In RDS its internally create an ec2 machine which is managed by aws

SQL: RDS-Relational database service: Database as service

- Oracle
- Mysql
- Postgres
- Sql server
- Maria db
- Amazon aurora-faster than mysql

NoSQL: DynamoDB

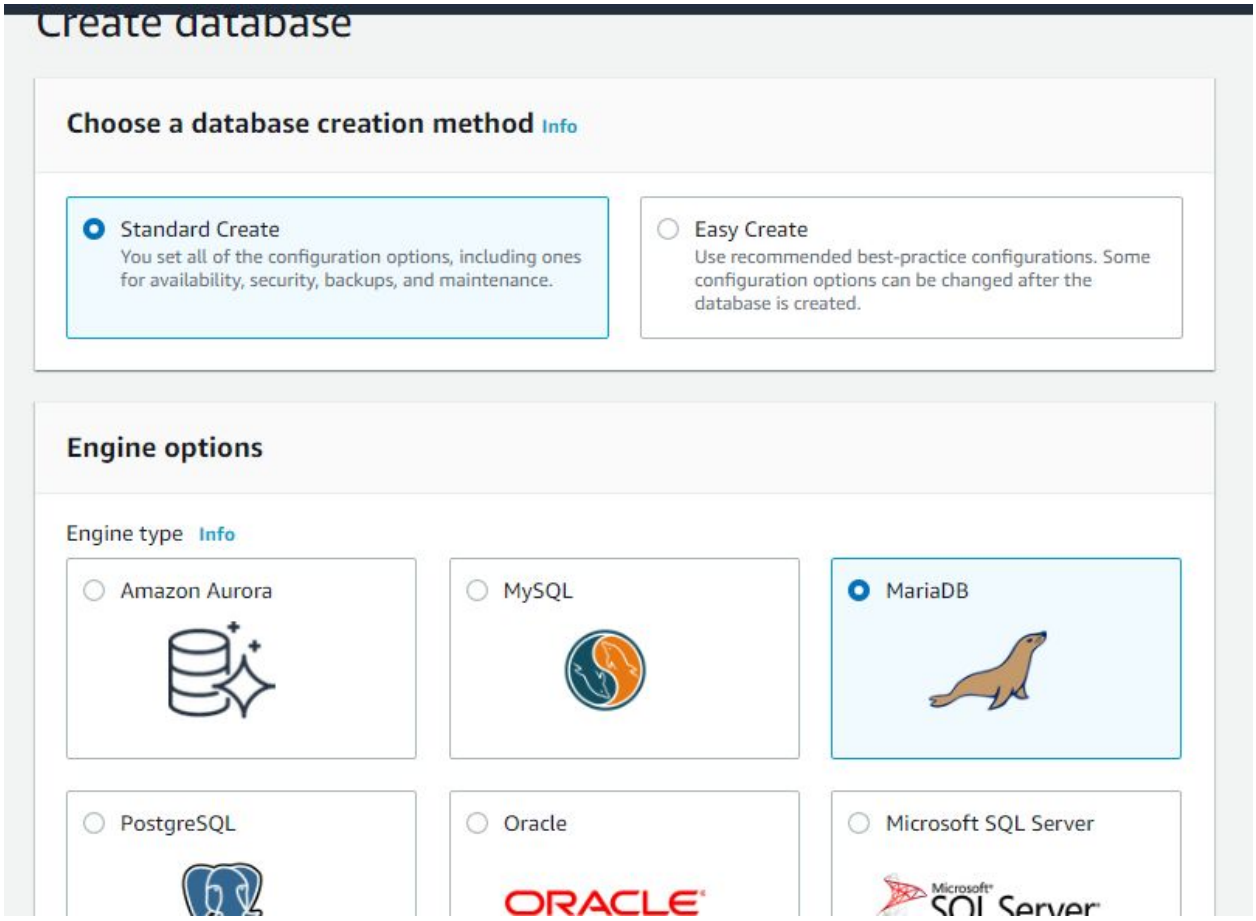
- Mongo db
- Cassandra

Cache : Elastic cache

- Redis

Backup - easy to take backup

Replication - multi az replication of data



Version Info

MariaDB 10.2.21

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

Settings

DB instance identifier Info

Type a name for your DB instance. The name must be unique cross all DB instances owned by your AWS account in the current AWS Region.

database-1

The DB instance identifier is case-insensitive, but is stored as all lowercase (as in "mydbinstance"). Constraints: 1 to 60 alphanumeric characters or hyphens (1 to 15 for SQL Server). First character must be a letter. Can't contain two consecutive hyphens. Can't end

DB instance identifier **Info**

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▼ **Credentials Settings**

Master username **Info**

Type a login ID for the master user of your DB instance.

admin

1 to 16 alphanumeric characters. 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

Master password **Info**

Constraints: At least 8 printable ASCII characters. Can't contain any of the following: / (slash), "(double quote) and @ (at sign).

Confirm password **Info**

DB instance size

DB instance class Info

Choose a DB instance class that meets your processing power and memory requirements. The DB instance class options below are limited to those supported by the engine you selected above.

- Standard classes (includes m classes)
- Memory Optimized classes (includes r and x classes)
- Burstable classes (includes t classes)

db.t2.micro
1 vCPUs 1 GiB RAM Not EBS Optimized

Include previous generation classes

Storage

Storage type Info

General Purpose (SSD)

Allocated storage

20 GiB

(Minimum: 20 GiB, Maximum: 16384 GiB) Higher allocated storage **may improve** IOPS performance.

Storage autoscaling Info

Storage autoscaling Info

Provides dynamic scaling support for your database's storage based on your application's needs.

☑ Enable storage autoscaling
Enabling this feature will allow the storage to increase once the specified threshold is exceeded.

Maximum storage threshold Info

Charges will apply when your database autoscales to the specified threshold

1000 GiB

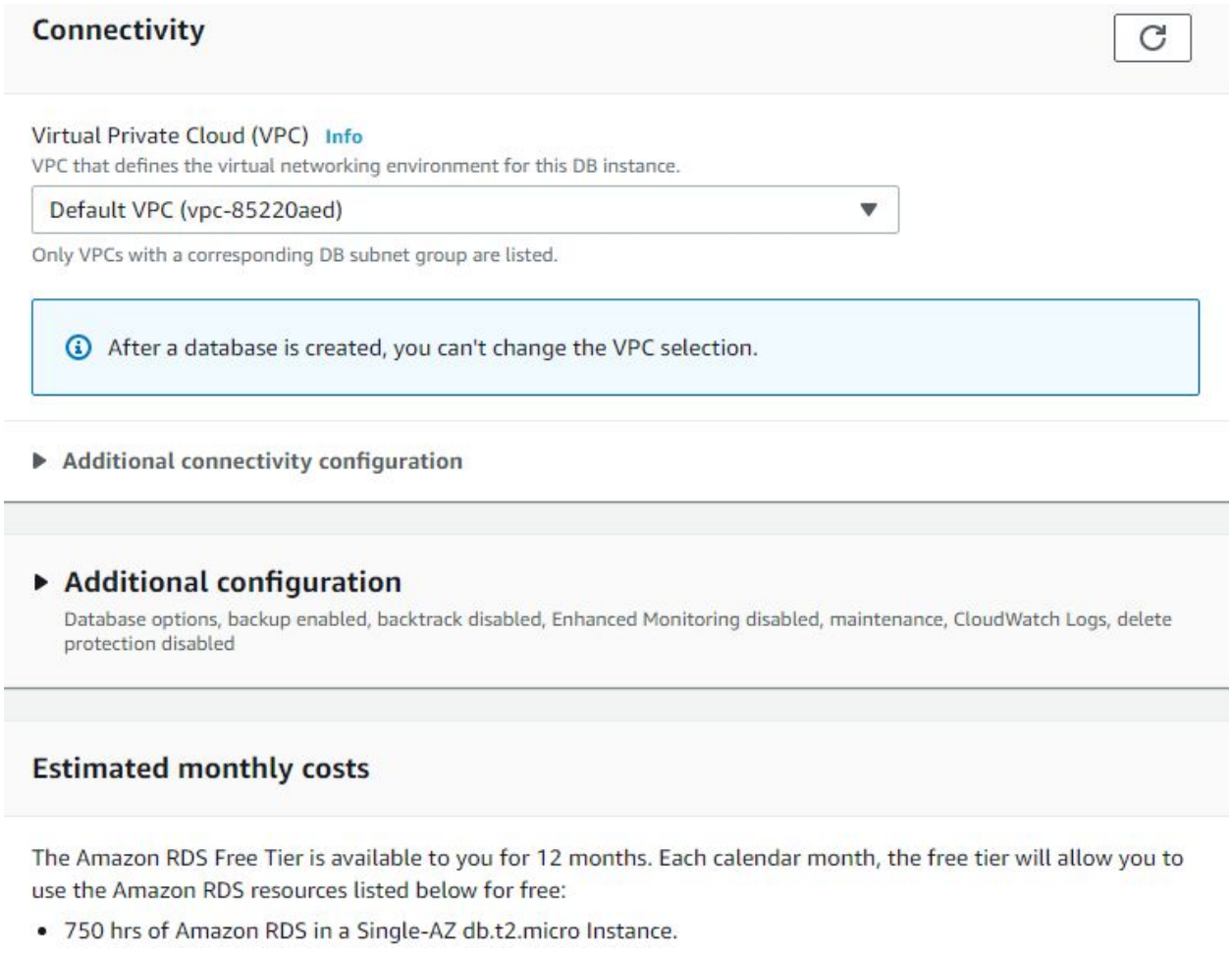
Minimum: 21 GiB, Maximum: 16384 GiB

Availability & durability

Multi-AZ deployment Info

○ Create a standby instance (recommended for production usage)
Creates a standby in a different Availability Zone (AZ) to provide data redundancy, eliminate I/O freezes, and minimize latency spikes during system backups.

◉ Do not create a standby instance



Create Database

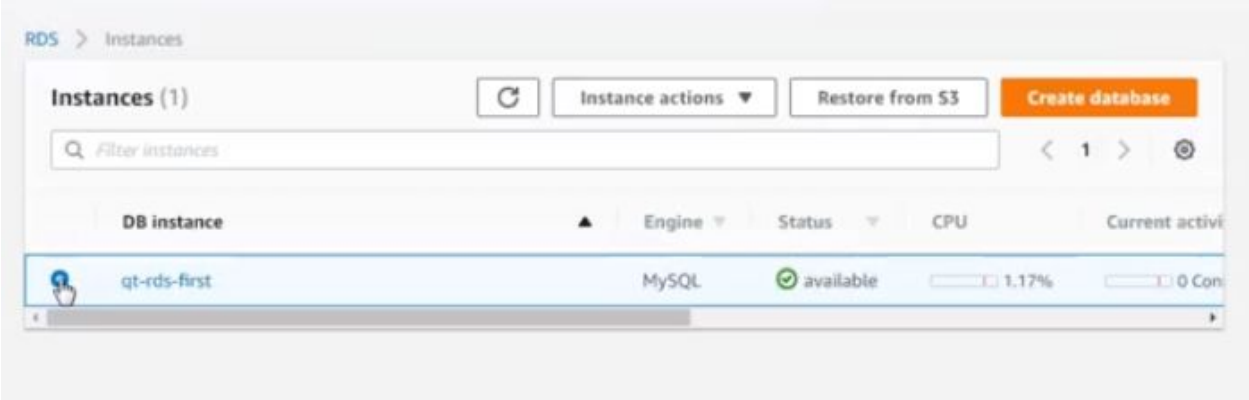
Backup retention period - 1-35 day
Retention period -by default 7day / 2 yrs

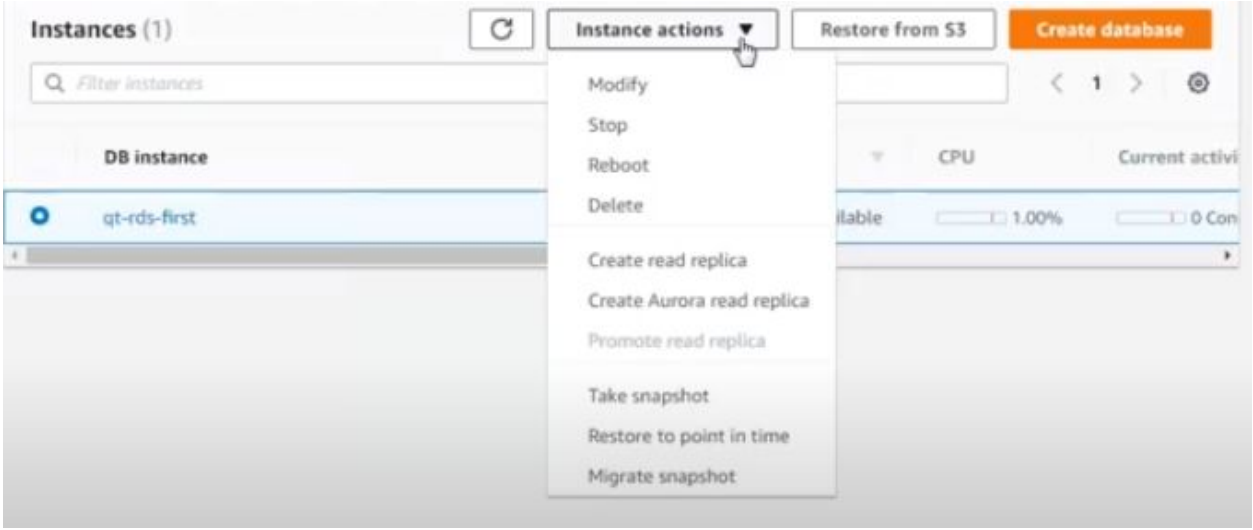
Multi AZ :- Multiple copies of database in different availability zones and replication setup between them.

so db will function until region is down

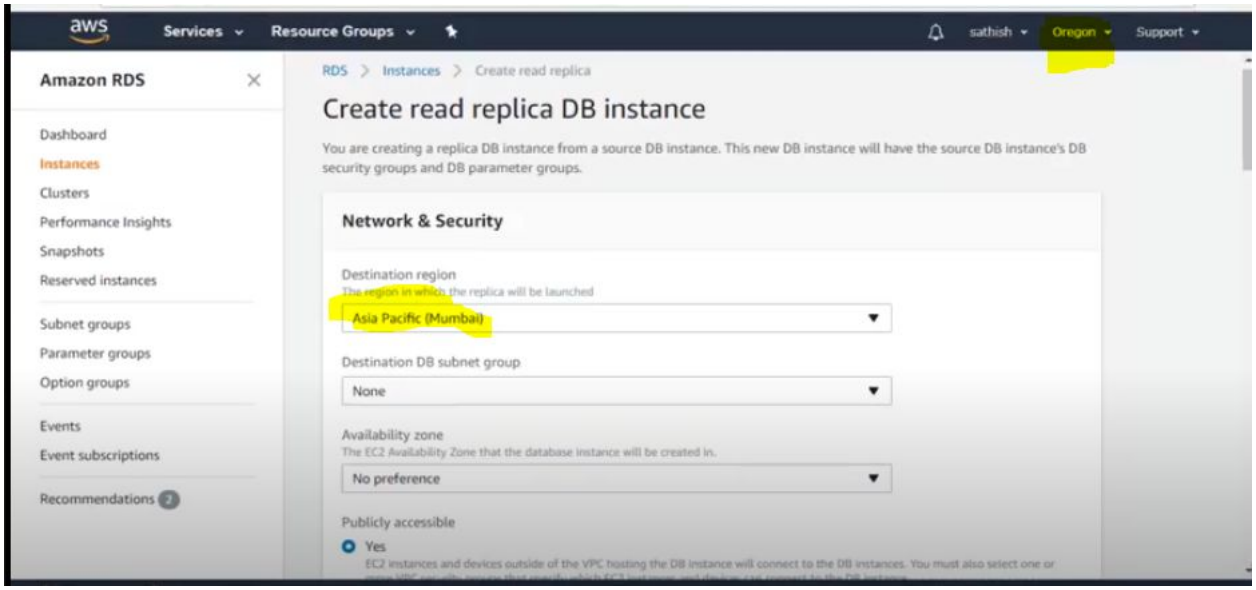
. only copy the data we take from the diff zone.

Read Replica :- distribute load so like one server will use for read query and another db for write.so for business intelligence we use this so high availability load distributed,performance increase and cost also optimized .taking a smaller machine instead of taking a large server so we can distribute the db load.so we have one endpoint now.most widely used

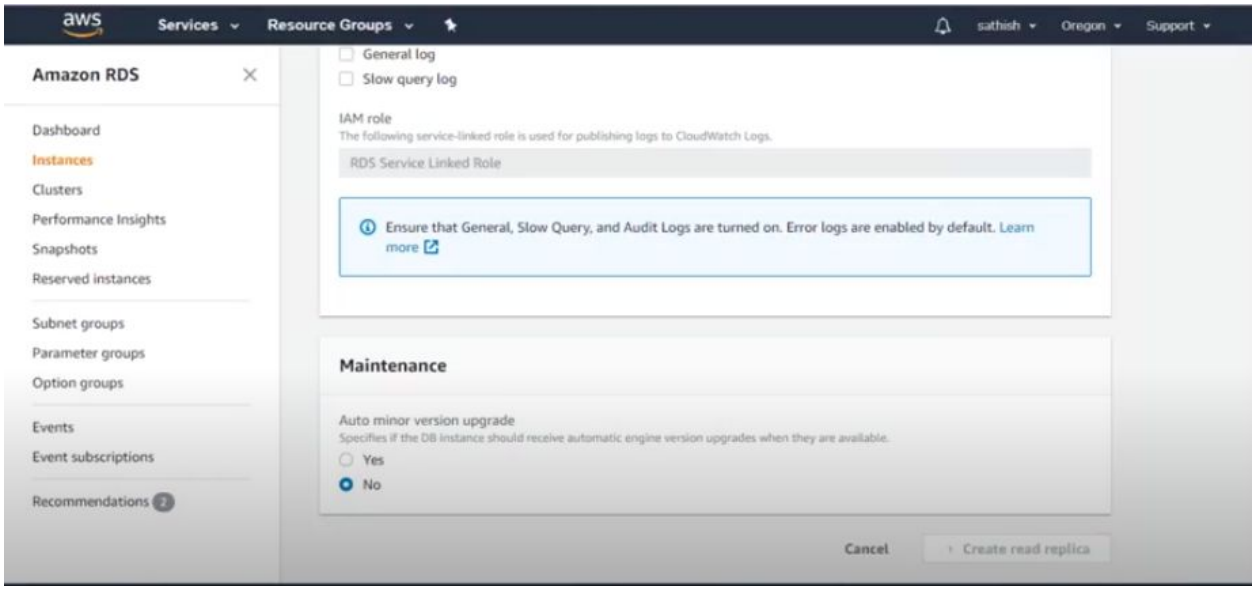


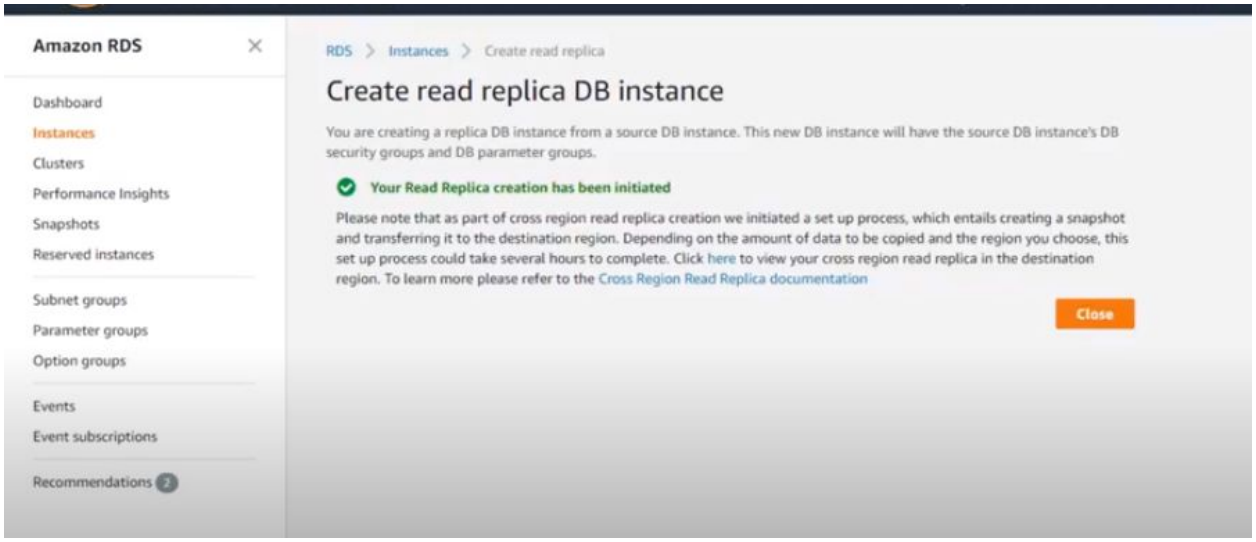


1.Stop option was not there earlier but now we have a stop option but the max stop is for 1day after 1 day it will automatically start its not like ec2 stop.
2.Modify is changing your database instance type like instance type based on your need
3.Reboot is restarting your database server.
4.Snapshot is just for the database.
5. Create Read replica
6. Aurora read replica its faster db also good performance its like you want come back from mysql to aurora.
7. Migrate snapshot basically we use to move our database from one region to another region but now we can do this using a read replica. Previously read replica was not there so we were using this.
8. Restore to point in time is based up on time we can take backup or restore db.

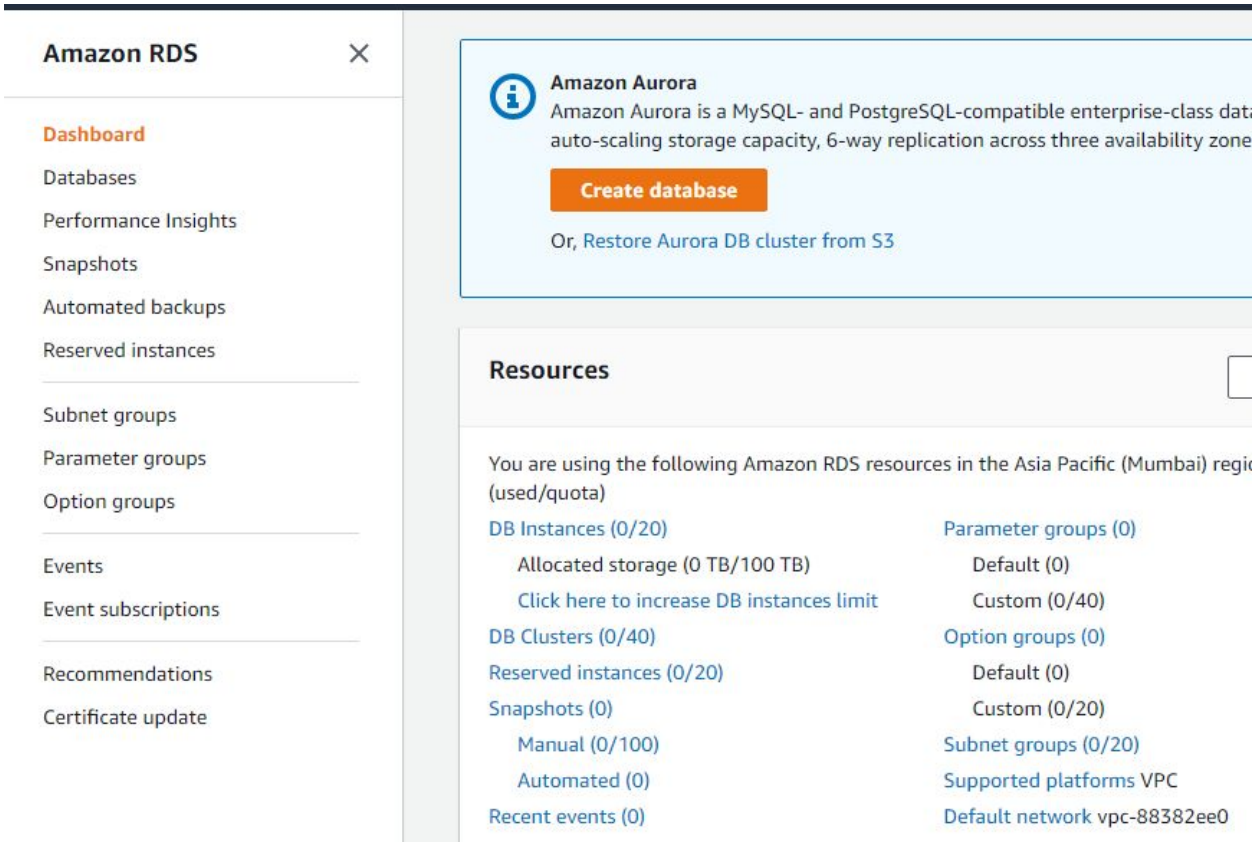

aws
Services
Resource Groups
sathish
Oregon
Support
Amazon RDS
Dashboard
Instances
Clusters
Performance Insights
Snapshots
Reserved instances
Subnet groups
Parameter groups
Option groups
Events
Event subscriptions
Recommendations 2
RDS > Instances > Create read replica
Create read replica DB instance
You are creating a replica DB instance from a source DB instance. This new DB instance will have the source DB instance's DB security groups and DB parameter groups.
Network & Security
Destination region
The region in which the replica will be launched
Asia Pacific (Mumbai)
Destination DB subnet group
None
Availability zone
The EC2 Availability Zone that the database instance will be created in.
No preference
Publicly accessible
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

I have my primary db in oregon and my replica is in mumbai

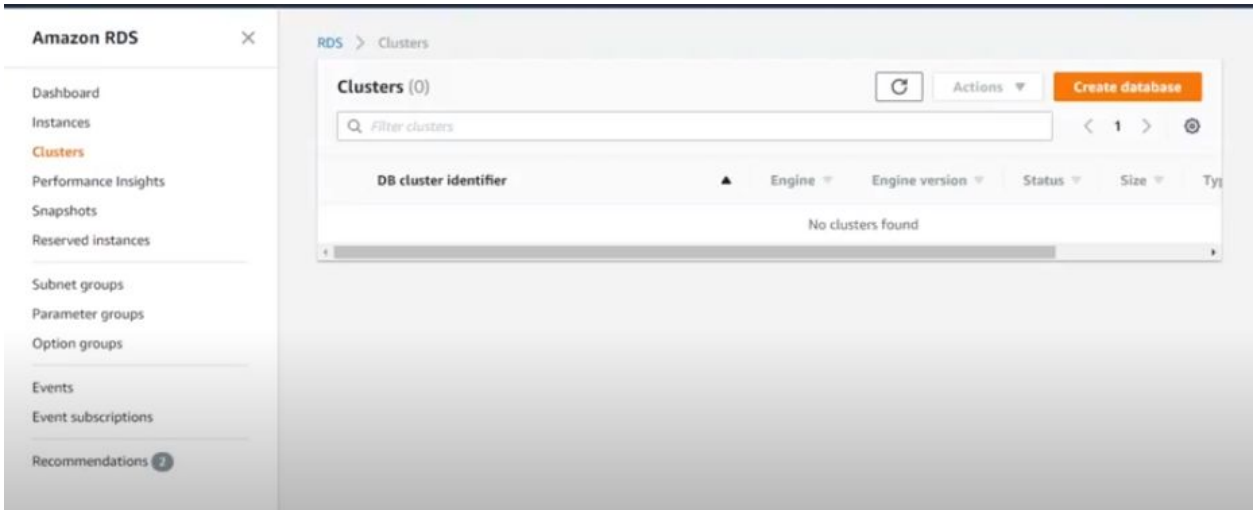




Read replicas can be created in other regions. Previously this option was not there in aws.



Latest options



Cluster we use for multiple db machines and its not free tier.if we need db setup for different machines then we can use cluster.

Performance Insights : DBA Monitoring tool like performance metrics

Performance Insights is a database performance dashboard designed to help customers quickly assess performance on their relational database workloads and guide customers as to when and where to take action. Performance Insights collects detailed database performance data through light weight mechanisms and presents it in an intuitive graphical interface.

Support Engines

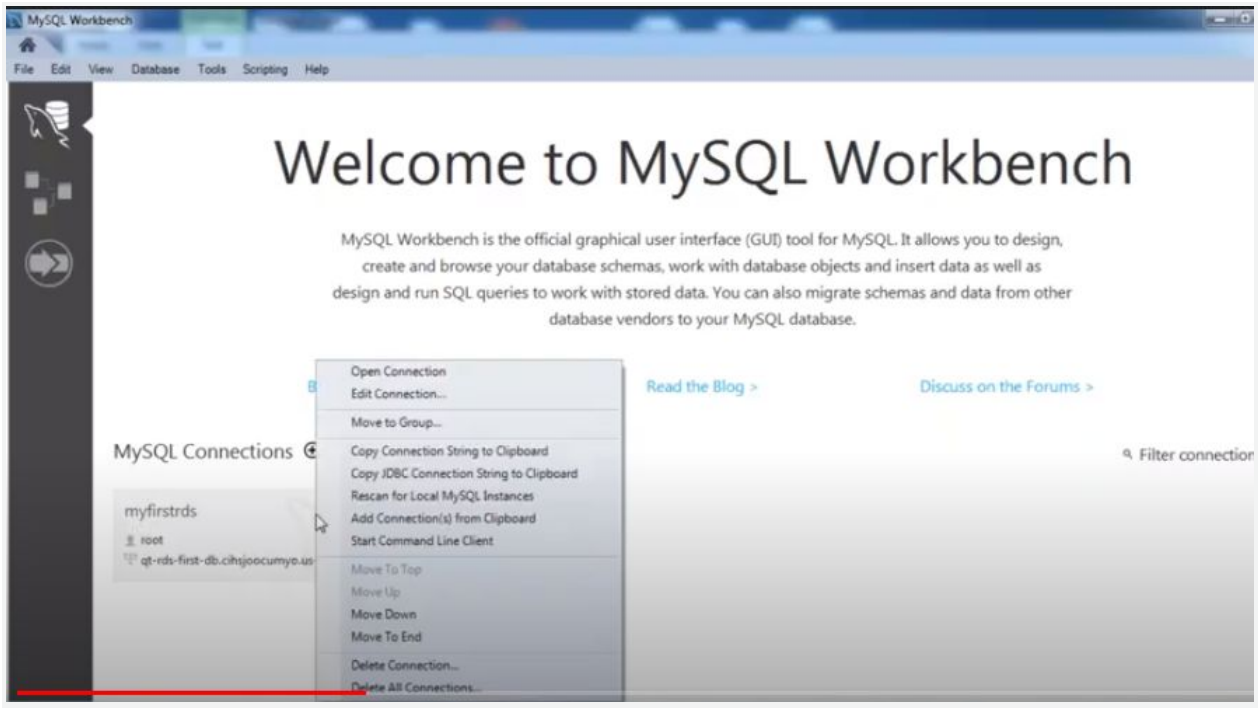
Performance Insights is currently available for Amazon Aurora PostgreSQL compatible Edition, MySQL compatible Edition, PostgreSQL, MySQL, Oracle, SQL Server, and MariaDB

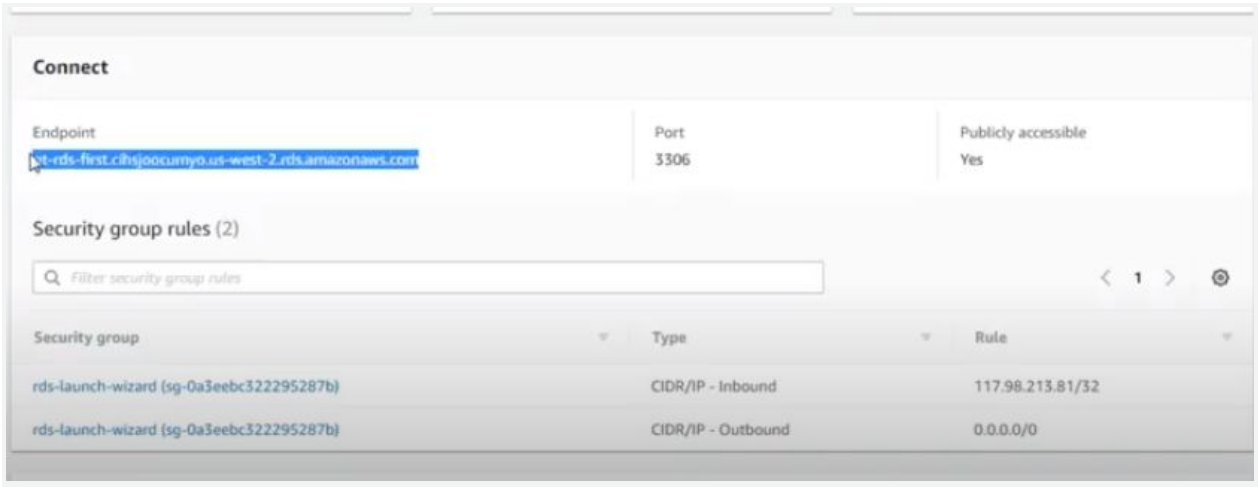
Enabling performance insight

Performance Insights can be enabled by selecting "Enable Performance Insights" when creating a new database or modifying an existing database. Contact your account administrator to get IAM permissions to access Performance Insights. To grant Performance Insights permissions, please apply the provided custom policy to an IAM user or to a new or existing IAM policy associated with an IAM user.

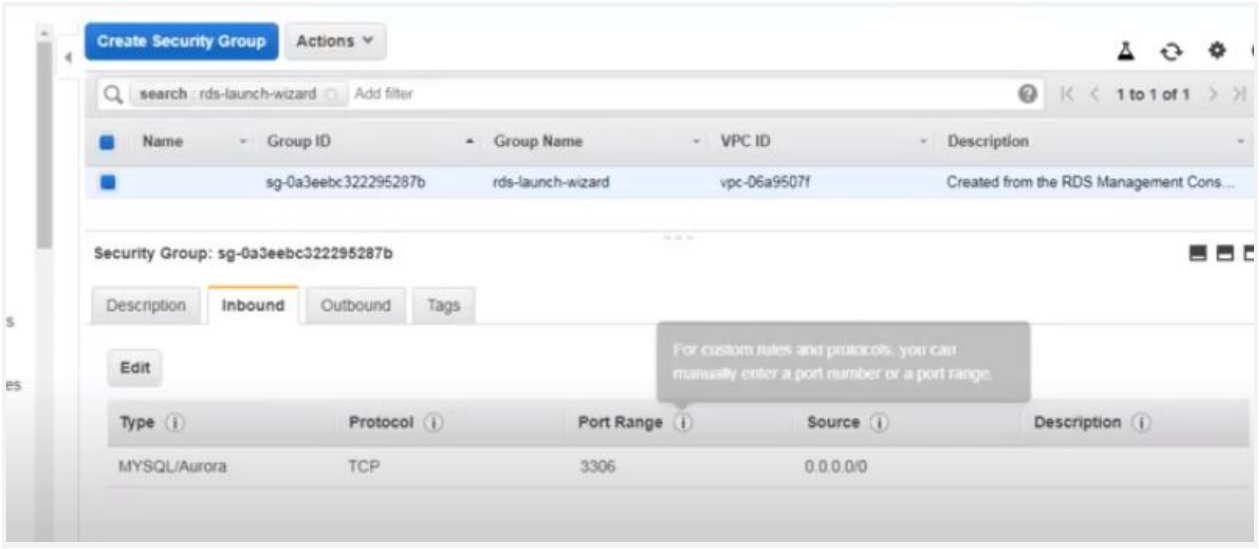
RDS is managed by aws we can only handle database but we can not handle server label.

Tunneling connection

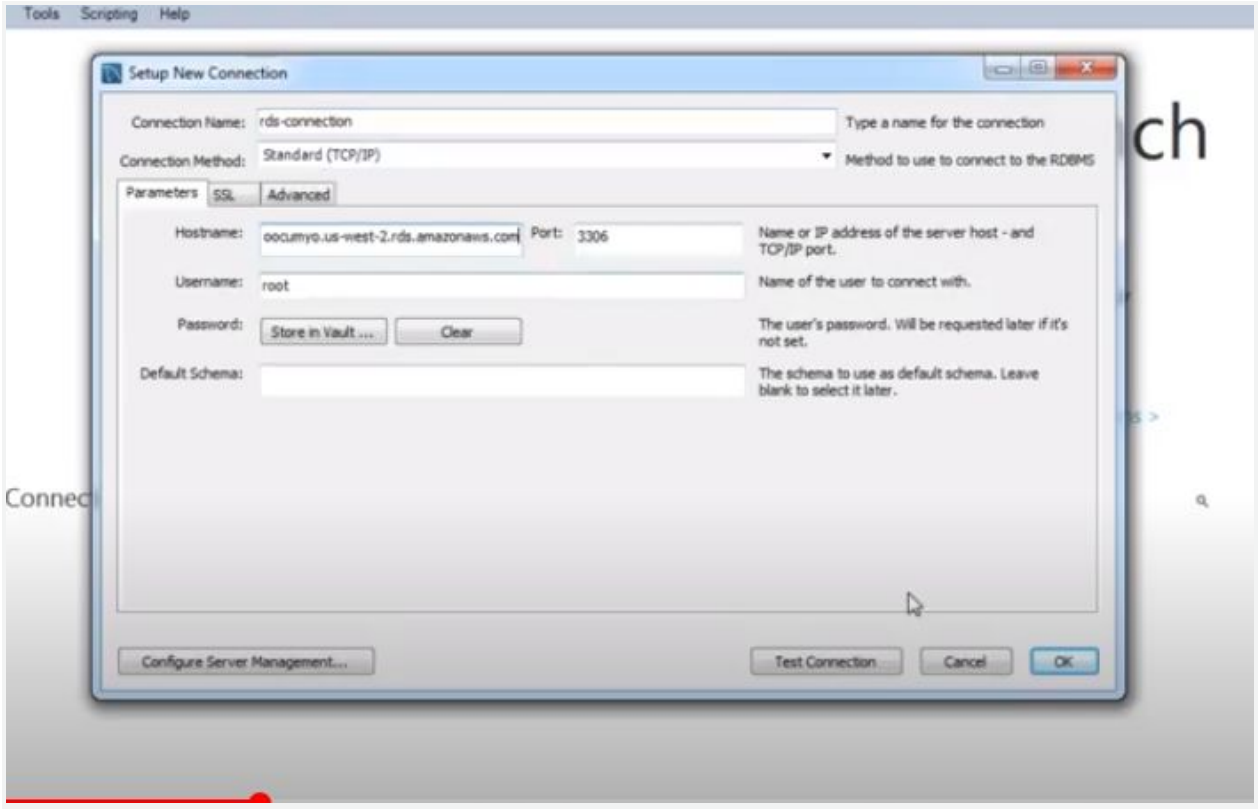




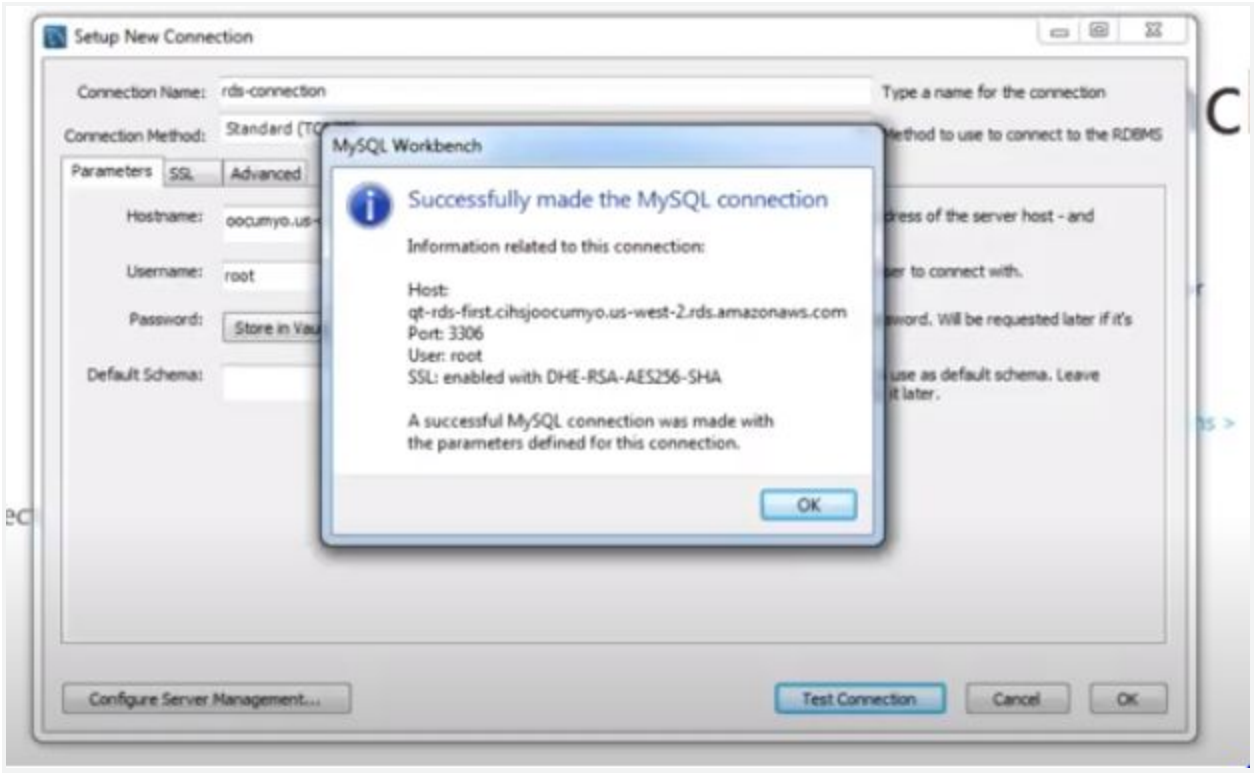
Endpoint of db

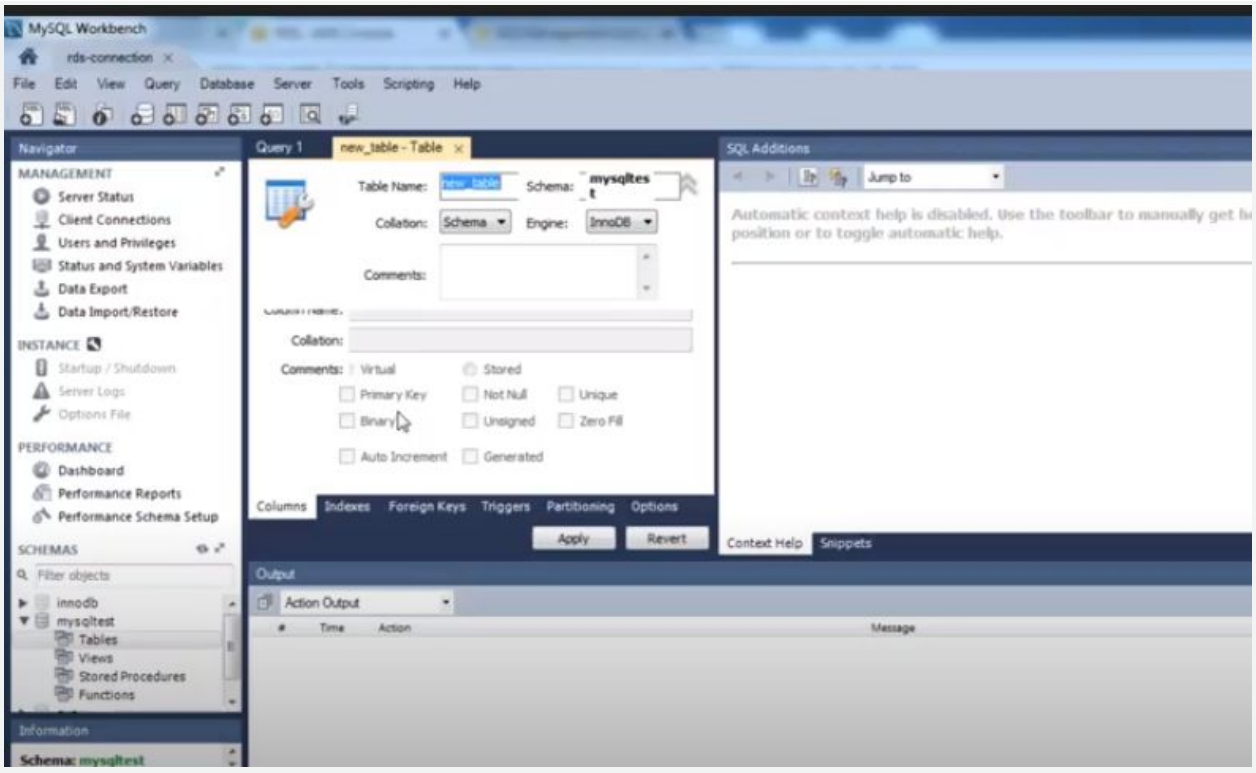


Change security group allow db port for incoming port 3306

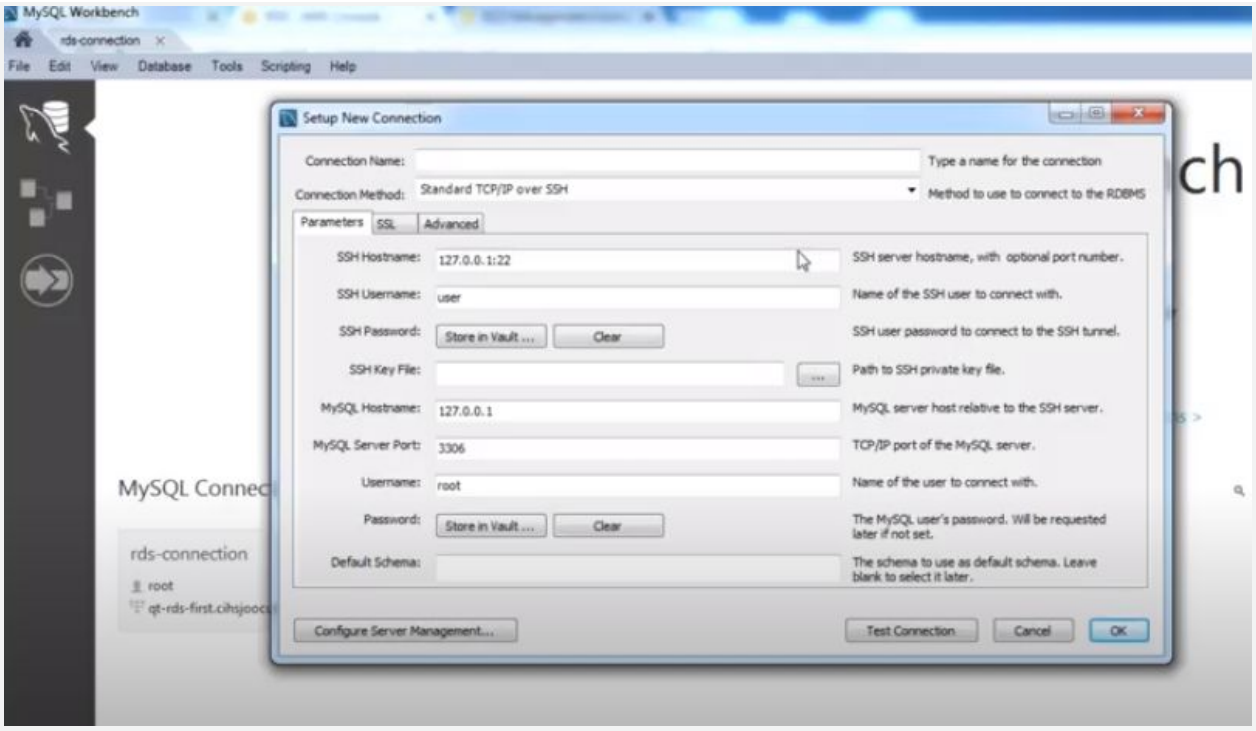


Do test connection and enter password





Bastion connection below setup



Aws is bastion and azure it called as jump box is both same to connect to the private network db
We don't need a load balancer for db. We always have reverse proxy for db to scale db. We use replication.we do not scale relational databases.
Neptune and Amazon redshift are like data warehouse tool if you know ETL and informatica

DYNAMODB-
it's for nosql db like we can use for migrating any db like cassandra,mongodb.
Amazon DynamoDB is a fast and flexible NoSQL database service for all applications that need consistent, single-digit millisecond latency at any scale. Its flexible data model and reliable performance make it a great fit for mobile, web, gaming, ad-tech, IoT, and many other applications.

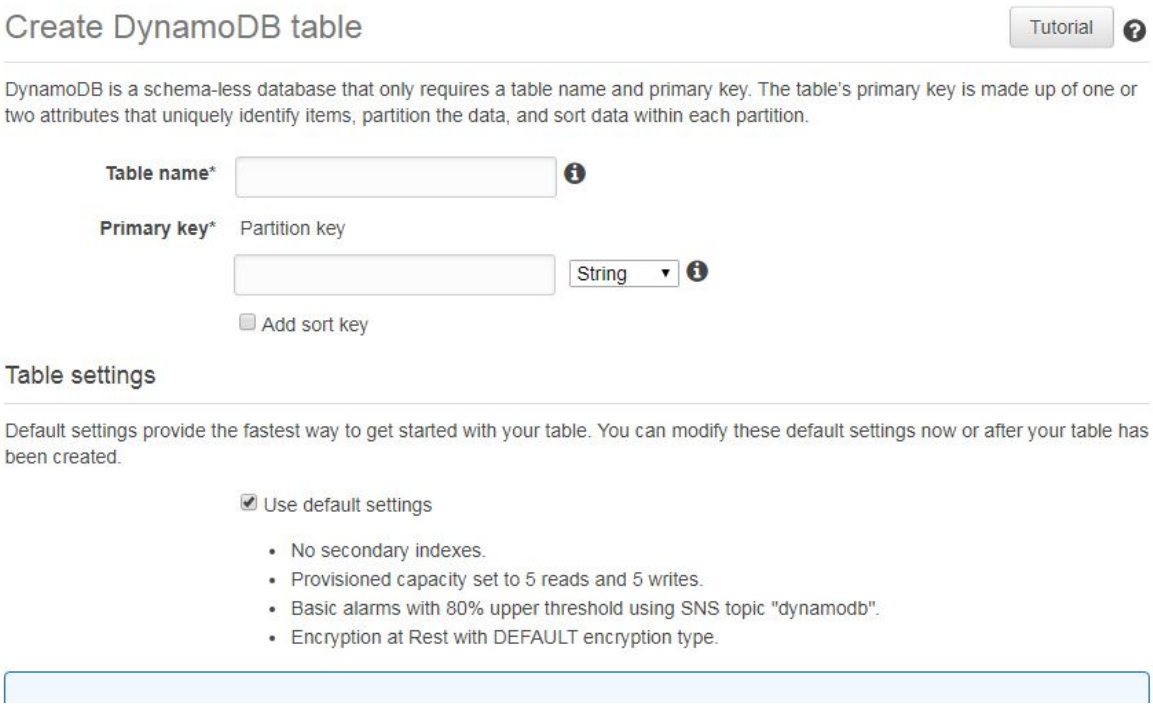

Create tables


Add and query items


Monitor and manage tables

Create DynamoDB tables with a few clicks. Just specify the desired read and write throughput for your table, and DynamoDB handles the rest.
Once you have created a DynamoDB table, use the AWS SDKs to write, read, modify, and query items in DynamoDB.Using the AWS Management Console, you can monitor performance and adjust the throughput of your tables, enabling you to scale seamlessly.

Unstructured data processing or schema less or not have formal query language is called as no-sql

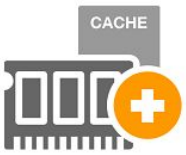


Create dynamo db table

Elastic Cache

We can use both redis or aws cache service

ElastiCache is a web service that makes it easier to launch,manage, and scale a distributed in-memory cache in the cloud.



Launch a Cluster

Create Clusters with just a few clicks. You can choose either Memcached or Redis as the engine software for this cluster.

Connect

Once you have authorized access to the Cluster and it is in the available state, you can log into an EC2 instance and connect it to a Node in the cluster.

Manage

Using the AWS Management Console, you can easily add resources, modify configuration and monitor nodes of your ElastiCache environment to meet your applications requirements.

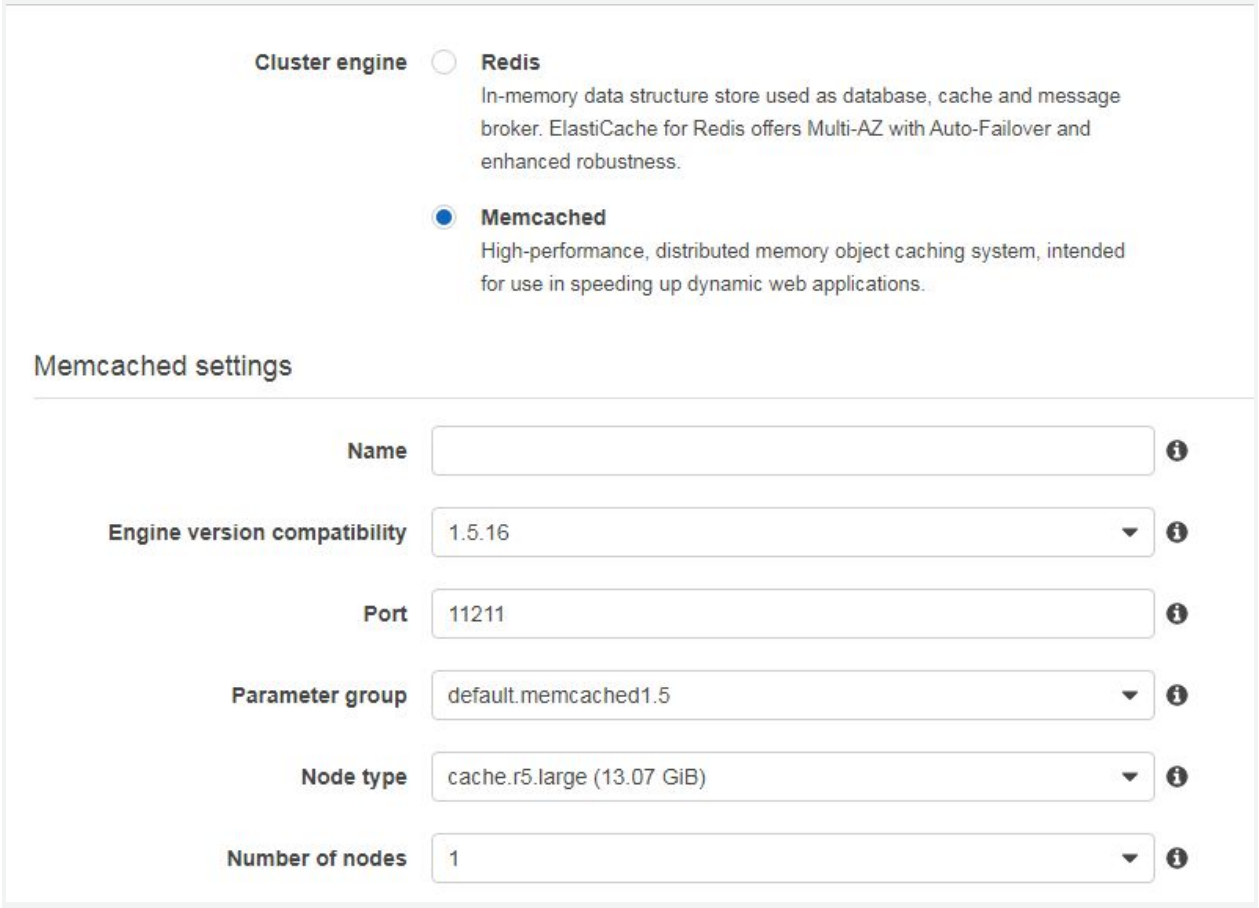
Create your Amazon ElastiCache cluster

Cluster engine

- (●) **Redis**
  In-memory data structure store used as database, cache and message broker. ElastiCache for Redis offers Multi-AZ with Auto-Failover and enhanced robustness.
  - [ ] **Cluster Mode enabled**
- ( ) **Memcached**
  High-performance, distributed memory object caching system, intended for use in speeding up dynamic web applications.

Redis settings

Name	
Description	
Engine version compatibility	5.0.6
Port	6379



DMS- database migration service -source to target we need office db should in public address or should be in vpn target .
SMS- Server migration service