National College of Ireland

Configuration Manual

MSc Research Project
Cloud Computing

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Project Submission Sheet
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Configuration Manual

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1 Introduction

This manual provides instructions to setup project on AWS. All the important instruction is provided here.

2 AWS Setup

Make sure you have AWS account before proceeding further.

2.1 AWS S3

Create a bucket in your region with name ncifiles3. It should be general purpose bucket.

2.2 Kinesis consumer Lambda function

Kinesis consumer lambda will consume records from controller lambda function via Kinesis stream.

- Create lambda function with default python configuration.
- Add trigger to lambda in Figure 1.
- Verify configuration of trigger as shown in Figure 2.

2.3 AWS Sagemaker

Sagemaker is used to train, build and deploy machine learning model.

- Create sagemaker studio and profile.
- Create Jupyter Lab inside sagemaker studio as shown in Figure 3.
- Run untitled.ipynb file to train, build and deploy ML model as shown in Figure 4.
- Check if endpoint is deployed properly as shown in Figure 5

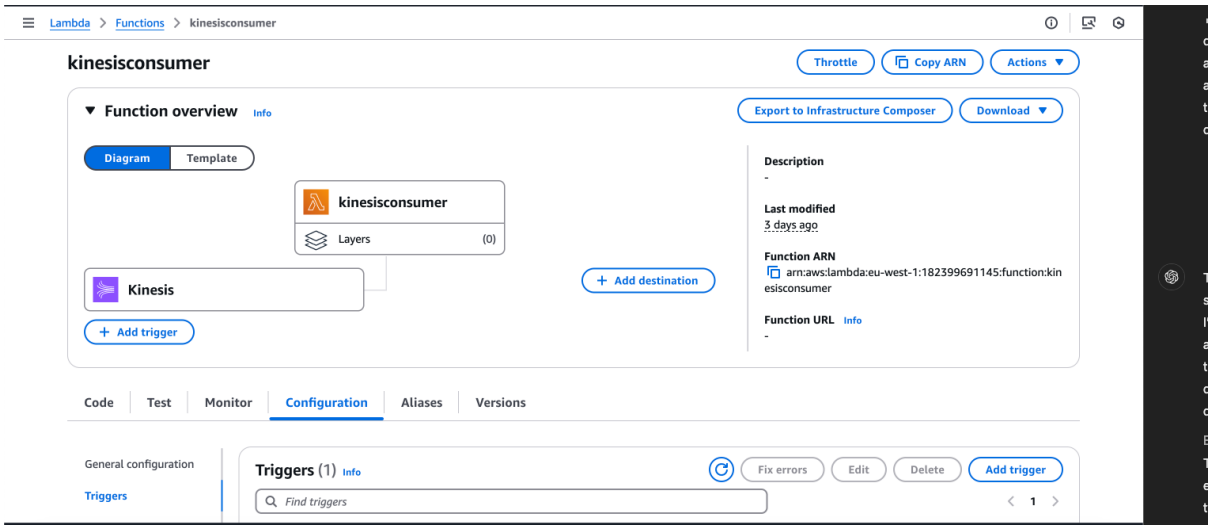

Figure 1: Add trigger to lambda

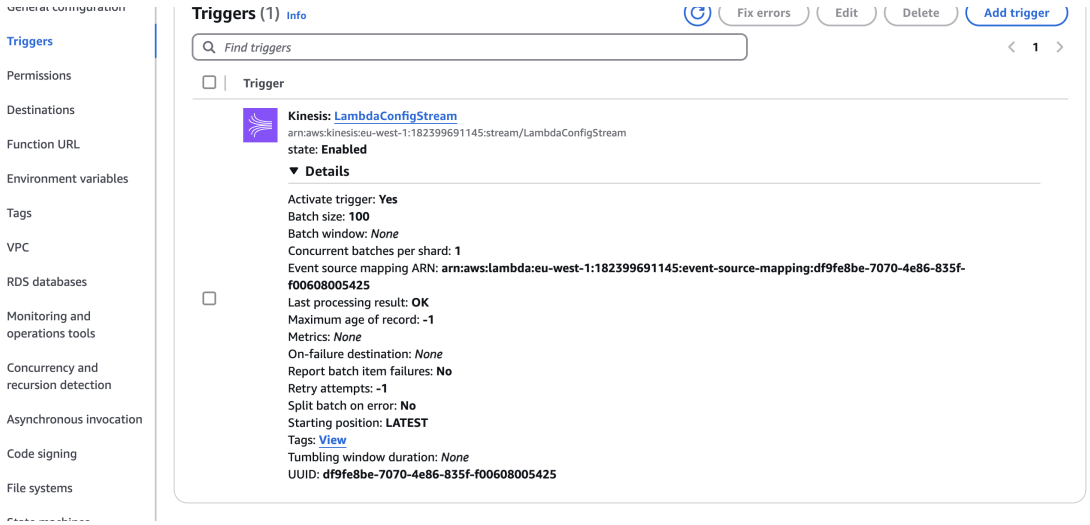

Figure 2: Trigger configuration

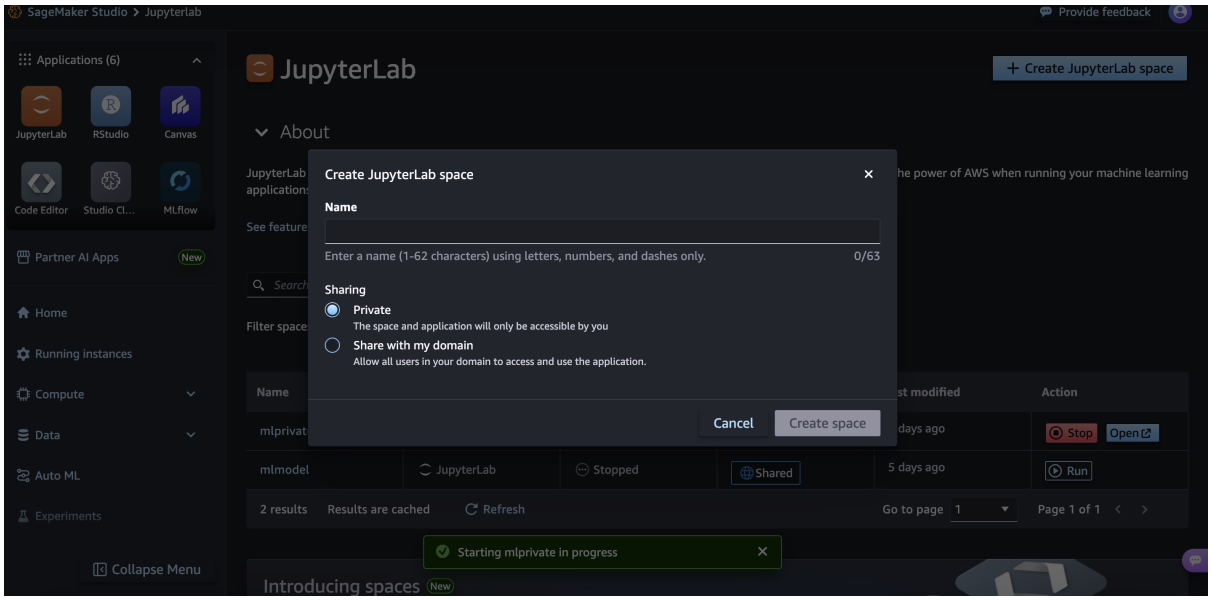

Figure 3: Jupyterlab creation

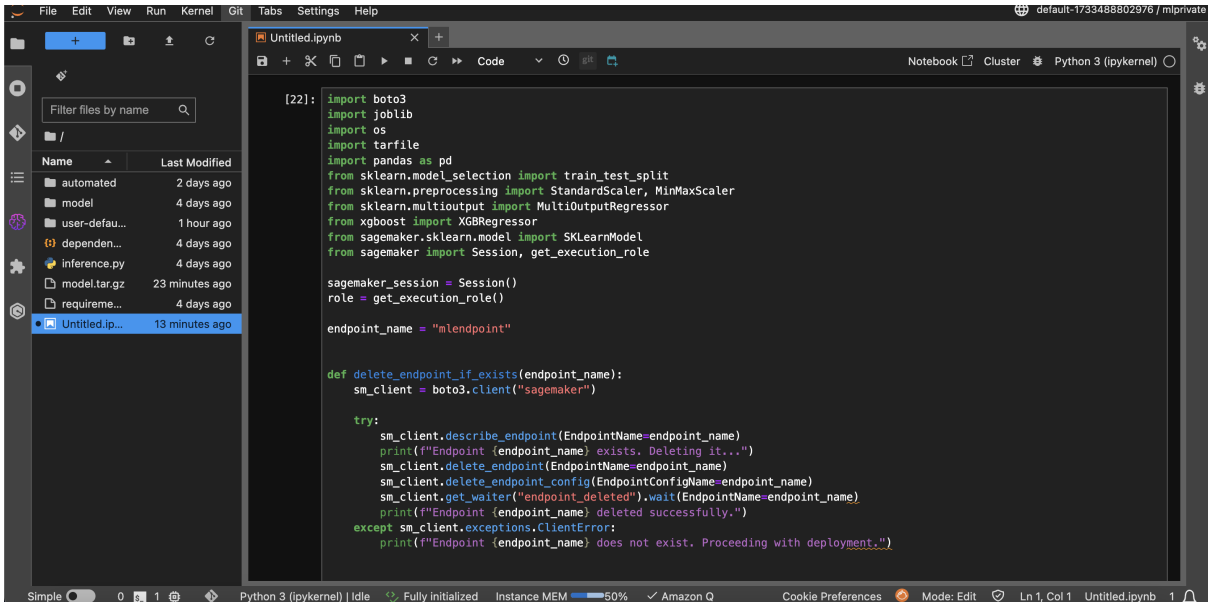

Figure 4: Jupyterlab creation

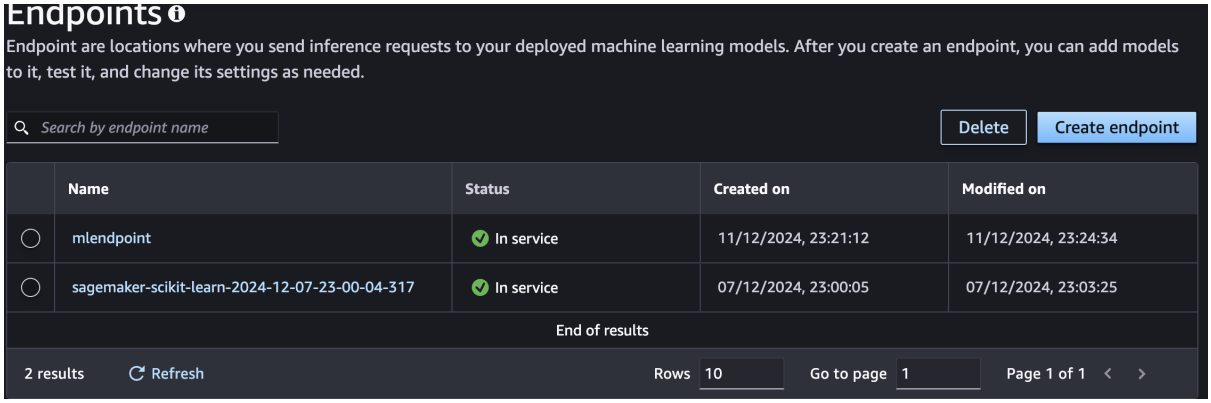

Figure 5: Jupyterlab creation

2.4 Getlogs Lambda function

This function is used to create dataset for training model , it has 2 triggers i.e. SNS and Cloudwatch logs. Both of which will trigger if configuration set from prediction causes timeout and saving the incident in log for further training.

- Create lambda function with default python configuration.
- Add Both triggers to lambda in Figure 6.
- Verify configuration of triggers as shown in Figure 7.

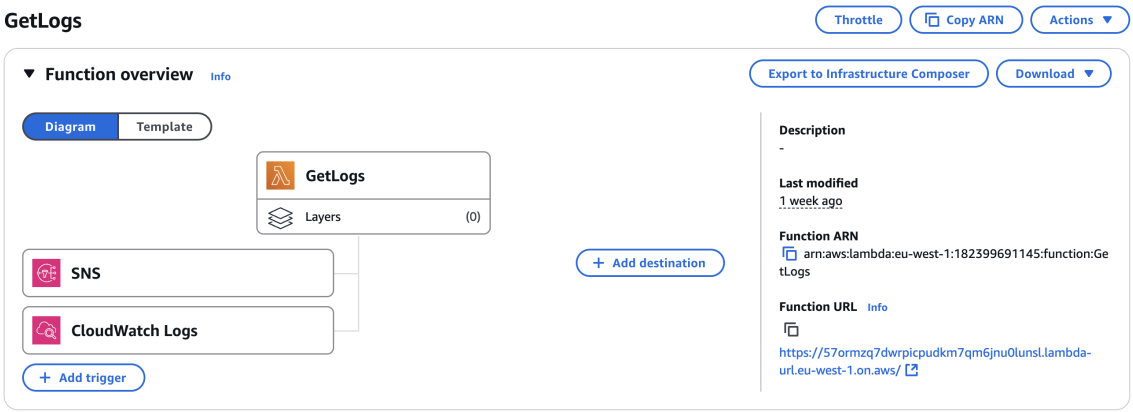

Figure 6: Add trigger to lambda

2.5 AWS EFS

Create EFS for sharing data between load_and_execute_code and extract_and_save_code lambda functions.

- Create EFS as shown in Figure 8.
- Verify configuration of EFS as shown in Figure 9.

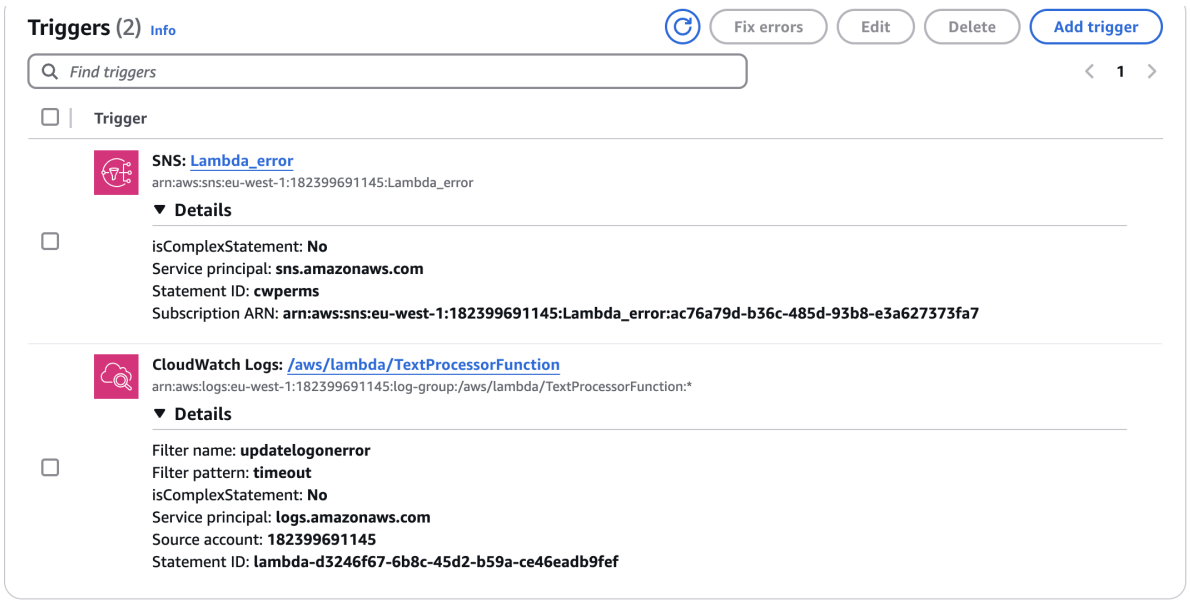

Figure 7: Trigger configuration

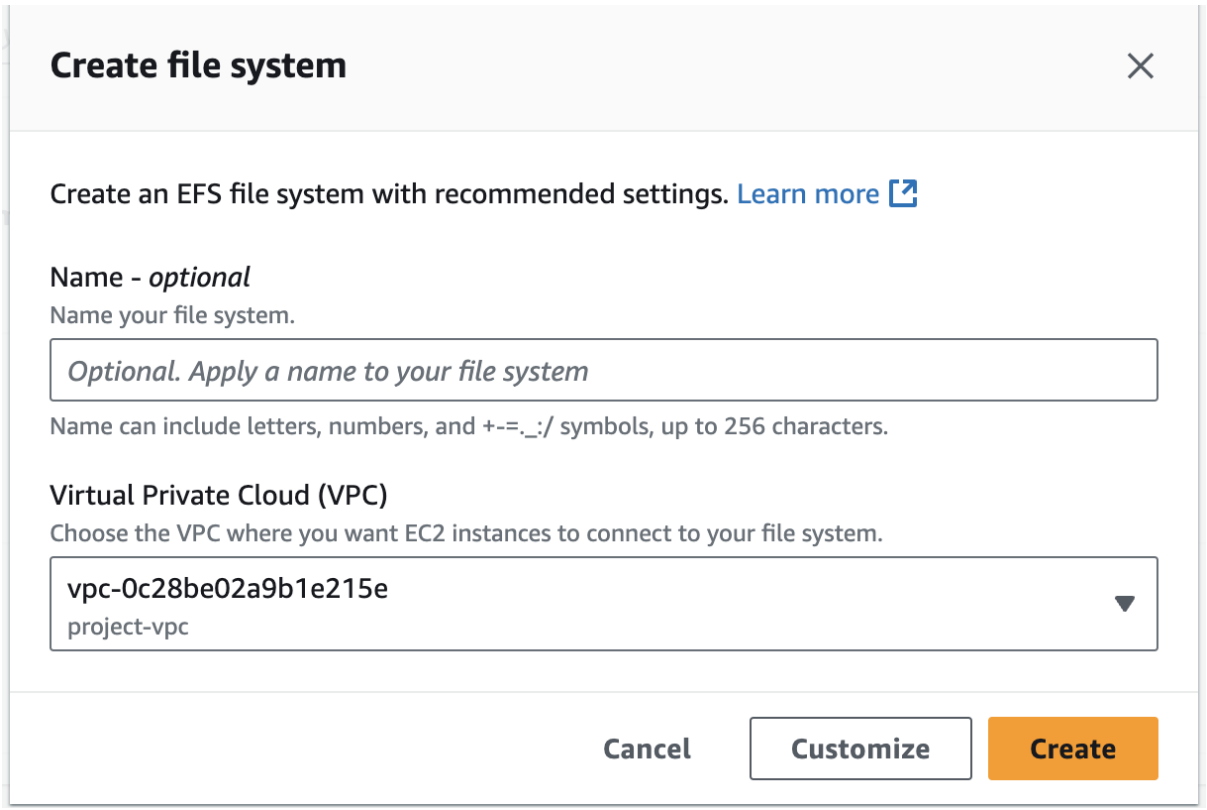

Figure 8: Create EFS

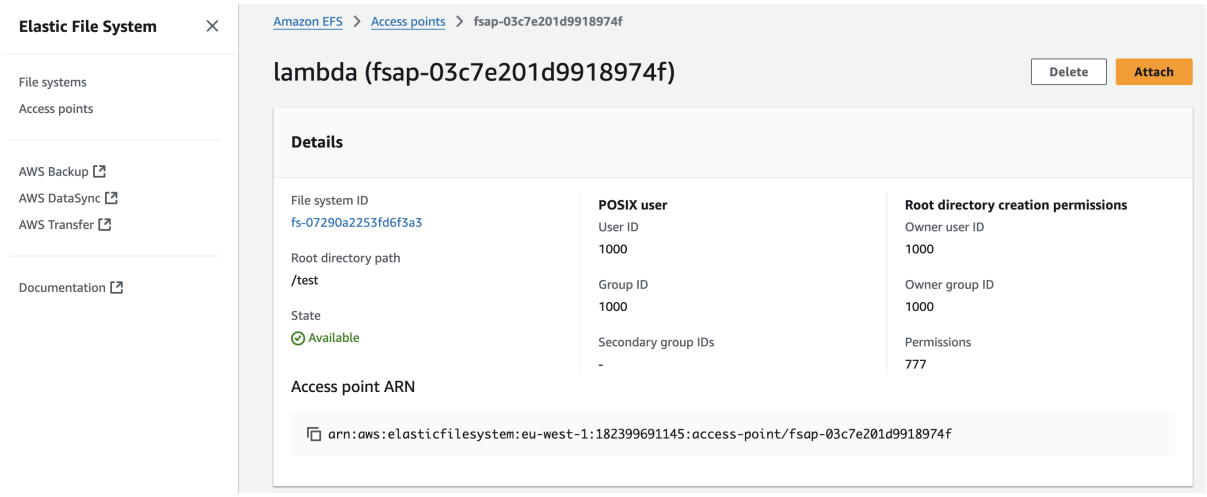

Figure 9: EFS configuration

2.6 AWS Cloudwatch

Create Alarm using Cloudwatch to search for specific term "timeout" in logs. If it encounter such logs trigger Logs lambda function for appending this incident in S3 logs file for model training. Configuration of alarm shown in Figure 10

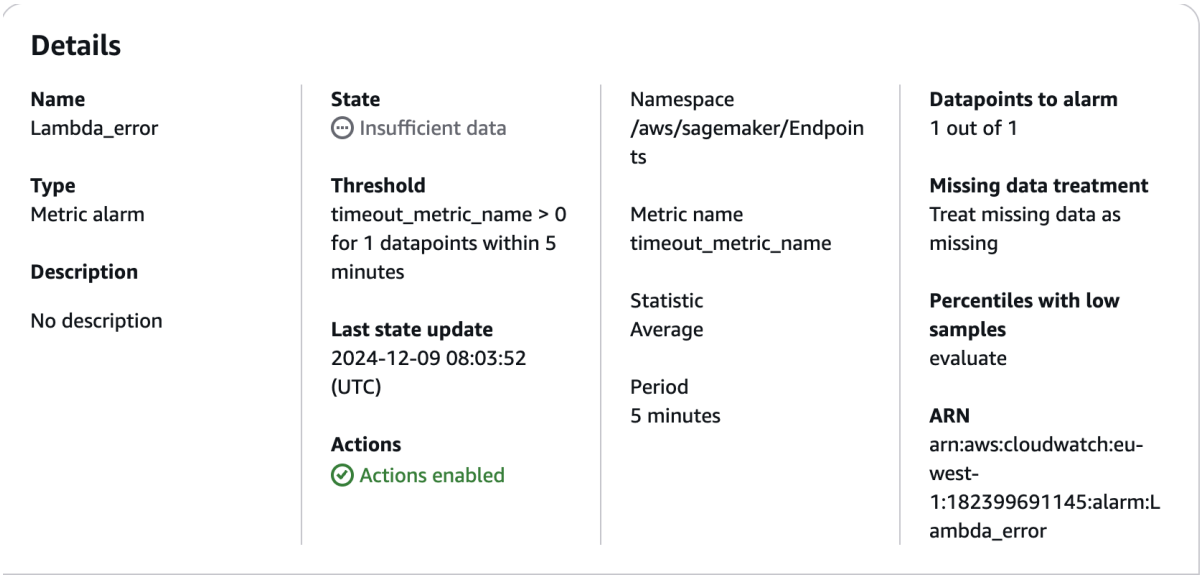

Figure 10: Alarm configuration

2.7 AWS VPC

AWS VPC is used to connect EFS and lambda function. Configuration of VPC is shown in Figure 11

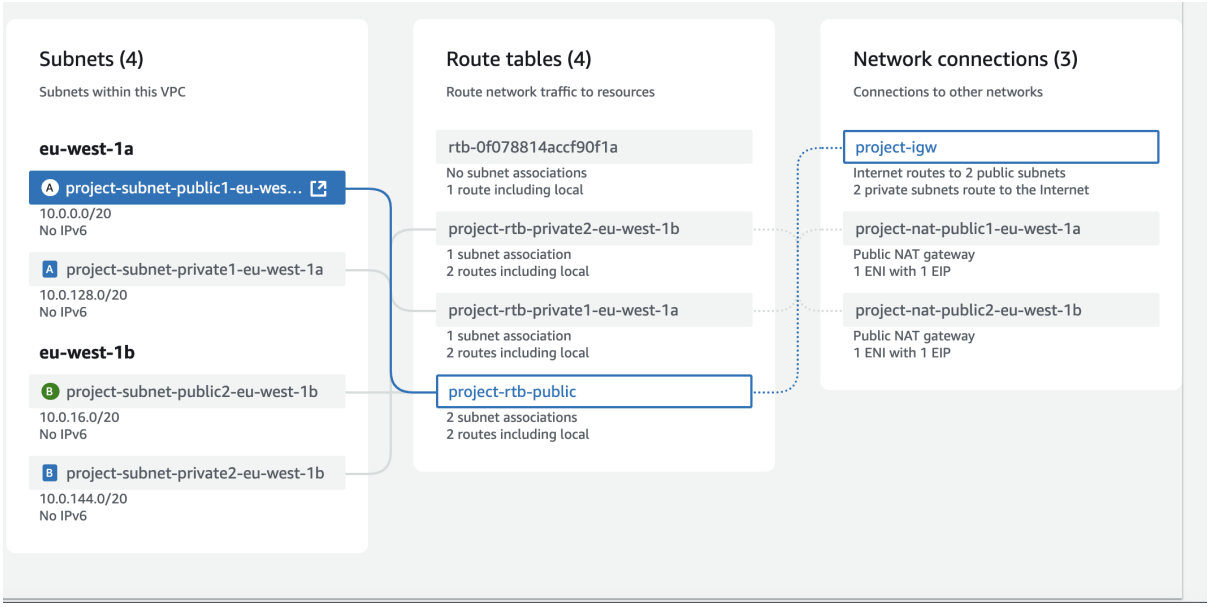

Figure 11: VPC configuration

2.8 Executing workflow

To execute whole workflow , there is lambda function named Controller by hitting. https://iprj3u2hb6wkifyd6einca26lq0sdugq.lambda-url.eu-west-1.on.aws/

On line 43-44 , there is bucket and file variable whose value can be changed to point algorithm at different file.