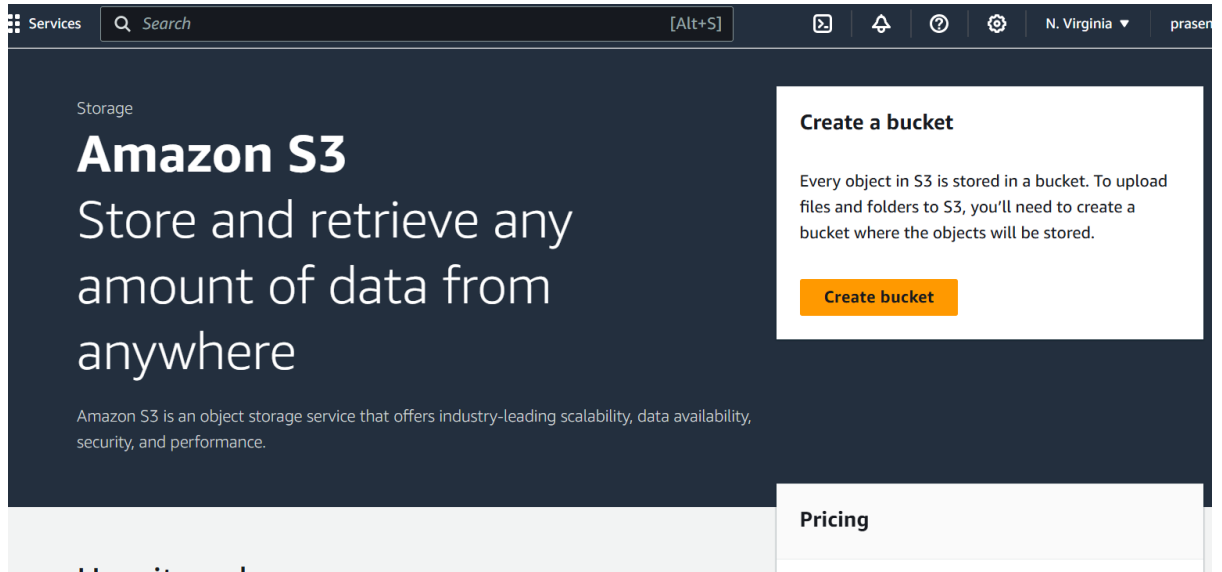
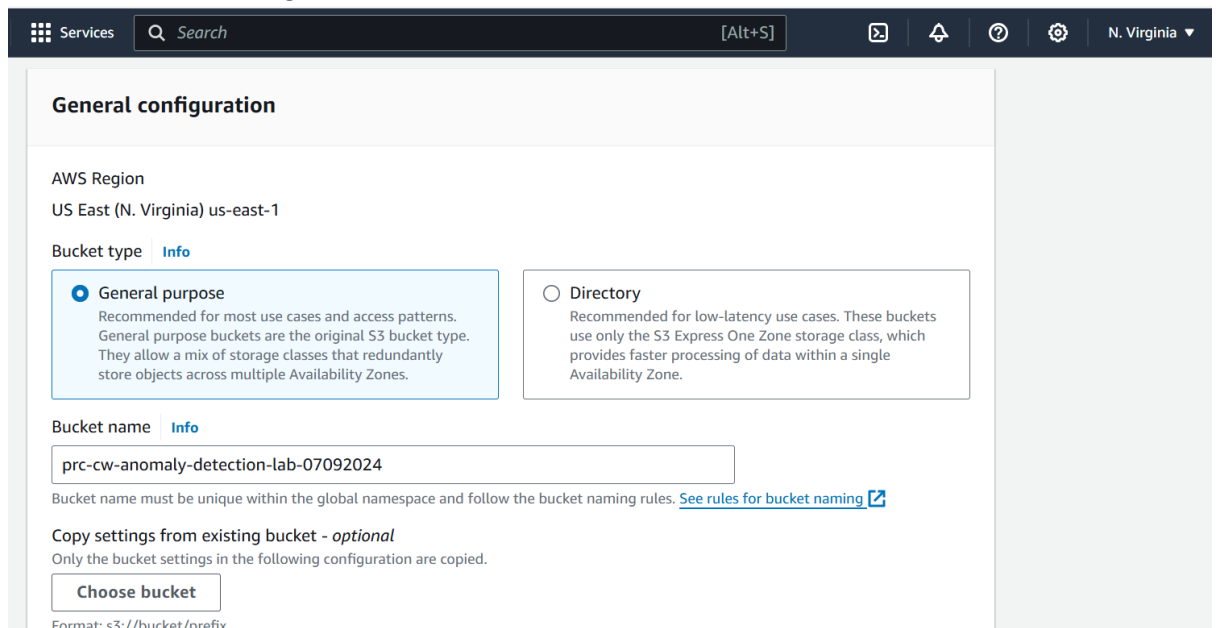


## 1. Creating S3 bucket



## 2. Bucket creation with tag value



☐ Enable

### Tags - *optional* (1)

You can use bucket tags to track storage costs and organize buckets. [Learn more](#)

Key	Value - <i>optional</i>	
anomaly	s3	Remove

Add tag

### Default encryption [Info](#)

Server-side encryption is automatically applied to new objects stored in this bucket.

Encryption type [Info](#)

- ☒ Server-side encryption with Amazon S3 managed keys (SSE-S3)

### 3. Create function from scratch

Services
Search
[Alt+S]
N. Virginia

## 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.  
RegressionLambdaFunction  
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.  
Python 3.12

[Info](#)
[Tutorial](#)

Learn how to implement use cases in AWS Lambda

### Create a simple app

In this tutorial you will learn how to:

- Build a simple web application consisting of a function and a URL that returns a webpage
- Invoke your function through it

[Learn more](#)

**Permissions** [Info](#)

By default, Lambda will create an execution role with permissions to upload logs to Amazon CloudWatch Logs. You can customize this default role later when adding triggers.

▼ **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

**i** Role creation might take a few minutes. Please do not delete the role or edit the trust or permissions policies in this role.

**Role name**  
Enter a name for your new role.

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

**Policy templates - optional** [Info](#)  
Choose one or more policy templates.

#### 4. Deploy code

**Code source** [Info](#)

Upload from ▼

File Edit Find View Go Tools Window **Test** Deploy

Go to Anything (Ctrl-P)

Environment

- RegressionLambda
  - lambda\_function.py

```

1 import json
2 import urllib.parse
3 import boto3
4 import csv
5 from io import StringIO
6
7 s3 = boto3.client('s3')
8
9 def calculate_regression_coefficient(x, y):
10     n = len(x)
11     if n != len(y) or n == 0:
12         raise ValueError("x and y must have the same non-zero length")
13
14     sum_x = sum(x)
15     sum_y = sum(y)
16     sum_xy = sum(xi * yi for xi, yi in zip(x, y))
17     sum_x_squared = sum(xi * xi for xi in x)
18
19     # Calculate the slope (regression coefficient)
20     slope = (n * sum_xy - sum_x * sum_y) / (n * sum_x_squared - sum_x * sum_x)
21     return slope
22
23 def lambda_handler(event, context):
24     # Get the object from the event
25     bucket = event['Records'][0]['s3']['bucket']['name']
  
```

#### 5. Trigger addition

Services

Search

[Alt+S]

Trigger configuration

Info

S3

aws asynchronous storage

Bucket

Choose or enter the ARN of an S3 bucket that serves as the event source. The bucket must be in the same region as the function.

Q s3/prc-cw-anomaly-detection-lab-07092024

X

↺

Bucket region: us-east-1

Event types

Select the events that you want to have trigger the Lambda function. You can optionally set up a prefix or suffix for an event. However, for each bucket, individual events cannot have multiple configurations with overlapping prefixes or suffixes that could match the same object key.

All object create events X

Prefix - optional

Enter a single optional prefix to limit the notifications to objects with keys that start with matching characters. Any [special characters](#) must be URL encoded.

e.g. images/

Suffix - optional

Enter a single optional suffix to limit the notifications to objects with keys that end with matching characters. Any [special characters](#) must be URL encoded.

e.g. .ina

## 6. Event notification added in S3 bucket

Configure in CloudTrail

Event notifications (1)

Edit Delete Create event notification

Send a notification when specific events occur in your bucket. [Learn more](#)

<input type="checkbox"/>	Name	Event types	Filters	Destination type	Destination
<input type="checkbox"/>	089ac1f6-c603-45ad-abbb-157afc3bbc8d	All object create events	-	Lambda function	<a href="#">RegressionLambdaFunction</a>

Amazon EventBridge

Edit

## 7. Resource based policy added in lambda function

## Resource-based policy document



```
1 {  
2   "Version": "2012-10-17",  
3   "Id": "default",  
4   "Statement": [  
5     {  
6       "Sid": "lambda-ed97d6bd-3892-4ef0-9b06-b449ab3619fb",  
7       "Effect": "Allow",  
8       "Principal": {  
9         "Service": "s3.amazonaws.com"  
10      },  
11      "Action": "lambda:InvokeFunction",  
12      "Resource": "arn:aws:lambda:us-east-1:820242904343:function:RegressionLambdaFunction",  
13      "Condition": {  
14        "StringEquals": {  
15          "AWS:SourceAccount": "820242904343"  
16        },  
17        "ArnLike": {  
18          "AWS:SourceArn": "arn:aws:s3:::prc-cw-anomaly-detection-lab-07092024"  
19        }  
20      }  
21    }  
22  ]  
23 }
```

1:1 JSON Spaces: 2

Close

- Upload a text file for processing which has two columns

Upload succeeded  
View details below.

The information below will no longer be available after you navigate away from this page.

### Summary

Destination s3://prc-cw-anomaly-detection-lab-07092024	Succeeded 5 files, 215.0 B (100.00%)	Failed 0 files, 0 B (0%)
---	---	-----------------------------

Files and folders

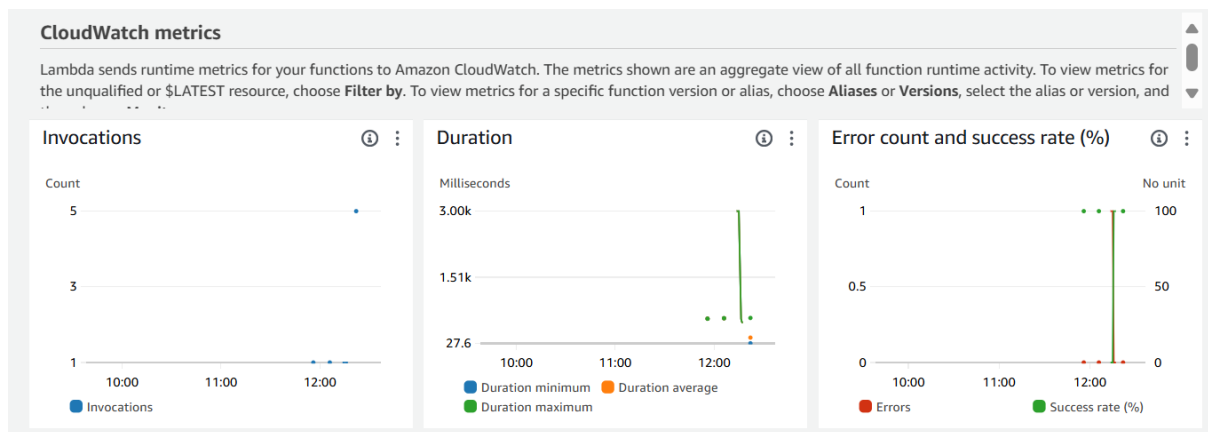
Configuration

### Files and folders (5 Total, 215.0 B)

Find by name

Name	Folder	Type	Size	Status	Error
<a href="#">TestFile2.txt</a>	-	text/plain	60.0 B	Succeeded	-
<a href="#">TestFile3.txt</a>	-	text/plain	63.0 B	Succeeded	-

- Lambda is executed after processing the data



## 10. The CloudWatch Loggroup prints the logs

2024-09-07T12:22:49.445Z	CONTENT TYPE: text/plain
2024-09-07T12:22:49.445Z	Number of data points: 5
2024-09-07T12:22:49.445Z	Regression Coefficient: 100.0
2024-09-07T12:22:49.465Z	END RequestId: 90321564-abcb-443d-9104-103fdf9e9397
2024-09-07T12:22:49.465Z	REPORT RequestId: 90321564-abcb-443d-9104-103fdf9e9397 Duration: 40.42 ms Billed Duration: 41 ms Memory Size: 128 MB Max Memory U...
2024-09-07T12:22:50.397Z	START RequestId: fa4b41f4-ba03-4f56-b3a3-1594383c6c1e Version: \$LATEST
2024-09-07T12:22:50.413Z	CONTENT TYPE: text/plain
2024-09-07T12:22:50.413Z	Number of data points: 3
2024-09-07T12:22:50.413Z	Regression Coefficient: 10.0
2024-09-07T12:22:50.425Z	END RequestId: fa4b41f4-ba03-4f56-b3a3-1594383c6c1e
2024-09-07T12:22:50.425Z	REPORT RequestId: fa4b41f4-ba03-4f56-b3a3-1594383c6c1e Duration: 27.50 ms Billed Duration: 28 ms Memory Size: 128 MB Max Memory U...
2024-09-07T12:22:51.204Z	START RequestId: cd448f35-ae42-4911-b181-bee6d1fa658b Version: \$LATEST
2024-09-07T12:22:51.225Z	CONTENT TYPE: text/plain
2024-09-07T12:22:51.225Z	Number of data points: 5
2024-09-07T12:22:51.225Z	Regression Coefficient: 10.0
2024-09-07T12:22:51.265Z	END RequestId: cd448f35-ae42-4911-b181-bee6d1fa658b
2024-09-07T12:22:51.265Z	REPORT RequestId: cd448f35-ae42-4911-b181-bee6d1fa658b Duration: 59.91 ms Billed Duration: 60 ms Memory Size: 128 MB Max Memory U...