

Experiment.12

Aim: To create a Lambda function which will log “An Image has been added” once you add an object to a specific bucket in S3

Theory:

AWS Lambda and S3 Integration: AWS Lambda allows you to execute code in response to various events, including those triggered by Amazon S3. When an object is added to an S3 bucket, it can trigger a Lambda function to execute, allowing for event-driven processing without managing servers.

Workflow:

1. Create an S3 Bucket:

- First, create an S3 bucket that will store the objects. This bucket will act as the trigger source for the Lambda function.

2. Create the Lambda Function:

- Set up a new Lambda function using AWS Lambda's console. You can choose a runtime environment like Python, Node.js, or Java.
- Write code that logs a message like “An Image has been added” when triggered.

3. Set Up Permissions:

- Ensure that the Lambda function has the necessary permissions to access S3. You can do this by attaching an IAM role with policies that allow reading from the bucket and writing logs to CloudWatch.

4. Configure S3 Trigger:

- Link the S3 bucket to the Lambda function by setting up a trigger. Specify that the function should be triggered when an object is created in the bucket (e.g., when an image is uploaded).

5. Test the Setup:

- Upload an object (e.g., an image) to the S3 bucket to test the trigger. The Lambda function should execute and log the message “An Image has been added” in AWS CloudWatch Logs.

Amazon S3 > Buckets > Create bucket

Create bucket

Info

Buckets are containers for data stored in S3.

General configuration

AWS Region

Europe (Stockholm) eu-north-1

Bucket type

Info

General purpose

Recommended for most use cases and access patterns. General purpose buckets are the original S3 bucket type. They allow a mix of storage classes that redundantly store objects across multiple Availability Zones.

Directory

Recommended for low-latency use cases. These buckets use only the S3 Express One Zone storage class, which provides faster processing of data within a single Availability Zone.

Bucket name

Info

shreyalambdabucket

Bucket name must be unique within the global namespace and follow the bucket naming rules. [See rules for bucket naming](#)

Copy settings from existing bucket - optional

Only the bucket settings in the following configuration are copied.

Choose bucket

Format: s3://bucket/prefix

Successfully created bucket "shreyalambdabucket"

View details

To upload files and folders, or to configure additional bucket settings, choose [View details](#).

Amazon S3 > Buckets

Account snapshot - updated every 24 hours

All AWS Regions

View Storage Lens dashboard

General purpose buckets

Directory buckets

General purpose buckets (2)

Info

All AWS Regions

Copy ARN

Empty

Delete

Create bucket

Buckets are containers for data stored in S3.

Find buckets by name

< 1 > ⚙

Name	AWS Region	IAM Access Analyzer	Creation date
<div><div></div>shreyanewbucket</div>	Europe (Stockholm) eu-north-1	View analyzer for eu-north-1	October 11, 2024, 01:51:24 (UTC+05:30)
<div><div></div>shreyalambdabucket</div>	Europe (Stockholm) eu-north-1	View analyzer for eu-north-1	October 11, 2024, 10:11:49 (UTC+05:30)

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.

☐ **Browse serverless**

app repository
Deploy a sample
Lambda application
from the AWS
Serverless Application
Repository.

Basic information

Function name

Enter a name that describes the purpose of your function.

shreyaimageloader

Function name must be 1 to 64 characters, must be unique to the Region, and can't include spaces. Valid characters are a-z, A-Z, 0-9, hyphens (-), and underscores (_).

Runtime [Info](#)

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

Node.js 20.x

Architecture [Info](#)

Choose the instruction set architecture you want for your function code.

☒ x86_64

✔ Successfully created the function **shreyaimageloader**. You can now change its code and configuration. To invoke your function with a test event, choose "Test".

[Lambda](#) > [Functions](#) > shreyaimageloader

shreyaimageloader

Throttle

Copy ARN

Actions ▼

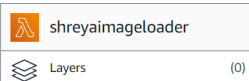
▼ Function overview [Info](#)

Export to Application Composer

Download ▼

Diagram

Template



+ Add trigger

+ Add destination

Description

-

Last modified

3 seconds ago

Function ARN

arn:aws:lambda:eu-north-1:022499029436:function:shreya
imageloader

Function URL [Info](#)

-

Shreya Sawant
D15A 54

Code source Info

File Edit Find View Go Tools Window Test Deploy Changes not deployed

Go to Anything (Ctrl-P)

Environment

shreyaimageloader

lambda_function.py

```
1 import json
2
3 def lambda_handler(event, context):
4     # TODO implement
5     bucket_name = event['Records'][0]['s3']['bucket']['name']
6     object_key = event['Records'][0]['s3']['object']['key']
7
8     print(f"An Image has been added to the bucket{bucket_name}:{object_key}")
9     return {
10         'statusCode': 200,
11         'body': json.dumps('Log entry created successfully!!!')
12     }
13
```

Code source Info

Upload from

File Edit Find View Go Tools Window Test Deploy

Go to Anything (Ctrl-P)

Environment

lambdashreya

lambda_function.py

Execution results

Status: Succeeded | Max memory used: 32 MB | Time: 1.95 ms

Test Event Name

mytestEvent

Response

```
{
  "statusCode": 200,
  "body": "\"Hello from Lambda!\""
}
```

Function Logs


START RequestId: f3fe2ad5-1a48-41b9-9f65-69a1f59e14f1 Version: \$LATEST
END RequestId: f3fe2ad5-1a48-41b9-9f65-69a1f59e14f1
REPORT RequestId: f3fe2ad5-1a48-41b9-9f65-69a1f59e14f1 Duration: 1.95 ms Billed Duration: 2 ms Memory Size: 128 MB Max Memory Used: 32 MB Init Duration: 86.23 ms

Request ID

f3fe2ad5-1a48-41b9-9f65-69a1f59e14f1




Add trigger

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.


 s3/shreylambdabucket  

Bucket region: eu-north-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 

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](#)

shreyaimageloader

 The trigger shreylambdabucket was successfully added to function shreyaimageloader. The function is now receiving events from the trigger.

▼ Function overview [Info](#)

Diagram

Template



shreyaimageloader



Layers

(0)



S3

+ Add trigger

+ Add destination

Code

Test

Monitor

Configuration

Aliases

Versions

General configuration

Triggers

Permissions

Destinations

Function URL

Environment variables

Triggers (1) Info

Find triggers

Trigger

S3: shreyalambdabucket

arn:aws:s3:::shreyalambdabucket

Details

Lambda obtained this information from the following policy statements:

Managed policy AWSLambdaBasicExecutionRole-2a997d27-fe2-4464-af52-21cef352fb79, statement 0

Managed policy AWSLambdaBasicExecutionRole-2a997d27-fe2-4464-af52-21cef352fb79, statement 1

Resource-based policy statements (1) Info

View policy

Edit

Delete

Add permissions

Find policy statements

Statement ID	Principal	PrincipalOrgID	Conditions	Action
lambda-ed3d83df-7015-...	s3.amazonaws.com	-	StringEquals, ArnLike	lambda:InvokeFunction

Upload

Info

Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API. [Learn more](#)

Drag and drop files and folders you want to upload here, or choose **Add files** or **Add folder**.

Files and folders (1 Total, 245.9 KB)

Remove

Add files

Add folder

All files and folders in this table will be uploaded.

Find by name

< 1 >

<input type="checkbox"/>	Name	Folder	Type
<input type="checkbox"/>	Screenshot 2024-10-07 011458.png	-	image/png

Destination

Info

Destination

[s3://shreyalambdabucket](#)

► Destination details

Bucket settings that impact new objects stored in the specified destination.

Upload succeeded

View details below.

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

Summary

Destination

[s3://shreyalambdabucket](#)

Succeeded

1 file, 245.9 KB (100.00%)

Failed

0 files, 0 B (0%)

Files and folders

Configuration

Files and folders (1 Total, 245.9 KB)

Find by name

Name	Folder	Type	Size	Status	Error
Screenshot 2...	-	image/png	245.9 KB	<div>Succeeded</div>	-

CloudWatch > Log groups > /aws/lambda/shreyaimageloader > 2024/10/11/[\$LATEST]042cb9b30fc94174915437c333a1570c

Log events

Actions ▼

Start tailing

Create metric filter

You can use the filter bar below to search for and match terms, phrases, or values in your log events. [Learn more about filter patterns](#)

Filter events - press enter to search

Clear

1m

30m

1h

12h

Custom

UTC timezone ▼

Display ▼

▶

Timestamp

▶

Message

No older events at this moment. [Retry](#)

▶

2024-10-11T06:29:39.155Z

INIT_START Runtime Version: python:3.11.v44 Runtime Version ARN: arn:aws:lambda:eu-north-1::runtime:b1c790bce6ec3c3a14a715f5...

▶

2024-10-11T06:29:39.227Z

START RequestId: fd858512-ddbe-47bd-9293-f148edd82f4f Version: \$LATEST

▶

2024-10-11T06:29:39.228Z

An Image has been added to the bucket shreyasawantbucket:Screenshot+2024-08-03+092854.png

▶

2024-10-11T06:29:39.229Z

END RequestId: fd858512-ddbe-47bd-9293-f148edd82f4f

▶

2024-10-11T06:29:39.229Z

REPORT RequestId: fd858512-ddbe-47bd-9293-f148edd82f4f Duration: 1.90 ms Billed Duration: 2 ms Memory Size: 128 MB Max Memor...

No newer events at this moment. Auto retry paused. [Resume](#)