



# DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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## Experiment - 9

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**Branch:** BE-CSE

**Section/Group:** KRG\_2B

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**Subject Name:** Advanced Database and Management System

**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 RDS Databases console. The left sidebar menu includes options like Aurora and RDS, 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), and Certificate update. The main content area displays a table titled 'Databases (1)'. The table has columns: DB identifier, Status, Role, Engine, Region ..., and Size. One row is shown for 'database-1', which is in the 'Creating' status, an 'Instance', running 'PostgreSQL' in the 'eu-north-1c' region, and is a 'db.t4g.micro' type. There are also buttons for Group resources, Modify, Actions, and Create database.

AWS Search [Alt+S] Account ID: 1072-4995-1477 Europe (Stockholm) ▾

Aurora and RDS > Databases

Databases (1)

Group resources Modify Actions Create database

DB identifier Status Role Engine Region ... Size

database-1 Available Instance PostgreSQL eu-north-1c db.t4g.micro

Filter by databases

Aurora and RDS

- 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

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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 <small>Info</small>	Type <small>Info</small>	Protocol <small>Info</small>	Port range	Source <small>Info</small>	Description - optional <small>Info</small>
sgr-0c10a5678be41146e	PostgreSQL	TCP	5432	Custom	Q 45.248.160.62/32 X
sgr-063f6bf74b46657f0	All traffic	All	All	Custom	Q sg-0b93c6695518cd4cc X

Add rule Cancel Preview changes Save rules

**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-0d98d5e2dd9e74b9a

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

**Configure storage** [Info](#)

1x 30 GB 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.

**File systems**

[Edit](#)

[Launch instance](#) [Preview code](#)

**Aurora and RDS > Databases > database-1**

**database-1**

**Summary**

DB identifier	Status	Role	Engine	Recommendations
database-1	<span style="color: green;">Available</span>	Instance	PostgreSQL	
CPU	Class db.t4g.micro	Current activity	Region & AZ eu-north-1c	

[Modify](#) [Actions](#)

**Connectivity & security**

Endpoint & port	Networking	Security
Endpoint database-1.ct2gocg6qwn7.eu-nort-h-1.rds.amazonaws.com	Availability Zone eu-north-1c	VPC security groups default (sg-0b93c6695518cd4cc) Active
Port 5432	VPC vpc-0d98d5e2dd9e74b9a	Publicly accessible No
	Subnet group default-vpc-0d98d5e2dd9e74b9a	Certificate authority Info rds-ca-rsa2048-g1
	Subnets subnet-03dc9297ff78716f9 subnet-0fbbe207fc38553f	Certificate authority date May 25, 2061, 03:29 (UTC+05:30)

**Aurora and RDS > Databases > Create database**

**Create database** [Info](#)

(i) 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

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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

### Database Insights -

AWS Search [Alt+S] Account ID: 1072-4995-1477 ▾ Europe (Stockholm) ▾

Aurora and RDS > Databases > database-1

Connectivity & security Monitoring Logs & events Configuration Zero-ETL integrations Maintenance & backups Data mi >

**Connectivity & security**

Endpoint	Networking	Security
db.t4g.micro database-1.ct2gocg6qwn7.eu-nort-h-1.rds.amazonaws.com	Availability Zone: eu-north-1c  VPC: vpc-0df98d3e2dd9e74b9a  Subnet group: default-vpc-0d98d3e2dd9e74b9a  Subnets: subnet-03dc9297ff78716f9, subnet-0fbbe207c38553f, subnet-0f276ac656a069d5	VPC security groups: default (sg-0b93c6695518cdcc) Active  Publicly accessible: No  Certificate authority: rds-ca-rsa2048-g1 Certificate authority date: May 25, 2061, 03:29 (UTC+05:30) DB instance certificate expiration date: November 09, 2026, 17:38 (UTC+05:30)
Port: 5432	Network type: IPv4	

Connected compute resources (0) info Actions ▾

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Statistics Dependencies Dependents Processes Preferences

Servers Register - Server General Connection Parameters SSH Tunnel Advanced Post Connection SQL Tags

Port: 5432 Maintenance database: postgres Username: postgres

Kerberos authentication? Password: ..... Save password? Role: Unable to connect to server: connection timeout expired

Display Miscellaneous File Downloads User Interface objects? Show template databases?

Save password? Unable to connect to server: connection timeout expired

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EC2 Instances

Last updated less than a minute ago

Connect Instance state Actions Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

Instances (1) Info

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 D
myserver	i-00db5d63e9cd748c6	Running	t3.micro	Initializing	View alarms	eu-north-1b	ec2-51-20-18:

Select an instance

EC2 Instances

- Dashboard
- AWS Global View
- Events
- Instances
  - Instances
  - Instance Types
  - Launch Templates
  - Spot Requests
  - Savings Plans
  - Reserved Instances
  - Dedicated Hosts
  - Capacity Reservations
  - Capacity Manager [New](#)
- Images
  - AMIs
  - AMI Catalog
- Elastic Block Store
  - Volumes
  - Snapshots
  - Lifecycle Manager