

Database Services

Assignment – 1 MariaDB

Problem Statement:

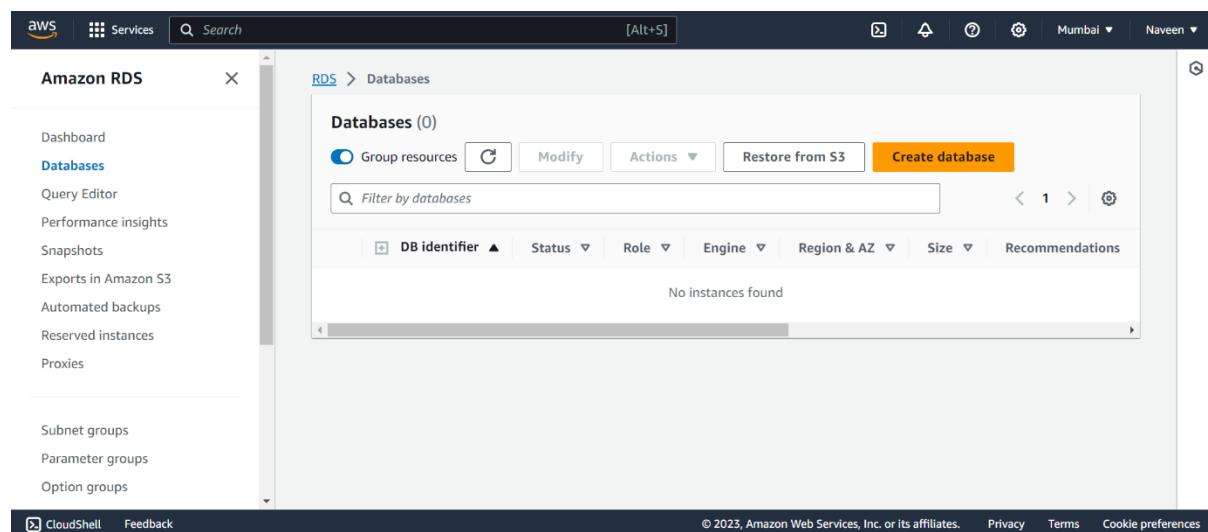
You work for XYZ Corporation. Their application requires a SQL service that can store data which can be retrieved if required. Implement a suitable RDS engine for the same.

While migrating you are asked to perform the following tasks

1. Create a MariaDB Engine based RDS Database.
2. Connect to the DB using the following ways:
 - a) SQL Client for Windows
 - b) Linux based EC2 Instance

Steps

- Click the create database
- Select the MariaDB in Engine options
- Provide the name for the database
- Provide the master username and master password
- Select the “yes” in public access to connect with client for windows
- Finally the database is created



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RDS > Create database

Create database

Choose a database creation method [Info](#)

Standard create
You set all of the configuration options, including ones for availability, security, backups, and maintenance.

Easy create
Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Engine options

Engine type [Info](#)

Aurora (MySQL Compatible) Aurora (PostgreSQL Compatible)

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MariaDB

MariaDB Community Edition is a MySQL-compatible database with strong support from the open source community, and extra features and performance optimizations.

- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read.

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Engine type [Info](#)

Aurora (MySQL Compatible) Aurora (PostgreSQL Compatible)



MySQL MariaDB



PostgreSQL Oracle




https://ap-south-1.console.aws.amazon.com/console/home?region=ap-sout... © 2023, Amazon Web Services, Inc. or its affiliates. Privacy Terms Cookie preferences

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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.

task-database

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.

admin

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

Manage master credentials in AWS Secrets Manager
Manage master user credentials in Secrets Manager. RDS can generate a password for you and manage it throughout its lifecycle.

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Manage master credentials in AWS Secrets Manager
Manage master user credentials in Secrets Manager. RDS can generate a password for you and manage it throughout its lifecycle.

? If you manage the master user credentials in Secrets Manager, some RDS features aren't supported.
[Learn more](#)

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), '(single quote), "(double quote) and @ (at sign).

Confirm master password [Info](#)

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Storage

Storage type [Info](#)

Baseline performance determined by volume size

Allocated storage [Info](#)
 GiB
The minimum value is 20 GiB and the maximum value is 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](#)

► Storage autoscaling

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[EC2](#) > [Instances](#) > Launch an instance

Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name Add additional tags

Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for.

Summary

Number of instances [Info](#)

Software Image (AMI)
Amazon Linux 2023.3.2...[read more](#)
ami-0af1259dd1c90938

Virtual server type (instance type)
t2.micro

Firewall (security group)
New security group

Storage (volumes)

Launch instance

Review commands

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Quick Start

Amazon Linux macOS Ubuntu Windows Red Hat ...

Browse more AMIs

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI Free tier eligible

ami-0af1259dd1c90938 (64-bit (x86), uefi-preferred) / ami-0338fb621d6390368 (64-bit (Arm), uefi)

Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Amazon Linux 2023 AMI 2023.3.20231218.0 x86_64 HVM kernel-6.1

Architecture Boot mode AMI ID

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Root volume (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

Add new volume

Click refresh to view backup information

The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems

Advanced details Info

Number of instances Info

1

Software Image (AMI)

Amazon Linux 2023 AMI 2023.3...read more

ami-0af1259dd1c90938

Virtual server type (instance type)

t2.micro

Firewall (security group)

New security group

Storage (volumes)

Cancel Launch instance Review commands

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Compute resource

Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.

Don't connect to an EC2 compute resource
Don't set up a connection to a compute resource for this database. You can manually set up a connection to a compute resource later.

Connect to an EC2 compute resource
Set up a connection to an EC2 compute resource for this database.

EC2 instance Info

Choose the EC2 instance to add as the compute resource for this database. A VPC security group is added to this EC2 instance. A VPC security group is also added to the database with an inbound rule that allows the EC2 instance to access the database.

i-0eb7b24b5ff42240e task-instance-database

Some VPC settings can't be changed when a compute resource is added

Adding an EC2 compute resource automatically selects the VPC, DB subnet group, and public access settings for this database. To allow the EC2 instance to access the database, a VPC security group rds-ec2-X is added to the database and another called ec2-rds-X to the EC2 instance. You can remove the new security group for the database only by removing the compute resource.

Network type Info

To use dual-stack mode, make sure that you associate an IPv6 CIDR block with a subnet in the VPC you specify.

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Choose the DB subnet group. The DB subnet group defines which subnets and IP ranges the DB instance can use in the VPC that you selected.

default

Public access [Info](#)

Yes RDS assigns a public IP address to the database. Amazon EC2 instances and other resources outside of the VPC can connect to your database. Resources inside the VPC can also connect to the database. Choose one or more VPC security groups that specify which resources can connect to the database.

No RDS doesn't assign a public IP address to the database. Only Amazon EC2 instances and other resources inside the VPC can connect to your database. Choose one or more VPC security groups that specify which resources can connect to the database.

VPC security group (firewall) [Info](#)

Choose one or more VPC security groups to allow access to your database. Make sure that the security group rules allow the appropriate incoming traffic.

Choose existing Choose existing VPC security groups

Create new Create new VPC security group

Existing VPC security groups

Choose one or more options

default

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Estimated monthly costs

The Amazon RDS Free Tier is available to you for 12 months. Each calendar month, the free tier will allow you to use the Amazon RDS resources listed below for free:

- 750 hrs of Amazon RDS in a Single-AZ db.t2.micro, db.t3.micro or db.t4g.micro Instance.
- 20 GB of General Purpose Storage (SSD).
- 20 GB for automated backup storage and any user-initiated DB Snapshots.

[Learn more about AWS Free Tier.](#)

When your free usage expires or if your application use exceeds the free usage tiers, you simply pay standard, pay-as-you-go service rates as described in the [Amazon RDS Pricing page](#).

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Cancel Create database

MariaDB

MariaDB Community Edition is a MySQL-compatible database with strong support from the open source community, and extra features and performance optimizations.

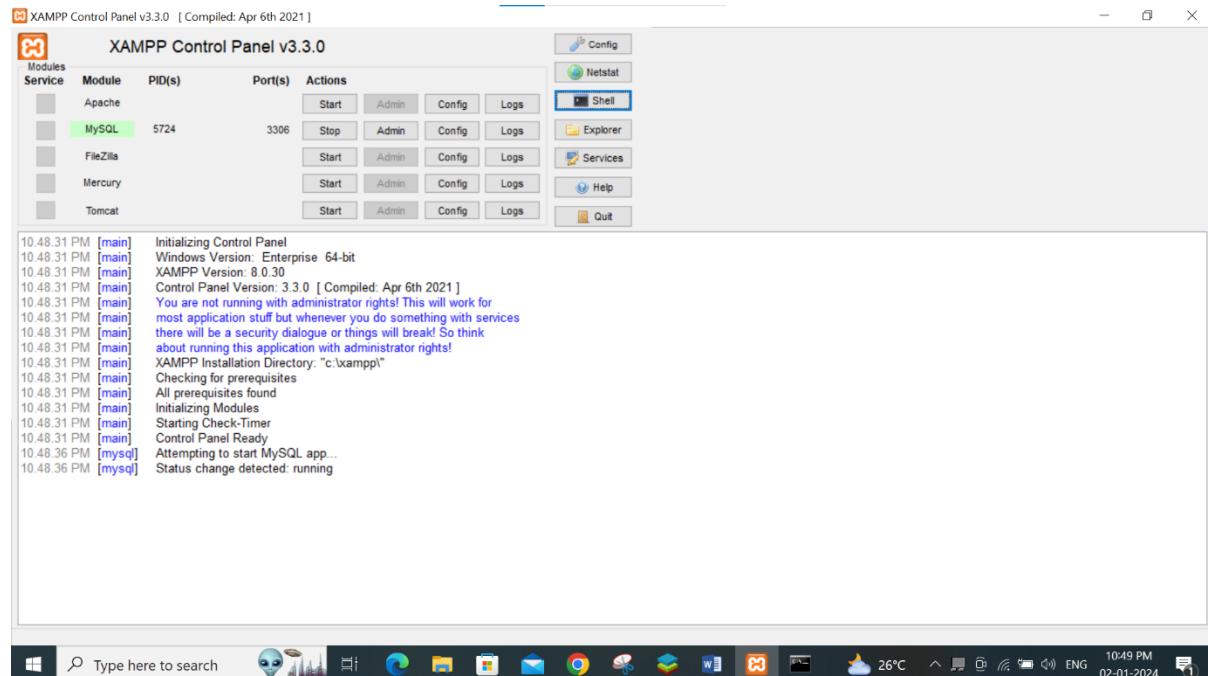
- Supports database size up to 64 TiB.
- Supports General Purpose, Memory Optimized, and Burstable Performance instance classes.
- Supports automated backup and point-in-time recovery.
- Supports up to 15 Read Replicas per instance, within a single Region or 5 read.

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SQL Client for Windows

- Connect with Database using command and provide password
- Finally the database is reflected



The screenshot shows a terminal window titled 'XAMPP for Windows - mysql -h task-database.chk4042468s2.us-east-1.rds.amazonaws.com -u admin -p'. The MySQL prompt is shown, and the user has run the command 'show databases;'. The output is:

```
Setting environment for using XAMPP for Windows.
HP0DESKTOP-F1CBN9Q c:\xampp
# mysql -h task-database.chk4042468s2.us-east-1.rds.amazonaws.com -u admin -p
Enter password: *****
Welcome to the MariaDB monitor. Commands end with ; or \g.
Your MariaDB connection id is 57
Server version: 10.6.14-MariaDB-log managed by https://aws.amazon.com/rds/
Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> show databases;
+-----+
| Database |
+-----+
| information_schema |
| innodb |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.248 sec)

MariaDB [(none)]>
```

Linux based EC2 Instance

- Create a Linux EC2 Instance
- Connect with created EC2 Instance
- Update the EC2 instance
- And install the SQL client
- Connect with Database using command and provide password
- Finally the database is reflected in EC2 instance

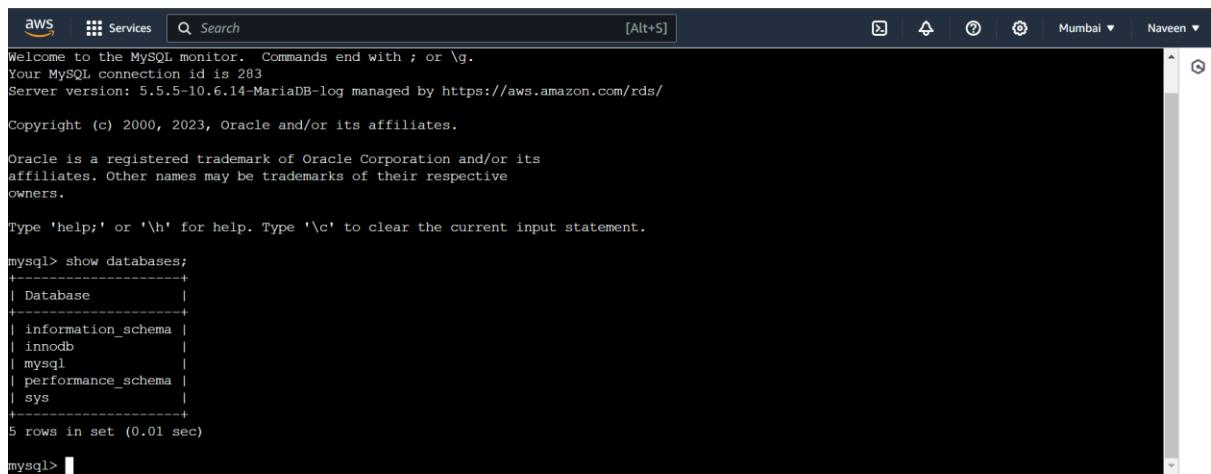
The screenshot shows the AWS Lambda function configuration interface. At the top, there's a navigation bar with the AWS logo, 'Services' button, 'Search' bar, and user information ('Mumbai' and 'Naveen'). Below the navigation bar, the function name 'Amazon Linux 2023' is displayed. The configuration section shows the following details:

- Code**: A large text area containing a multi-line Lambda function code in Python. It includes imports for 'lambda', 'os', and 'boto3'. The code uses the 'os' module to run a command and the 'boto3' module to interact with AWS services.
- Environment**: A table with columns 'Variable' and 'Value'. It includes variables like 'AWS_LAMBDA_FUNCTION_NAME', 'AWS_LAMBDA_FUNCTION_MEMORY_SIZE', 'AWS_LAMBDA_FUNCTION_TIMEOUT', and 'AWS_LAMBDA_HANDLER'.
- Triggers**: A table showing triggers for the function, including 'task-database' and 'task-database-1'.
- Logs**: A link to view logs for the function.

The screenshot shows a terminal window with the AWS Lambda function configuration interface. At the top, there's a navigation bar with the AWS logo, 'Services' button, 'Search' bar, and user information ('Mumbai' and 'Naveen'). Below the navigation bar, the terminal prompt shows a MySQL connection:

```
[ec2-user@ip-172-31-2-125 ~]$ mysql -h task-database.cv4qk0uaxlv.ap-south-1.rds.amazonaws.com -u admin -p
```

Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 283
Server version: 5.5.5-10.6.14-MariaDB-log managed by https://aws.amazon.com/rds/
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Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.
Type 'help;' or '\\h' for help. Type '\\c' to clear the current input statement.
mysql>



The screenshot shows a terminal window titled "MySQL monitor" within the AWS Management Console. The window has a dark background and contains the following text:

```
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 283
Server version: 5.5.5-10.6.14-MariaDB-log managed by https://aws.amazon.com/rds/

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> show databases;
+-----+
| Database |
+-----+
| information_schema |
| innodb |
| mysql |
| performance_schema |
| sys |
+-----+
5 rows in set (0.01 sec)

mysql> 
```

Assignment – 2 Aurora

Problem Statement:

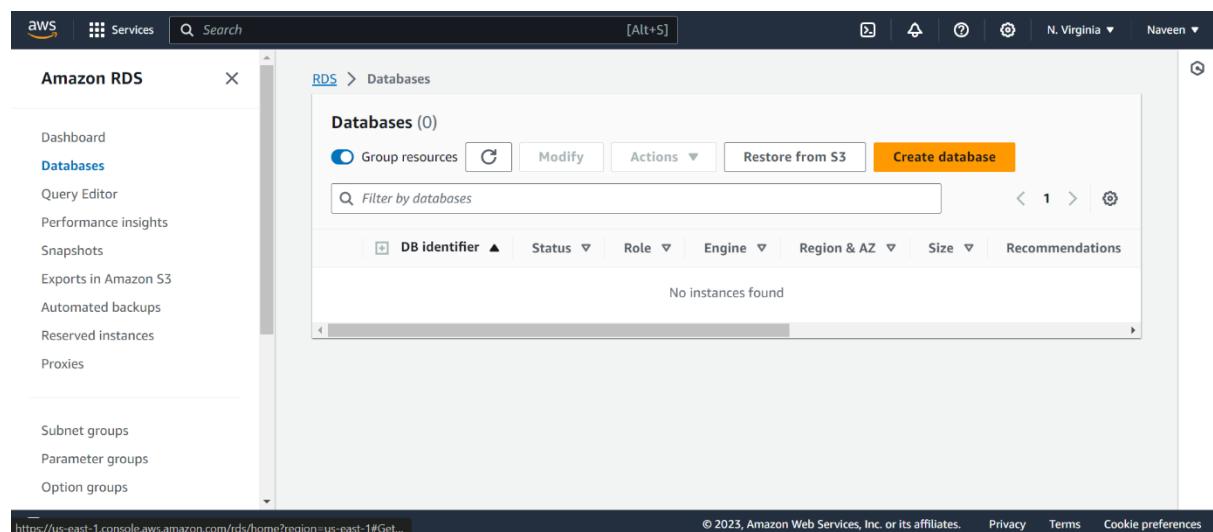
You work for XYZ Corporation. Their application requires a SQL service that can store data which can be retrieved if required. Implement a suitable RDS engine for the same.

While migrating you are asked to perform the following tasks

1. Create an AuroraDB Engine based RDS Database.
2. Create 2 Read Replicas in different availability zone for better infrastructure availability.

Steps

- Click the create database
- Select the Amazon Aurora in Engine options
- Provide the name for the database
- Provide the master username and master password
- Provide the VPC for the database and other configurations
- Finally the database is created
- Select the database and Go to action
- Click the Add reader
- Provide the name
- Provide the different availability zone for better availability
- click the Add Reader
- Finally it will be reflected in under the database which was created



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RDS > Create database

Create database

Choose a database creation method [Info](#)

Standard create
You set all of the configuration options, including ones for availability, security, backups, and maintenance.

Easy create
Use recommended best-practice configurations. Some configuration options can be changed after the database is created.

Engine options

Engine type [Info](#)

Aurora (MySQL Compatible) Aurora (PostgreSQL Compatible)

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Engine type [Info](#)

Aurora (MySQL Compatible)

Aurora (PostgreSQL Compatible)

MySQL

MariaDB

PostgreSQL

Oracle

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AWS Services Search [Alt+S] N. Virgin

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

The DB cluster identifier is case-insensitive, but is stored as all lowercase (as in "mydbcluster"). 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 32 alphanumeric characters. The first character must be a letter.

Manage master credentials in AWS Secrets Manager
Manage master user credentials in Secrets Manager. RDS can generate a password for you and manage it throughout its lifecycle.

If you manage the master user credentials in Secrets Manager, some RDS features aren't supported.
[Learn more](#)

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▼ Credentials Settings

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

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[Learn more](#)

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), '(single quote), "(double quote) and @ (at sign).

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▼ Availability & durability

Multi-AZ deployment [Info](#)
 Create an Aurora Replica or Reader node in a different AZ (recommended for scaled availability)
Creates an Aurora Replica for fast failover and high availability.
 Don't create an Aurora Replica

Connectivity [Info](#)

Compute resource
Choose whether to set up a connection to a compute resource for this database. Setting up a connection will automatically change connectivity settings so that the compute resource can connect to this database.

Don't connect to an EC2 compute resource
Don't set up a connection to a compute resource for this database. You can manually set up a connection to a compute resource later.

Connect to an EC2 compute resource
Set up a connection to an EC2 compute resource for this database.

Network type [Info](#)
To use dual-stack mode, make sure that you associate an IPv6 CIDR block with a subnet in the VPC you specify.

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Database options, encryption turned on, failover, backup turned on, backtrack turned off, maintenance, CloudWatch Logs, delete protection turned on.

Estimated Monthly costs

DB instance	59.86 USD
Total	59.86 USD

This billing estimate is based on on-demand usage as described in [Amazon Aurora Pricing](#). Estimate does not consider reserved instance benefits and costs for instance storage, IOs, or data transfer.

Estimate your monthly costs for the DB Instance using the [AWS Simple Monthly Calculator](#).

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Cancel Create database

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Add reader

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.

Settings

Aurora replica source
Source DB cluster identifier
task-aurora-database-instance-1
Role: Writer Instance Parent: task-aurora-database

DB instance identifier
DB instance identifier. This is the unique key that identifies a DB instance. This parameter is stored as a lowercase string (for example, mydbinstance).
task-read-replicas

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Not publicly accessible
No IP address is assigned to the DB instance. EC2 instances and devices outside the VPC can't connect.

Availability Zone [Info](#)
The EC2 Availability Zone that the database will be created in.
us-east-1c

► Additional configuration

Database authentication [Info](#)
Password authentication is always active for your database engine. You can also turn on additional authentication methods for your database below.

IAM database authentication
Authenticates using IAM database authentication.

Kerberos authentication
Authenticates using Kerberos authentication through an AWS Directory Service for Microsoft Active Directory.

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Example: arn:aws:kms:<region>:<accountID>/key/<key-id>

Account
237981402912

KMS key ID
fc92c15e-af60-4c6e-9610-bf6d91aed7d3

Enable Enhanced monitoring
Enabling Enhanced monitoring metrics are useful when you want to see how different processes or threads use the CPU.

Maintenance

Auto minor version upgrade [Info](#)

Enable auto minor version upgrade
Enabling auto minor version upgrade will automatically upgrade to new minor versions as they are released. The automatic upgrades occur during the maintenance window for the database.

Cancel **Add reader**

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Amazon RDS

Databases (4)

Group resources C Modify Actions ▾ Restore from S3 Create database

Filter by databases < 1 > ⚙

DB identifier	Status	Role	Engine	Region & AZ
task-aurora-database	Available	Regional cluster	Aurora MySQL	us-east-1
task-aurora-database-instance-1	Available	Writer instance	Aurora MySQL	us-east-1a
task-aurora-database-instance-1-us-east-1d	Available	Reader instance	Aurora MySQL	us-east-1d
task-read-replicas	Available	Reader instance	Aurora MySQL	us-east-1c

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Assignment – 3 DynamoDB

Problem Statement:

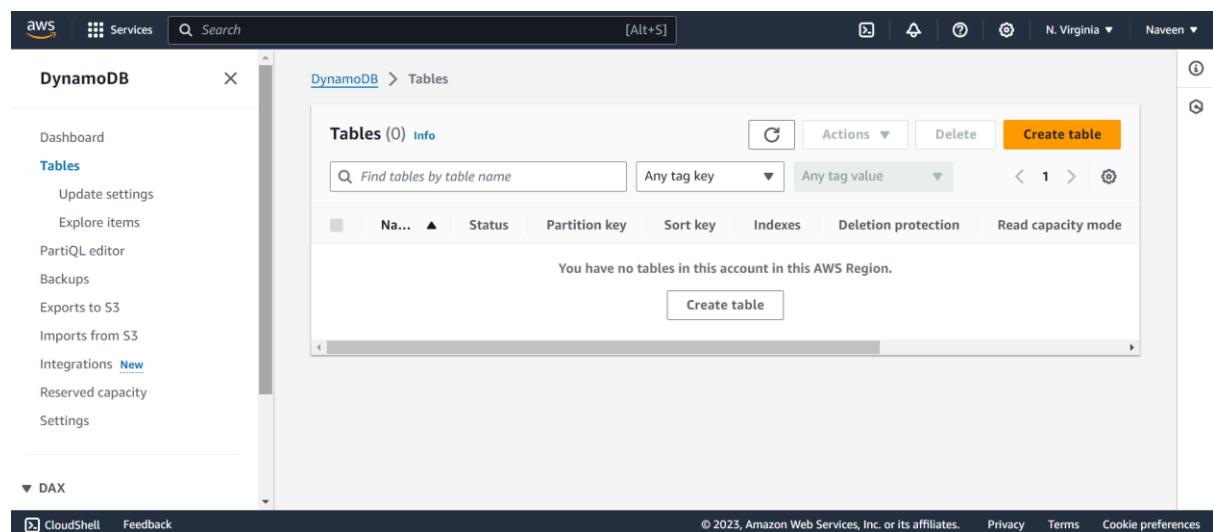
You work for XYZ Corporation. Their application requires a SQL service that can store data which can be retrieved if required. Implement a suitable RDS engine for the same.

While migrating you are asked to perform the following tasks

1. Create a DynamoDB table with partition key as ID.
2. Add 5 items to the DynamoDB table.
3. Take backup and delete the table.

Steps

- Click the create table
- Provide the table name
- Provide the partition key for the table
- And provide other necessary configuration
- Finally table is created
- Click the table and go inside the table
- Click the explore table items to add items in table
- Click the create item in items returned
- Provide the necessary details and click create item
- Added 5 items in the table
- Finally the added items will be reflected in items returned



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DynamoDB > Tables > Create table

Create table

Table details Info

DynamoDB is a schemaless database that requires only a table name and a primary key when you create the table.

Table name
This will be used to identify your table.

Between 3 and 255 characters, containing only letters, numbers, underscores (_), hyphens (-), and periods (.)

Partition key
The partition key is part of the table's primary key. It is a hash value that is used to retrieve items from your table and allocate data across hosts for scalability and availability.
 String ▾
1 to 255 characters and case sensitive.

Costs low, optional

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ⓘ Deletion protection is turned off by default. Deletion protection protects the table from being deleted unintentionally. You can turn on deletion protection now, and you can also turn it on after the table has been created.

Turn on deletion protection

Tags
Tags are pairs of keys and optional values, that you can assign to AWS resources. You can use tags to control access to your resources or track your AWS spending.

No tags are associated with the resource.

Add new tag
You can add 50 more tags.

Cancel **Create table**

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DynamoDB Tables

Tables (1) <small>Info</small>							
	Na...	Status	Partition key	Sort key	Indexes	Deletion protection	Read capacity mode
<input type="checkbox"/>	task	Active	ID (\$)	-	0	Off	Provisioned (5)

Find tables by table name Any tag key Any tag value < 1 > ⌂

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DynamoDB > Explore items: task > Create item

Create item

You can add, remove, or edit the attributes of an item. You can nest attributes inside other attributes up to 32 levels deep. [Learn more](#)

Attributes		Add new attribute ▾
Attribute name	Value	Type
ID - Partition key	2749	String
employee name	mani	String
department	operation	String

[Cancel](#) [Create item](#)

DynamoDB

Dashboard

Tables

Update settings

[Explore items](#)

PartiQL editor

Backups

Exports to S3

Imports from S3

Integrations [New](#)

Reserved capacity

Settings

▼ DAX

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Completed. Read capacity units consumed: 0.5

Items returned (5)

ID (String)	department	employee name
2639	finance	bala
2274	IT	sathish
2879	IT	ravi
2140	operation	raju
2749	operation	mani

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Take backup and delete the table

- Go to backups and click create backup
- Select the created table
- Provide the name for the backup
- Finally the backup is created
- The backup is reflected in backup page
- Select the table and click delete
- Now table will be deleted which was created

DynamoDB

Backups Info

Backup settings Info

Settings apply to new backups in this account and Region.

Advanced features with AWS Backup

Activated

Allow options for cross-Region and cross-account copy, cost allocation tags, and cold storage tiering for backups.

Turn off

Backups (0) Info

Create backup

Schedule automatic backups [Schedule automatic backups](#) and view backup job details [view backup job details](#) in AWS Backup [AWS Backup](#)

Find backups by ARN or name

Name	Table	Status	Creation Time	ARN
No backups				

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Create on-demand backup

Create a one-time snapshot backup of your table. Schedule automatic backups of your table in AWS Backup [AWS Backup](#)

Backup settings Info

Advanced features are available for backups. [Learn more](#) **Go to backup settings**

Source table

task

Backup name

This will be used to identify your backup.

task-backup

Between 3 and 255 characters in length. Only A-Z, a-z, 0-9, underscore characters, hyphens, and periods are allowed.

Create backup

Cancel

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DynamoDB

Backups Info

Backup settings Info

Settings apply to new backups in this account and Region.

Advanced features with AWS Backup

Not activated

Allow options for cross-Region and cross-account copy, cost allocation tags, and cold storage tiering for backups.

Turn on

Backups (1) Info

Create backup

Find backups by ARN or name

Name	Table	Status	Creation Time	ARN
task-backup	task	Available	December...	arn:aws:dynamodb:...

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The request to delete the "task" table has been submitted successfully.

DynamoDB > Tables

Tables (0) Info

Find tables by table name Any tag key Any tag value

Create table

You have no tables in this account in this AWS Region.

Create table

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Assignment – 4 Redshift

Problem Statement:

You work for XYZ Corporation. Their application requires a SQL service that can store data which can be retrieved if required. Implement a suitable RDS engine for the same.

While migrating you are asked to perform the following tasks

1. Create a Redshift data warehouse.
2. Using the query editor:
 - a) Load some data
 - b) Query the data

Steps

- Click the create cluster
- Provide the name for cluster
- Provide the admin user name and admin user password
- And provide the necessary configuration
- Finally cluster is created

The screenshot shows the AWS Redshift console interface. At the top, there's a navigation bar with the AWS logo, 'Services', a search bar, and account information for 'N. Virginia' and 'Naveen'. Below the navigation bar, the main content area has a title 'Clusters (0) Info'. There's a search bar labeled 'Filter clusters by property or value'. To the right of the search bar are buttons for 'Query data', 'Actions', and a prominent orange 'Create cluster' button. Below the search bar is a table header with columns: Cluster, Status, Cluster namespace, Availability Zone, Multi-AZ, and Storage capacity us. Underneath the table, a message reads 'No clusters' and 'Create an Amazon Redshift cluster' with another 'Create cluster' button. At the very bottom of the screen, there's a footer with links for 'CloudShell', 'Feedback', '© 2023, Amazon Web Services, Inc. or its affiliates.', 'Privacy', 'Terms', and 'Cookie preferences'.

AWS Services Search [Alt+S] N. Virginia Naveen

Amazon Redshift > Clusters > Create cluster

Create cluster Info

Looking for free trial? Try Redshift Serverless. First-time Redshift Serverless customers receive a \$300 credit to use in their account.

[Launch Redshift Serverless](#) X

Cluster configuration

Cluster identifier
This is the unique key that identifies a cluster.
 The identifier must be from 1-63 characters. Valid characters are a-z (lowercase only) and - (hyphen).

Choose the size of the cluster
 I'll choose
 Help me choose

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Database configurations

Admin user name
Enter a login ID for the admin user of your DB instance.
 The name must be 1-128 alphanumeric characters, and it can't be a reserved word. [Check](#)

Admin password
Select an option to manage your admin password.
 Manage admin credentials in AWS Secrets Manager [Info](#)
AWS manages a KMS key that encrypts your data.
 Generate a password
Amazon Redshift generates an admin password.
 Manually add the admin password
Manually enter the admin password.

Admin user password
 Must be 8-64 characters long. Must contain at least one uppercase letter, one lowercase letter and one number. Can be any printable ASCII character except "/", "", or "@".
 Show password

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Additional configurations Use defaults

These configurations are optional, and default settings have been defined to help you get started with your cluster. Turn off "Use defaults" to modify these settings now.

Network Using default VPC (<code>vpc-0d30cb522f7687a00</code>) and default subnet.	Backup Automated snapshots are created about every eight hours or following every 5 GB per node of data changes, whichever comes first.
Security Using default (<code>sg-01bcfe33f603ee5c2</code>) cluster security group.	Maintenance Using current maintenance track.
Configuration Using default.redshift-1.0 parameter group with no database encryption.	

Cancel [Create cluster](#)

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The screenshot shows the AWS Redshift console. At the top, there's a navigation bar with the AWS logo, 'Services' dropdown, a search bar, and user information ('N. Virginia' and 'Naveen'). Below the navigation is a section titled 'JDBC or ODBC drivers.' It includes a dropdown for 'Cluster' set to 'task-redshift-cluster', and two buttons: 'Copy JDBC URL' and 'Copy ODBC URL'. To the right, it says 'Amazon Redshift-specific drivers for better performance and scalability.' and shows a dropdown for 'Driver' set to 'JDBC 4.2 without AWS SDK (.jar)', with a 'Download driver' button below it. Below this is a table titled 'Clusters (1/1)'. The table has columns: Cluster, Status, Cluster namespace, Availability Zone, Multi-AZ, and Storage capacity used. One row is visible: 'task-redshift-cluster' (Status: Available), 'ede5dfe0-6189-4282...', 'us-east-1d', 'No'. At the bottom of the page are links for 'CloudShell', 'Feedback', and copyright information: '© 2023, Amazon Web Services, Inc. or its affiliates.' followed by 'Privacy', 'Terms', and 'Cookie preferences'.

Load some data

- Connect to the database using database editor
- Click create and select the table
- Select the schema as public and provide a name to table
- Click add file and Upload the CSV file
- Create IAM role
 - a) Click create role
 - b) Select AWS service in trusted entity
 - c) Select redshift in use cases
 - d) Select the S3 full access
 - e) Provide a role name
 - f) Finally role is created
- Select the cluster and go to action click manage IAM role
- Select the create IAM role and click associate IAM role
- Click the save changes
- Create a S3 bucket and upload in the bucket which was created
- Click the upload data
- Select the file which was uploaded in S3 bucket
- Select File format is CSV
- Select the schema as public and select the table which was created
- Select the IAM role which was created
- Click the load data
- Select the table which was created and click run
- Finally data will be reflected

AWS Redshift Create Table

Cluster or workgroup: task-redshift-cl... Database: dev Schema: public Table: task

Columns Table details

Column name	Data type	Encoding
Name	VARCHAR	No selection
Position	VARCHAR	No selection
Office	VARCHAR	No selection
Age	INTEGER	No selection
Start date	DATE	No selection
Salary	VARCHAR	No selection

Column options

- Default value:
 - Custom
 - Empty string
 - NULL
 - No default value
 - Not NULL
 - Automatically increment
- Size:
- Primary key
- Unique key

Elapsed time: 6010 ms 0 terms Cookie preferences

AWS Redshift Query Editor v2

Redshift query editor v2

Run Limit 100 Explain Isolated session task-redshift... dev

Filter resources: pg_auto_copy, public, Tables, task

Result 1

Field	Type	NL
A name	character varying(256)	NULL
A position	character varying(256)	NULL
A office	character	NULL

No Rows To Show

Elapsed time: 6010 ms 0

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AWS S3

redshift-bucket-task

Objects (1) Info

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Actions: Copy S3 URI, Copy URL, Download, Open, Delete, Actions, Create folder, Upload

Find objects by prefix:

Name	Type	Last modified	Size	Storage class
DataTables.csv	csv	January 2, 2024, 23:24:33 (UTC+05:30)	3.8 KB	Standard

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Screenshot of the AWS IAM Roles page showing the 'task-redshift-role' configuration.

Summary

Creation date	December 31, 2023, 21:31 (UTC+05:30)	ARN	arn:aws:iam::237981402912:role/task-redshift-role
Last activity	56 minutes ago	Maximum session duration	1 hour

Permissions | Trust relationships | Tags | Access Advisor | Revoke sessions

Permissions policies (1) Info

Policy name: AmazonS3FullAccess

Filter by Type: All types

Attached entities: 2

Actions: C (Copy), Simulate, Remove, Add permissions

Screenshot of the AWS IAM Roles page showing the 'task-redshift-role' configuration.

Permissions policies (1) Info

You can attach up to 10 managed policies.

Filter by Type: All types

Policy name: AmazonS3FullAccess	Type: AWS managed	Attached entities: 2
---------------------------------	-------------------	----------------------

Permissions boundary (not set)

Generate policy based on CloudTrail events

You can generate a new policy based on the access activity for this role, then customize, create, and attach it to this role. AWS uses your CloudTrail events to identify the services and actions used and generate a policy. [Learn more](#)

Actions: Generate policy

Screenshot of the AWS Amazon Redshift Clusters page showing the 'Manage IAM roles' section for the 'task-redshift-cluster'.

Cluster permissions

Your cluster needs permissions to access other AWS services on your behalf. For the required permissions, add IAM roles with the principal "redshift.amazonaws.com". You can associate up to 50 IAM roles with this cluster. [Learn more about copy unload iam role](#)

Available IAM roles

task-redshift-role	C (Copy)	Associate IAM role
--------------------	----------	--------------------

No associated IAM roles

Actions: Cancel, Save changes

AWS Services Search [Alt+S] N. Virginia Naveen

Redshift query editor v Redshift query editor v

Load data

Data source

Load from S3 bucket Load from local file

S3 URI: s3://redshift-bucket-task/DataTables.csv [Browse S3](#) us-east-1 Manifest file

File format: CSV [File options](#) No compression

Delimiter character: ,
Specifies the single ASCII character that is used to separate fields in the input file, such as a pipe character ('|'), a comma (,), or a tab (M).

Ignore header rows: 1
Treats the specified number of rows as a file header and doesn't load them. Use this if your file has a header row.

Export Chart Elapsed time: 6010 ms 0

CloudShell Feedback

Editor Queries Notebooks Charts History Scheduled queries CloudShell Feedback

Untitled 1 Untitled 2 dev

age start

Elapsed time: 6010 ms 0

Privacy Terms Cookie preferences

task

Field	Type
A name	character varying(256)
A position	character varying(256)
A office	character

AWS Services Search [Alt+S] N. Virginia Naveen

Redshift query editor v Redshift query editor v

Cluster or workgroup task-redshift-cl... **Database** dev **Schema** public **Table** task

IAM role [Choose an IAM role](#)

Column mapping: Add column names in order of input data to load [X](#)

Selected S3 file: DataTables.csv

Back Cancel Load data

Elapsed time: 6010 ms 0

CloudShell Feedback

Editor Queries Notebooks Charts History Scheduled queries CloudShell Feedback

Untitled 1 Untitled 2 dev

age start

Elapsed time: 6010 ms 0

Privacy Terms Cookie preferences

task

Field	Type
A name	character varying(256)
A position	character varying(256)
A office	character

AWS Services Search [Alt+S] N. Virginia Naveen

Redshift query editor v Redshift query editor v

Cluster or workgroup task-redshift-cl... **Database** dev **Schema** public **Table** task

IAM role [arn:aws:iam::237981402912:role/task-redshift-role](#)

Column mapping: Add column names in order of input data to load [X](#)

Selected S3 file: DataTables.csv

Back Cancel Load data

Elapsed time: 6010 ms 0

CloudShell Feedback

Editor Queries Notebooks Charts History Scheduled queries CloudShell Feedback

Untitled 1 Untitled 2 dev

age start

Elapsed time: 6010 ms 0

Privacy Terms Cookie preferences

task

Field	Type
A name	character varying(256)
A position	character varying(256)
A office	character

The screenshot shows the AWS Redshift query editor interface. On the left sidebar, there are tabs for Editor, Queries, Notebooks, Charts, History, and Scheduled queries. The main area displays a query editor window titled "Redshift query editor v2". The query pane contains the following SQL code:

```
1  SELECT * FROM "dev"."public"."task";
```

The results pane, titled "Result 1 (100)", shows a table with the following data:

	name	position	office	age	start date
Airi Satou	Accountant	Tokyo	33	2008-11-15	
Angelica Ramos	Chief Executive Officer (CEO)	London	47	2009-07-01	
Ashton Cox	Junior Technical Author	San Francisco	66	2008-12-09	
Bradley Greer	Software Engineer	London	41	2011-04-26	
Brenden Wagner	Software Engineer	San Francisco	28	2011-03-28	

Below the results, it says "Elapsed time: 274 ms Total rows: 100".

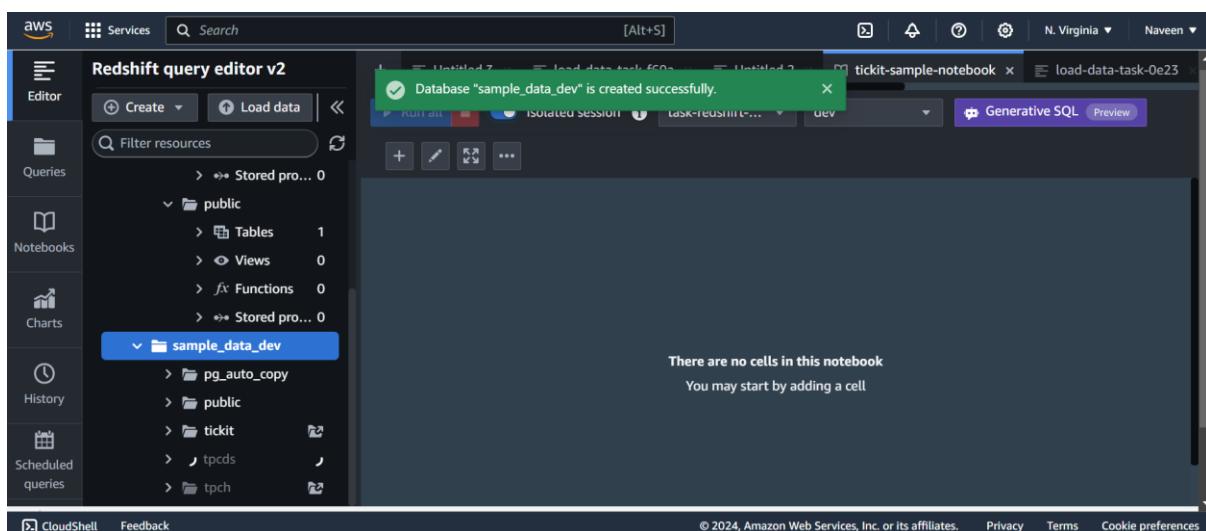
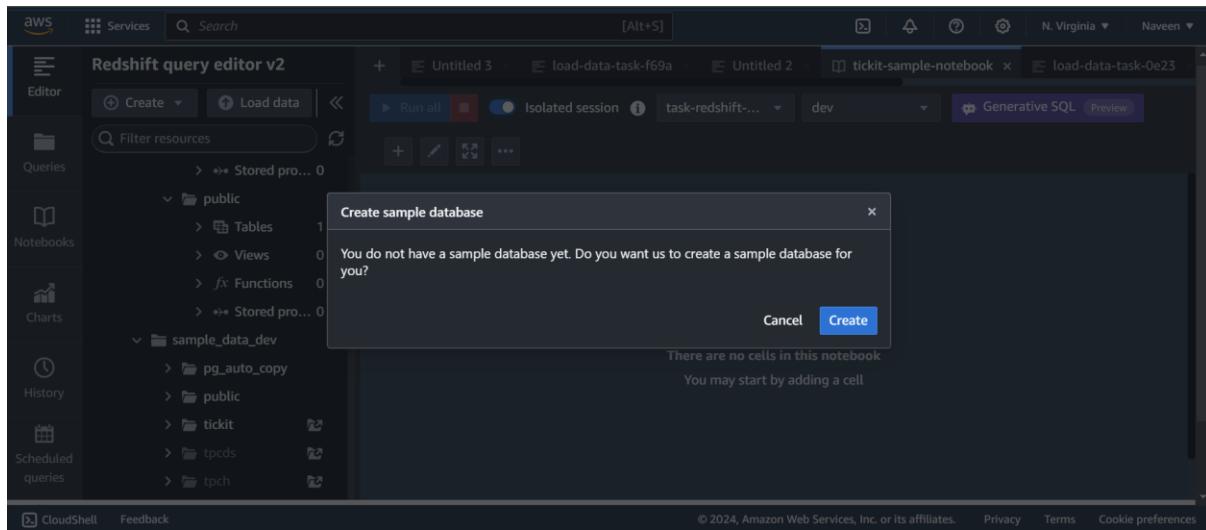
Query the data

- Now you can see details from namespace
- Next go to work group and do query
- Now we connect to the serverless data on the serverless work group
- Data being created and run
- Finally it is querying

The screenshot shows the AWS Analytics console. The top navigation bar includes "Services", "Search", and "N. Virginia". The main content area has several sections:

- Dashboards**: Shows metrics like Total snapshots (0), Datashares in my account (0), Datashares requiring authorization (0), Datashares from other accounts (0), and Datashares requiring association (0).
- Namespaces / Workgroups**: A table with one row: Namespace "task" is Available, Workgroup "task" is Available.
- Queries metrics**: Displays Workgroup metrics from your account, with filters for "task" and "Last hour".
- Running and queued queries**: Shows completed and failed queries and the number of queries.
- Total compute usage**: A section for "new" workgroups, showing a dropdown for "Choose a workgroup", a "Last hour" filter, and a note about visualizing costs using AWS Cost Explorer.

At the bottom, it says "Waiting for us-east-1.prod.pr.analytics.console.aws.a2z.com..." and includes standard footer links for Privacy, Terms, and Cookie preferences.



```
aws Services Search [Alt+S] N. Virginia Naveen
Redshift query editor v2
Editor Queries Notebooks Charts History Scheduled queries CloudShell Feedback
+ Create Load data Filter resources
Run all Isolated session task-redshift... Generative SQL Preview
Untitled 3 load-data-task-f69a Untitled 2 ticket-sample-notebook x load-data-task-0e23
Create sample database
You do not have a sample database yet. Do you want us to create a sample database for you?
Cancel Create
There are no cells in this notebook
You may start by adding a cell
Database "sample_data.dev" is created successfully.
There are no cells in this notebook
You may start by adding a cell
Serverless: task
redshift-cluster-1
task-redshift-cluster
Run Limit 100
1 SET search_path to tpch;
2 SELECT l_RETURNFLAG,
3       l_LINESTATUS,
4       SUM(l_QUANTITY)      AS SUM_QTY,
5       SUM(l_EXTENDEDPRICE) AS SUM_BASE_PRICE,
6       SUM(l_EXTENDEDPRICE*(1-l_DISCOUNT)) AS SUM_DISC_PRICE,
7       SUM(l_EXTENDEDPRICE*(1-l_DISCOUNT)*(1+l_TAX)) AS SUM_CHARGE,
8       AVG(l_QUANTITY)      AS AVG_QTY,
9       AVG(l_EXTENDEDPRICE) AS AVG_PRICE,
10      AVG(l_DISCOUNT)     AS AVG_DISC,
11      COUNT(*)            AS COUNT_ORDER
12 FROM tpch.LINEITEM
13 WHERE l_SHIPDATE <= cast ( date '1998-12-01' - interval '62 days' as date )
14 GROUP BY l_RETURNFLAG,
15       l_LINESTATUS
16 ORDER BY l_RETURNFLAG,
```

The screenshot shows the Redshift query editor with a SQL query in the editor pane. The query calculates various metrics for the LINEITEM table, grouped by RETURNFLAG and LINESTATUS. The editor interface includes tabs for different notebooks and a sidebar with navigation links.

Redshift query editor v2

Editor Queries Notebooks Charts History Scheduled queries

Services Search [Alt+S]

Last saved: a day ago

Run all Isolated session task-redshift... sample_data_... Generative SQL Preview

Result 1 (100)

s_acctbal	s_name	n_name	p_partkey
9956.34	Supplier#000005108	IRAN	97580
9931.82	Supplier#000007052	IRAQ	59536
9931.82	Supplier#000007052	IRAQ	109521
9915.48	Supplier#000001523	IRAN	159007
9880.7	Supplier#000007382	SAUDI ARABIA	104871
9836.43	Supplier#000000489	IRAN	127976
9825.95	Supplier#000007554	IRAQ	100023
9825.61	Supplier#000004196	JORDAN	41691
9825.61	Supplier#000004196	JORDAN	179161

Elapsed time: 1336 ms Total rows: 100

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Services Search [Alt+S]

Last saved: a day ago

Run Limit 100

```
1 SELECT O_ORDERPRIORITY,
2        COUNT(*)          AS ORDER_COUNT
3 FROM tpch.ORDERS
4 WHERE O_ORDERDATE >= '1997-04-01' AND
5       O_ORDERDATE < cast(date '1997-04-01' + interval '3 months' as date) AND
6       EXISTS (
7           SELECT *
8             FROM tpch.LINEITEM
9            WHERE L_ORDERKEY = O_ORDERKEY AND
10                  L_COMMITDATE < L_RECEIPTDATE
11      )
12 GROUP BY O_ORDERPRIORITY
13 ORDER BY O_ORDERPRIORITY;
```

Result 1 (5)

Export Chart

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Services Search [Alt+S]

Last saved: a day ago

```
8   WHERE L_ORDERKEY = O_ORDERKEY AND
9       L_COMMITDATE < L_RECEIPTDATE
10  )
11 GROUP BY O_ORDERPRIORITY
12 ORDER BY O_ORDERPRIORITY;
```

Result 1 (5)

o_orderpriority	order_count
1-URGENT	10607
2-HIGH	10581
3-MEDIUM	10345
4-NOT SPECIFIED	10502
5-LOW	10572

Export Chart

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AWS Services Search [Alt+S]

Last saved: a day ago

task-redshift-cluster

```
1 SELECT SUPP_NATION,
2       CUST_NATION,
3       L_YEAR,
4       SUM(VOLUME) AS REVENUE
5 FROM   ( SELECT N1.N_NAME           AS SUPP_NATION,
6                  N2.N_NAME           AS CUST_NATION,
7                  EXTRACT(YEAR FROM L_SHIPDATE) AS L_YEAR,
8                  L_EXTENDEDPRICE*(1-L_DISCOUNT) AS VOLUME
9            FROM   tpch.SUPPLIER,
10                   tpch.LINEITEM,
11                   tpch.ORDERS,
12                   tpch.CUSTOMER,
13                   tpch.NATION N1,
14                   tpch.NATION N2
15      WHERE  S_SUPPKEY = L_SUPPKEY AND
16             O_ORDERKEY = L_ORDERKEY AND
17             C_CUSTKEY = O_CUSTKEY AND
```

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AWS Services Search [Alt+S]

Last saved: a day ago

task-redshift-cluster

```
15 WHERE  S_SUPPKEY = L_SUPPKEY AND
16     O_ORDERKEY = L_ORDERKEY AND
17     C_CUSTKEY = O_CUSTKEY AND
18     S_NATIONKEY = N1.N_NATIONKEY AND
19     C_NATIONKEY = N2.N_NATIONKEY AND
20     ( (N1.N_NAME = 'UNITED STATES' AND N2.N_NAME = 'JAPAN')
21     OR
22     (N1.N_NAME = 'JAPAN' AND N2.N_NAME = 'UNITED STATES')
23     )
24   ) AS SHIPPING
25 GROUP BY SUPP_NATION,
26          CUST_NATION,
27          L_YEAR
28 ORDER BY SUPP_NATION,
29          CUST_NATION,
30          L_YEAR;
```

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AWS Services Search [Alt+S]

Last saved: a day ago

task-redshift-cluster

```
31 L_YEAR;
```

Result 1 (4)

supp_nation	cust_nation	l_year	revenue
JAPAN	UNITED STATES	1995	49676582.5012
JAPAN	UNITED STATES	1996	48713378.8458
UNITED STATES	JAPAN	1995	53509381.0914
UNITED STATES	JAPAN	1996	52557139.1493

Elapsed time: 7027 ms Total rows: 4

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