

[Project 8: Creating an Amazon RDS Database and Integrating with a Web Application]

Name: Romisaa Sameh Sabry

Group: 3

Introduction:

This report documents the steps taken to create an Amazon RDS database using MySQL and configure a web application to interact with it. The tasks were completed using the AWS CLI, and screenshots have been taken to illustrate each step of the process.

Task 1: Creating an Amazon RDS Database:

Step 1: Create a New MySQL Database:

Executed the command to create a new database instance with the specified configurations using CLI:

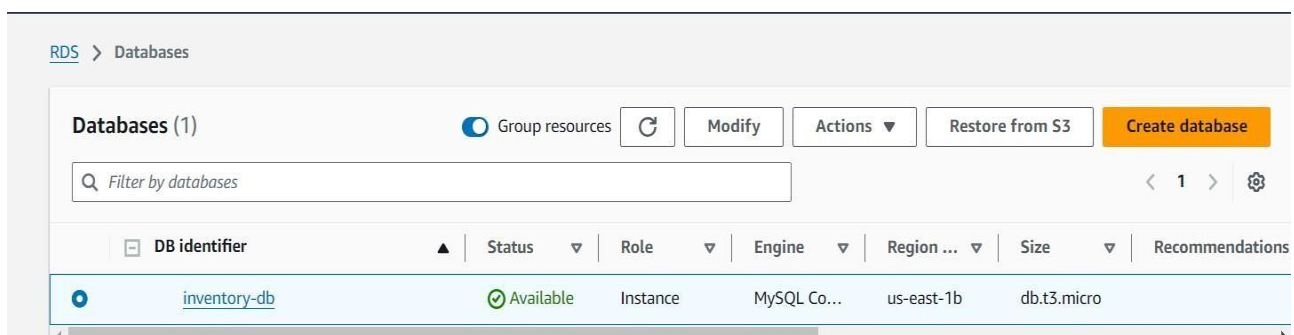
- **DB Instance Identifier:** inventory-db
- **Master Username:** admin
- **Master Password:** lab-password
- **Instance Type:** db.t3.micro
- **Storage Type:** General Purpose SSD (gp2) with 20 GB allocated
- **VPC:** Selected the Lab VPC and attached the security group DB-SG
- **Initial Database Name:** inventory
- **Disabled:** Multi-AZ deployment, Enhanced Monitoring, and Storage Autoscaling

Command Used:

```
romisaa@DESKTOP-NUED58T:~$ aws rds create-db-instance \  
> --db-instance-identifier inventory-db \  
> --db-instance-class db.t3.micro \  
> --engine mysql \  
> --master-username admin \  
> --master-user-password lab-password \  
> --allocated-storage 20 \  
> --storage-type gp2 \  
> --vpc-security-group-ids "$SECURITY_GROUP_ID" \  
> --db-subnet-group-name lab-db-subnet-group \  
> --backup-retention-period 7 \  
> --no-multi-az \  
> --db-name inventory \  
> --region us-east-1
```

[Screenshot 1: Confirmation of database creation command execution]

Step 2: Wait for Database Availability:



[Screenshot 2: Database status showing as Available]

Monitored the status of the database until it changed to **Available**.

Task 2: Configuring Web Application Communication with the Database Instance:

Step 1: Access the Web Application:

Connected to the web application via a web browser using the IP address.

Step 2: Retrieve RDS Database Endpoint:

Accessed the RDS database details to copy the database endpoint.

```
romisaa@DESKTOP-NUED58T:~$ aws rds describe-db-instances \
--db> --db-instance-identifier inventory-db \
> --query "DBInstances[0].Endpoint.Address" \
> --output text
inventory-db.ckb5wpqml5cf.us-east-1.rds.amazonaws.com
```

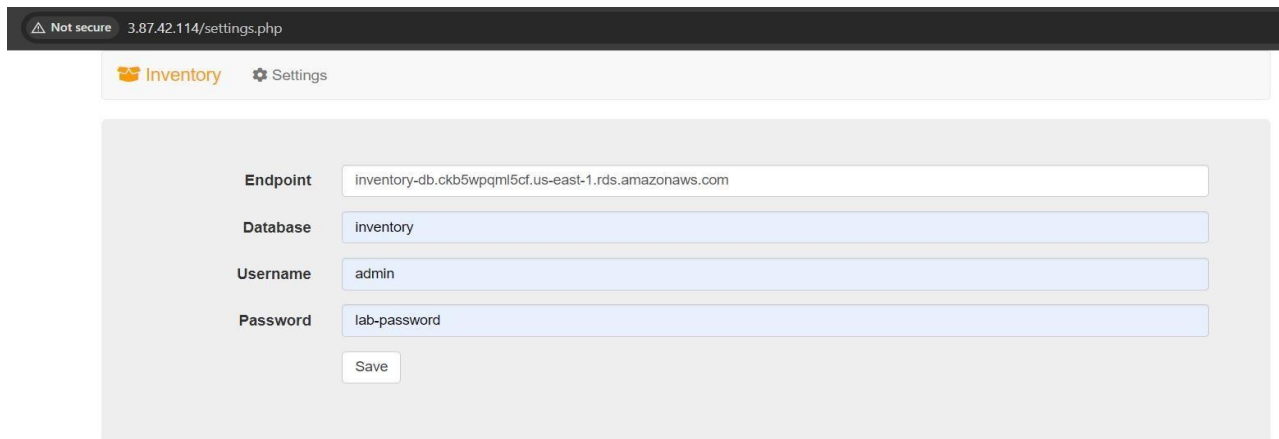
[Screenshot 3: Displaying the RDS database endpoint]

Step 3: Configure the Web Application:

Entered the following details into the web application to establish a connection with the RDS database:

- **Endpoint:** (RDS database endpoint)
- **Database:** inventory
- **Username:** admin
- **Password:** lab-password

Clicked on **Save Configuration** to store the database connection details securely using AWS Secrets Manager.



The screenshot shows a web browser window with the address bar displaying "Not secure 3.87.42.114/settings.php". The page has a header with "Inventory" and "Settings" links. The main content area contains a configuration form with the following fields and values:

Field	Value
Endpoint	inventory-db.ckb5wpqml5cf.us-east-1.rds.amazonaws.com
Database	inventory
Username	admin
Password	lab-password

Below the fields is a "Save" button.

[Screenshot 4: Web application configuration page with details entered]

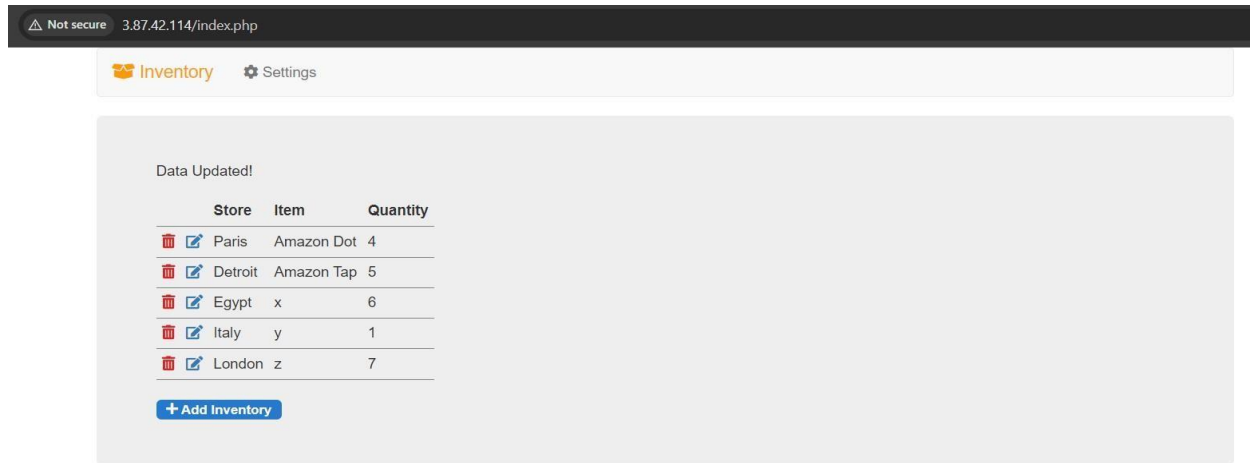
Task 3: Verifying Database and Application Integration:

Step 1: Add Inventory Records

Used the web application to add five new inventory records.

Step 2: Edit and Delete Records

Edited one of the existing records to test the update functionality. Deleted a record to ensure that the delete functionality works as expected.



This page was generated by instance i-0cf2c04d8f033cb7b in Availability Zone us-east-1a.

[Screenshot 5: Confirmation of deleting, editing and adding records]

Conclusion:

The lab was successfully completed by creating an Amazon RDS MySQL database and configuring a web application to interact with it. Using AWS Secrets Manager enhanced the security of the application by securely storing database credentials. The successful addition, modification, and deletion of records verified the proper integration between the web application and the RDS database.