

Guided Lab: Enabling Multi-AZ on Amazon RDS

Description

Enabling Multi-AZ on Amazon RDS ensures high availability and durability for your database instances. When you opt for a Multi-AZ deployment, Amazon RDS automatically replicates the data to a standby instance in a different Availability Zone (AZ). The beauty of this setup is that it offers automatic failover: if your primary database instance encounters issues or the AZ it's in experiences problems, RDS will automatically switch to the standby instance with minimal disruption. This is crucial for maintaining continuous operations and preventing data loss. Multi-AZ deployments are ideal for mission-critical database workloads, where uptime and data integrity are most important.

Objectives

To ensure successful completion of this lab, you must have prior experience in creating an RDS database instance and be familiar with their essential components. If you feel that your knowledge in this area is insufficient, we highly recommend taking the following labs to gain the necessary understanding:

- Creating an Amazon RDS database

Objectives

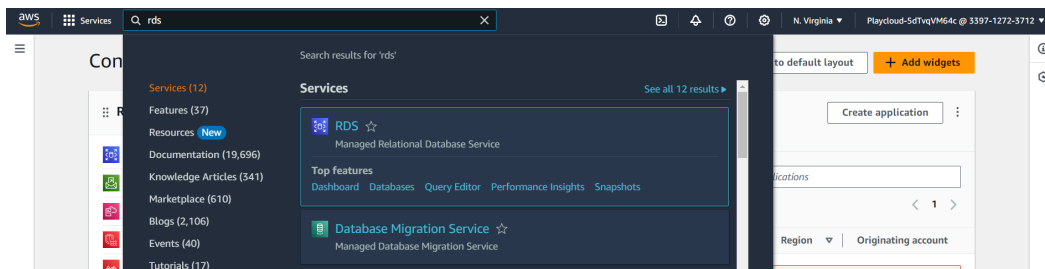
In this lab, you will:

- Learn how to enable the Multi-AZ on Amazon RDS

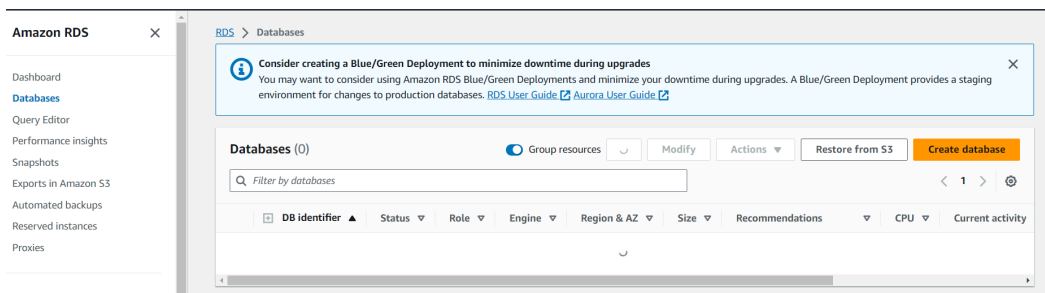
Lab Steps

Creating an RDS database and enabling Multi-AZ

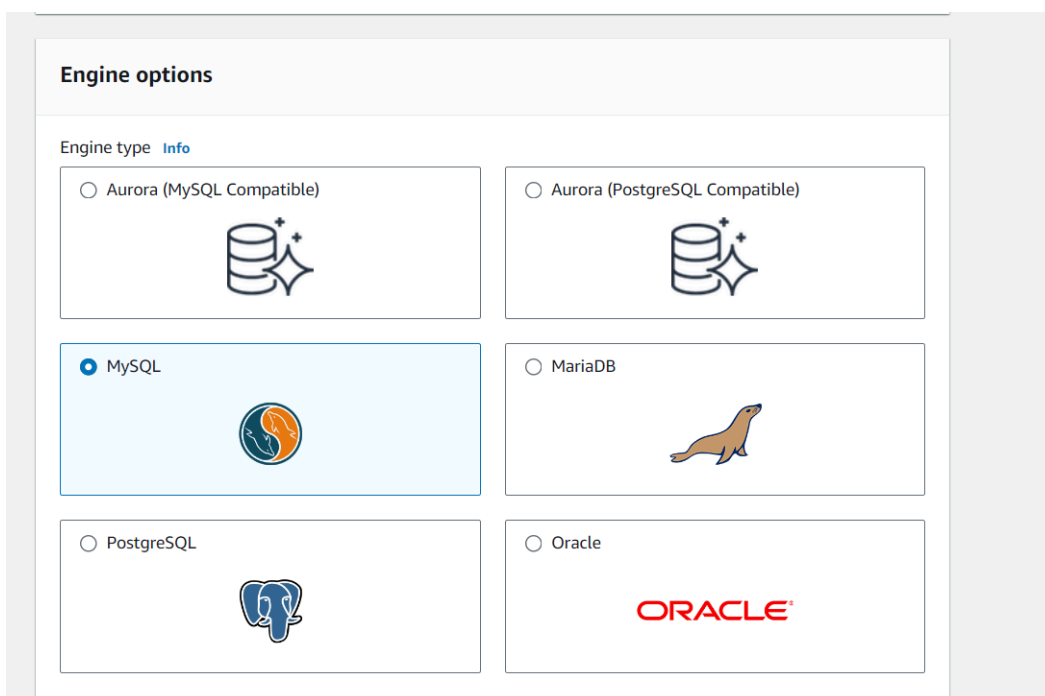
1. Search for **RDS** using the search bar and select the RDS result under Services on the AWS Management Console.



2. On the **Databases** page, click on the **Create Database** button. You will be prompted to configure your database.



3. Choose **MySQL** as your database engine.



4. For the templates, choose "Dev/Test".

Templates

Choose a sample template to meet your use case.

☐ **Production**
Use defaults for high availability and fast, consistent performance.

☒ **Dev/Test**
This instance is intended for development use outside of a production environment.

☐ **Free tier**
Use RDS Free Tier to develop new applications, test existing applications, or gain hands-on experience with Amazon RDS.
[Info](#)

5. For **Availability and Durability**, select Multi-AZ DB instance.

Availability and durability

Deployment options [Info](#)
The deployment options below are limited to those supported by the engine you selected above.

☐ **Multi-AZ DB Cluster**
Creates a DB cluster with a primary DB instance and two readable standby DB instances, with each DB instance in a different Availability Zone (AZ). Provides high availability, data redundancy and increases capacity to serve read workloads.

☒ **Multi-AZ DB instance**
Creates a primary DB instance and a standby DB instance in a different AZ. Provides high availability and data redundancy, but the standby DB instance doesn't support connections for read workloads.

☐ **Single DB instance**
Creates a single DB instance with no standby DB instances.

6. Configure Database Settings:

- **DB instance identifier:** Give your DB instance a unique name.
- Tick the check box on the Auto-generate password.

Settings

DB instance identifier [Info](#)
Type a name for your DB instance. The name must be unique across all DB instances owned by your AWS account in the current AWS Region.

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens. First character must be a letter. Can't contain two consecutive hyphens. Can't end with a hyphen.

▼ **Credentials Settings**

Master username [Info](#)
Type a login ID for the master user of your DB instance.

1 to 16 alphanumeric characters. The first character must be a letter.

☒ **Auto generate a password**
Amazon RDS can generate a password for you, or you can specify your own password.

7. For **Instance Configuration**, choose **db.t3.micro** as a class.

Instance configuration

The DB instance configuration options below are limited to those supported by the engine that you selected above.

DB instance class [Info](#)

▼ Hide filters

- ☒ Show instance classes that support Amazon RDS Optimized Writes [Info](#)
Amazon RDS Optimized Writes improves write throughput by up to 2x at no additional cost.
- ☐ Include previous generation classes
- ☐ Standard classes (includes m classes)
- ☐ Memory optimized classes (includes r and x classes)
- ☒ Burstable classes (includes t classes)

db.t3.micro
2 vCPUs 1 GiB RAM Network: 2,085 Mbps

8. Set the **allocated storage** to 20 GiB.

Storage

Storage type [Info](#)

General Purpose SSD (gp3)
Performance scales independently from storage

Allocated storage [Info](#)

20 GiB

Minimum: 20 GiB. Maximum: 6,144 GiB

ⓘ After you modify the storage for a DB instance, the status of the DB instance will be in storage-optimization. Your instance will remain available as the storage-optimization operation completes.
[Learn more](#)

► Advanced settings

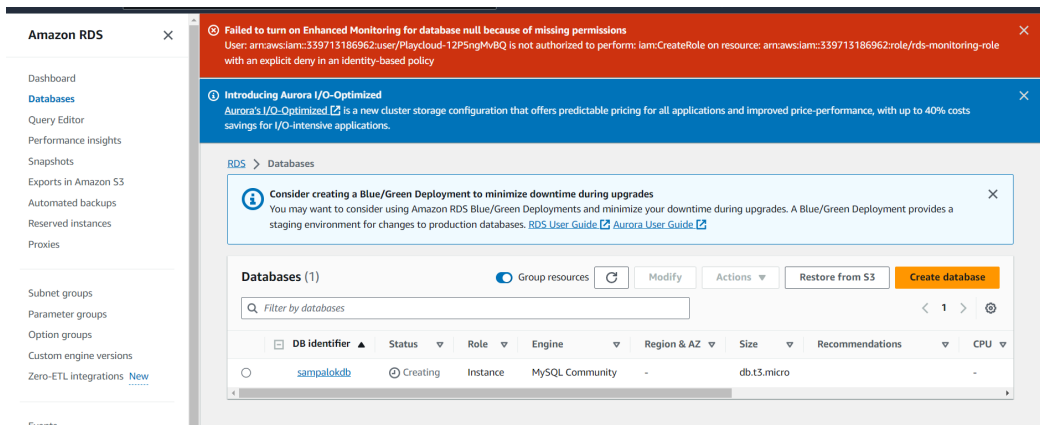
Baseline IOPS of 3,000 IOPS and storage throughput of 125 MiBps are included for allocated storage less than 400 GiB.

► Storage autoscaling

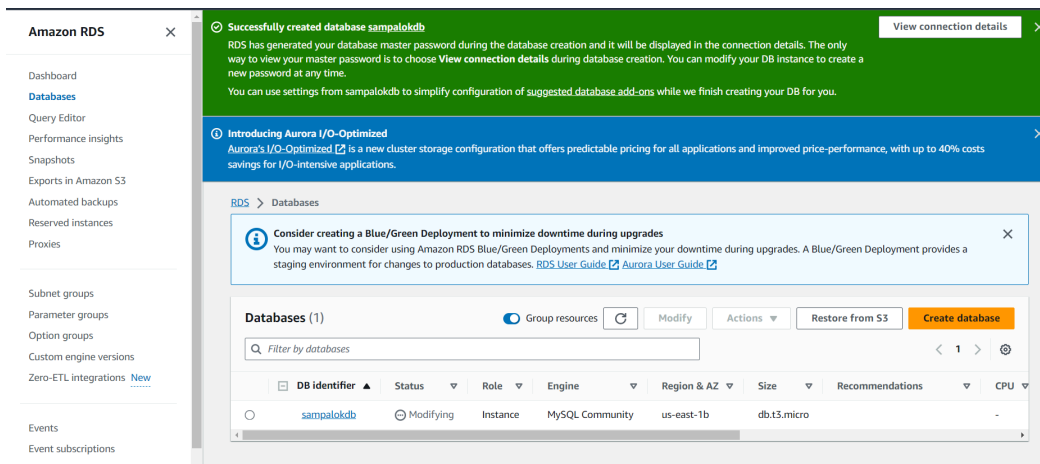
9. Click the **Create Database** button at the bottom of the page to create your MySQL database.

10. After clicking the **Create Database** button, a confirmation will appear to let you know that the process has started and the database has been created.

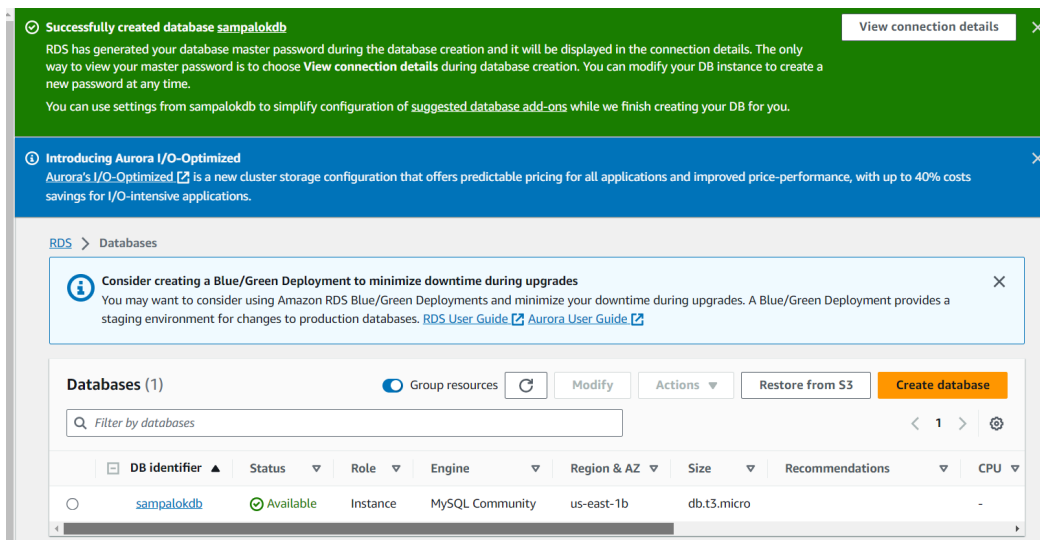
Note: Enabling Multi-AZ deployment triggers a brief downtime (usually a few minutes) during the failover process.



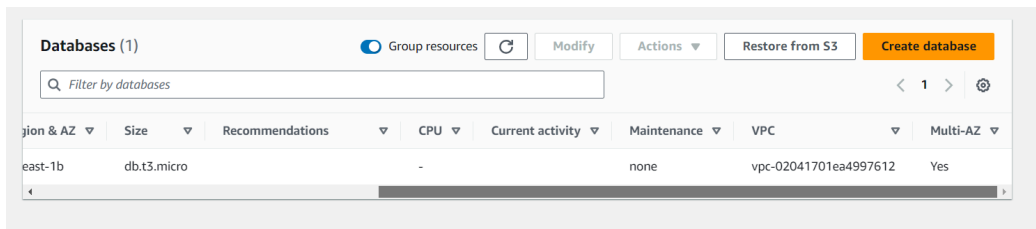
Note: Disregard the warning about the **Failure to turn on Enhanced Monitoring for the database**, it will still allow you to create an RDS Database with Multi-AZ enabled.



11. Monitor the modification progress, return to the RDS dashboard, and monitor the **DB Instance Status** to ensure it transitions from **Modifying** to **Available**.



12. Verify if the Multi-AZ has been successfully enabled after the **DB Instance Status** turns **Available**.

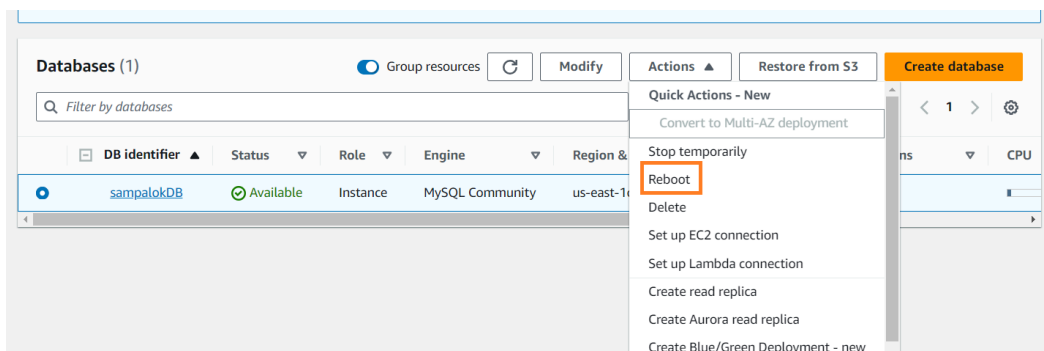


Check the time of the Failover Process

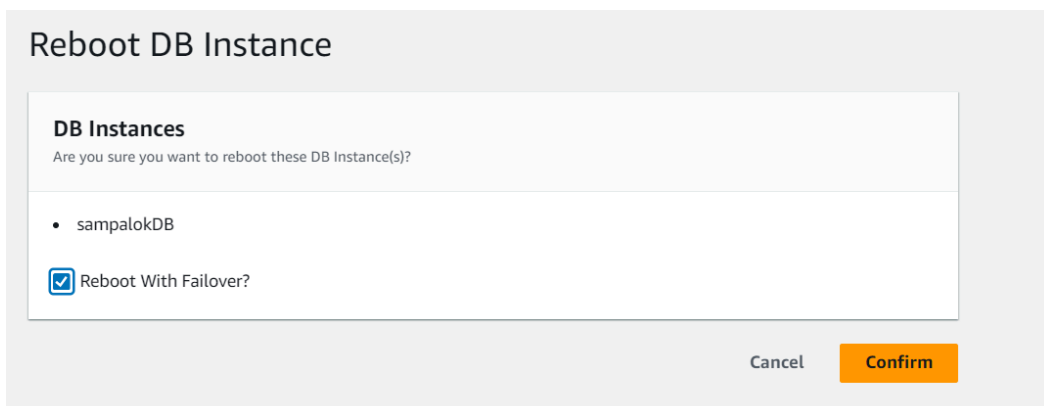
The time it takes for the failover to complete depends on the database activity and other conditions at the time the primary DB instance became unavailable and is generally between 60-120 seconds. However, in case of large transactions or a lengthy recovery process, the failover time can increase. After the failover is complete, it may take some additional time for the RDS console to reflect the new Availability Zone.

To initiate the failover, follow the steps below:

1. Trigger the Failover Process by rebooting the DB.



2. Tick the check box on the **Reboot With Failover** then click **Confirm**. Wait until it's rebooted.



3. Once rebooted, go to **Events** on the left-hand panel.

Events

Event subscriptions

Recommendations 0

Certificate update 1

4. Check if the failover process completes within 60–120 seconds.
For this lab, the time of failover completed is within the time frame.

| Events (12) | | | | | |
|--|-----------|-------------------------------------|---|--|---------|
| <input type="text" value="Filter by event"/> | | | | | < 1 > ⚙ |
| Source | Type | Time | Message | | |
| sampalokDB | Instances | January 23, 2024, 12:02 (UTC+08:00) | Multi-AZ instance failover completed | | |
| sampalokDB | Instances | January 23, 2024, 12:02 (UTC+08:00) | The user requested a failover of the DB instance. | | |
| sampalokDB | Instances | January 23, 2024, 12:02 (UTC+08:00) | DB instance restarted | | |
| sampalokDB | Instances | January 23, 2024, 12:02 (UTC+08:00) | Multi-AZ instance failover started. | | |
| sampalokDB | Instances | January 23, 2024, 11:52 (UTC+08:00) | Finished applying modification to convert to a Multi-AZ DB Instance | | |
| sampalokDB | Instances | January 23, 2024, 11:44 (UTC+08:00) | Applying modification to convert to a Multi-AZ DB Instance | | |