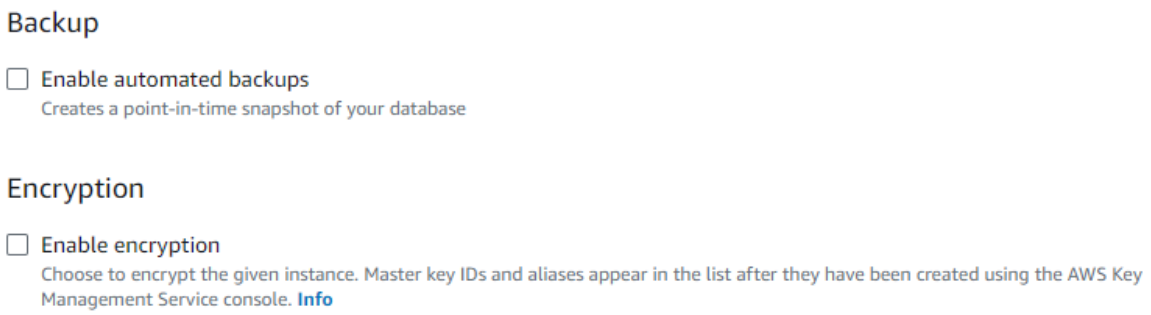
Availability Zone **Info**

No preference

Give the Database Name



Disable the Backup and Encryption



Choose the following options

Maintenance

Auto minor version upgrade **Info**

☑ Enable auto minor version upgrade

Enabling auto minor version upgrade will automatically upgrade to new minor versions as they are released. The automatic upgrades occur during the maintenance window for the database.

Maintenance window **Info**

Select the period you want pending modifications or maintenance applied to the database by Amazon RDS.

○ Choose a window

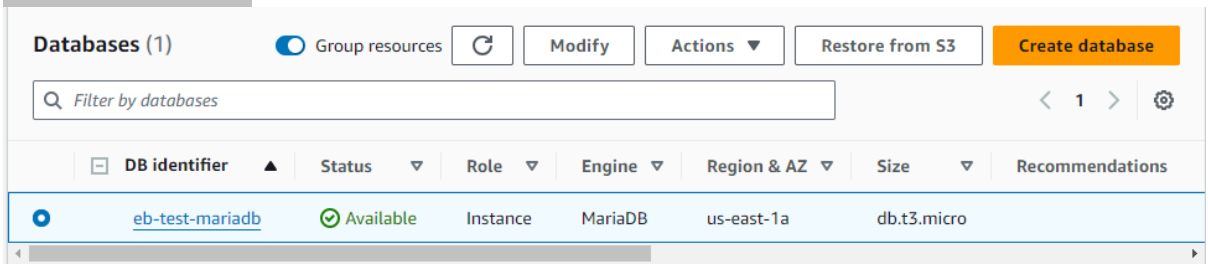
◉ No preference

Deletion protection

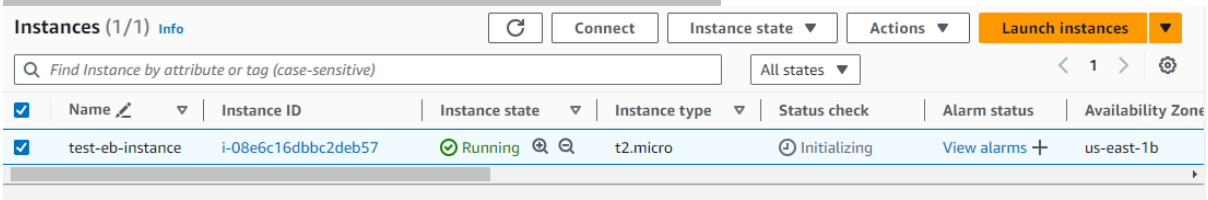
☐ Enable deletion protection

Protects the database from being deleted accidentally. While this option is enabled, you can't delete the database.

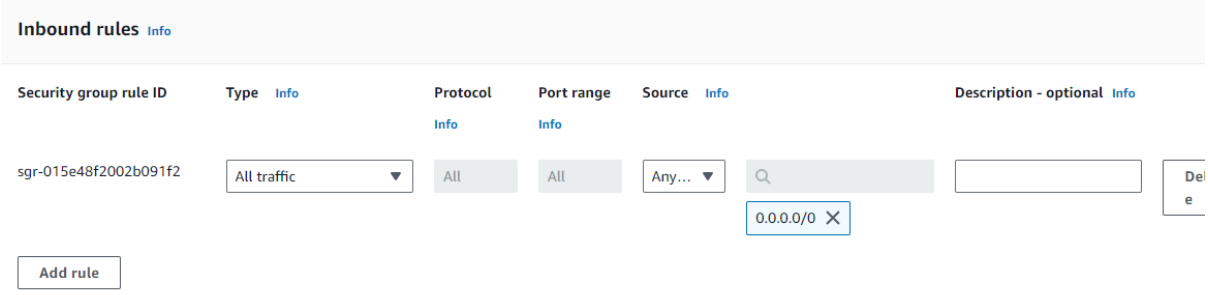
Create Database



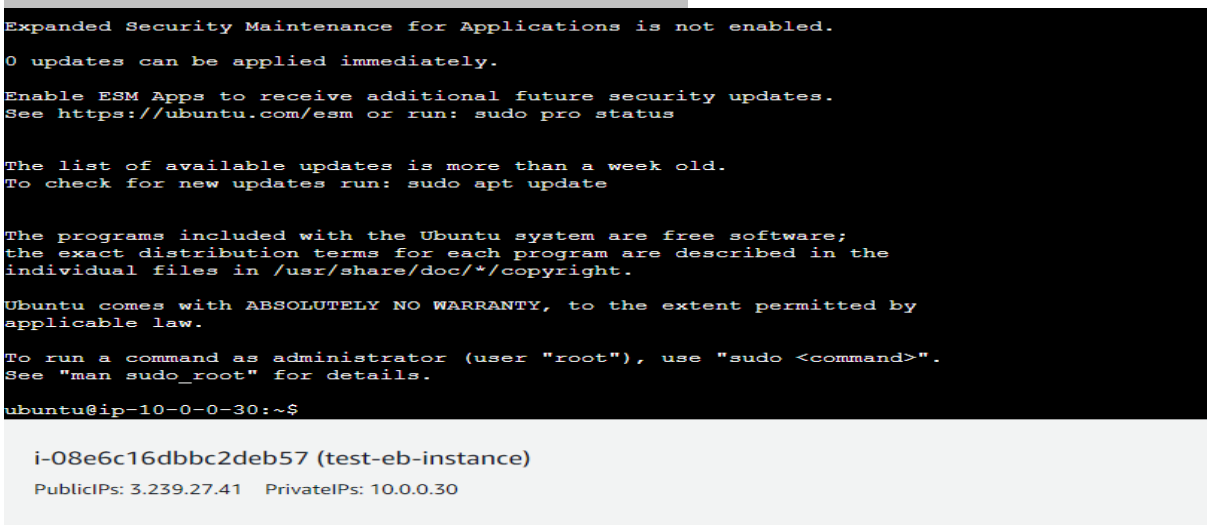
Now Create EC2 instance with Ubuntu Machine



Security group Type- traffic and source- Anywhere



Connect the Instance to the Ubuntu Machine

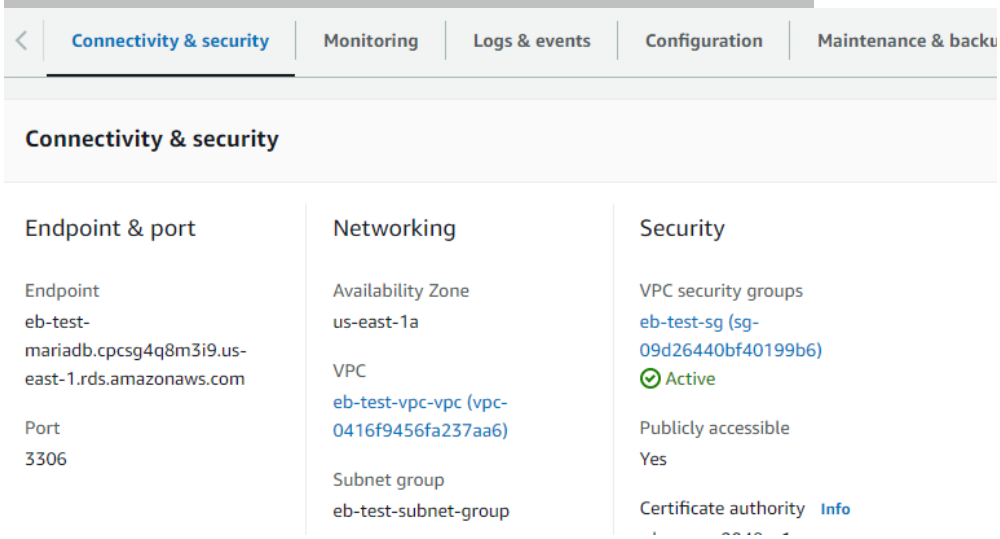


Update the Ubuntu Machine and Install Maria DB server

1. sudo apt update –y

2. sudo apt install mariadb-server –y

Select the endpoint from RDS and run in the Machine



mysql -h eb-test-mariadb.cpcsg4q8m3i9.us-east-1.rds.amazonaws.com -u admin –p

Type- Show databases; Now Connected to the DB using Linux based EC2 Instance

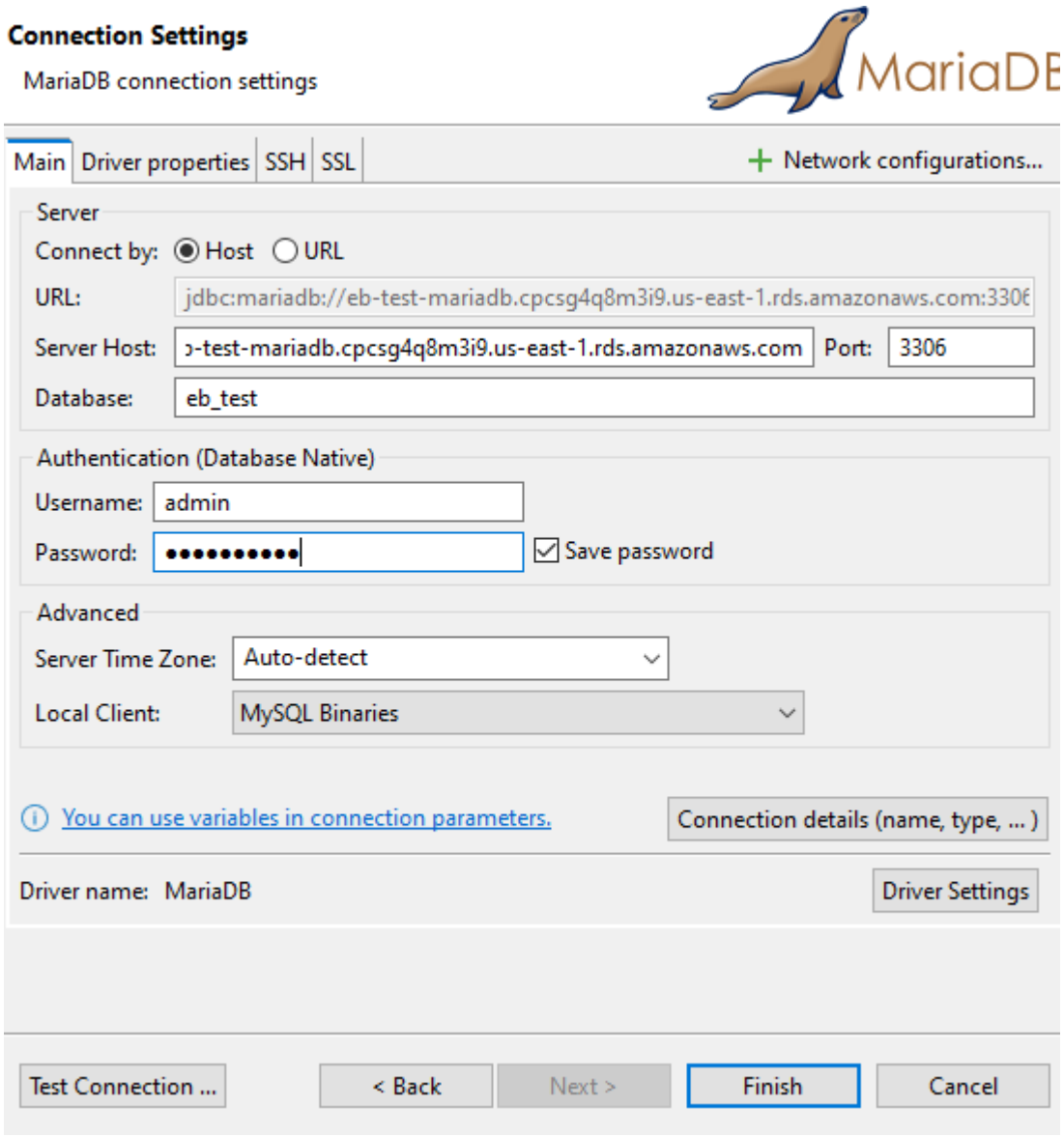
```
ubuntu@ip-10-0-0-30:~$ mysql -h eb-test-mariadb.cpcsg4q8m3i9.us-east-1.rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 100
Server version: 10.11.6-MariaDB managed by https://aws.amazon.com/rds/

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           |
+--------------------+
| eb_test            |
| information_schema |
| innodb             |
| mysql              |
| performance_schema |
| sys                |
+--------------------+
6 rows in set (0.001 sec)

MariaDB [(none)]>
```

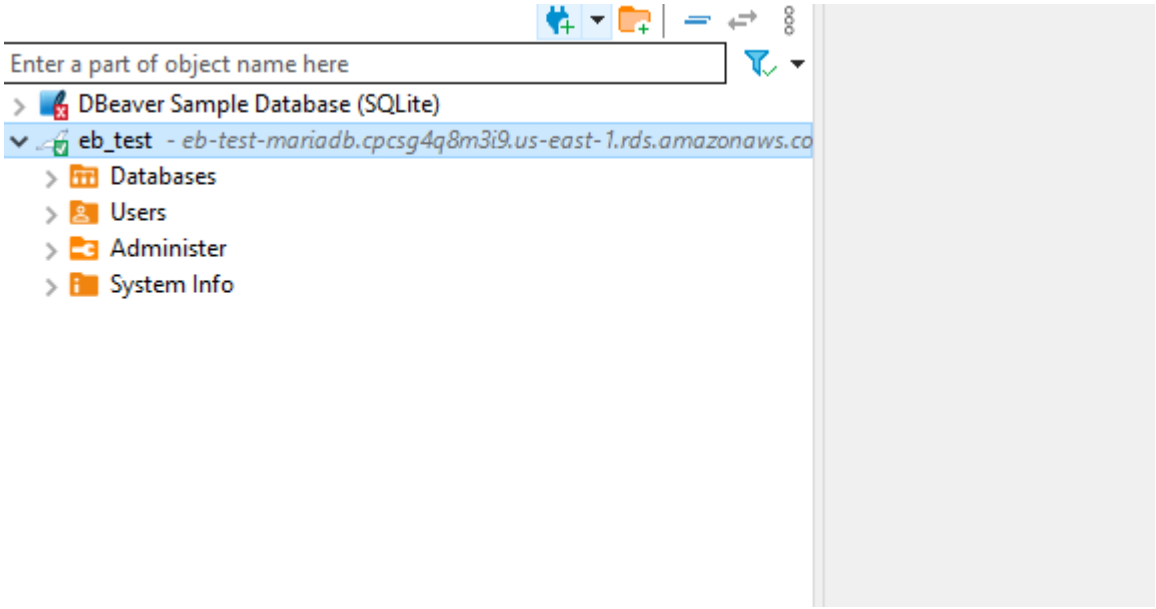
i-08e6c16dbbc2deb57 (test-eb-instance)

PublicIPs: 3.239.27.41 PrivateIPs: 10.0.0.30

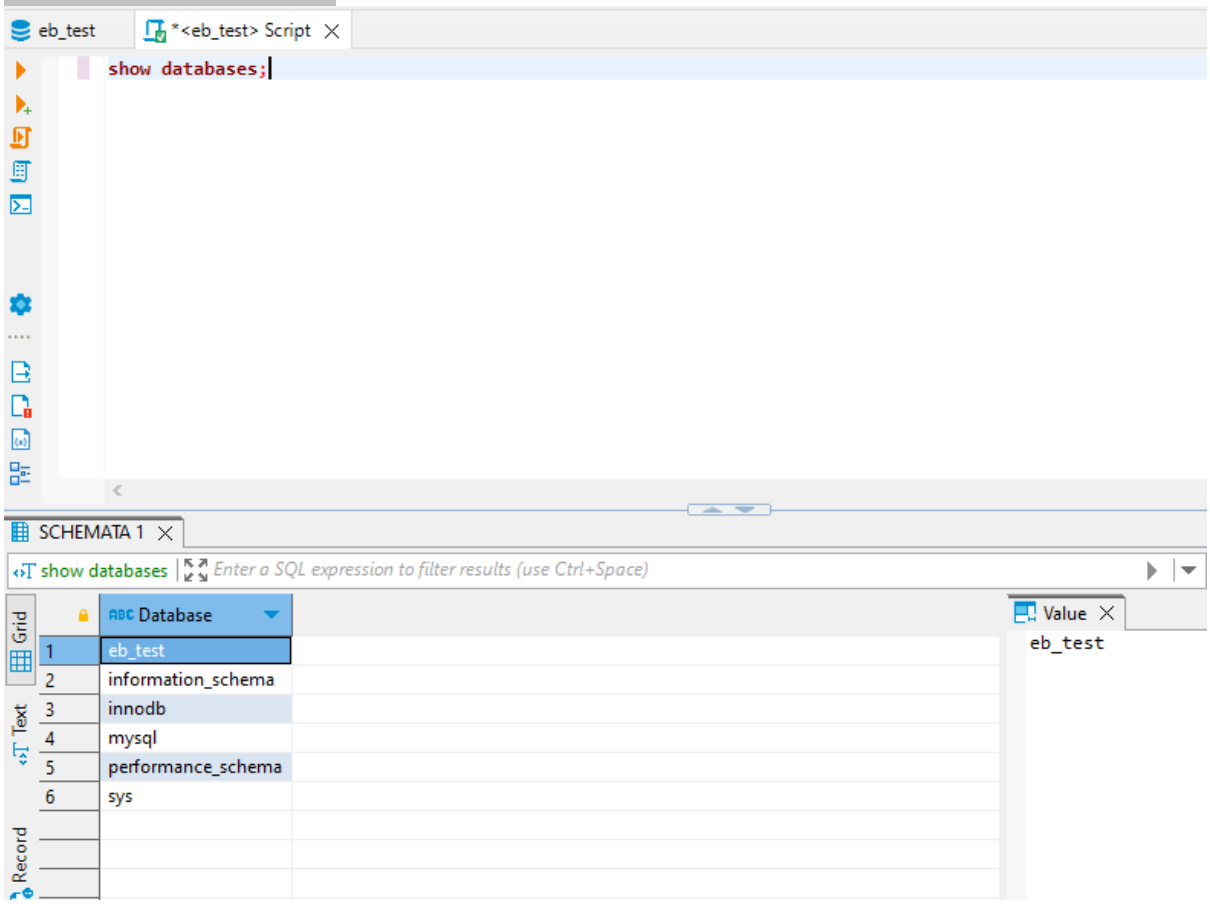
Connect to the DB using SQL Client for Windows

Install Dbeaver and connect to the RDS host, give the username and password

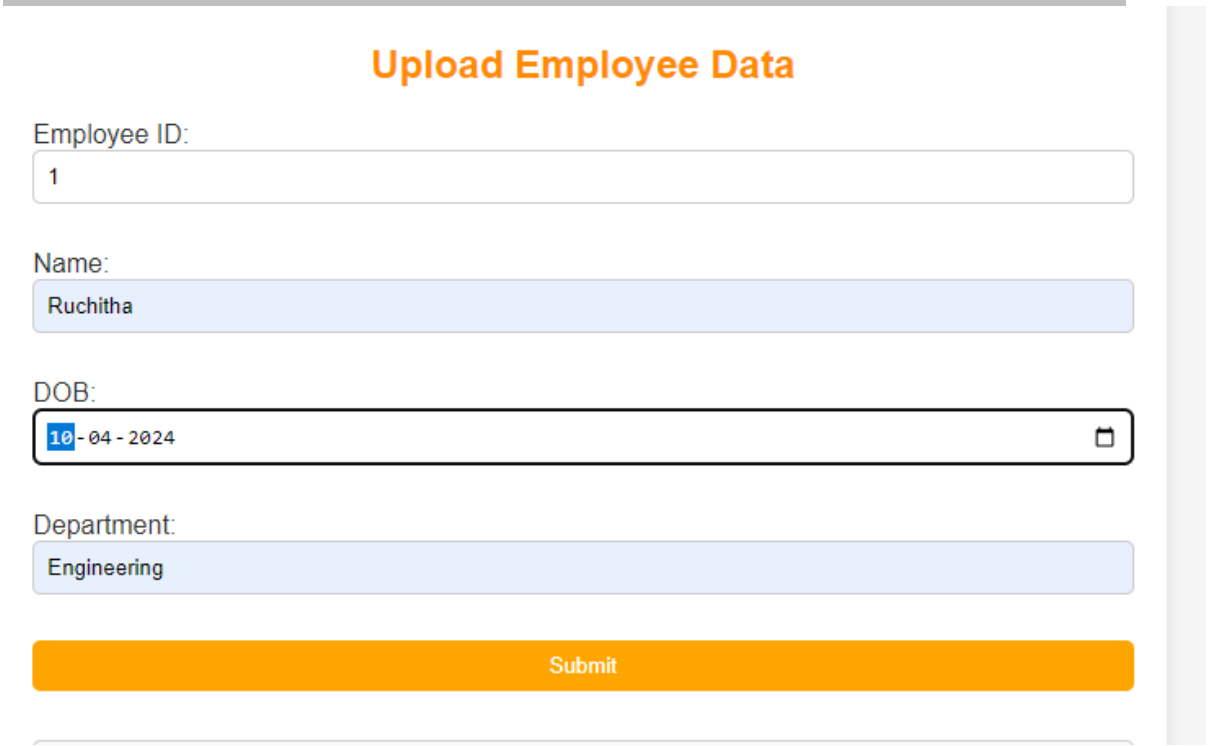

Connection Settings
MariaDB connection settings
MariaDB
Main
Driver properties
SSH
SSL
Network configurations...
Server
Connect by: Host URL
URL: jdbc:mariadb://eb-test-mariadb.cpcsg4q8m3i9.us-east-1.rds.amazonaws.com:330
Server Host: ɔ-test-mariadb.cpcsg4q8m3i9.us-east-1.rds.amazonaws.com
Port: 3306
Database: eb_test
Authentication (Database Native)
Username: admin
Password:
Save password
Advanced
Server Time Zone: Auto-detect
Local Client: MySQL Binaries
You can use variables in connection parameters.
Connection details (name, type, ...)
Driver name: MariaDB
Driver Settings
Test Connection ...
< Back
Next >
Finish
Cancel



Type show databases;



You can upload the file in Elastic Beanstalk and update the employee data,



The updated details can be seen in the Linux machine

```
Database changed
MariaDB [eb_test]> show tables;
+------------------+
| Tables_in_eb_test |
+------------------+
| employees        |
+------------------+
1 row in set (0.001 sec)

MariaDB [eb_test]> select * from employees;
+----+--------+----------+------------+-------------+
| id | emp_id | name     | dob        | department  |
+----+--------+----------+------------+-------------+
|  1 | 1      | Ruchitha | 2024-04-10 | Engineering |
|  2 | 2      | Leela    | 2024-04-10 | health      |
+----+--------+----------+------------+-------------+
2 rows in set (0.001 sec)

MariaDB [eb_test]>
```

i-08e6c16dbbc2deb57 (test-eb-instance)

PublicIPs: 3.239.27.41 PrivateIPs: 10.0.0.30

Give following commands to switch and run the databases

Use eb_test

Show tables;

Select * from employees;

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