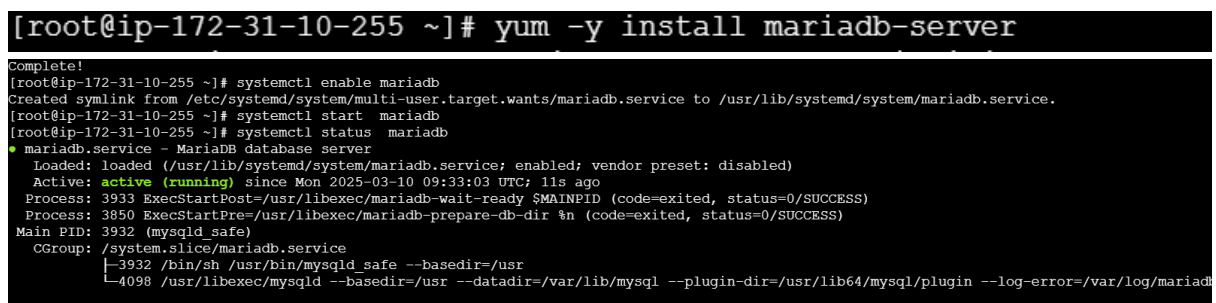
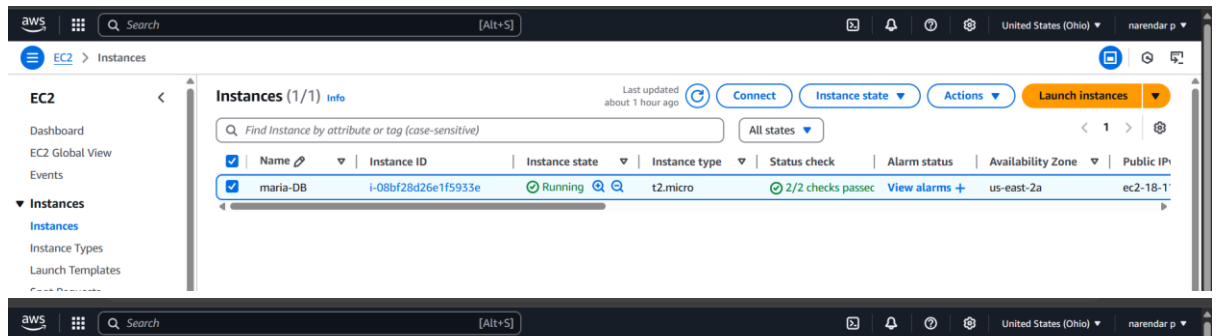


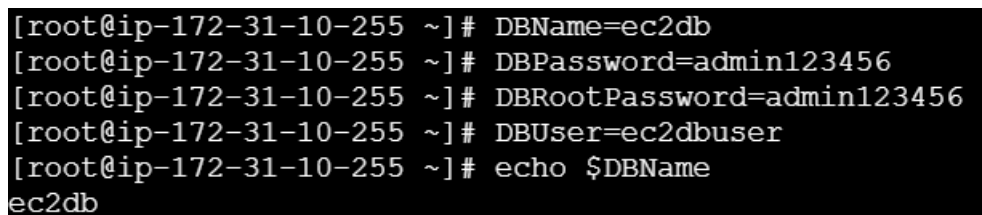
# TASK ON RDS

1) Create mariadb db on ec2:

→ create on ec2 instance and install mariadb and start it:

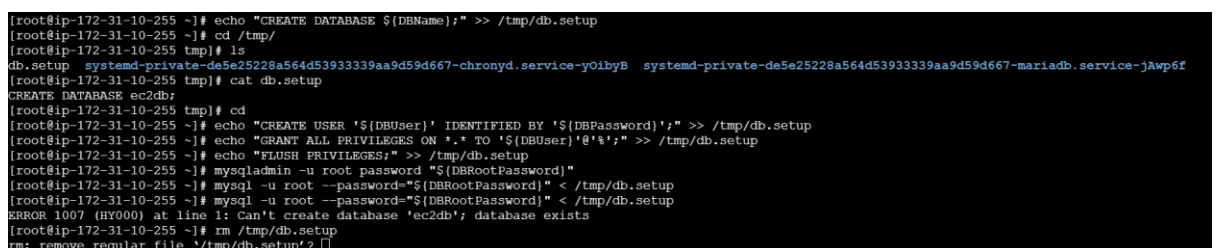


→ set environmental variables:



→ mariadb Database Setup on EC2 Instance:

Created and connected to database:



## 2) Insert some dummy data:

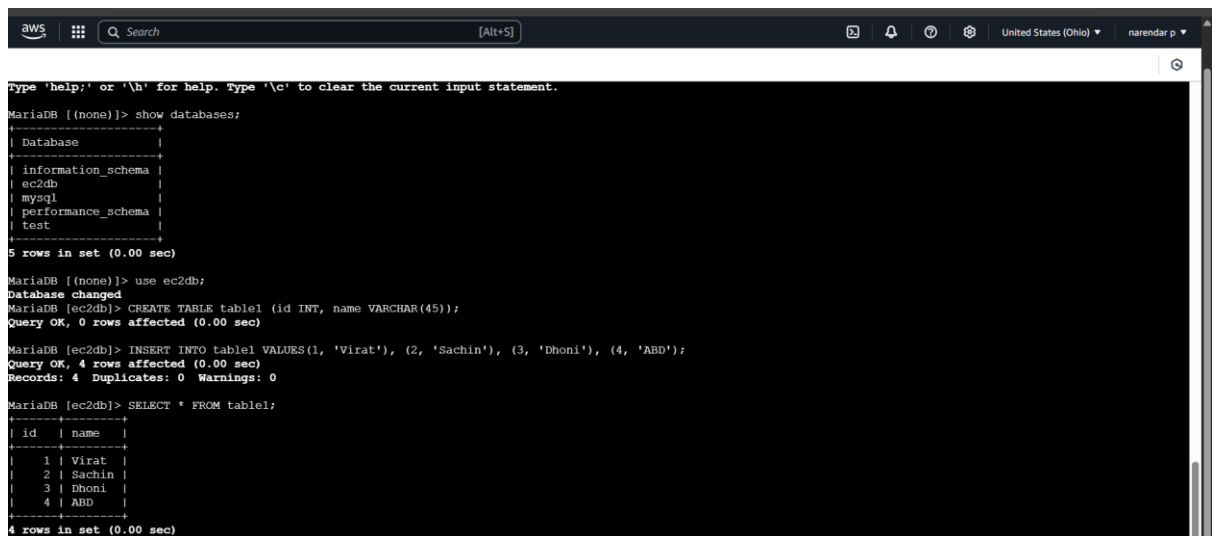
→ First login to database:

```
[root@ip-172-31-10-255 ~]# mysql -u root --password="{DBRootPassword}"
Welcome to the MariaDB monitor.  Commands end with ; or \g.
Your MariaDB connection id is 5
Server version: 5.5.68-MariaDB MariaDB Server

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

→ Now insert dummy data:



```
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| ec2db      |
| mysql      |
| performance_schema |
| test       |
+-----+
5 rows in set (0.00 sec)

MariaDB [(none)]> use ec2db;
Database changed
MariaDB [ec2db]> CREATE TABLE table1 (id INT, name VARCHAR(45));
Query OK, 0 rows affected (0.00 sec)

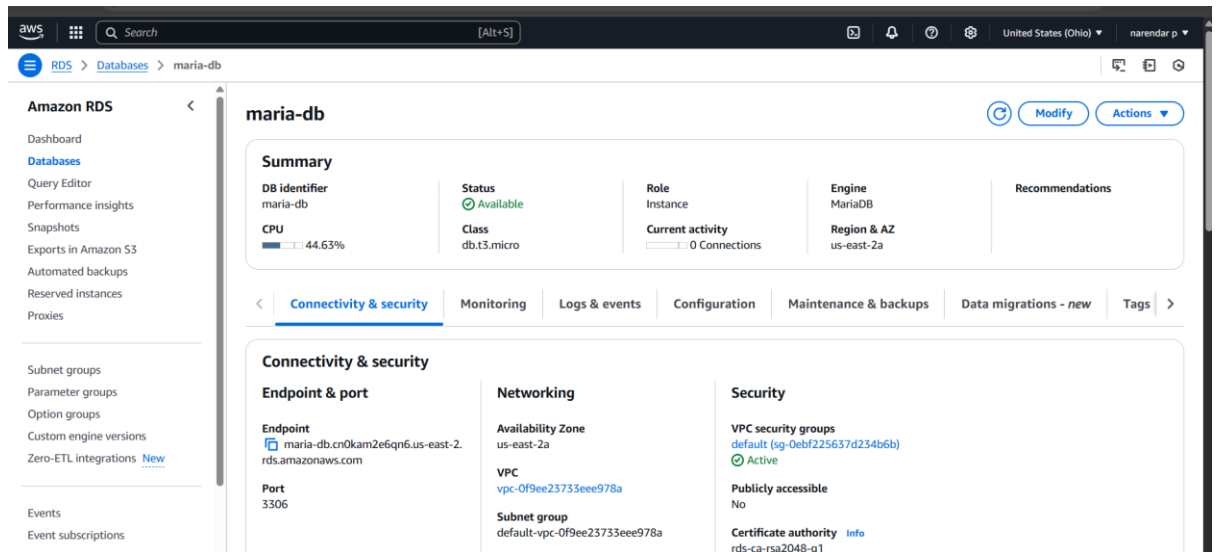
MariaDB [ec2db]> INSERT INTO table1 VALUES(1, 'Virat'), (2, 'Sachin'), (3, 'Dhoni'), (4, 'ABD');
Query OK, 4 rows affected (0.00 sec)
Records: 4  Duplicates: 0  Warnings: 0

MariaDB [ec2db]> SELECT * FROM table1;
+----+-----+
| id | name |
+----+-----+
| 1  | Virat |
| 2  | Sachin |
| 3  | Dhoni |
| 4  | ABD |
+----+-----+
4 rows in set (0.00 sec)
```

## 3) Take the backup of dummy data on ec2:

```
[root@ip-172-31-10-255 ~]# mysqldump -u root -p ec2db > file_backup.sql
Enter password:
[root@ip-172-31-10-255 ~]# ls
ec2db.sql  file_backup.sql  file_name.sql
```

#### 4) launch Mariadb RDS instance:



#### 5) Migrate database from ec2 to RDS:

→ Get the dump of your existing DB on EC2:

```
[root@ip-172-31-10-255 ~]# mysqldump -u root -p ec2db > file_backup.sql
Enter password:
[root@ip-172-31-10-255 ~]# ls
ec2db.sql  file_backup.sql  file_name.sql
```

→ Migrate the DB dump that you have taken in step 1 to RDS:  
Created database and added:

```

MariaDB [(none)]> show databases;
+-----+
| Database           |
+-----+
| information_schema |
| innodb              |
| mysql               |
| performance_schema |
| sys                 |
+-----+
5 rows in set (0.00 sec)

MariaDB [(none)]> create database rdsdb;
Query OK, 1 row affected (0.00 sec)

MariaDB [(none)]> show databases;
+-----+
| Database           |
+-----+
| information_schema |
| innodb              |
| mysql               |
| performance_schema |
| rdsdb               |
| sys                 |
+-----+

```

→ Migrate the DB dump that you have taken in step 1 to RDS:

```

[root@ip-172-31-10-255 ~]# mysql -h maria-db.cn0kam2e6qn6.us-east-2.rds.amazonaws.com -P 3306 -u admin -p rdsdb < file_backup.sql
Enter password:

```

→ Switch to the database and verify the details:

```

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

MariaDB [(none)]> use rdsdb
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
MariaDB [rdsdb]> show tables;
+-----+
| Tables_in_rdsdb |
+-----+
| table1           |
+-----+
1 row in set (0.00 sec)

MariaDB [rdsdb]> select * from table1;
+-----+-----+
| id  | name |
+-----+-----+
| 1   | Virat |
| 2   | Sachin |
| 3   | Dhoni |
| 4   | ABD  |
+-----+-----+
4 rows in set (0.00 sec)

```

## 6) Install mysql db on ec2:

```
mysql57-community-release.noarch 0:el7-11

Complete!
[root@ip-172-31-10-255 ~]# sudo yum install -y mysql-community-server
Loaded plugins: extras suggestions, langpacks, priorities, update-motd
63 packages excluded due to repository priority protections
Package mysql-community-server-5.7.44-1.el7.x86_64 already installed and latest version
Nothing to do
[root@ip-172-31-10-255 ~]# sudo systemctl start mysqld
^C
[root@ip-172-31-10-255 ~]# mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 4
Server version: 5.5.68-MariaDB MariaDB Server

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owners.

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

mysql> show databases;
+-----+
| Database |
+-----+
```

## 7) Launch mysql RDS image :

### Created mysql database:

The screenshot displays the AWS Management Console for an Amazon RDS MySQL database instance. The left sidebar shows 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, Zero-ETL integrations, Events, and Event subscriptions. The main content area is titled 'mysql-db' and includes a 'Summary' section with the following details:

- DB identifier:** mysql-db
- Status:** Available
- Role:** Instance
- Engine:** MySQL Community
- Recommendations:** (link)
- CPU:** 31.41%
- Class:** db.t3.micro
- Current activity:** 0 Connections
- Region & AZ:** us-east-2a

Below the summary, there are tabs for 'Connectivity & security', 'Monitoring', 'Logs & events', 'Configuration', 'Zero-ETL integrations', 'Maintenance & backups', and 'Data'. The 'Connectivity & security' tab is active, showing details for 'Endpoint & port', 'Networking', and 'Security'.

- Endpoint & port:** Endpoint is mysql-db.cn0kam2e6qn6.us-east-2.rds.amazonaws.com, Port is 3306.
- Networking:** Availability Zone is us-east-2a, VPC is vpc-0f9ee23733eee978a, Subnet group is default-vpc-0f9ee23733eee978a.
- Security:** VPC security groups are default (sg-0ebf225637d234b6b) and Active, Publicly accessible is No, Certificate authority is rds-ca-rsa2048-q1.

## Connected to mysql RDS:

```
[root@ip-172-31-10-255 ~]# mysql -h mysql-db.cn0kam2e6qn6.us-east-2.rds.amazonaws.com -u admin -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 25
Server version: 8.0.40 Source distribution

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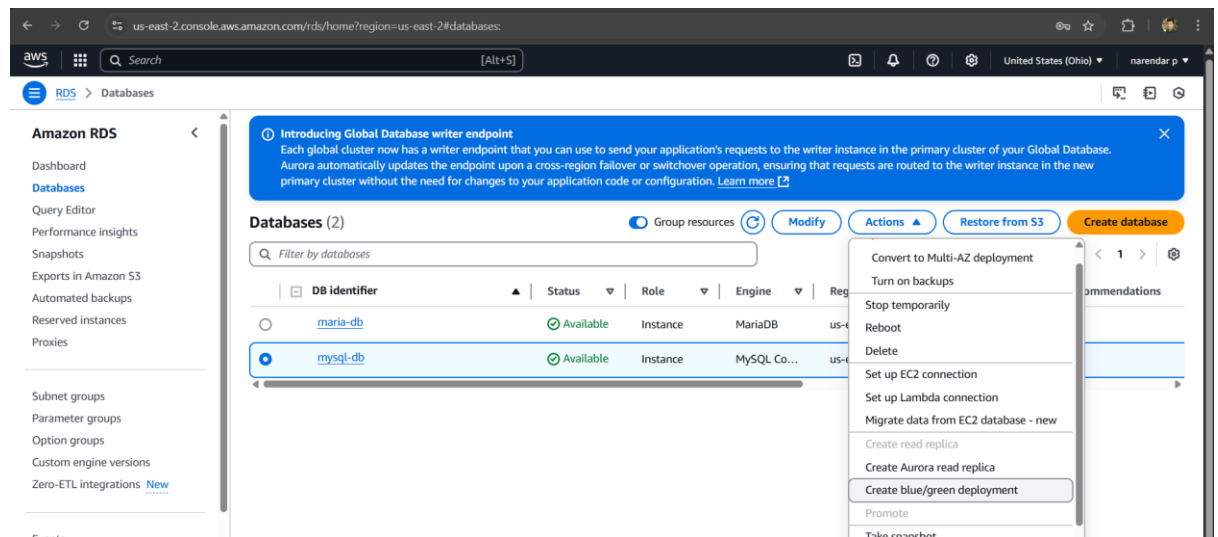
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owners.

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

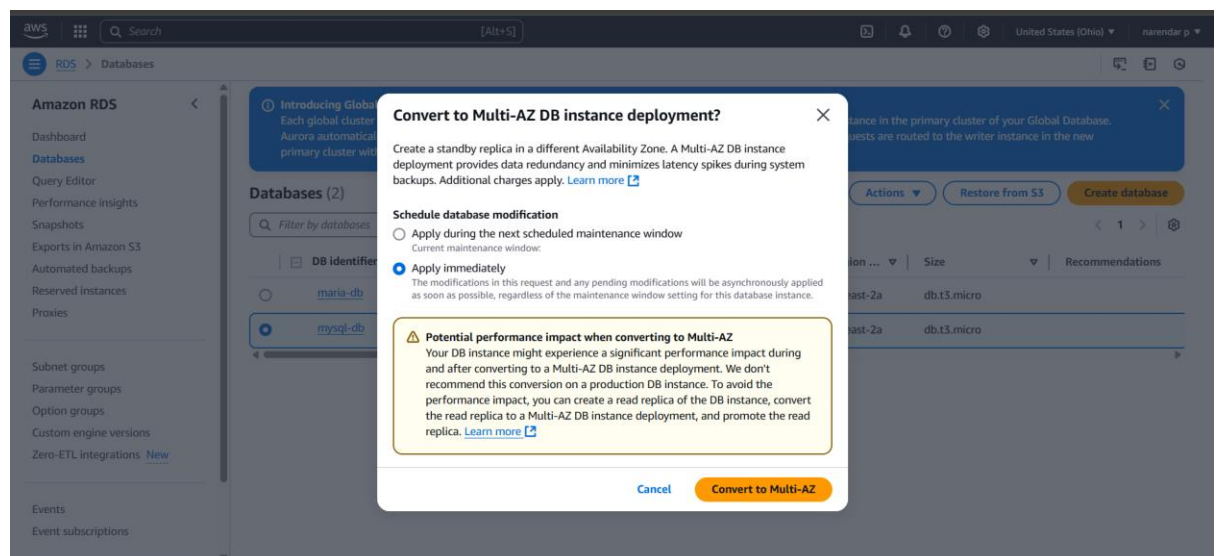
mysql>
```

## 8) Configure multi AZ :

→Goto actions select Convert to multi AZ deployment:



→Now select Apply Immediately click on Convert Multi-AZ:



## → Configured multi AZ:

The screenshot shows the Amazon RDS console for a MySQL DB instance named 'mysql-db'. The 'Instance' tab is selected, and the 'Availability' section is highlighted with a red box. The 'Multi-AZ' option is set to 'Yes', and the 'Secondary Zone' is set to 'us-east-2c'.

Configuration	Instance class	Storage	Monitoring
<b>DB instance ID</b> mysql-db	<b>Instance class</b> db.t3.micro	<b>Encryption</b> Enabled	<b>Monitoring type</b> Database Insights - Standard
<b>Engine version</b> 8.0.40	<b>vCPU</b> 2	<b>AWS KMS key</b> aws/rds	<b>Performance Insights</b> Disabled
<b>RDS Extended Support</b> Disabled	<b>RAM</b> 1 GB	<b>Storage type</b> General Purpose SSD (gp2)	<b>Enhanced Monitoring</b> Disabled
<b>DB name</b> -	<b>Availability</b>	<b>Storage</b> 20 GiB	<b>DevOps Guru</b> Disabled
<b>License model</b> General Public License	<b>Master username</b> admin	<b>Provisioned IOPS</b> -	
<b>Option groups</b> default:mysql-8-0 In sync	<b>Master password</b> *****	<b>Storage throughput</b> -	
<b>Amazon Resource Name (ARN)</b> arn:aws:rds:us-east-2:97142271840:4:db:mysql-db	<b>IAM DB authentication</b> Not enabled	<b>Storage autoscaling</b> Enabled	
<b>Resource ID</b> db-JCYOUHCUCWCGDLWJAVVXPIKTM	<b>Multi-AZ</b> Yes	<b>Maximum storage threshold</b> 1000 GiB	
<b>Created time</b>	<b>Secondary Zone</b> us-east-2c	<b>Storage file system configuration</b> Current	

## 9) Take Backup of db and restore the DB:

### → Take a manual backup:

The screenshot shows the 'Take DB Snapshot' dialog in the Amazon RDS console. The 'Snapshot type' is set to 'DB instance', and the 'DB instance' is 'mysql-db'. The 'Snapshot name' is 'mysql-db-backup'.

**Take DB Snapshot**

**Preferences**  
To take a DB Snapshot, choose a database and name your DB Snapshot.

**Snapshot type**  
☒ DB instance  
☐ DB cluster

**DB instance**  
DB Instance identifier. This is the unique key that identifies a DB Instance.  
mysql-db

**Snapshot name**  
Identifier for the DB Snapshot.  
mysql-db-backup

Snapshot identifier is case insensitive, but stored as all lower-case, as in "mysnapshot". Cannot be null, empty, or blank. Must contain from 1 to 255 alphanumeric characters or hyphens. First character must be a letter. Cannot end with a hyphen or contain two consecutive hyphens.

[Cancel](#) [Take snapshot](#)

## → Created snapshot:

The screenshot shows the 'Snapshots' page in the Amazon RDS console. The 'Manual' tab is selected, and a table of manual snapshots is displayed. The snapshot 'mysql-db-backup' is listed with a status of 'Available'.

**Snapshots**

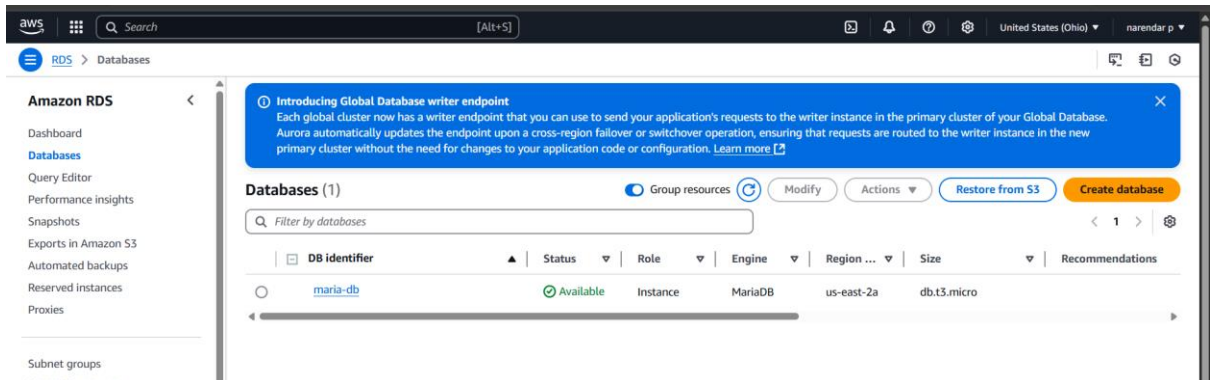
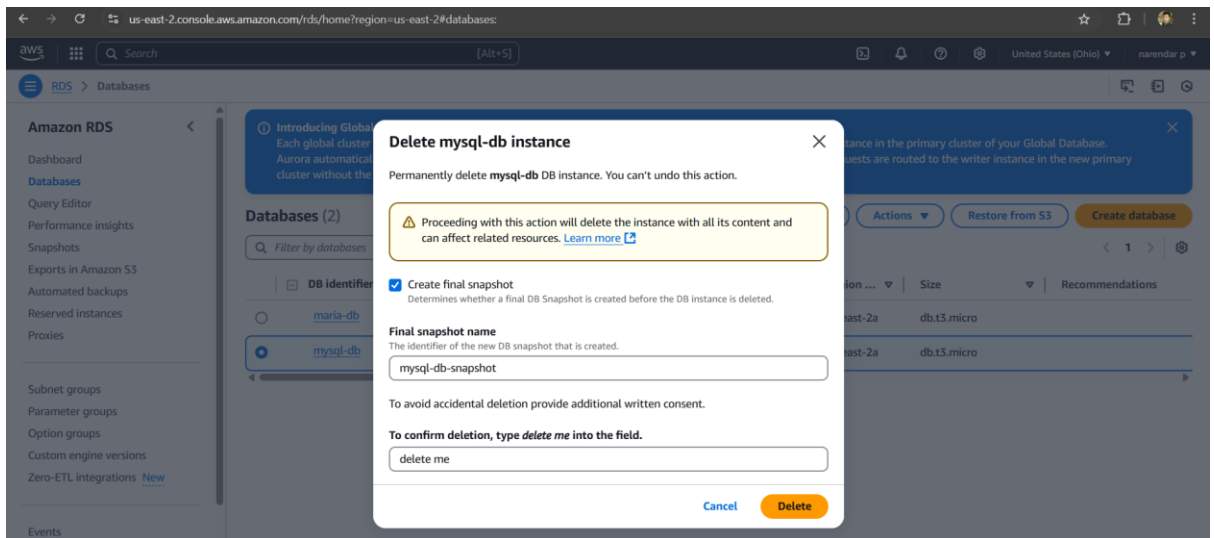
[Manual](#) [System](#) [Shared with me](#) [Public](#) [Backup service](#) [Exports in Amazon S3](#)

**Manual snapshots (1)**

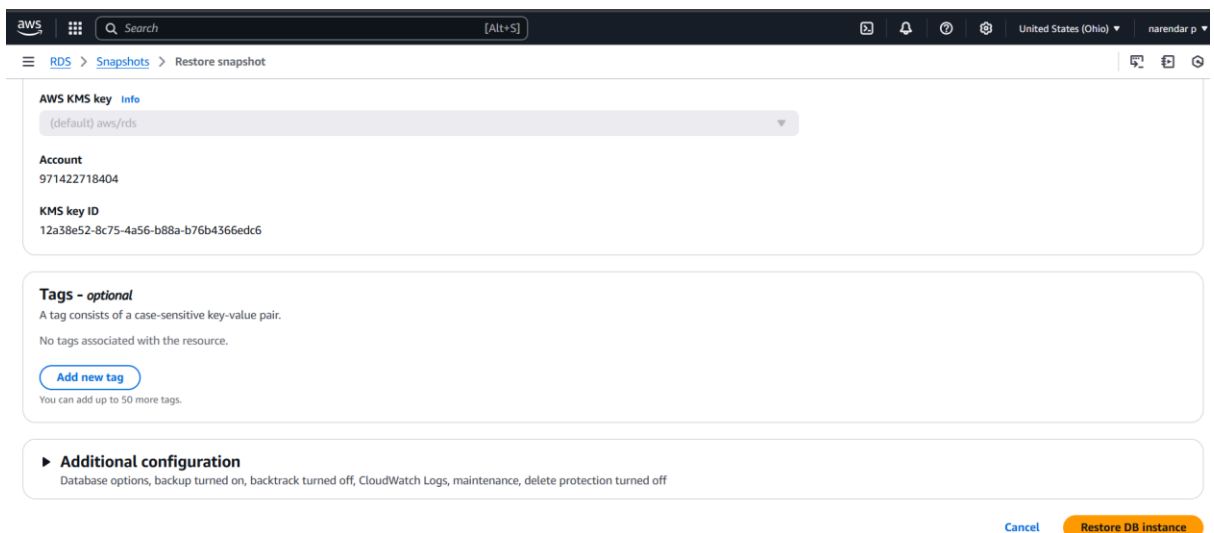
Filter by manual snapshots

<input checked="" type="checkbox"/>	Snapshot name	Engine version	DB instance or cluster	Snapshot creation time	DB Instance created time	Status
<input checked="" type="checkbox"/>	mysql-db-backup	8.0.40	mysql-db	March 10, 2025, 20:14 (UTC+05:30)	March 10, 2025, 19:32 (UTC+05:30)	Available

## → Deleted mysql-db:

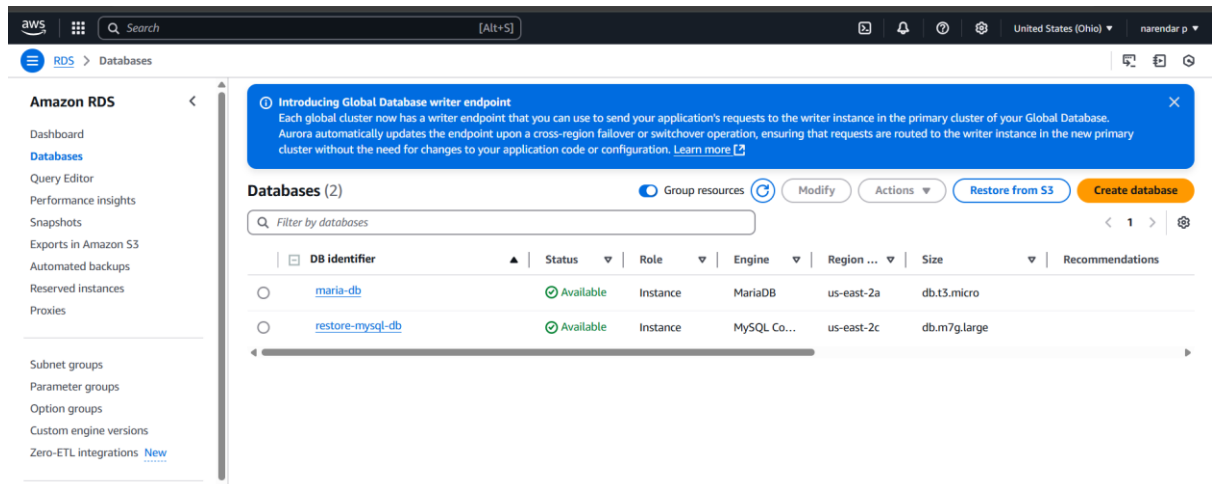


## → Restore Mysql db from a Snapshot:





## → Restored:

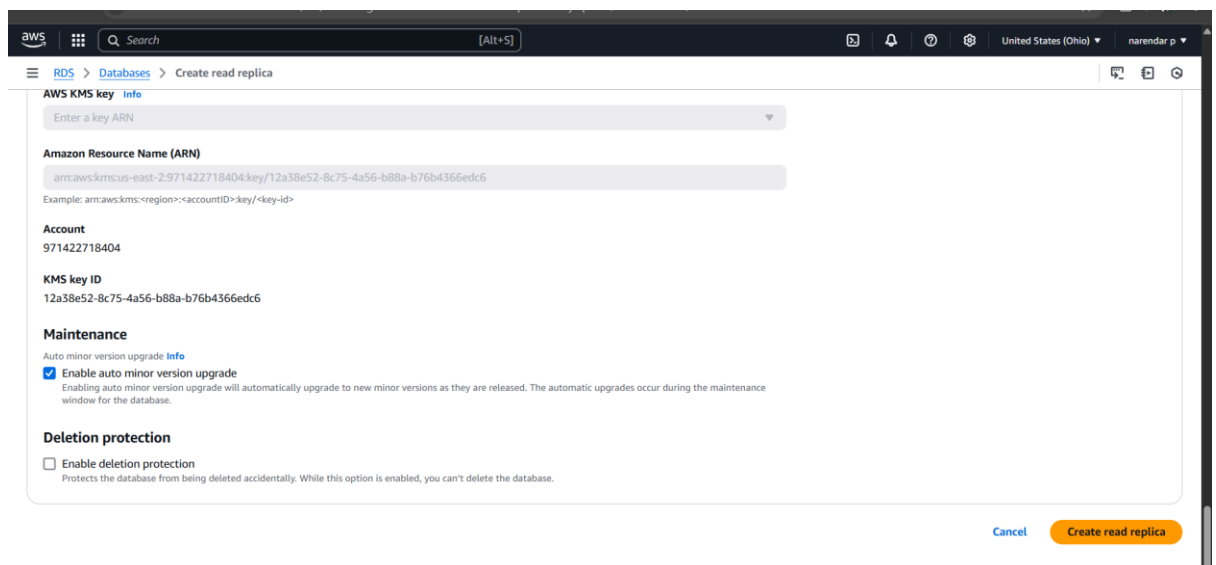


The screenshot shows the AWS RDS Databases console. On the left is a navigation menu with options like Dashboard, Databases, Query Editor, Performance insights, Snapshots, Exports in Amazon S3, Automated backups, Reserved instances, Proxies, Subnet groups, Parameter groups, Option groups, Custom engine versions, and Zero-ETL integrations. The main area displays a list of databases under the heading 'Databases (2)'. Above the list are buttons for 'Group resources', 'Modify', 'Actions', 'Restore from S3', and 'Create database'. A blue notification banner at the top states: 'Introducing Global Database writer endpoint. Each global cluster now has a writer endpoint that you can use to send your application's requests to the writer instance in the primary cluster of your Global Database. Aurora automatically updates the endpoint upon a cross-region failover or switchover operation, ensuring that requests are routed to the writer instance in the new primary cluster without the need for changes to your application code or configuration. Learn more [?]'.

DB identifier	Status	Role	Engine	Region	Size	Recommendations
<a href="#">maria-db</a>	Available	Instance	MariaDB	us-east-2a	db.t3.micro	
<a href="#">restore-mysql-db</a>	Available	Instance	MySQL Co...	us-east-2c	db.m7g.large	

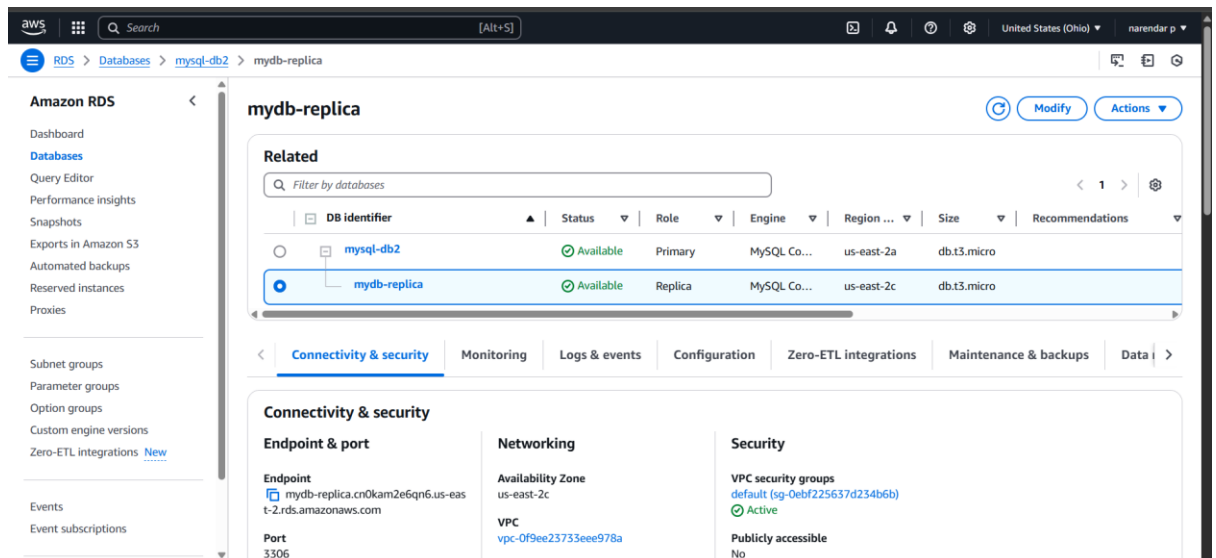
## 10) Create Read Replica:

→ Click on actions create read replica:



The screenshot shows the 'Create read replica' page in the AWS RDS console. It includes a dropdown for 'AWS KMS key' with the option 'Enter a key ARN'. The 'Amazon Resource Name (ARN)' field is populated with 'arn:aws:kms:us-east-2:971422718404:key/12a38e52-8c75-4a56-b88a-b76b4366edc6'. Below this, the 'Account' is '971422718404' and the 'KMS key ID' is '12a38e52-8c75-4a56-b88a-b76b4366edc6'. Under the 'Maintenance' section, the checkbox for 'Enable auto minor version upgrade' is checked. The 'Deletion protection' section has the checkbox 'Enable deletion protection' unchecked. At the bottom right are 'Cancel' and 'Create read replica' buttons.

→ Created replica from mysql-db2:



→ connect with created replica endpoint :

```
[ec2-user@ip-172-31-10-255 ~]$ sudo -i
[root@ip-172-31-10-255 ~]# mysql -h mydb-replica.cn0kam2e6qn6.us-east-2.rds.amazonaws.com -P 3306 -u admin -p rdsdb < ec2db.sql
Enter password:
ERROR 1049 (42000): Unknown database 'rdsdb'
[root@ip-172-31-10-255 ~]# mysql -h mydb-replica.cn0kam2e6qn6.us-east-2.rds.amazonaws.com -P 3306 -u admin -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 26
Server version: 8.0.40 Source distribution

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owners.

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

→ Try to delete any table:

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

MariaDB [(none)]> use rdsdb
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
MariaDB [rdsdb]> show tables;
+-----+
| Tables_in_rdsdb |
+-----+
| table1           |
+-----+
1 row in set (0.00 sec)

MariaDB [rdsdb]> select * from table1;
+----+-----+
| id | name |
+----+-----+
| 1  | Virat |
| 2  | Sachin |
| 3  | Dhoni |
| 4  | ABD |
+----+-----+
4 rows in set (0.00 sec)
```

→ it shows error because we connected with read replica, so we cannot delete tables:



```
aws | Search | [Alt+S] | United States (Ohio) | narendar p |
| x$schema_table_lock_waits |
| x$schema_table_statistics |
| x$schema_table_statistics_with_buffer |
| x$schema_tables_with_full_table_scans |
| x$session |
| x$statement_analysis |
| x$statements_with_errors_or_warnings |
| x$statements_with_full_table_scans |
| x$statements_with_runtime_in_95th_percentile |
| x$statements_with_sorting |
| x$statements_with_temp_tables |
| x$user_summary |
| x$user_summary_by_file_io |
| x$user_summary_by_file_io_type |
| x$user_summary_by_stages |
| x$user_summary_by_statement_latency |
| x$user_summary_by_statement_type |
| x$wait_classes_global_by_avg_latency |
| x$wait_classes_global_by_latency |
| x$waits_by_host_by_latency |
| x$waits_by_user_by_latency |
| x$waits_global_by_latency |
-----+-----
101 rows in set (0.00 sec)

mysql> drop table table1;
ERROR 1290 (HY000): The MySQL server is running with the --read-only option so it cannot execute this statement
mysql>
```