

## Experiment - 9

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**Subject Code:** 23CSP-333

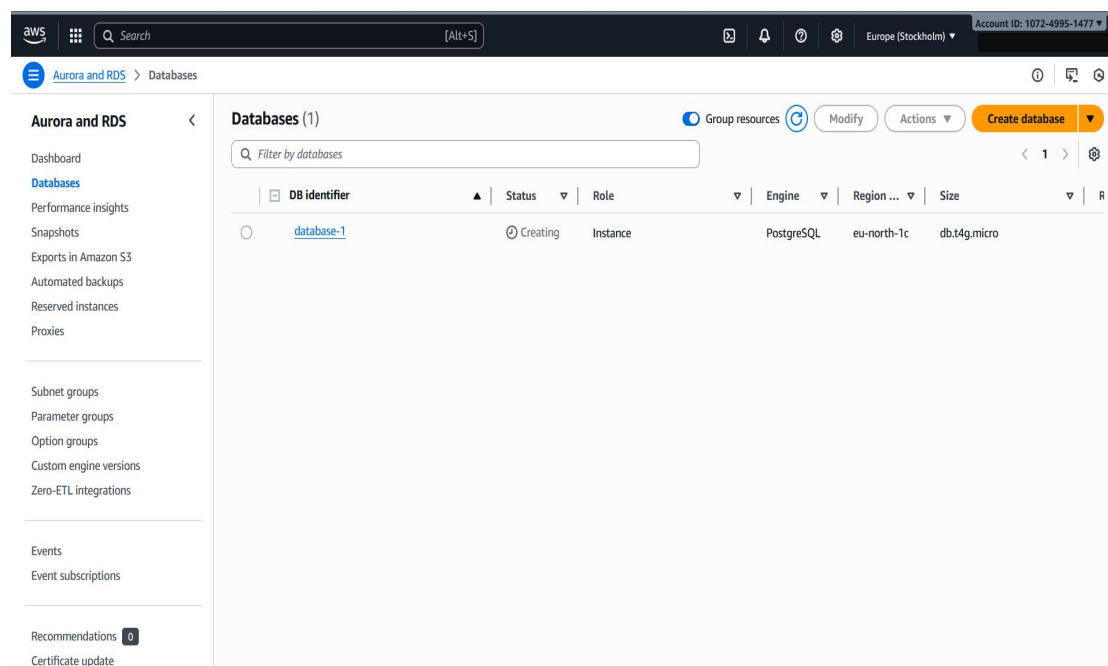
### 1. Aim

To create, configure, and connect an Amazon RDS PostgreSQL database instance on AWS, and verify successful database operations using a client tool.

### 2. Objectives:

1. To understand the concept of managed relational database services in AWS (Amazon RDS).
2. To create a PostgreSQL database instance using AWS RDS.
3. To configure DB parameters such as instance size, storage, authentication, and security groups.
4. To connect the RDS instance from a PostgreSQL client (e.g., pgAdmin/psql).
5. To execute basic SQL queries to validate connectivity and database functionality.

### 3. AWS RDS OPERATIONS AND OUTPUTS -



The screenshot shows the AWS Management Console interface for the 'Aurora and RDS' section. The 'Databases (1)' page is active, displaying a table with the following columns: DB identifier, Status, Role, Engine, Region, and Size. The table contains one entry: 'database-1' with a status of 'Creating', role of 'Instance', engine of 'PostgreSQL', region of 'eu-north-1', and size of 'db.t4g.micro'. The left sidebar shows various navigation options like 'Dashboard', 'Performance insights', 'Snapshots', 'Exports in Amazon S3', 'Automated backups', 'Reserved instances', 'Proxies', 'Subnet groups', 'Parameter groups', 'Option groups', 'Custom engine versions', 'Zero-ETL integrations', 'Events', 'Event subscriptions', 'Recommendations', and 'Certificate update'.

AWS

Search

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Europe (Stockholm)

Account ID: 1072-4995-1477

Aurora and RDS

Databases

Dashboard

Databases

Performance insights

Snapshots

Exports in Amazon S3

Automated backups

Reserved instances

Proxies

Subnet groups

Parameter groups

Option groups

Custom engine versions

Zero-ETL integrations

Events

Event subscriptions

Recommendations 0

Certificate update

Databases (1)

Filter by databases

DB identifier

Status

Role

Engine

Region ...

Size

database-1

Available

Instance

PostgreSQL

eu-north-1c

db.t4g.micro

CloudShell

Feedback

Console Mobile App

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EC2

Security Groups

sg-0b93c6695518cd4cc - default

Edit inbound rules

Edit inbound rules

Info

Inbound rules control the incoming traffic that's allowed to reach the instance.

Inbound rules

Info

Security group rule ID

Type

Protocol

Port range

Source

Description - optional

sg-r0c10a5678be41146e

PostgreSQL

TCP

5432

Custom

Q

45.248.160.62/32

X

Delete

sg-r063f6bf74b46657f0

All traffic

All

All

Custom

Q

sg-0b93c6695518cd4cc

X

Delete

Add rule

Cancel

Preview changes

Save rules

CloudShell

Feedback

Console Mobile App

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EC2 > Instances > Launch an instance

Enable

Firewall (security groups)

Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group

Select existing security group

Common security groups

Info

Select security groups

default sg-0b93c6695518cd4cc X

VPC vpc-0d98d3e2dd9e74b9a

Compare security group rules

Security groups that you add or remove here will be added to or removed from all your network interfaces.

▼ Configure storage

Info

Advanced

1x

30

GiB

gp3

Root volume, 3000 IOPS, Not encrypted

Add new volume

The selected AMI contains instance store volumes, however the instance does not allow any instance store volumes. None of the instance store volumes from the AMI will be accessible from the instance

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

Edit

▼ Summary

Number of instances

Info

1

Software image (AMI)

Microsoft Windows Server 2025 ...read more

ami-0b0faec6b121c8bca

Virtual server type (instance type)

t3.micro

Firewall (security group)

default

Storage (volumes)

1 volume(s) - 30 GiB

Cancel

Launch Instance

Preview code

CloudShell

Feedback

Console Mobile App

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Aurora and RDS > Databases > database-1

database-1

Modify Actions

Aurora and RDS

Dashboard

Databases

Performance insights

Snapshots

Exports in Amazon S3

Automated backups

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Event subscriptions

Recommendations 0

Certificate update

Summary

DB identifier

database-1

CPU

-

Status

Available

Class

db.t4g.micro

Role

Instance

Current activity

Engine

PostgreSQL

Region & AZ

eu-north-1c

Recommendations

Connectivity & security

Monitoring

Logs & events

Configuration

Zero-ETL integrations

Maintenance & backups

Data migration

Connectivity & security

Endpoint & port

Endpoint database-1.ct2gocg6qwn7.eu-nort h-1.rds.amazonaws.com

Port 5432

Networking

Availability Zone eu-north-1c

VPC vpc-0d98d3e2dd9e74b9a

Subnet group default-vpc-0d98d3e2dd9e74b9a

Subnets subnet-03dc9297f7f78716f9 subnet-0fbbe207fc38553f

Security

VPC security groups default (sg-0b93c6695518cd4cc) Active

Publicly accessible No

Certificate authority rds-ca-rsa2048-g1

Certificate authority date May 25, 2061, 03:29 (UTC+05:30)

Aurora and RDS > Databases > Create database

Create database

Info

Free plan has access to limited features and resources

The free plan limits the features and resources that are available for RDS and Aurora databases. Upgrade your account plan to remove all limitations. Learn more

Upgrade plan

Choose a database creation method

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.

Configuration

Engine type

Info

Aurora (MySQL Compatible)

Aurora (PostgreSQL Compatible)

MySQL

PostgreSQL

MariaDB

Oracle

CloudShell

Feedback

Console Mobile App

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Publicly accessible	No	Yes
Database port	5432	Yes
DB instance identifier	database-1	Yes
DB engine version	17.6	Yes
DB parameter group	default.postgres17	Yes
Monitoring	Database Insights -	Yes

aws

Search

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Aurora and RDS

Databases

database-1

db.t4g.micro

eu-north-1c

Aurora and RDS

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Recommendations

Certificate update

Connectivity & security

Monitoring

Logs & events

Configuration

Zero-ETL integrations

Maintenance & backups

Data migration

Connectivity & security

Endpoint

database-1.ct2gocg6qwn7.eu-north-1.rds.amazonaws.com

Port 5432

Networking

Availability Zone eu-north-1c

VPC vpc-0d98d3e2dd9e74b9a

Subnet group default-vpc-0d98d3e2dd9e74b9a

Subnets
 

subnet-03dc9297f78716f9
 subnet-0fbbbe207fc38553f
 subnet-0f27f6ac656a069d5

Network type IPv4

Security

VPC security groups default (sg-0b93c6695518cd4cc) Active

Publicly accessible No

Certificate authority info rds-ca-rsa2048-g1

Certificate authority date May 25, 2061, 03:29 (UTC+05:30)

DB instance certificate expiration date November 09, 2026, 17:58 (UTC+05:30)

Connected compute resources (0)

Actions

The screenshot shows the 'Register - Server' dialog box in the 'Preferences' window. The 'Connection' tab is selected, displaying the following fields:

- Port: 5432
- Maintenance database: postgres
- Username: postgres
- Kerberos authentication: ☐
- Password: [masked]
- Save password?: ☐

A red error message box is overlaid on the dialog, indicating a connection failure:

Unable to connect to server.  
connection timeout expired

The background shows a sidebar with 'Servers' and a list of server entries, including 'Display', 'Miscellaneous', 'File Downloads', and 'User Interface'.

EC2 > Instances

EC2

Dashboard

AWS Global View

Events

▼ Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Capacity Manager

▼ Images

AMIs

AMI Catalog

▼ Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

Instances (1)

Last updated less than a minute ago

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

< 1 >

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DI
<input type="checkbox"/>	myserver	i-00db5d63e9cd748c6	Running	t3.micro	Initializing	View alarms	eu-north-1b	ec2-51-20-18:

Select an instance