

Assignment-3:

Q) Create a VPC attached to lambda and also attach to the database ?

A) Lambda: AWS Lambda is a compute service that lets you run code without provisioning or managing servers.

Lambda runs your code on a high-availability compute infrastructure and performs all of the administration of the compute resources, including server and operating system maintenance, capacity provisioning and automatic scaling, and logging. With Lambda, all you need to do is supply your code in one of the language runtimes that Lambda supports.

VPC (Virtual Private Cloud): Amazon VPC or Amazon Virtual Private Cloud is a service that allows its users to launch their virtual machines in a protected as well as isolated virtual environment defined by them.

RDS (Relational Database): Amazon Web Services offers Amazon RDS a service where it is managed completely by AWS and also it offers wide range database engines like the following:


1. MySQL.
2. PostgreSQL.
3. Oracle.
4. SQL Server.

Practical:

- Create an IAM (Identity Access Manager) role for Lambda with a specific name & attach policy for VPC full access and RDS full access

The screenshot shows the AWS IAM console interface for a role named 'Dheeraj'. The breadcrumb navigation at the top reads 'IAM > Roles > Dheeraj'. The role name 'Dheeraj' is displayed with an 'Info' link and a 'Delete' button. Below this, a description states: 'Allows Lambda functions to call AWS services on your behalf.' A 'Summary' section is expanded, showing a table with the following details:

Summary		Edit
Creation date	March 27, 2024, 08:58 (UTC+05:30)	ARN arn:aws:iam::637423228926:role/Dheeraj
Last activity	-	
		Maximum session duration 1 hour

Permissions summary			< 1 >
Name 	Type	Used as	
AmazonRDSDataFullAccess	AWS managed	Permissions policy	
AmazonVPCFullAccess	AWS managed	Permissions policy	

- Create a lambda function with runtime environment of latest version of python

Create function Info

Choose one of the following options to create your function.

☒ **Author from scratch**
Start with a simple Hello World example.

☐ **Use a blueprint**
Build a Lambda application from sample code and configuration presets for common use cases.

☐ **Container image**
Select a container image to deploy for your function.

Basic information


Function name
Enter a name that describes the purpose of your function.

Use only letters, numbers, hyphens, or underscores with no spaces.

Runtime Info
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.

- Now select existing role dheeraj in lambda

▼ **Change default execution role**


Execution role
Choose a role that defines the permissions of your function. To create a custom role, go to the [IAM console](#) .

☐ Create a new role with basic Lambda permissions

☒ **Use an existing role**

☐ Create a new role from AWS policy templates

Existing role
Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.

[View the Dheeraj role](#)  on the IAM console.

- Therefore our lambda function is created with the attached policies to it

▼ Function overview

Info

Export to Application Composer

Download ▼

Diagram

Template

my-Assignment-1

Layers (0)

+ Add trigger

+ Add destination

Description

-

Last modified

1 minute ago

Function ARN

arn:aws:lambda:ap-northeast-3:637423228926:function:my-Assignment-1

Function URL

Info

-

- Click on add the trigger and add the new API Gateway to it

Trigger configuration

Info

API Gateway

aws api application-services backend HTTP REST serverless

Add an API to your Lambda function to create an HTTP endpoint that invokes your function. API Gateway supports two types of RESTful APIs: HTTP APIs and REST APIs. [Learn more](#)

Intent
Use an existing api or have us create one for you.

☒ Create a new API

☐ Use existing API

API type

☒ **HTTP API**
Build low-latency and cost-effective REST APIs with built-in features such as OIDC and OAuth2, and native CORS support.

☐ **REST API**
Develop a REST API where you gain complete control over the request and response along with API management capabilities.

Diagram

Template

my-Assignment-1

Layers (0)

API Gateway

+ Add trigger

+ Add destination

Description

-

Last modified

4 minutes ago

Function ARN

arn:aws:lambda:ap-northeast-3:637423228926:function:my-Assignment-1

Function URL

Info

-

- After that goto the lambda configuration and create a VPC and attach them

VPC [Info](#)

Edit

VPC

[vpc-0d32b0207ca62d236](#) (172.31.0.0/16) | Default

Subnets

- Allow IPv6 traffic = false
- [subnet-08f5118161cd32786](#) (172.31.16.0/20) | ap-northeast-3b
- [subnet-0a61f6e1511c78852](#) (172.31.32.0/20) | ap-northeast-3a

Security groups

- [sg-090e81b5928077eaa](#) (default)

- Now create RDS database with database proxy

[RDS](#) > [Databases](#) > database-1

database-1

Refresh Modify Actions

Summary

DB identifier database-1	Status Available	Role Instance	Engine MySQL Community
CPU 5.92%	Class db.t3.micro	Current activity 0	Region & AZ ap-northeast-3c
		Connections	

[RDS](#) > [Proxies](#) > proxy-1711512152567-database-1

proxy-1711512152567-database-1

Actions

Proxy configurations

Proxy identifier proxy-1711512152567-database-1	Engine family MariaDB and MySQL (supports Aurora MySQL, RDS for MariaDB, and RDS for MySQL)
Status Available	Transport Layer Security Not enabled
Identity and access management (IAM) role arn:aws:iam::637423228926:role/service-role/rds-proxy-role-1711512151646	Idle client connection timeout 30 minutes
VPC security groups sg-090e81b5928077eaa	Proxy Amazon Resource Name (ARN) arn:aws:rds:ap-northeast-3:637423228926:db-proxy:prx-0d2a2b0f5df8efad9

- Now, Attach the database with lambada

[Lambda](#) > [Functions](#) > [my-Assignment-1](#) > [Connect to RDS database](#)

Connect to RDS database

RDS database [Info](#)

Connect my-Assignment-1 attached to [vpc-0d32b0207ca62d236](#) [🔗](#) (172.31.0.0/16) to an RDS database.

☒ Use an existing database

☐ Create a new database

RDS database

database-1

▼

↻

Lambda will configure security groups and add the required execution role permissions for the function. Lambda will then connect your function to the existing database VPC.

RDS database connections (1) [Info](#)

Connect to RDS database

The following table shows databases that match this function's VPC and security group. Review the details to confirm a connection.

DB identifier	Proxy iden...	Endpoint	Lambda se...	DB securit...
database-1 🔗	proxy-171...	database-1...	default (sg...	default (sg-...