

## Task 1: Amazon RDS Setup and Basic Operations

The screenshot displays the AWS Management Console interface for Amazon RDS. The top navigation bar shows the URL `us-east-1.console.aws.amazon.com/rds/home?region=us-east-1#databases:`. The left sidebar contains the navigation menu with options like Dashboard, Databases, Query Editor, Performance insights, Snapshots, Exports in Amazon S3, Automated backups, Reserved instances, Proxies, Subnet groups, Parameter groups, Option groups, Custom engine versions, and Zero-ETL integrations.

The main content area shows a green notification banner stating "Successfully created database rds-db-test" with a "View connection details" link. Below this, there are informational banners for "Introducing Aurora I/O-Optimized" and "Consider creating a Blue/Green Deployment to minimize downtime during upgrades".

The "Databases (1)" section is visible, showing a table with the following data:

DB identifier	Status	Role	Engine	Region	Size	Recommendation
rds-db-test	Available	Instance	MySQL Co...	us-east-1b	db.t3.micro	

The bottom section of the screenshot shows the "Connectivity & Security" tab for the database instance. It is divided into three columns: Endpoint & port, Networking, and Security.

**Endpoint & port:**

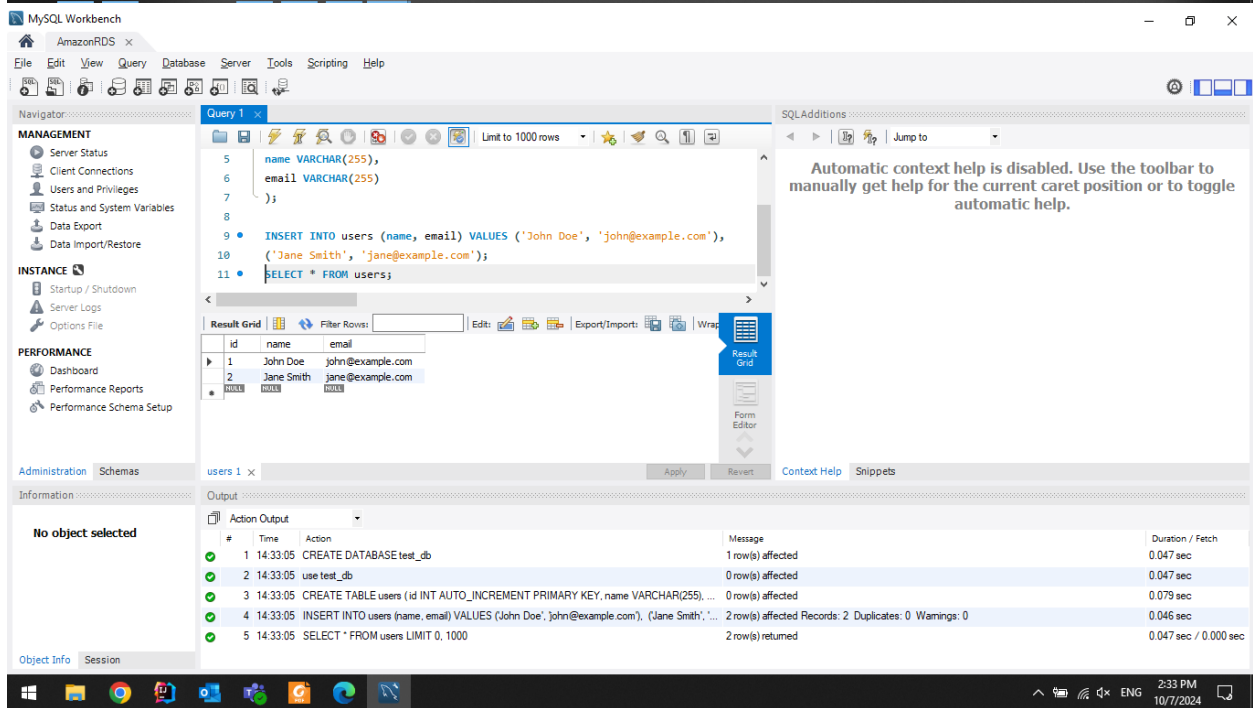
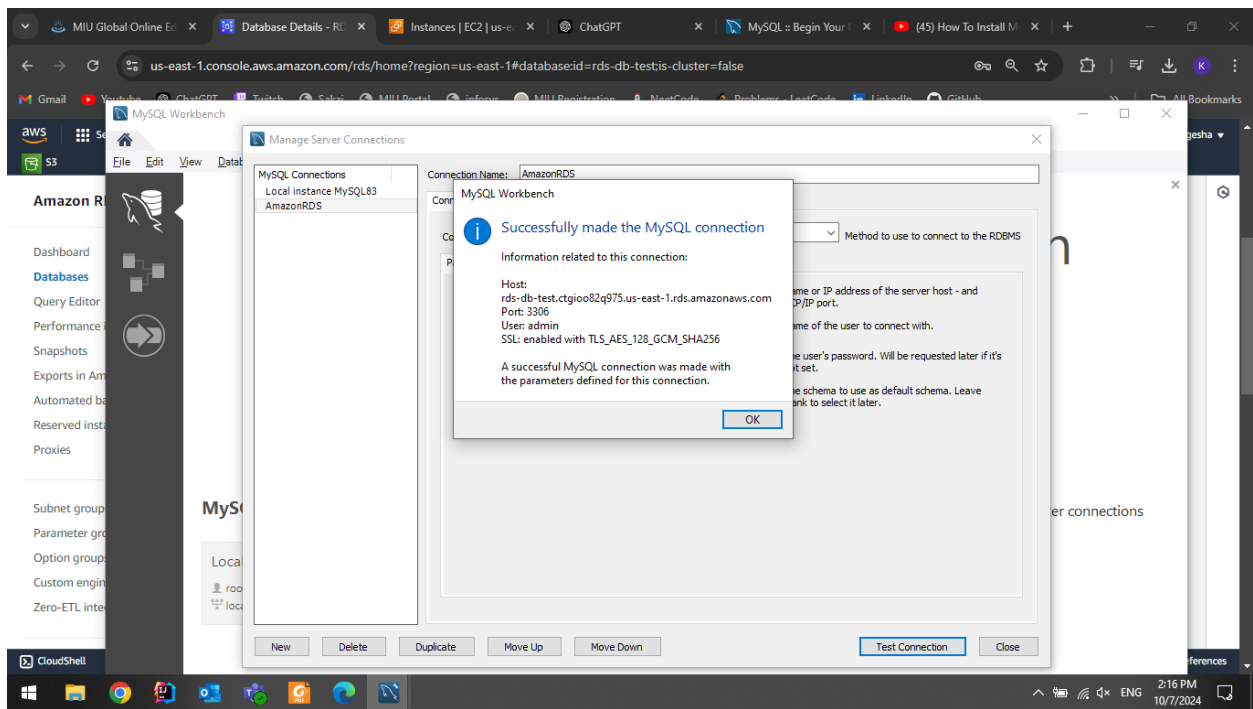
- Endpoint: `rds-db-test.ctgjoo82q975.us-east-1.rds.amazonaws.com`
- Port: 3306

**Networking:**

- Availability Zone: us-east-1b
- VPC: `vpc-050fa616b485555a3`
- Subnet group: `default-vpc-050fa616b485555a3`
- Subnets: `subnet-014947e8de29ff6e3`, `subnet-073831d732e25bcdd`, `subnet-0eab6203fffd0517f`, `subnet-0c385e291e52931fa`, `subnet-03fb03eb2b0891622`, `subnet-022310b8bcc37c3a9`
- Network type: IPv4

**Security:**

- VPC security groups: `rds-sg (sg-073ffe710429c8a2e)` (Active)
- Publicly accessible: Yes
- Certificate authority: `rds-ca-rsa2048-g1`
- Certificate authority date: May 25, 2061, 18:34 (UTC-05:00)
- DB instance certificate expiration date: October 07, 2025, 13:38 (UTC-05:00)





## Task 2: Amazon Aurora Exploration

The screenshot shows the Amazon RDS console for the 'aurora-db-test' database instance. The instance is in the 'Available' state and is a Regional cluster of Aurora MySQL in the us-east-1 region. The instance size is 1 instance. The console displays various tabs for the instance, including Connectivity & security, Monitoring, Logs & events, Configuration, Zero-ETL integrations, Maintenance & backups, Tags, and Recommendations. The Endpoints (2) section shows two endpoints: 'aurora-db-test-cluster-ctglo082q975-us-east-1-rds.amazonaws.com' (Writer) and 'aurora-db-test-cluster-ro-ctglo082q975-us-east-1-rds.amazonaws.com' (Reader), both in the 'Available' state. The Manage IAM roles section shows the option to select IAM roles to add to the cluster.

DB Identifier	Status	Role	Engine	Region & AZ	Size	Recommendations	CPU	Current ac...	Maintenance
aurora-db-test	Available	Regional cluster	Aurora MySQL	us-east-1	1 instance	-	-	-	none
aurora-db-test-instance-1	Available	Writer instance	Aurora MySQL	us-east-1b	Serverless v2 ...	-	3.78%	3 Selects/...	none

Endpoint name	Status	Type	Port
aurora-db-test-cluster-ctglo082q975-us-east-1-rds.amazonaws.com	Available	Writer	3306
aurora-db-test-cluster-ro-ctglo082q975-us-east-1-rds.amazonaws.com	Available	Reader	3306

```
[ec2-user@ip-172-31-87-74 ~]$ mysql -h aurora-db-test-instance-1.ctglo082q975.us-east-1.rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 82
Server version: 8.0.32 Source distribution

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>
```

```
mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| mysql |
| performance_schema |
| sys |
+-----+
4 rows in set (0.00 sec)

mysql>
```

```
mysql> create database lab7_aurora_db;
Query OK, 1 row affected (0.01 sec)

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| lab7_aurora_db |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.00 sec)

mysql>
```

```
mysql> use lab7_aurora_db;
Database changed
mysql> CREATE TABLE users (
  -->
  --> id INT AUTO_INCREMENT PRIMARY KEY,
  -->
  --> name VARCHAR(255),
  -->
  --> email VARCHAR(255)
  --> );
Query OK, 0 rows affected (0.21 sec)

mysql> INSERT INTO users (name, email) VALUES ('John Doe', 'john@example.com'), ('Jane Smith', 'jane@example.com');
Query OK, 2 rows affected (0.02 sec)
Records: 2 Duplicates: 0 Warnings: 0

mysql> SELECT * FROM users;
+----+-----+-----+
| id | name  | email          |
+----+-----+-----+
| 1  | John Doe | john@example.com |
| 2  | Jane Smith | jane@example.com |
+----+-----+-----+
2 rows in set (0.00 sec)

mysql>
```

## Failover observations

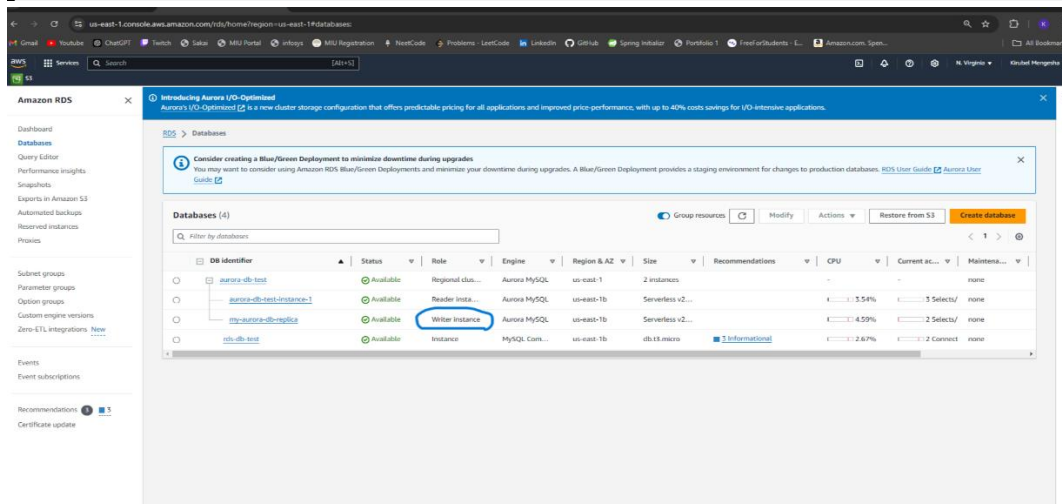
```
[ec2-user@ip-172-31-87-74 ~]$ mysql -h my-aurora-db-replica.ctgionb.q715.us-east-1.rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 85
Server version: 8.0.32 Source distribution

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Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>
```



```
mysql> SELECT * FROM users;
ERROR 2013 (HY000): Lost connection to MySQL server during query
mysql> SELECT * FROM users;
ERROR 2006 (HY000): MySQL server has gone away
No connection. Trying to reconnect...
Connection id: 22
Current database: lab7_aurora_db

+----+-----+-----+
| id | name  | email          |
+----+-----+-----+
| 1  | John Doe | john@example.com |
| 2  | Jane Smith | jane@example.com |
+----+-----+-----+
2 rows in set (0.08 sec)

mysql>
```

## 18 second downtime during failover in Amazon Aurora

