Database Migration to AWS RDS (MySQL)

Project Overview

This project demonstrates how to migrate a **traditional MySQL database** to **AWS RDS MySQL** using the **mysqldump backup and restore method**.
The migration is performed manually to understand the core concepts of database migration, networking, and security in AWS.

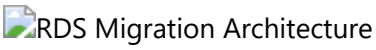
Project Objective

- Create a traditional MySQL database
- Take a logical backup using `mysqldump`
- Create an AWS RDS MySQL database
- Restore the backup into RDS
- Verify successful data migration

Tools & Technologies Used

- AWS EC2 (Traditional Database)
- AWS RDS (MySQL)
- MySQL
- mysqldump
- AWS Console
- Linux (Amazon Linux)

Architecture Diagram



Flow: Traditional MySQL → Backup (.sql) → AWS RDS MySQL

Step-by-Step Implementation

Step 1: Create Traditional MySQL Database

Login to MySQL on EC2 / Linux server:

```
sudo mysql -u root -p
```

Create database:

```
CREATE DATABASE myntra;
```

Use database:

```
USE myntra;
```

Create table:

```
CREATE TABLE users (
  id INT PRIMARY KEY AUTO_INCREMENT,
  name VARCHAR(50),
  city VARCHAR(10),
  age INT
);
```

Insert sample data:

```
INSERT INTO users VALUES
(1, "rohan", "pune", 23),
(2, "sakshi", "mumbai", 24),
(3, "rahul", "pune", 24)
;
```

Verify data:

```
SELECT * FROM users;
```

Step 2: Take Backup Using mysqldump

Exit MySQL:

```
EXIT;
```

Take backup:

```
sudo mysqldump -u root -p myntra > myntra_bkp.sql
```

Verify backup file:

```
ls
```

Step 3: Create AWS RDS MySQL Database

Go to **AWS Console → RDS → Create Database**

Configuration:

- Engine: **MySQL**
- Template: **Free Tier**
- DB Identifier: `myntra-rds`
- Username: `admin`
- Password: `********`

Additional Configuration:

- Initial database name: `myntra`

Step 4: Configure RDS Connectivity & Security

- Public access: **NO** (for lab)
- VPC: **Same as EC2**
- Security Group:
    - Allow **MySQL (3306)** from **EC2 Security Group**

- RDS inbound rule allowing port **3306**
- RDS endpoint visible

Step 5: Connect to RDS MySQL

```
sudo mysql -h <RDS-ENDPOINT> -u admin -p
```

Step 6: Restore Backup into RDS

Exit MySQL:

```
EXIT;
```

Restore database:

```
sudo mysql -h <RDS-ENDPOINT> -u admin -p myntra < myntra_bkp.sql
```

Step 7: Verify Data Migration

Login again:

```
sudo mysql -h <RDS-ENDPOINT> -u admin -p
```

Verify data:

```
USE myntra;
SELECT * FROM users;
```

Result

- Traditional MySQL database successfully migrated to AWS RDS
- All tables and data verified after migration
- No data loss occurred
- RDS now provides managed backups and high availability