Creating a Relational Database and connecting to it using MySQL Workbench

Relational Database Service

It allows you to easily set up, operate, and scale relational databases in the cloud. RDS supports several popular relational database engines, including **Amazon Aurora, MySQL, PostgreSQL, Oracle Database, and Microsoft SQL Server.**

RDS takes care of administrative tasks such as database installation, patching, backups, and software updates, allowing you to focus on your application and data.

RDS is an **Online Transaction Processing** (OLTP) type of database (INSERT, UPDATE and DELETE). Primary use case is a transactional database (rather than analytical).

Read Replicas:

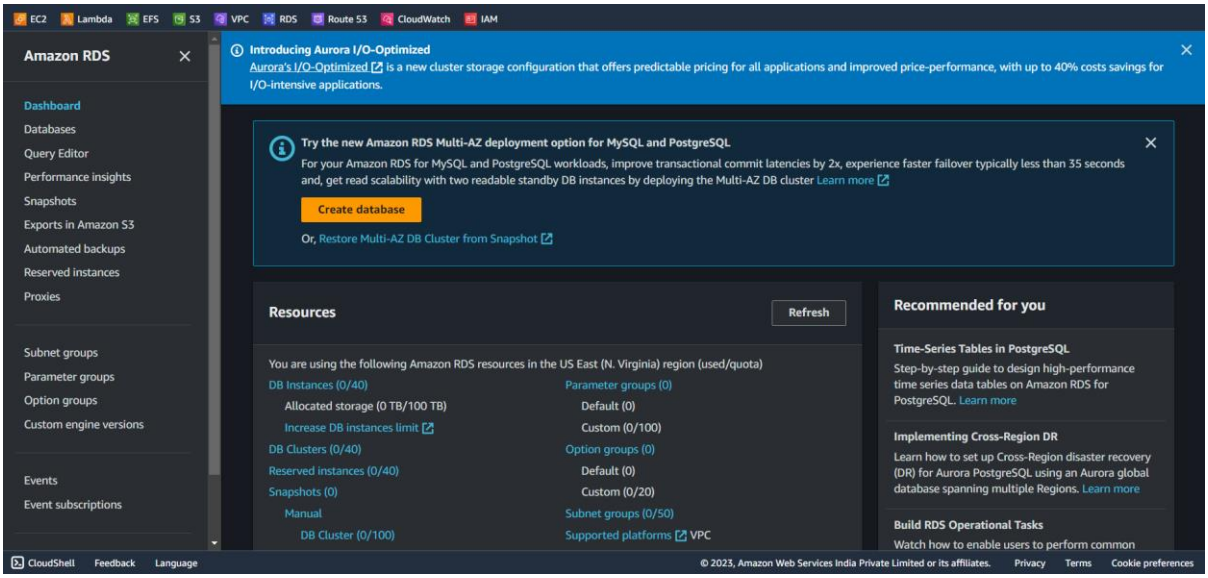
Read replicas are designed to make it easier to elastically scale out beyond the capacity constraints of a single DB instance for read-heavy database workloads.

You can create one or more replicas of a given source DB instance and serve high-volume application read traffic from multiple copies of your data, thereby increasing aggregate read throughput.

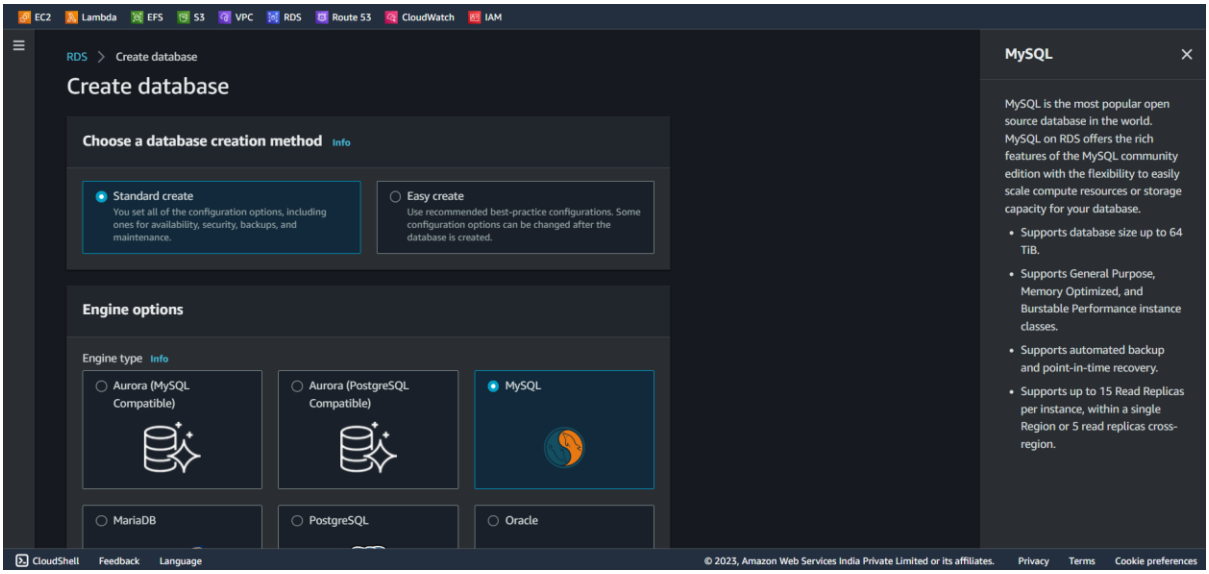
RDS has many advantages like:-

1. Low administrative burden
2. Optimized Read and Write
3. Scalability
4. Security
5. Availability
6. Manageability
7. Access control and Encryption

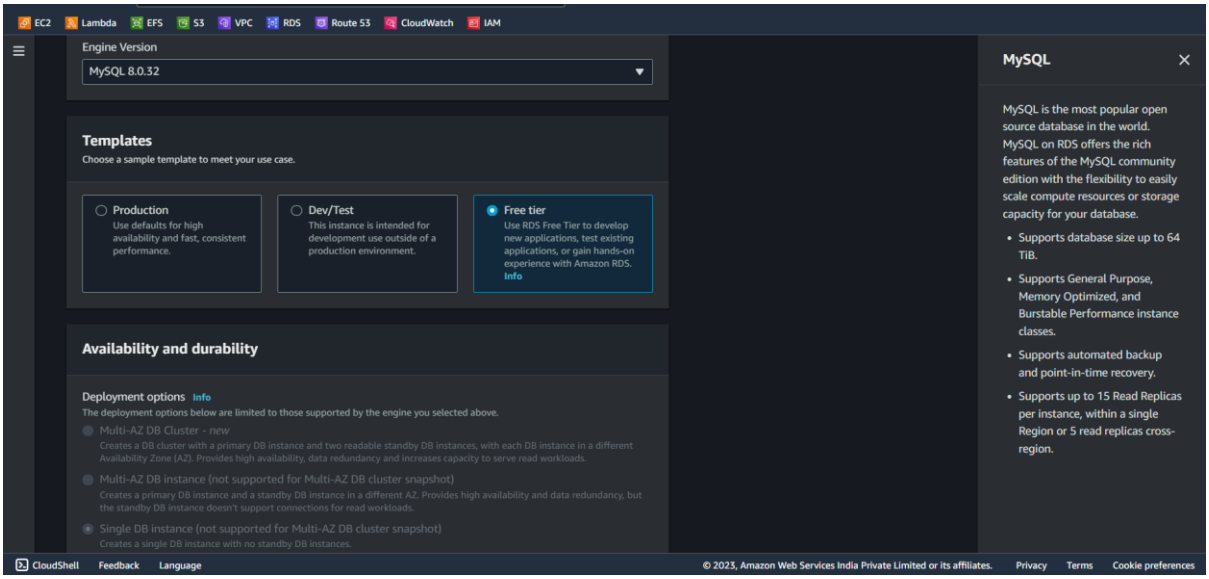
1. Sign in to the AWS Management Console and open the Amazon RDS console. Click on "Create database" to start the database creation process.



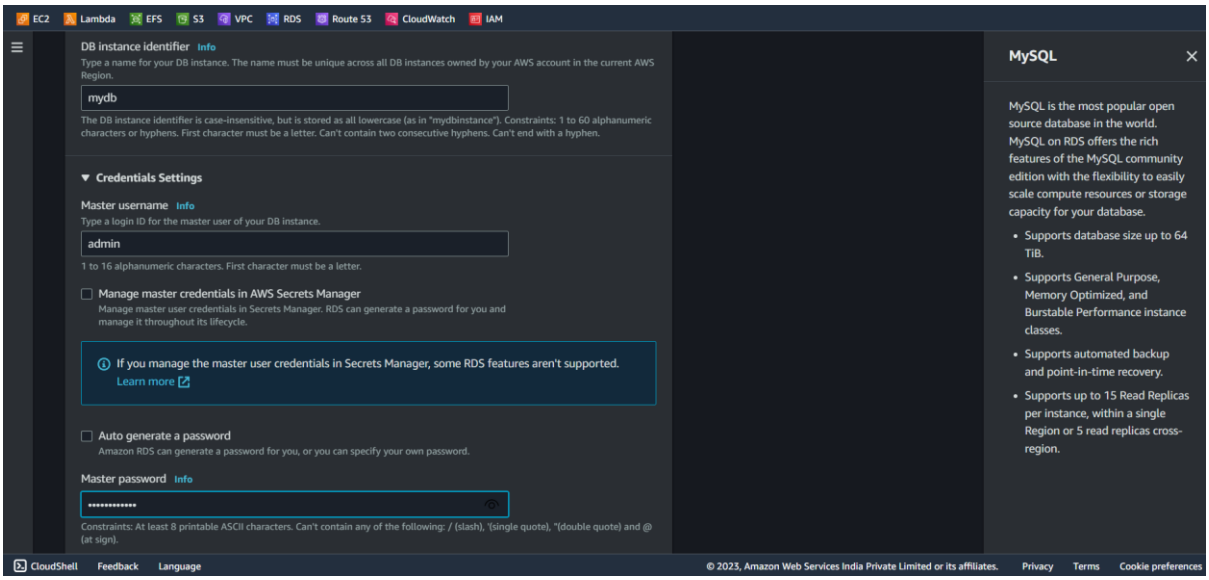
2. Choose a database create method I've chosen standard so select the database engine you want to use, such as Amazon Aurora, MySQL, PostgreSQL, Oracle, or SQL Server.



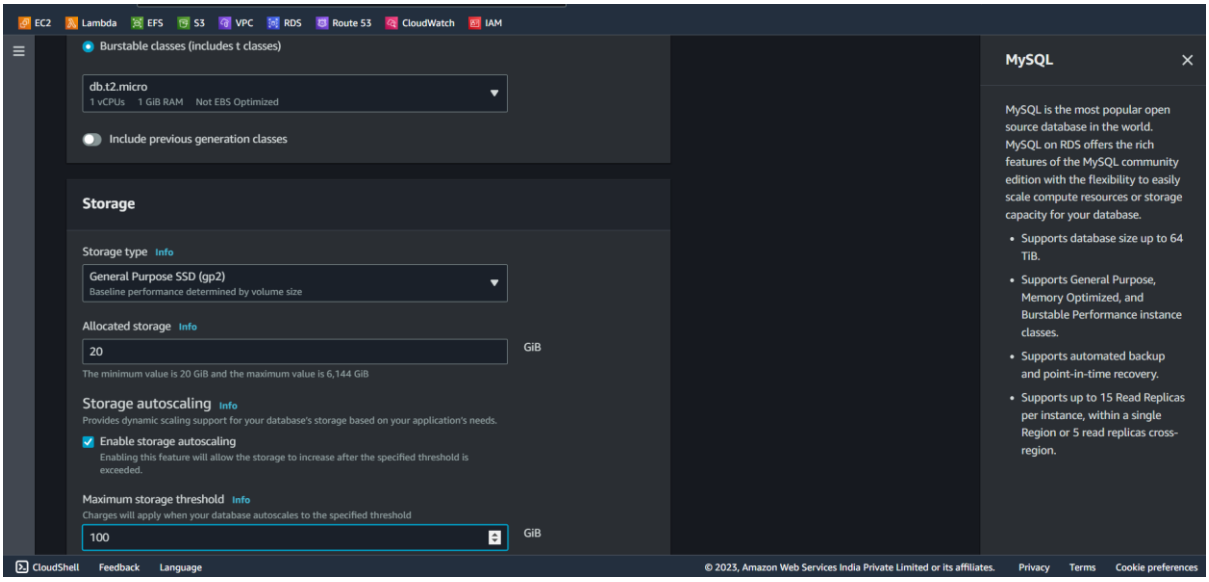
3. Choose the edition and version of the database engine you prefer. Select the appropriate licensing model for the database engine. Choose the Template to meet your use case.



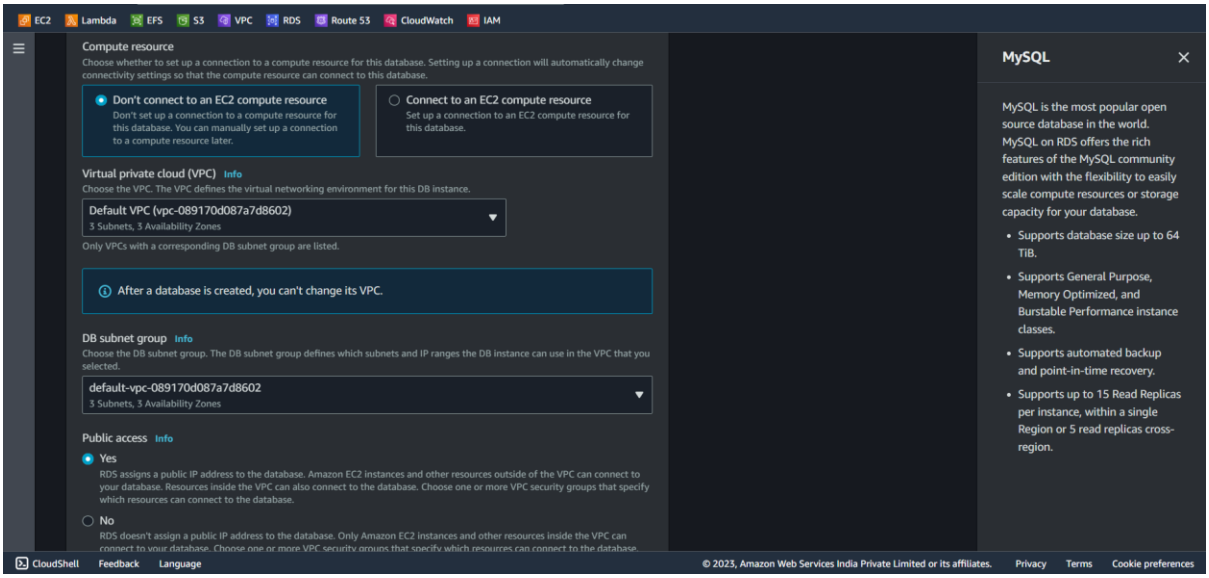
4. Configure the database settings, including the DB instance identifier, master username, and password. These credentials will be used to access the database.



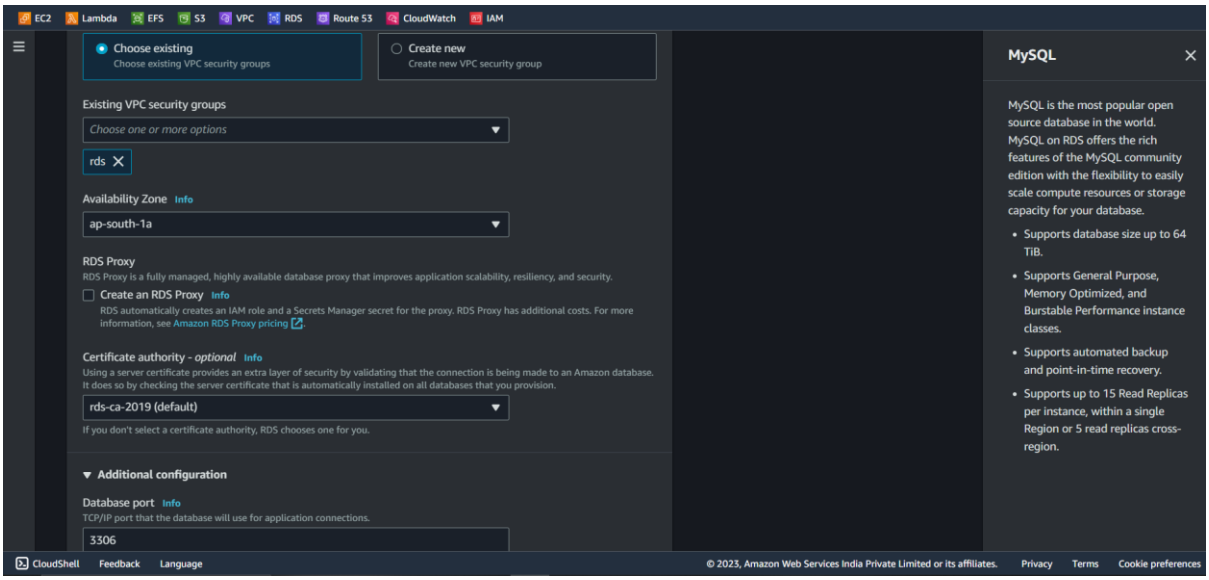
5. Specify the DB instance class, which determines the compute and memory capacity of the database instance. Configure the storage type and allocated storage for the database.



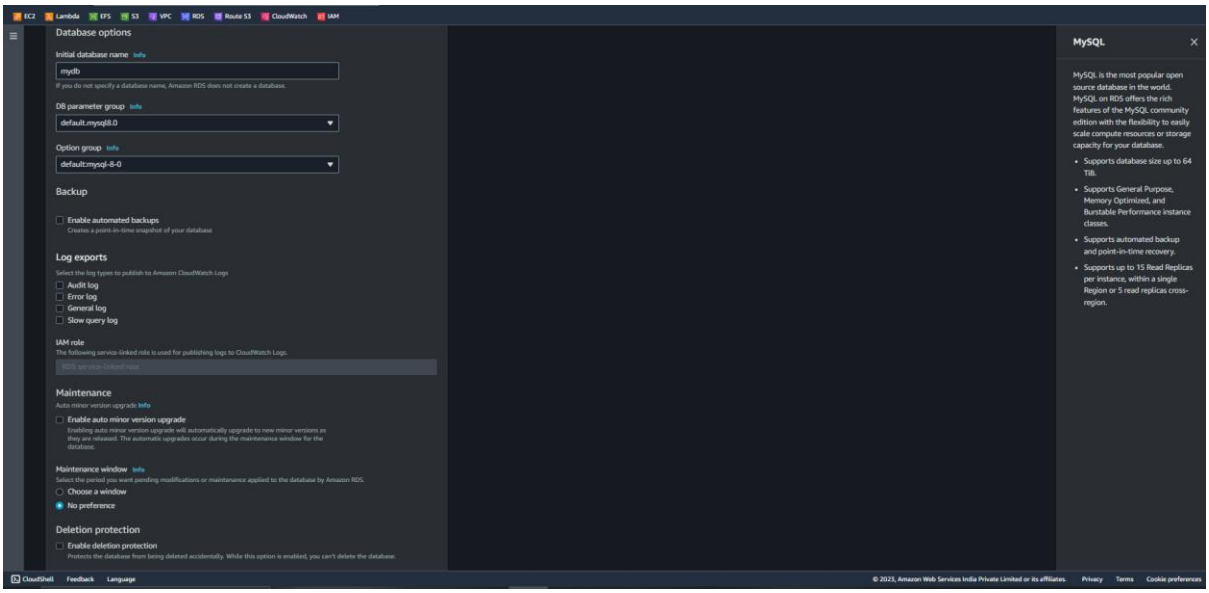
6. Define the network and security settings. Choose whether the database should be publicly accessible or only accessible within your VPC Set up the security groups and VPC settings accordingly.



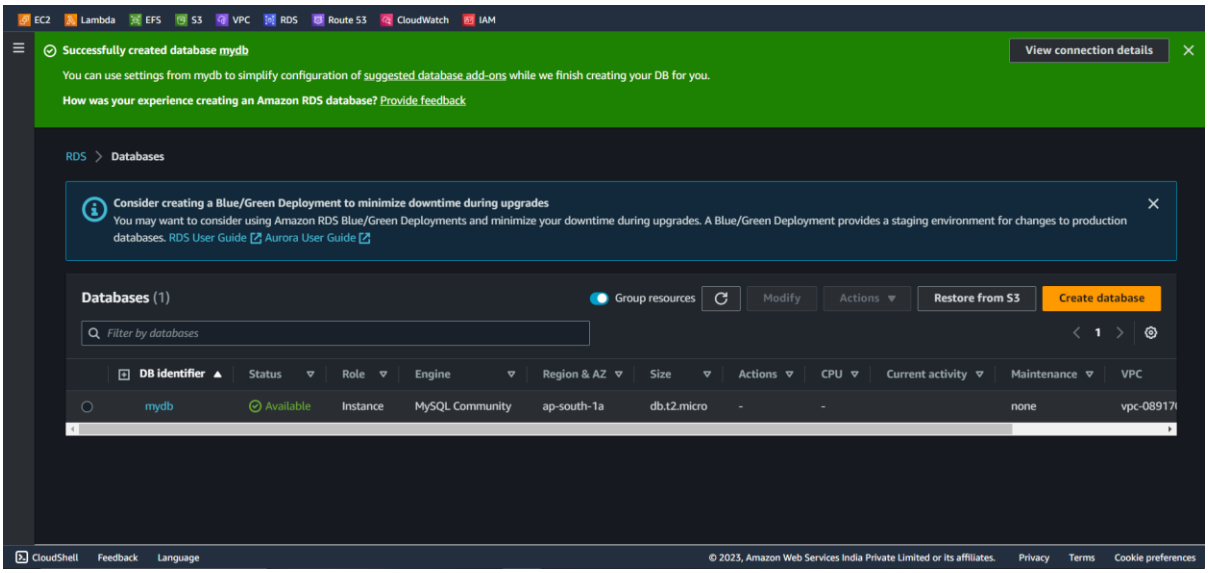
7. RDS proxy helps applications improve scalability, availability, and security when accessing RDS databases.



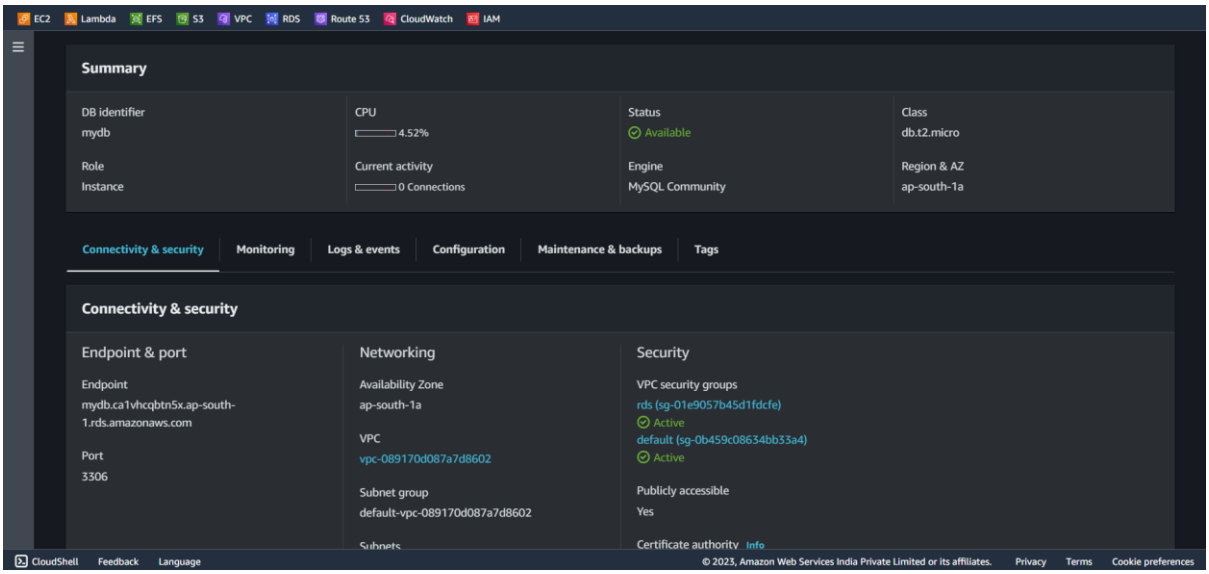
8. Configure the backup and maintenance settings, including the **backup retention** period and preferred maintenance window. Optionally, enable additional features such as Multi-AZ deployment for high availability, encryption at rest, and enhanced monitoring.
   Review the configuration settings and click "**Create database**" to initiate the creation process.



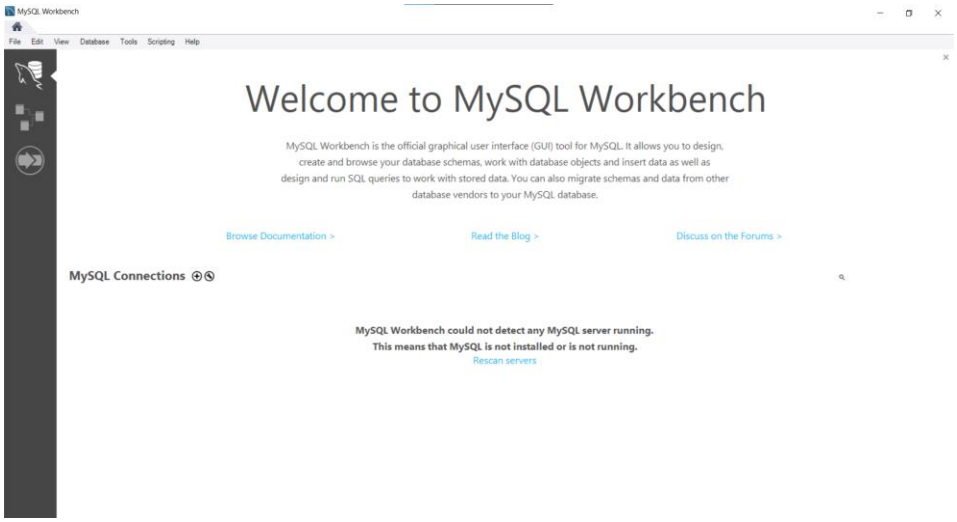
9. The RDS database will be provisioned, which typically takes a few minutes. You can monitor the progress on the RDS console.



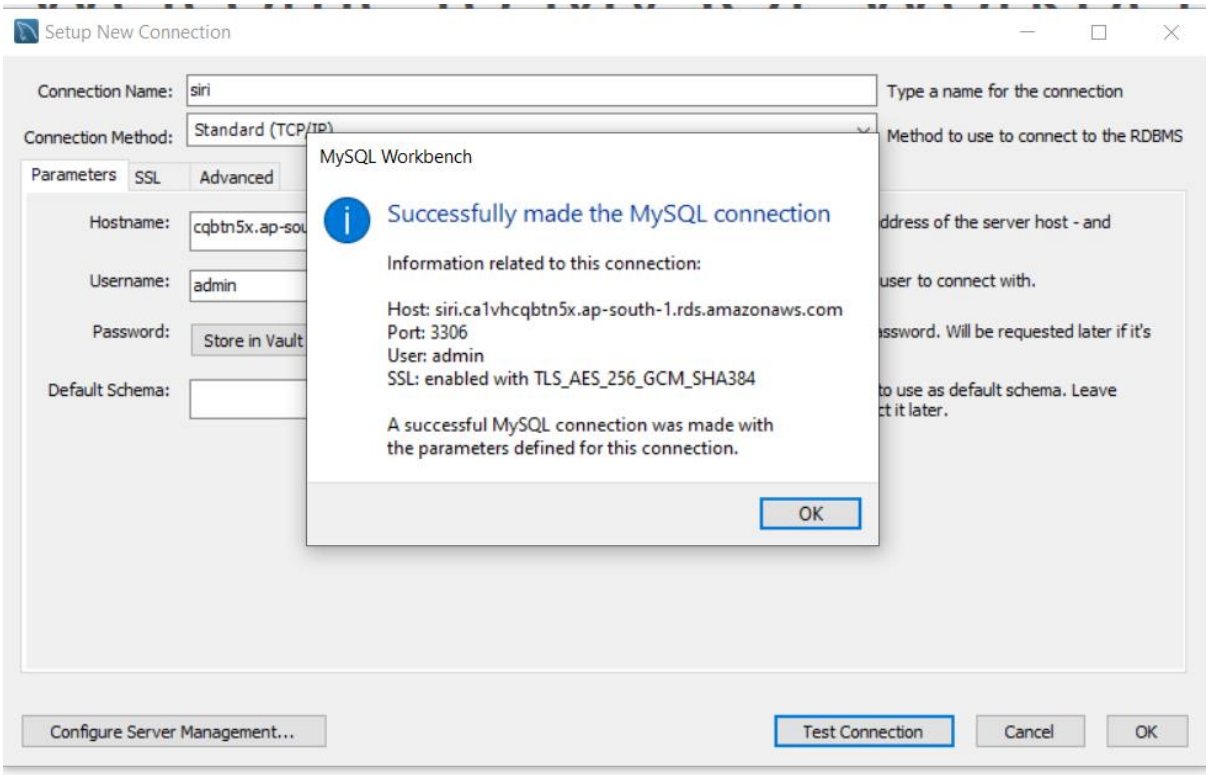
10. Once the database is created, you can obtain the endpoint or connection details to access the database from your applications.



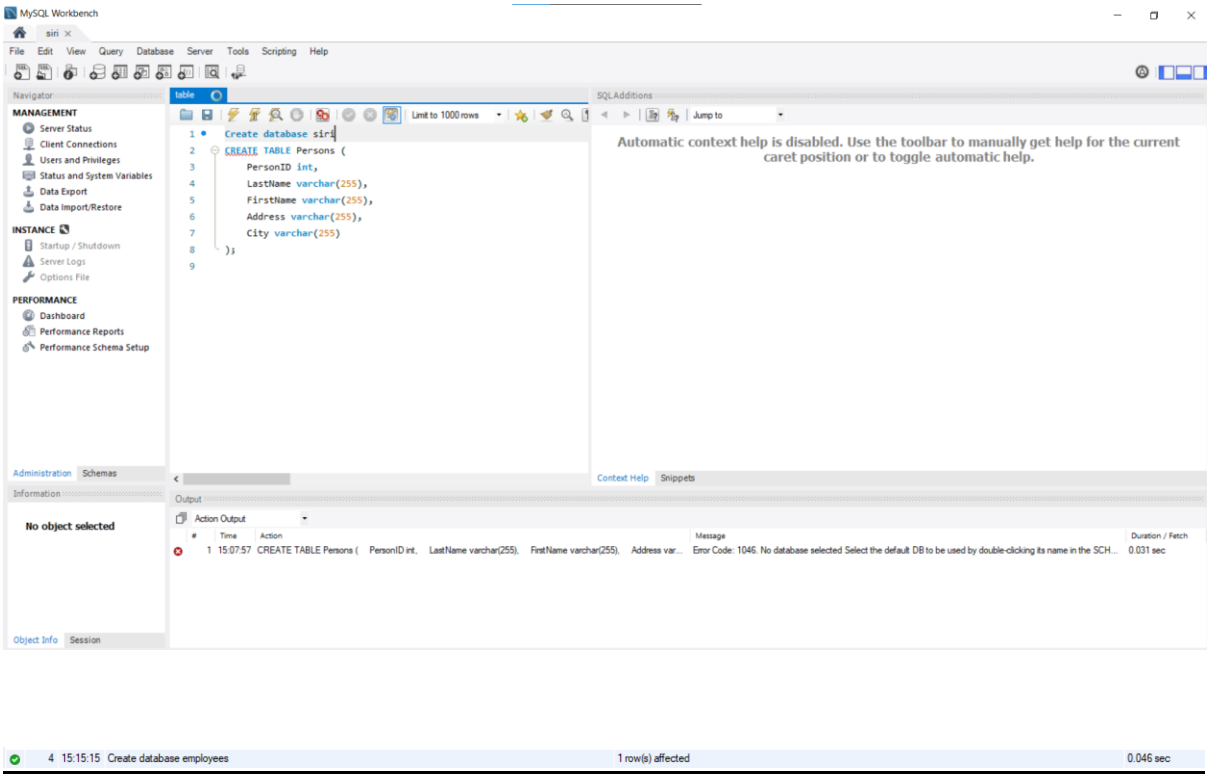
11. Open MySQL Workbench on your local machine. Click on the "+" icon in the "MySQL Connections" section to create a new connection.



12. Enter a connection name, connection method as Standard TCP/IP, hostname as endpoint of RDS, enter the username and password for your MySQL database. Click on the "Test Connection" button to verify the connectivity.
    - If the connection is successful, you will see a success message.
    - Click on "OK" to save the connection settings.
    - The new connection will appear in the MySQL Workbench home screen.
    - You can double-click on it to connect to the database.



13. Create a simple table in the provided workspace.



14. Delete the RDS by selecting the RDS click on actions and click on delete uncheck the snapshot backup to avoid charges on free tier and check delete option and type **delete me** to permanently delete the database