14. RELATIONAL DATABASE SERVICE (RDS)

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Amazon Relational Database Service (Amazon RDS) is a web service that makes it easier to set up, operate, and scale a relational database in the cloud. It provides cost-efficient, resizable capacity for an industry-standard relational database and manages common database administration tasks.

DB Instances: The basic building block of Amazon RDS is the DB instance. A DB instance is an isolated database environment in the cloud. A DB instance can contain multiple user-created databases, and you can access it by using the same tools and applications that you use with a stand-alone database instance.

Each DB instance runs a DB engine. Amazon RDS currently supports the MySQL, Maria DB, PostgreSQL, Oracle, and Microsoft SQL Server DB engines.

For each DB instance, you can select from 20 GB to 16 TB of associated storage capacity. Each DB instance class has minimum and maximum storage requirements for the DB instances that are created from it. It's important to have enough storage so that your databases have room to grow and that features for the DB engine have room to write content or log entries.

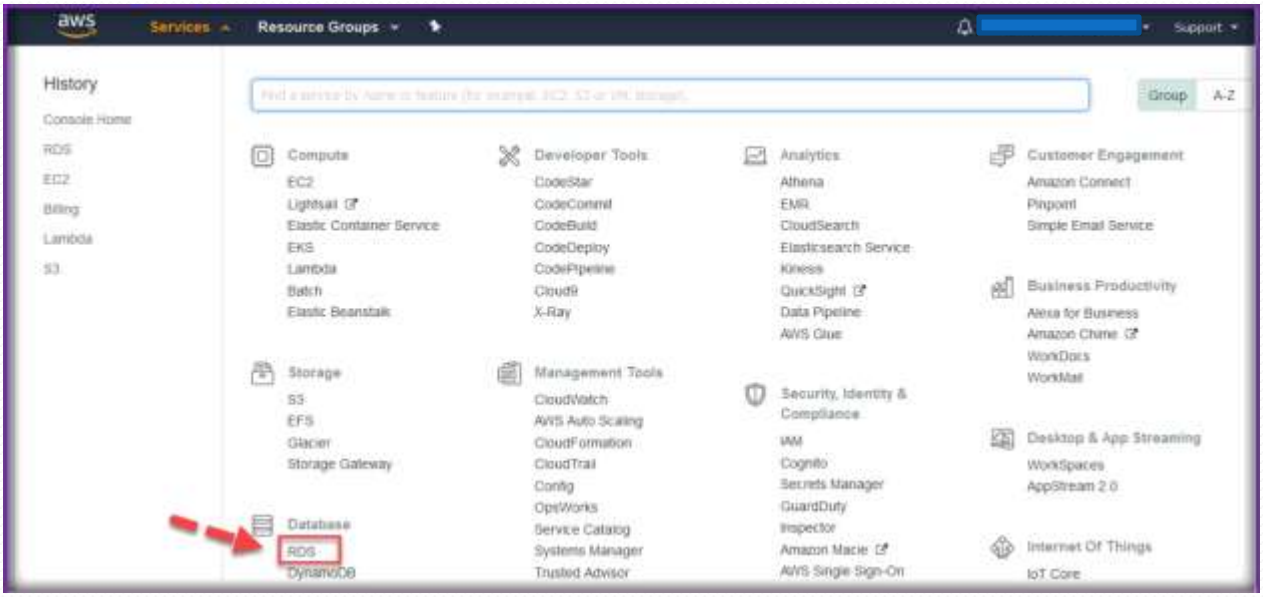
DB instance storage comes in three types: Magnetic, General Purpose (SSD), and Provisioned IOPS (SSD). They differ in performance characteristics and price, allowing you to tailor your storage performance and cost to the needs of your database.

Considerations for running on EC2:

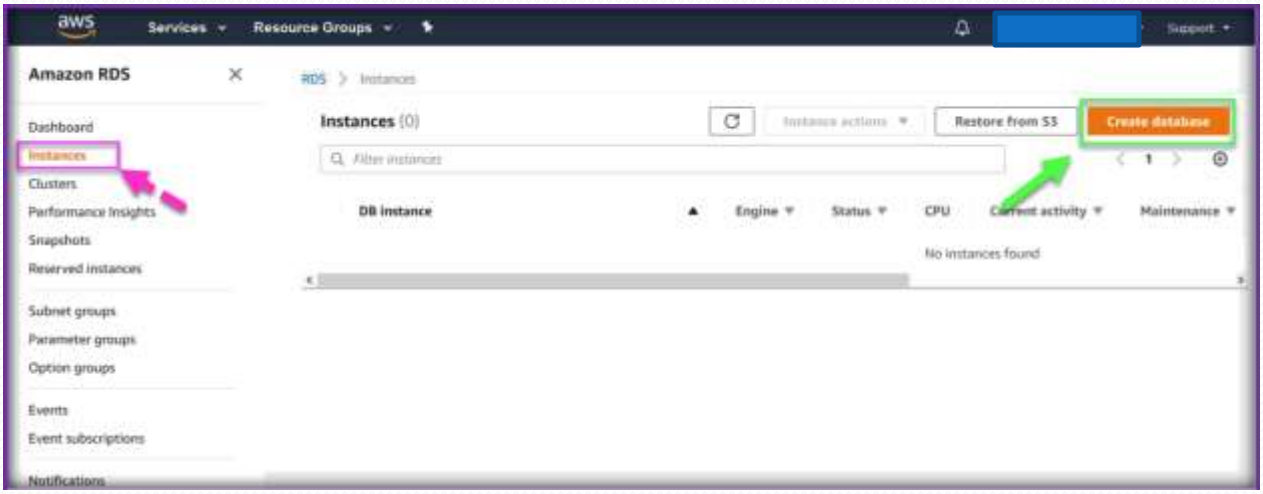
- Have to build and design for high availability.
- Must implement own backup solutions.
- Must manage replication manually between master and slave databases.
- Must manage tighter security controls.
- Upgrading resources or any type of failover requires manual interaction or custom scripting.

CREATING RDS DATABASE INSTANCE ON AWS

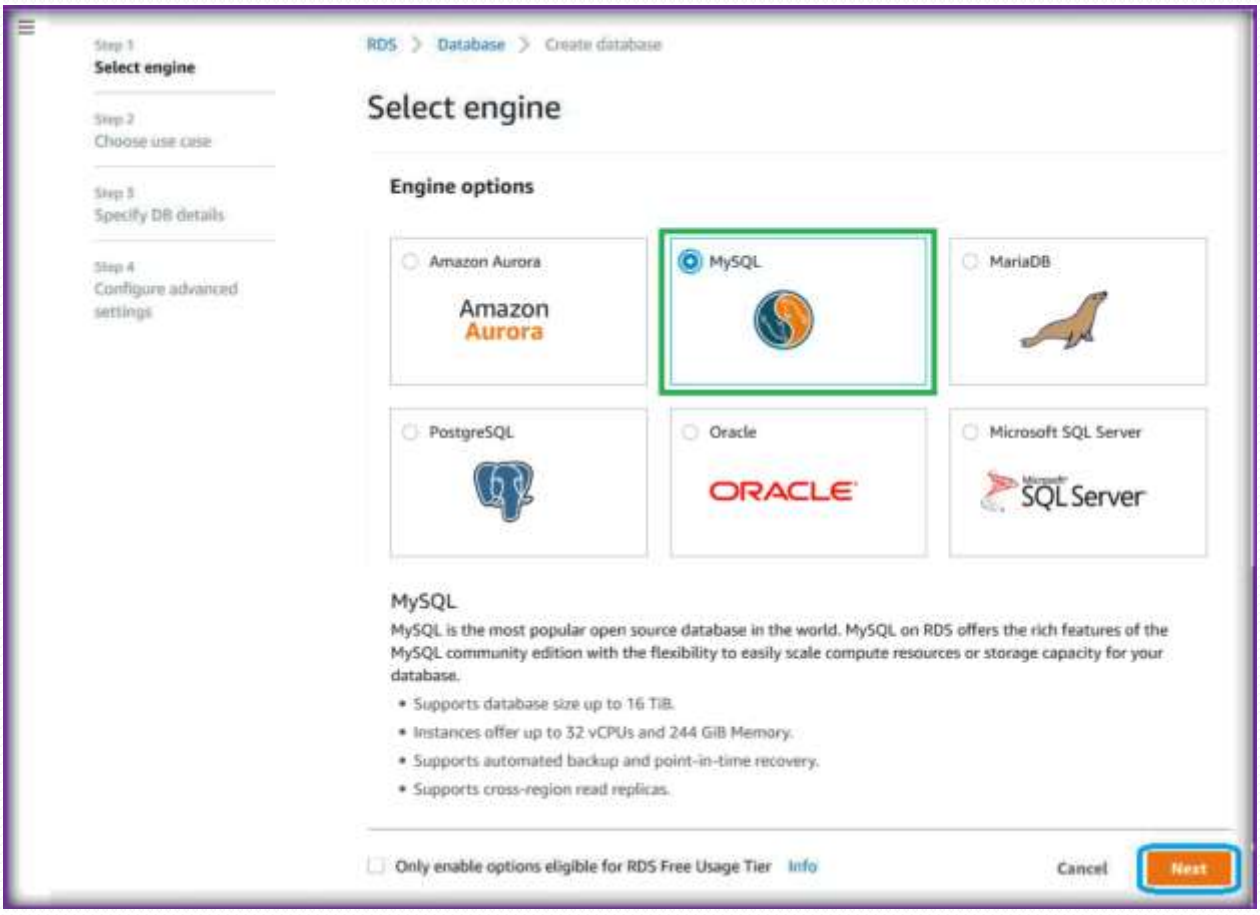
Once you logged in to AWS management console, Choose RDS from Database section under AWS services.



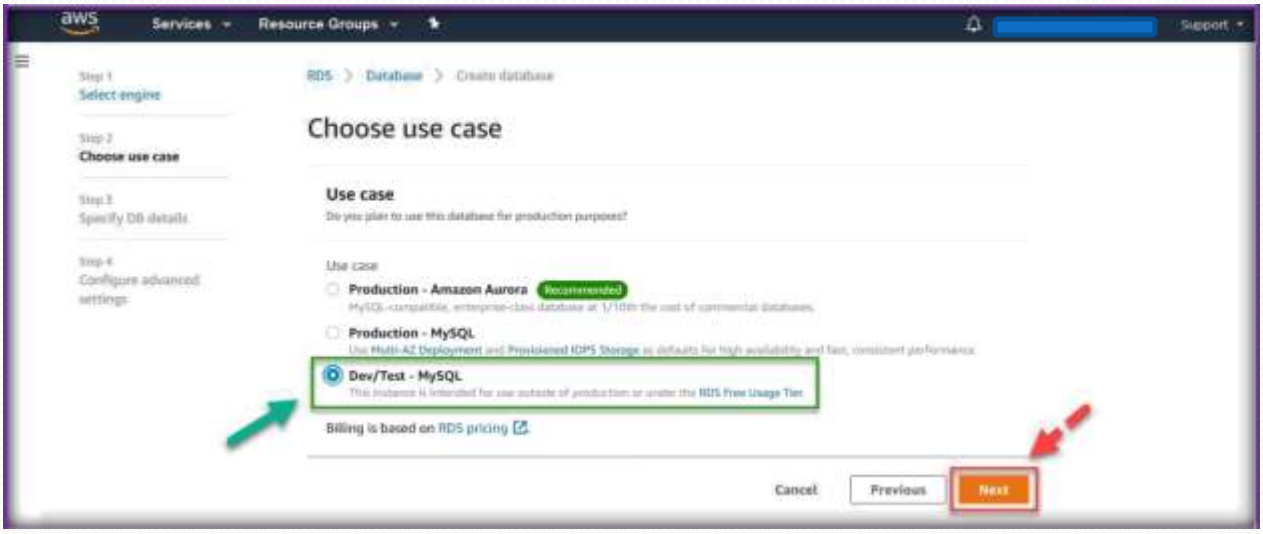
In the next page, select Instances from the left pane and click on Create database to start spinning up a database instance.



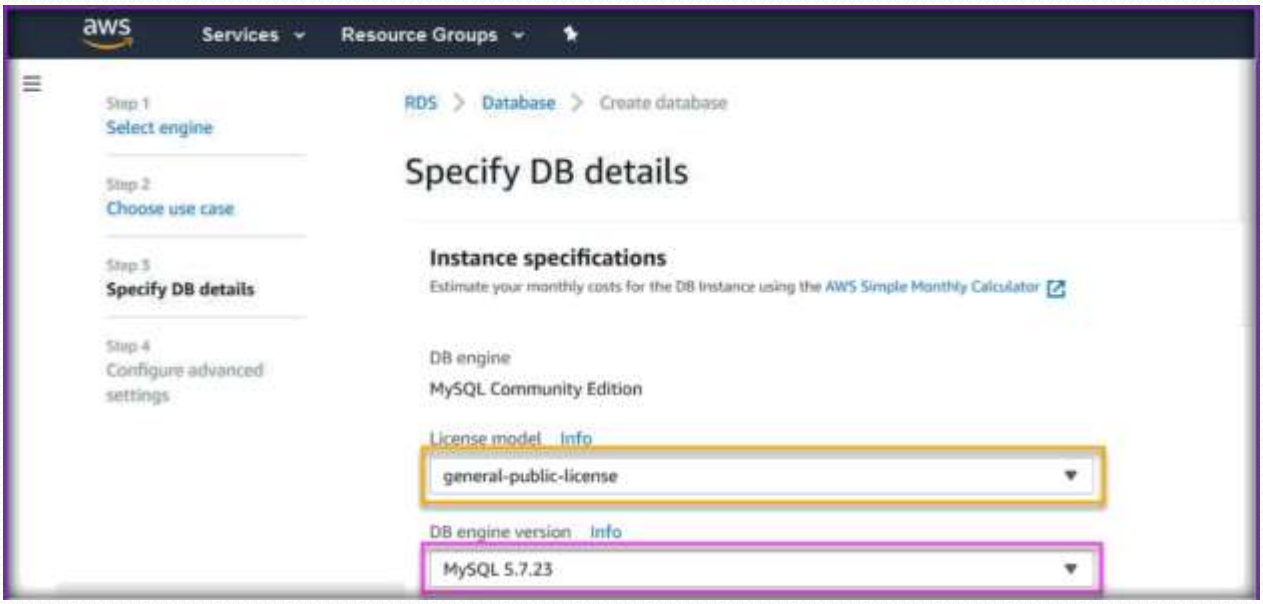
Select the database flavor and click on next to continue.



Choose use case as Dev/Test -Mysql and then click on Next.

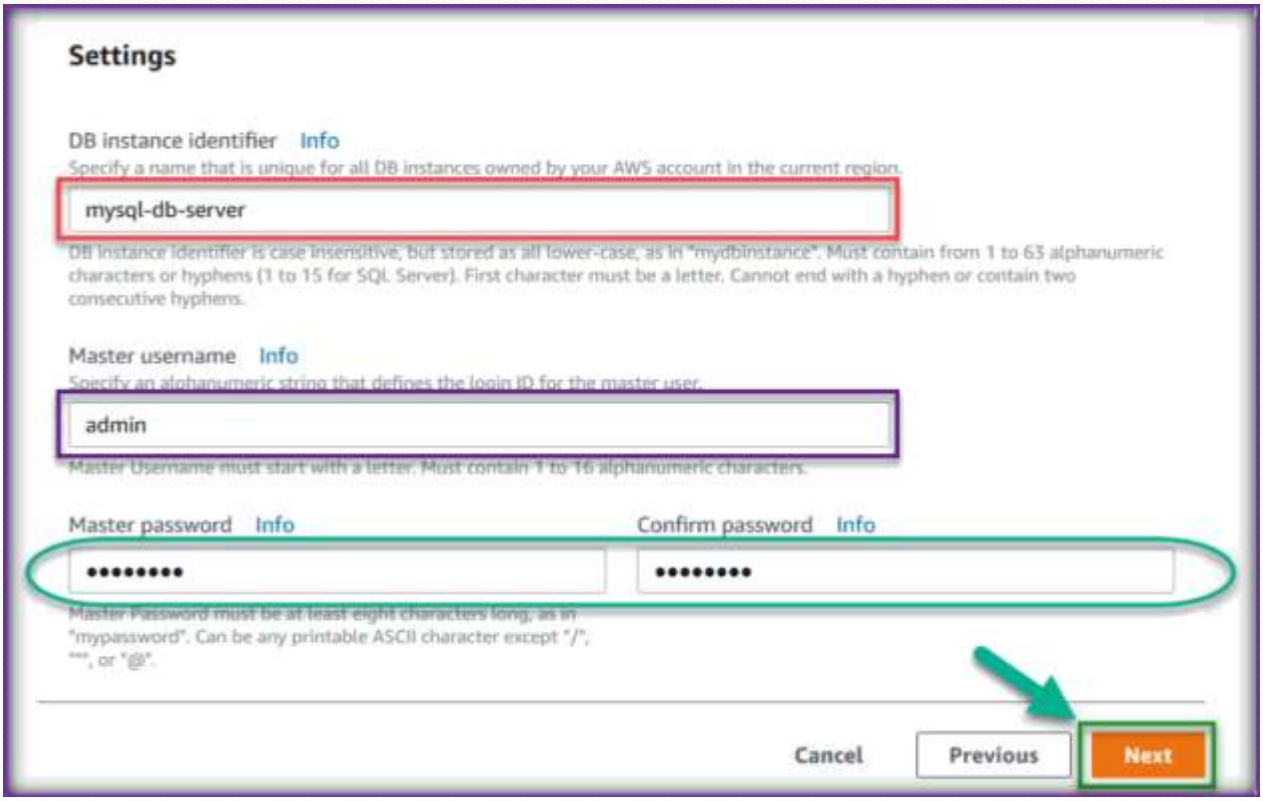


Select license model and engine version as per your requirement.



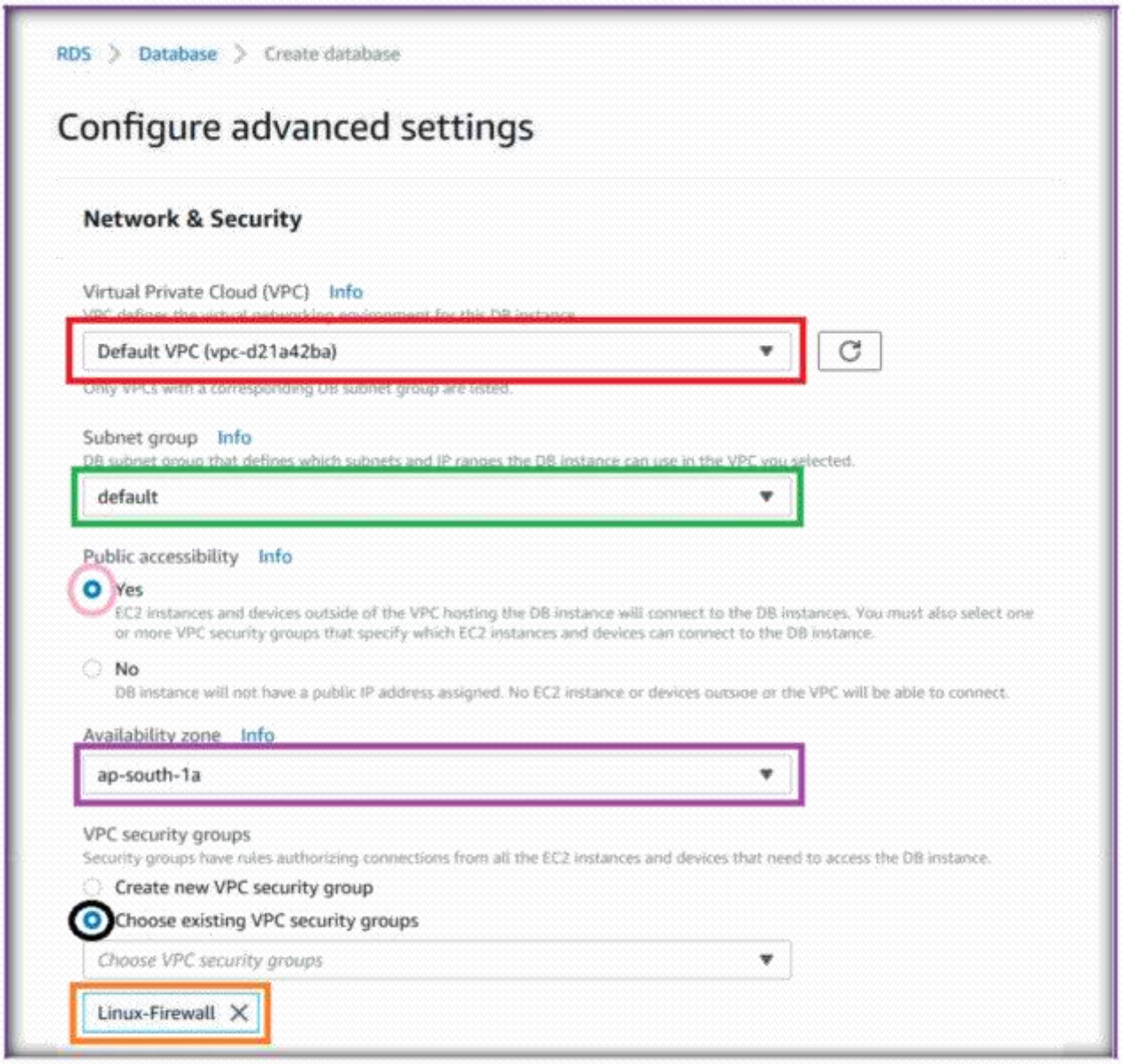
Select Instance type and specify Multi AZ information, choose Storage type, and specify the storage for your database in gb's.

Next, specify a tag name, provide user name and password which you want to use to connect to database server.



Under Network & Security choose VPC configurations.

- Select VPC from VPC drop down list.
- Select Default for Subnet Group.
- Choose either Yes or No for Public accessibility.
- Specify an Availability Zone from the drop-down list.
- Choose VPC security groups from the list.


RDS > Database > Create database
Configure advanced settings
Network & Security
Virtual Private Cloud (VPC) Info
Default VPC (vpc-d21a42ba)
Subnet group Info
default
Public accessibility Info
Yes
EC2 instances and devices outside of the VPC hosting the DB instance will connect to the DB instances. You must also select one or more VPC security groups that specify which EC2 instances and devices can connect to the DB instance.
No
DB instance will not have a public IP address assigned. No EC2 instance or devices outside of the VPC will be able to connect.
Availability zone Info
ap-south-1a
VPC security groups
Security groups have rules authorizing connections from all the EC2 instances and devices that need to access the DB instance.
Create new VPC security group
Choose existing VPC security groups
Choose VPC security groups
Linux-Firewall

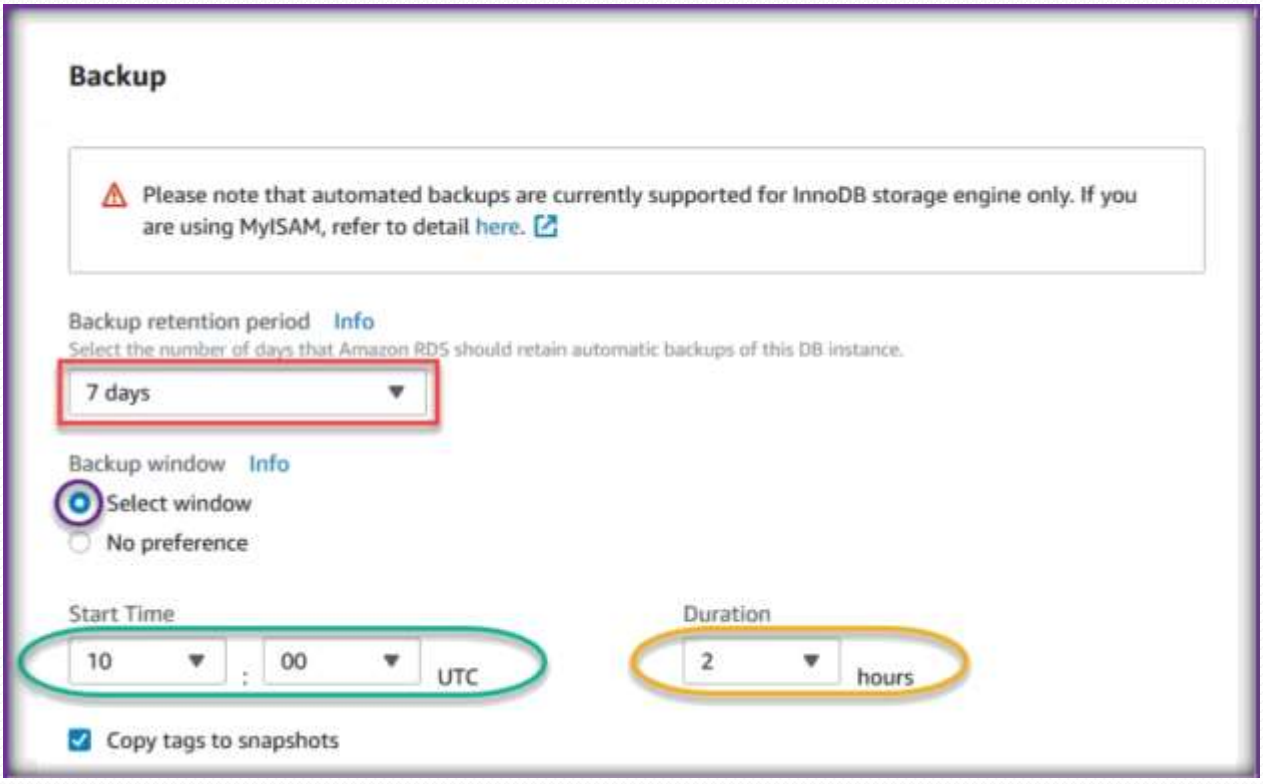
Under database options, specify a database name to be created with in the rds instance.

- Specify Database port to run RDS instance.
- Choose DB Parameter and Option groups.
- Choose Disable IAM DB authentication.

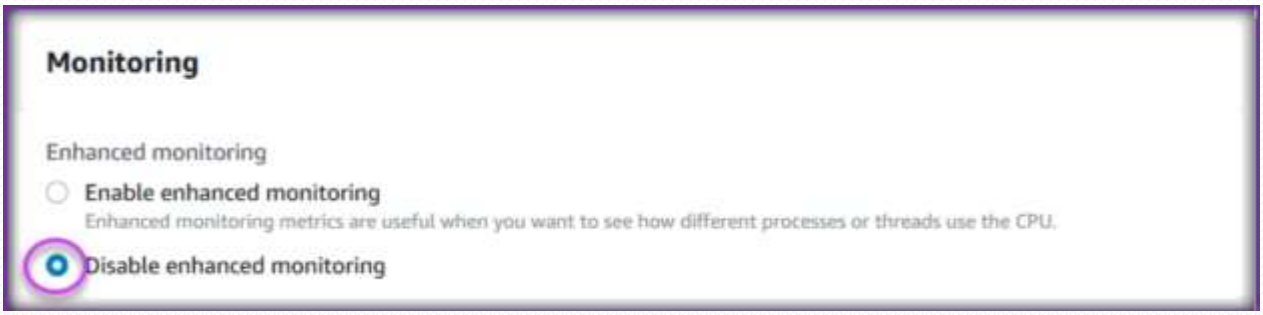
We can specify the encryption, if we need for the database instance.

Under the Backup section, specify backup, monitoring, and maintenance details.

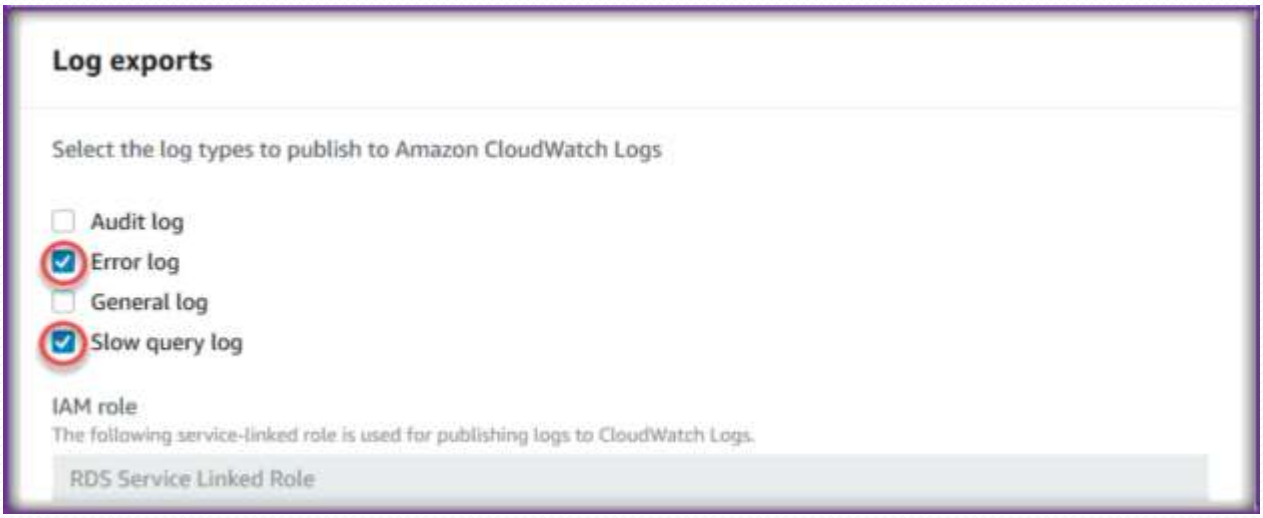
- Like how many days of backups you need for this RDS instance.
- Backup window period time and duration.



Choose the monitoring mode as enable Enhanced monitoring or disable.

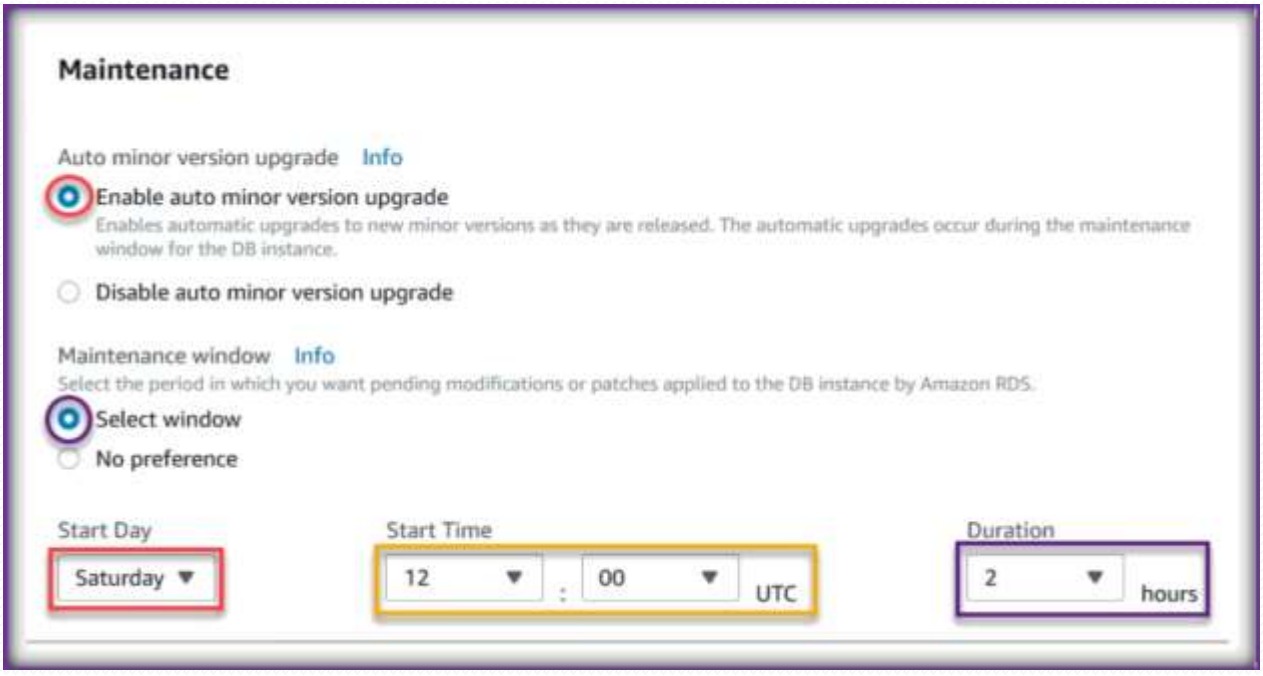


Select which logs from your db server to export to cloud watch service.

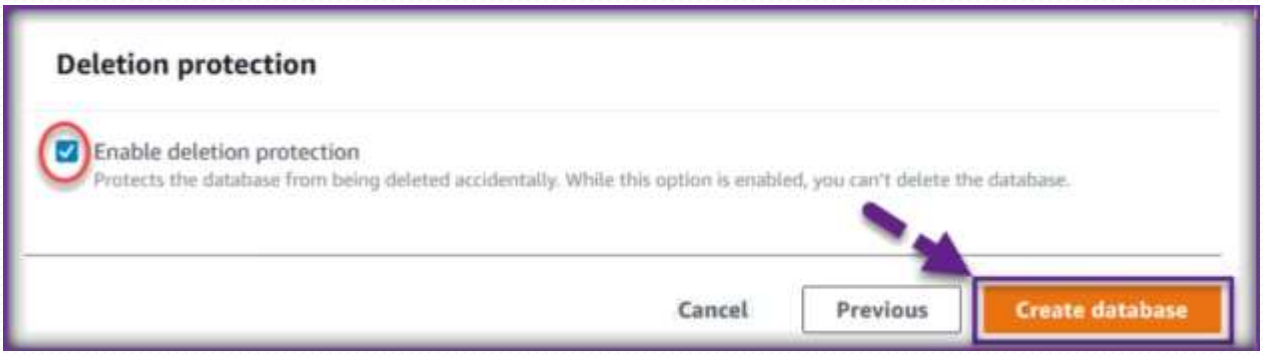


Under maintenance section choose following things.

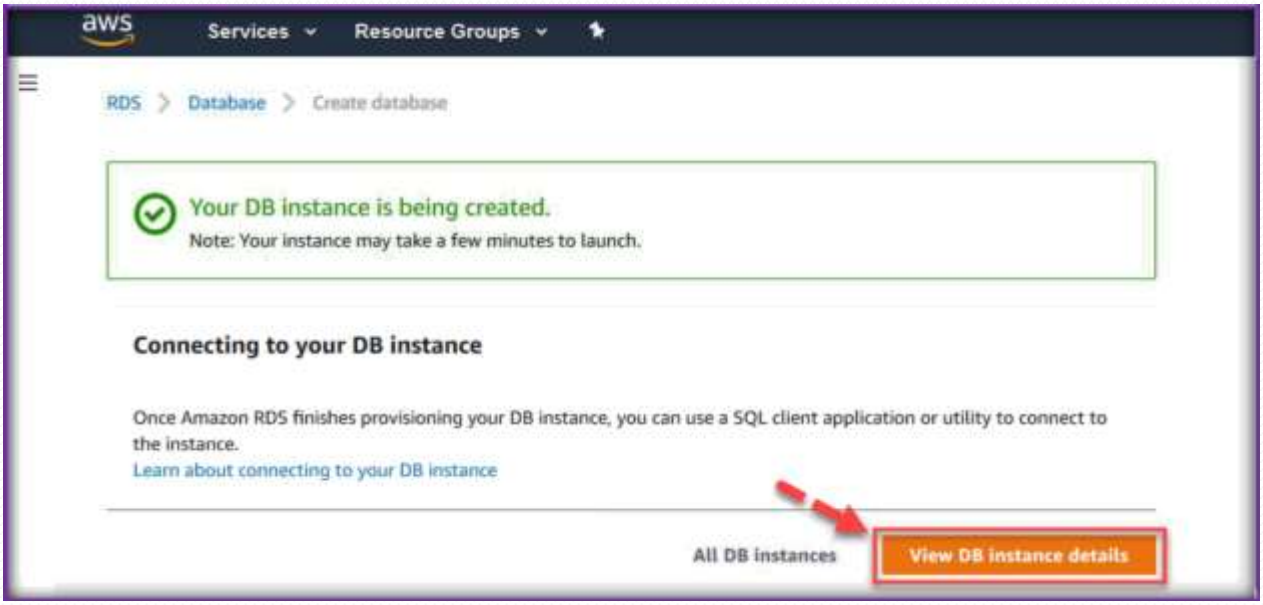
- Minor upgrades and patches to be installed or not.
- Specify when to install upgrades and patches in UTC format.



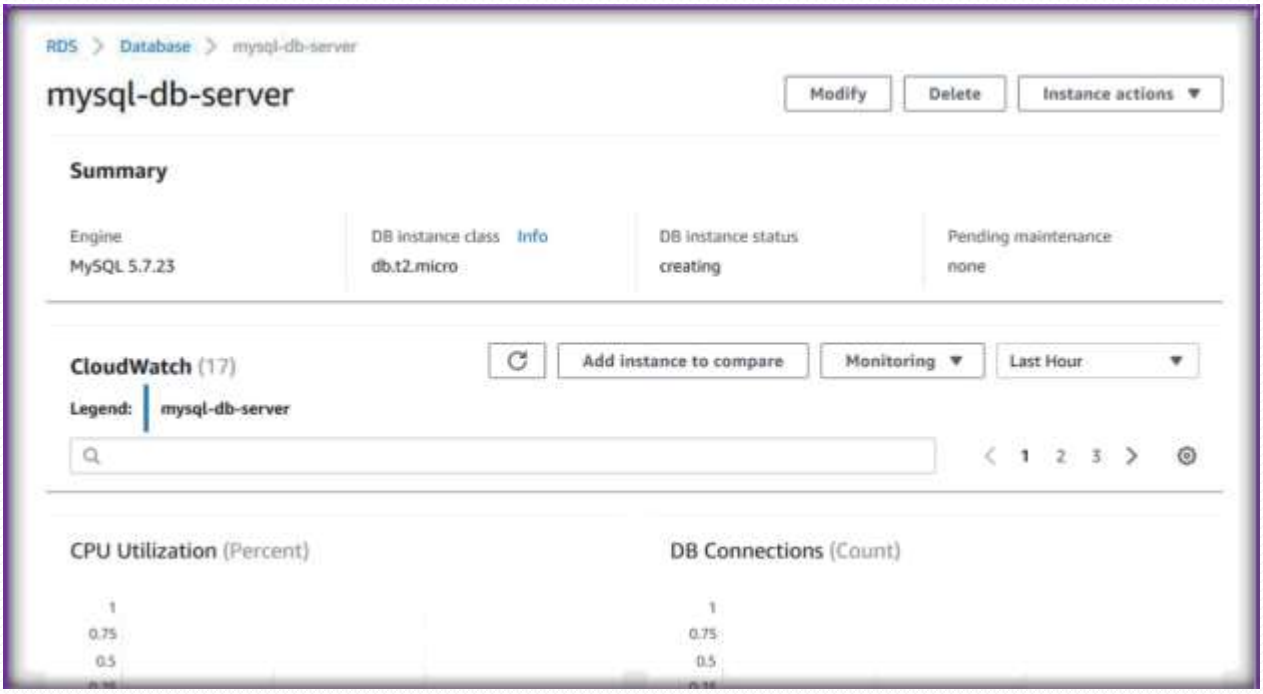
Specify deletion protection, then click on Create Database to create the DB server.



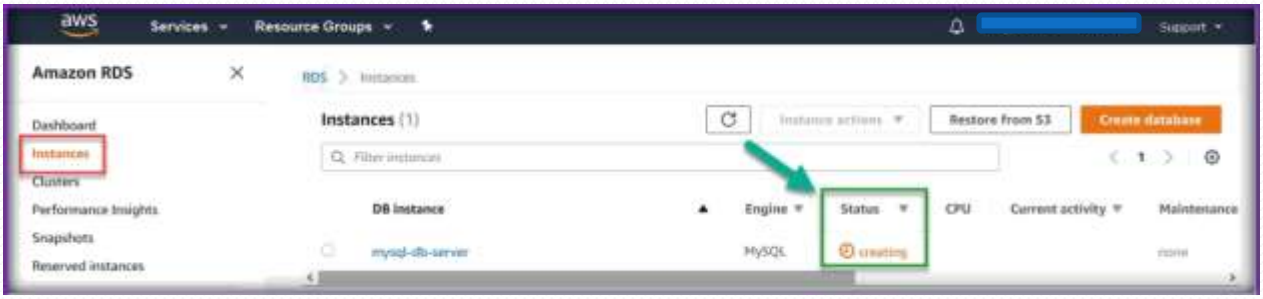
Click on View your DB Instances to see the instances.



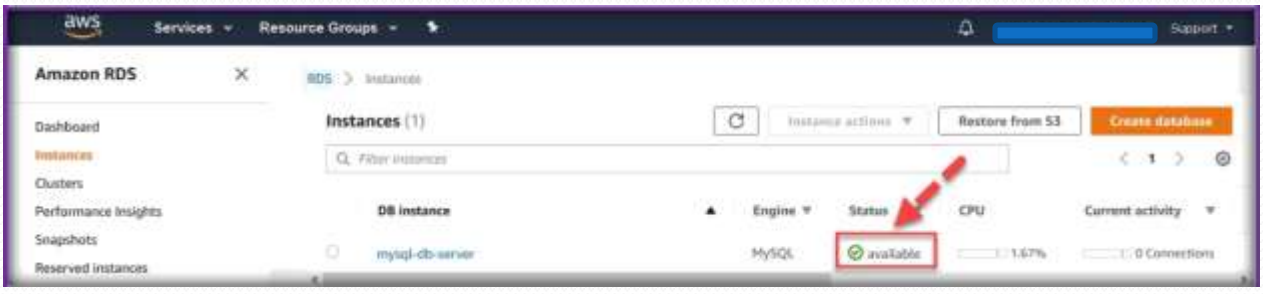
It will display all the configuration details of the DB server.



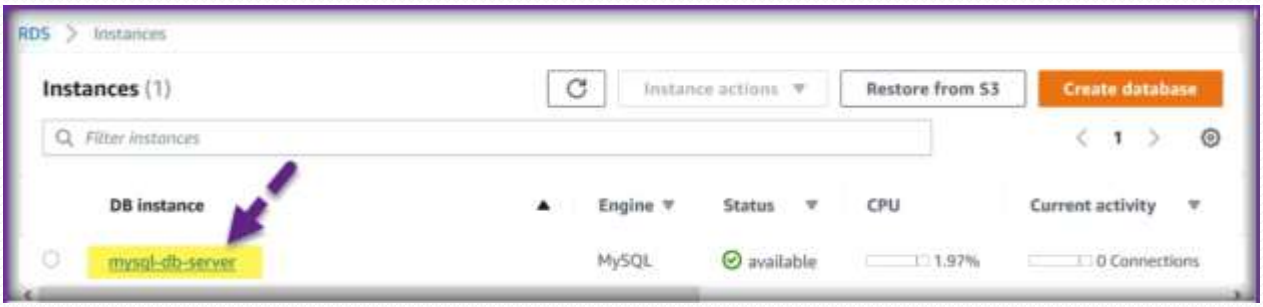
Go to Instances from the left pane to see the instance creation status.



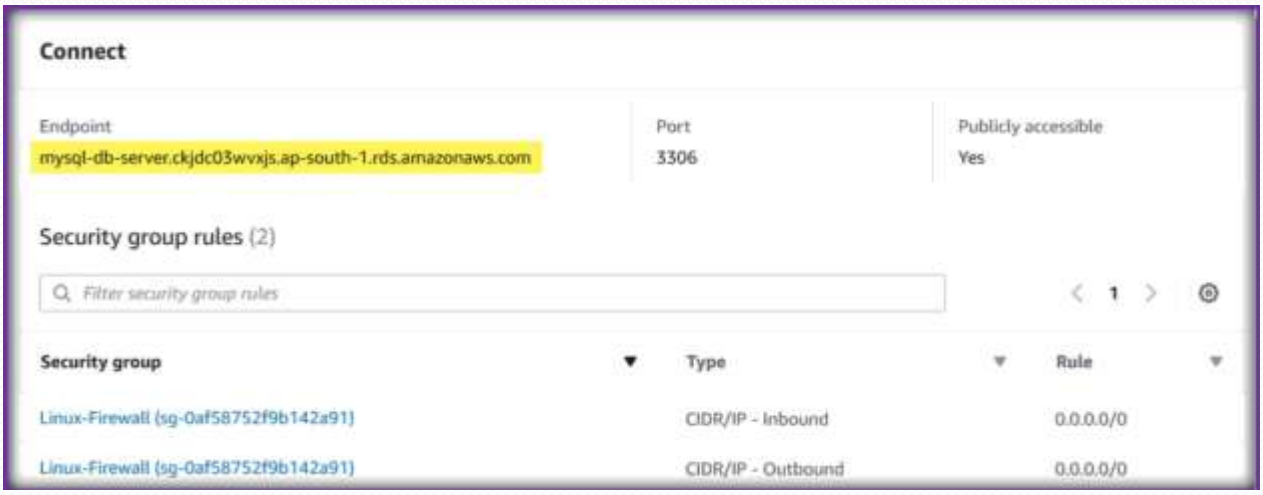
Once RDS creation completed, the status will show as available.



Next, click on the database tag name to go in to the db server details.



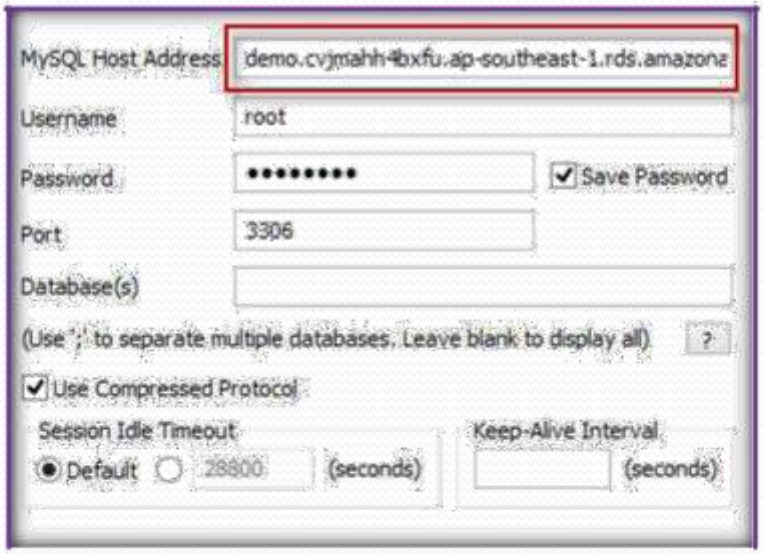
Summary page will open, on that page come to Connect section to see the connection details to connect to the database server.



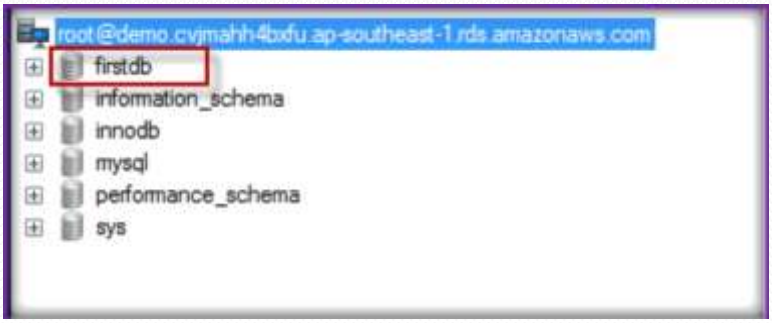
Copy the Endpoint of the db server, will use this db endpoint to connect to this db server.

CONNECT TO RDS INSTANCE USING CLIENTS

Use MySQL clients to connect to RDS instances.
Specify End Point as Host or IP Address, Port 3006, and specify user and password combination to connect to RDS DB instance.



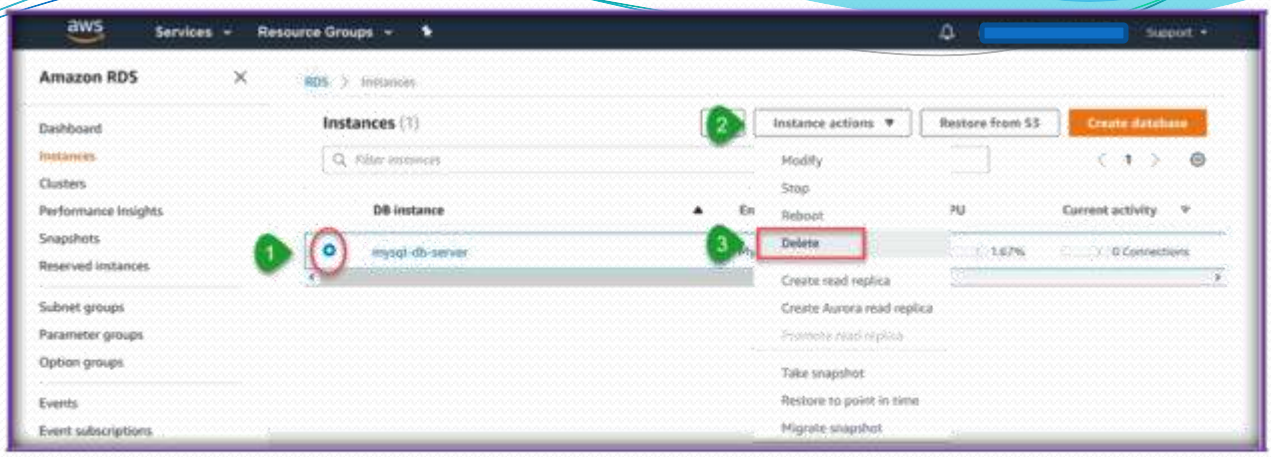
Once connected you can be able see the databases available on RDS.



Make sure to open DB instance port to connect in RDS security Group, otherwise you will not be able to connect.

TERMINATE RDS DB INSTANCE

Once you are in RDS page, click in Instances tab.
Then select instance, go to Instance Actions tab, choose Delete to RDS DB Instance.



Next, no for create final snapshot, acknowledge it, then enter “delete me”, next click on Delete.