

Creating and Connecting to a Free Tier AWS RDS Instance for MSSQL

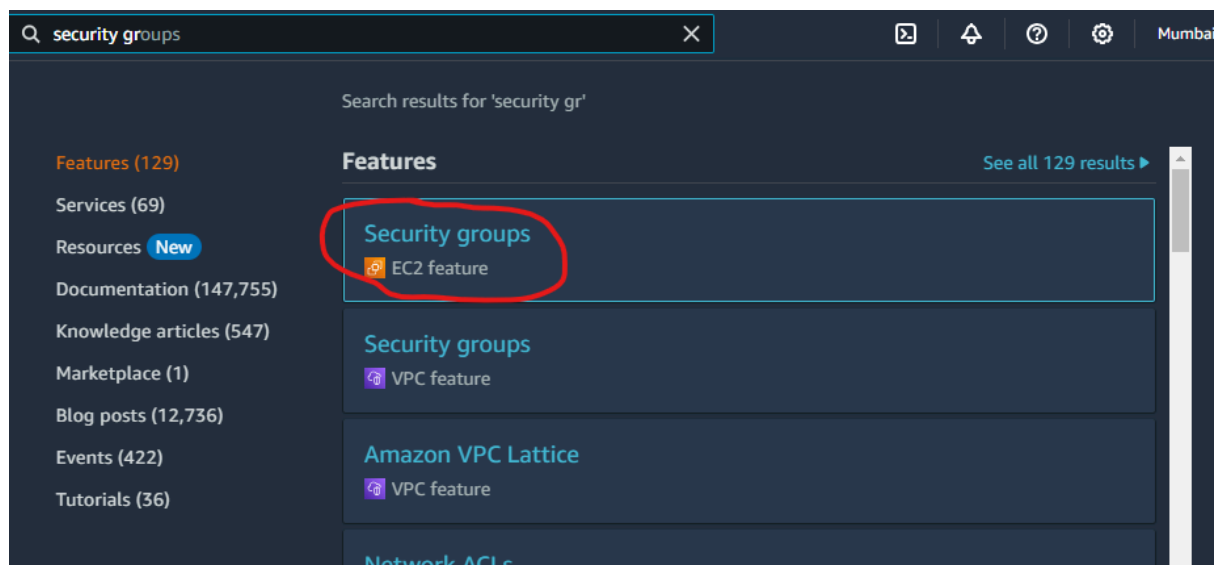
Introduction

This guide will walk you through the steps to create a free tier Amazon RDS (Relational Database Service) instance using Microsoft SQL Server (MSSQL) and connect to it.

Creating an Security group for the RDS instance

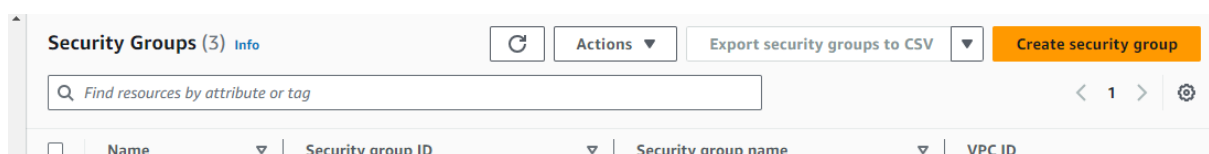
Step 1: Navigate to Security Groups

1. In the AWS Management Console, search for **Security Group** and select it



Step 2: Create Security Group

1. Click on **Create Security Group** to add new one



2. Enter the Name ,description (Optional) and VPC

aws Services Search [Alt+S]

EC2 > Security Groups > Create security group

Create security group [Info](#)

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, con

Basic details

Security group name [Info](#)

Name cannot be edited after creation.

Description [Info](#)

VPC [Info](#)

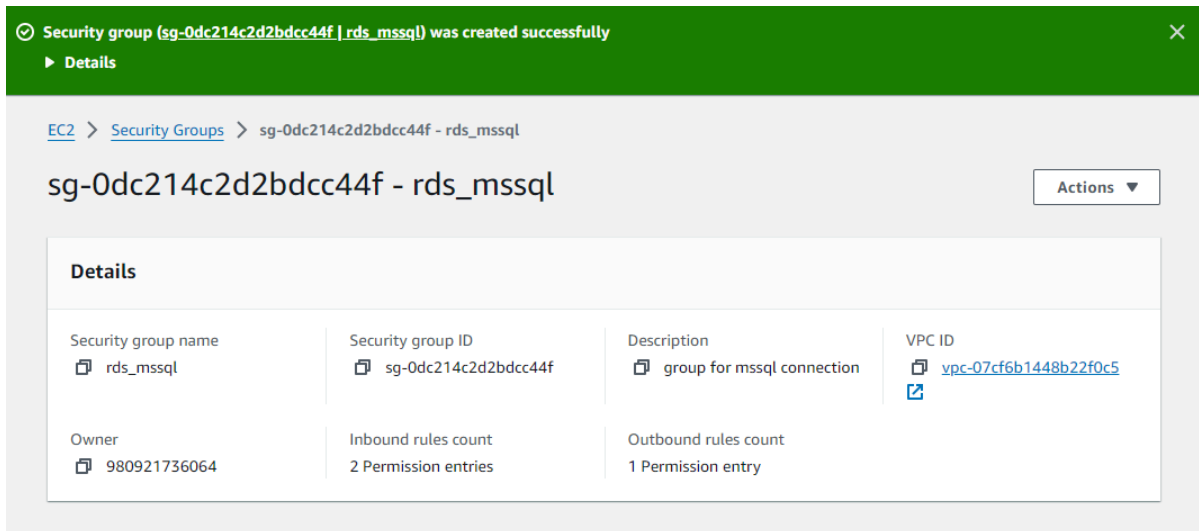
3. Add Inbound Rules (MSSQL in Type (With Source IPv4 and IPV6))

Inbound rules [Info](#)

Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info
MSSQL	TCP	1433	Any... 0.0.0.0/0 X	<input type="text"/>
MSSQL	TCP	1433	Any... ::0 X	<input type="text"/>

Step 3: Review and Create

1. Click on Create security group



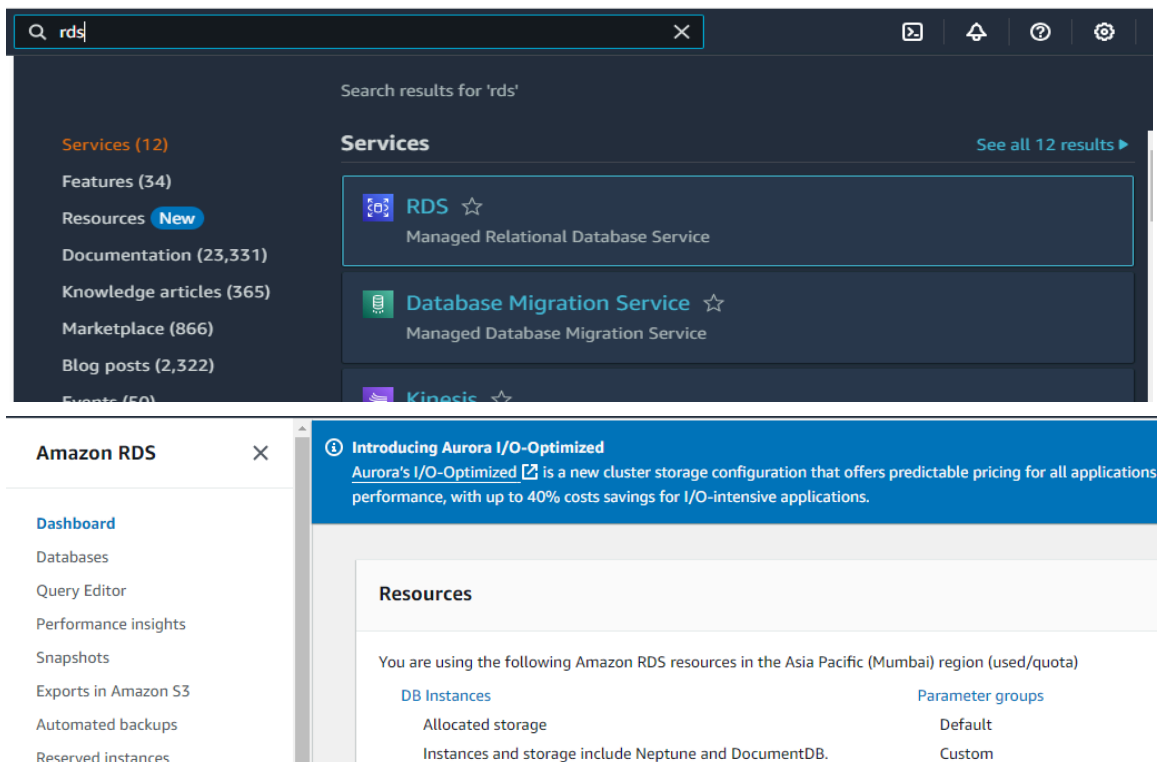
Creating an AWS RDS Instance

Step 1: Sign In to AWS Management Console

1. Go to the [AWS Management Console](#).
2. Enter your credentials and sign in.

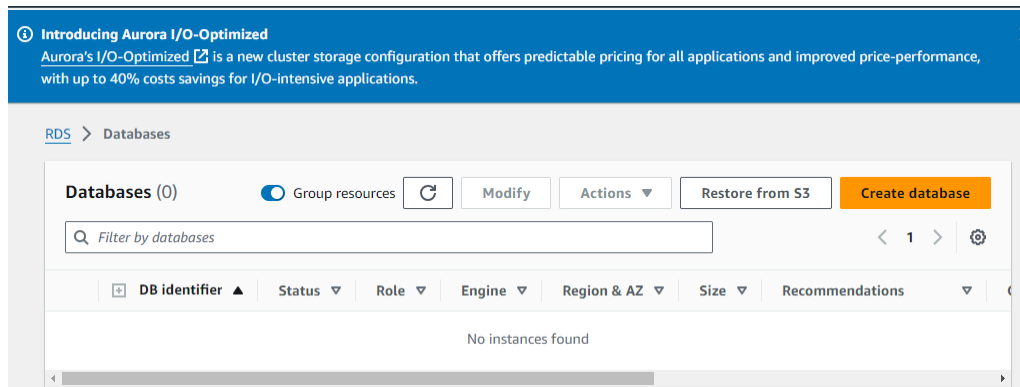
Step 2: Navigate to RDS Dashboard

2. In the AWS Management Console, search for **RDS** in the search bar and select **RDS** from the results.

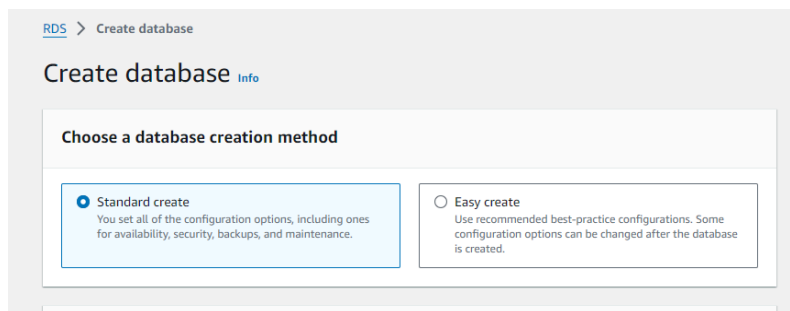


Step 3: Launch a New Database Instance

1. Click on **Create database**

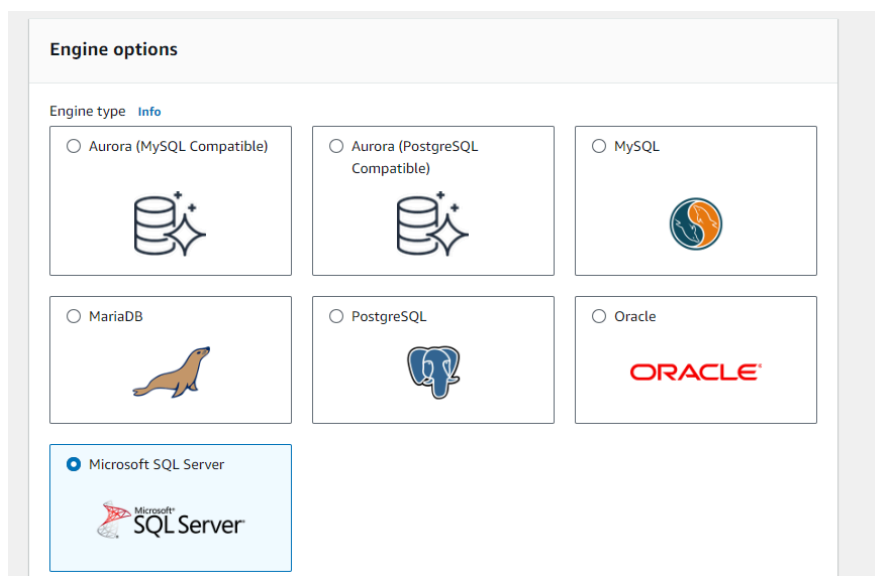


2. Select **Standard Create**.



Step 4: Configure the Database Instance

1. **Engine Options: Select Microsoft SQL Server.**



2. **Version:** Choose the version you need, ensuring it's eligible for the free tier.

Database management type [Info](#)

- ☒ **Amazon RDS**
RDS fully manages your database, including automatic patching. Choose this option if you don't need to customize your environment.
- ☐ **Amazon RDS Custom**
RDS manages your database and gives you privileged access to the OS. Use this option if you want to customize the database, OS, and infrastructure.

Edition

- ☒ **SQL Server Express Edition**
Affordable database management system that supports database sizes up to 10 GB.
- ☐ **SQL Server Web Edition**
In accordance with Microsoft's licensing policies, it can only be used to support public and Internet-accessible webpages, websites, web applications, and web services.
- ☐ **SQL Server Standard Edition**
Core data management and business intelligence capabilities for mission-critical applications and mixed workloads.
- ☐ **SQL Server Enterprise Edition**
Comprehensive high-end capabilities for mission-critical applications with demanding database workloads and business intelligence requirements.

Engine Version

SQL Server 2019 15.00.4390.2.v1

3. **Enter Database instance name and select Templates:** Select **Free Tier**.

Settings

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.

deven-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.

Templates

Choose a sample template to meet your use case.

- ☐ **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](#)

4. **Master Username:** Enter a master username and **Master Password:** Enter and confirm your master password.

▼ 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.

Credentials management

You can use AWS Secrets Manager or manage your master user credentials.

☐ Managed in AWS Secrets Manager - *most secure*
RDS generates a password for you and manages it throughout its lifecycle using AWS Secrets Manager.

☒ Self managed
Create your own password or have RDS create a password that you manage.

☐ Auto generate password

Amazon RDS can generate a password for you, or you can specify your own password.

Master password [Info](#)

.....

Password strength **Neutral**

Minimum constraints: At least 8 printable ASCII characters. Can't contain any of the following symbols: / ' " @

Confirm master password [Info](#)

.....

admin
Deven5656

5. **Continue with Default setting and turn off the Monitoring, backup and Maintenance for the task only**

Instance configuration

The DB instance configuration options below are limited to those supported by the engine that you selected above.

DB instance class [Info](#)

▼ Hide filters

☐ Include previous generation classes

☒ Burstable classes (includes t classes)

db.t3.micro
2 vCPUs 1 GiB RAM Network: Up to 2,085 Mbps

Storage

Storage type [Info](#)

Provisioned IOPS SSD (io2) storage volumes are now available.

General Purpose SSD (gp3)
Performance scales independently from storage

Allocated storage [Info](#)

20 GiB

Minimum: 20 GiB. Maximum: 16,384 GiB

i 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](#)

▼ Advanced settings

Baseline IOPS of 3,000 IOPS and storage throughput of 125 MiBps are included for allocated storage of 20 GiB or greater. Higher IOPS and throughput can be provisioned for additional cost.

Provisioned IOPS [Info](#)

IOPS

Provisioned IOPS value must be 3,000 IOPS to 16,000 IOPS. The IOPS to GiB ratio must be between 0.5 and 500

Storage throughput [Info](#)

MiBps

Minimum: 125 MiBps. Maximum: 1,000 MiBps

▼ Storage autoscaling

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 after the specified threshold is exceeded.

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.

Virtual private cloud (VPC) [Info](#)

Choose the VPC. The VPC defines the virtual networking environment for this DB instance.

Default VPC (vpc-07cf6b1448b22f0c5)

3 Subnets, 3 Availability Zones

Only VPCs with a corresponding DB subnet group are listed.



After a database is created, you can't change its VPC.

DB subnet group [Info](#)

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 ▼

rds_mssql ✕

default ✕

Availability Zone [Info](#)

No preference ▼

RDS Proxy

RDS Proxy is a fully managed, highly available database proxy that improves application scalability, resiliency, and security.

☐ Create an RDS Proxy [Info](#)

RDS automatically creates an IAM role and a Secrets Manager secret for the proxy. RDS Proxy has additional costs. For more information, see [Amazon RDS Proxy pricing](#).

Certificate authority - optional [Info](#)

Using a server certificate provides an extra layer of security by validating that the connection is being made to an Amazon database. It does so by checking the server certificate that is automatically installed on all databases that you provision.

rds-ca-rsa2048-g1 (default) ▼

Expiry: May 20, 2061

If you don't select a certificate authority, RDS chooses one for you.

▼ Additional configuration

Database port [Info](#)

TCP/IP port that the database will use for application connections.

1433

Microsoft SQL Server Windows Authentication



Choose a directory in which you want to allow authorized domain users to authenticate with this SQL Server instance using Windows Authentication.

☐ Enable Microsoft SQL Server Windows authentication

Tags - optional

A tag consists of a case-sensitive key-value pair.

No tags associated with the resource.

Add new tag

Monitoring

Performance Insights [Info](#)

☐ Turn on Performance Insights

► Additional configuration

Enhanced Monitoring

▼ Additional configuration

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

Database options

DB parameter group [Info](#)

default.sqlserver-ex-15.0 ▼

Option group [Info](#)

default:sqlserver-ex-15-00 ▼

Time zone

No preference ▼

Collation [Info](#)

Backup

- ☐ Enable automated backups
Creates a point-in-time snapshot of your database

Backup

- ☐ Enable automated backups
Creates a point-in-time snapshot of your database

Log exports

Select the log types to publish to Amazon CloudWatch Logs

- ☐ Error log

IAM role

The following service-linked role is used for publishing logs to CloudWatch Logs.

RDS service-linked role

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.

Maintenance window [Info](#)

Select the period you want pending modifications or maintenance applied to the database by Amazon RDS.

- ☐ Choose a window
☒ No preference

Deletion protection

- ☐ Enable deletion protection
Protects the database from being deleted accidentally. While this option is enabled, you can't delete the database.

Step 5: Review and Create

1. Review your configuration settings.

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.](#)

i You are responsible for ensuring that you have all of the necessary rights for any third-party products or services that you use with AWS services.

Cancel Create database

2. Click **Create database**.

✓ Successfully created database deven-database-instance

View connection details

✕

You can use settings from deven-database-instance to simplify configuration of suggested database add-ons while we finish creating your DB for you.

i Introducing Aurora I/O-Optimized

[Aurora's I/O-Optimized](#) is a new cluster storage configuration that offers predictable pricing for all applications and improved price-performance, with up to 40% costs savings for I/O-intensive applications.

✕

RDS > Databases

Databases (1)

☒ Group resources

Modify

Actions ▾

Restore from S3

Create database

☐

DB identifier

▲

▼

Status

▼

Role

▼

Engine

▼

Region & AZ

▼

Size

☐

[deven-database-instance](#)

☒ Available

Instance

SQL Server Express Edition

ap-south-1a

db.t3.micro

Connecting to Your RDS MSSQL Instance

Step 1: Obtain Connection Details

1. In the RDS Dashboard, select **Databases**.
2. Click on your newly created database instance.
3. Note the **Endpoint** and **Port**.

Connectivity & security	Monitoring	Logs & events	Configuration	Maintenance & backups	Tags	Rec
Connectivity & security						
Endpoint & port		Networking		Security		
Endpoint deven-database-instance.c7gwogo8emqp.ap-south-1.rds.amazonaws.com		Availability Zone ap-south-1a		VPC security groups default (sg-07427a59ceee2774b) Active rds_mssql (sg-0dc214c2d2bdcc44f) Active		
Port 1433		VPC vpc-07cf6b1448b22f0c5		Publicly accessible Yes		
		Subnet group default-vpc-07cf6b1448b22f0c5				

Step 2: Connect Using SQL Server Management Studio (SSMS)

1. Open SQL Server Management Studio (SSMS).
2. In the **Connect to Server** window, enter the following:
 - **Server type:** Database Engine
 - **Server name:** <Endpoint>, <Port> (e.g., `deven-database-instance.c7gwogo8emqp.ap-south-1.rds.amazonaws.com`)
 - **Authentication:** SQL Server Authentication
 - **Login:** Your master username
 - **Password:** Your master password
3. Click **Connect**.

Connect to Server

SQL Server

Login | Connection Properties | Always Encrypted | Additional Connection Parameters

Server

Server type: Database Engine

Server name: deven-database-instance.c7gwogo8emqp.ap-south-1

Authentication: SQL Server Authentication

Login: admin

Password: *****

☐ Remember password

Connection Security

Encryption: Mandatory

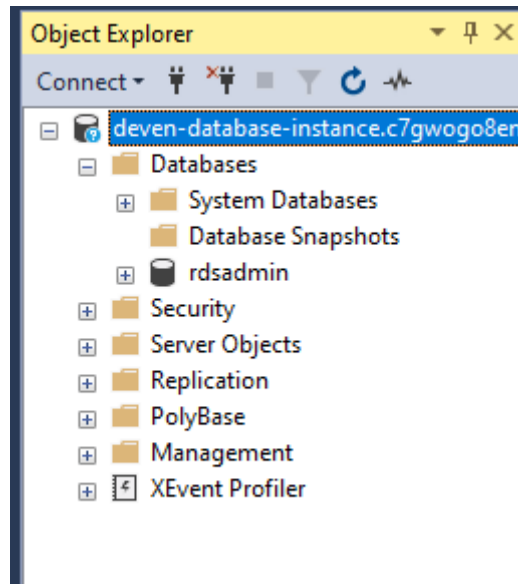
☒ Trust server certificate

Host name in certificate:

Connect Cancel Help Options <<

Step 3: Verify Connection

1. Once connected, you should see your database instance in the Object Explorer.
2. Expand the instance to verify your database is accessible.



Troubleshooting

- **Cannot connect to the database:** Ensure that your RDS security group allows inbound traffic on the port used by MSSQL (default is 1433).
- **Authentication errors:** Double-check your master username and password.