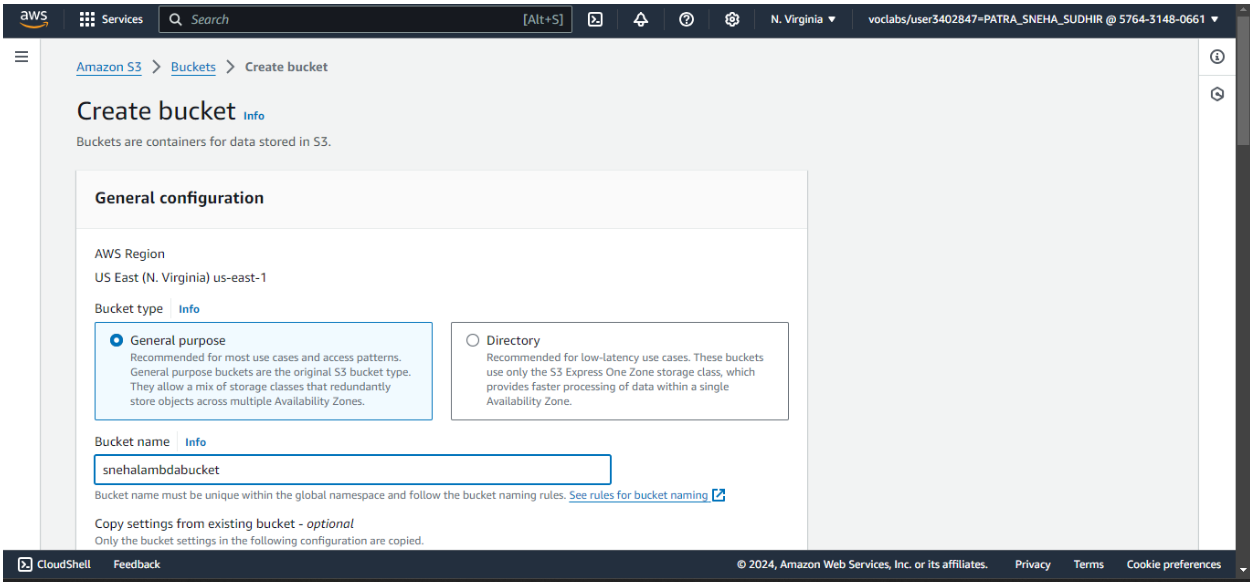
SNEHA PATRA **D15A** **41**

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.

Step 1: First, create an S3 bucket that will store the objects. This bucket will act as the trigger source for the Lambda function.


aws
Services
Search
[Alt+S]
N. Virginia
voclabs/user3402847=PATRA_SNEHA_SUDHIR @ 5764-3148-0661
Amazon S3 > Buckets > Create bucket
CloudShell
Feedback
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Create bucket Info

Buckets are containers for data stored in S3.

General configuration

AWS Region
US East (N. Virginia) us-east-1

Bucket type Info

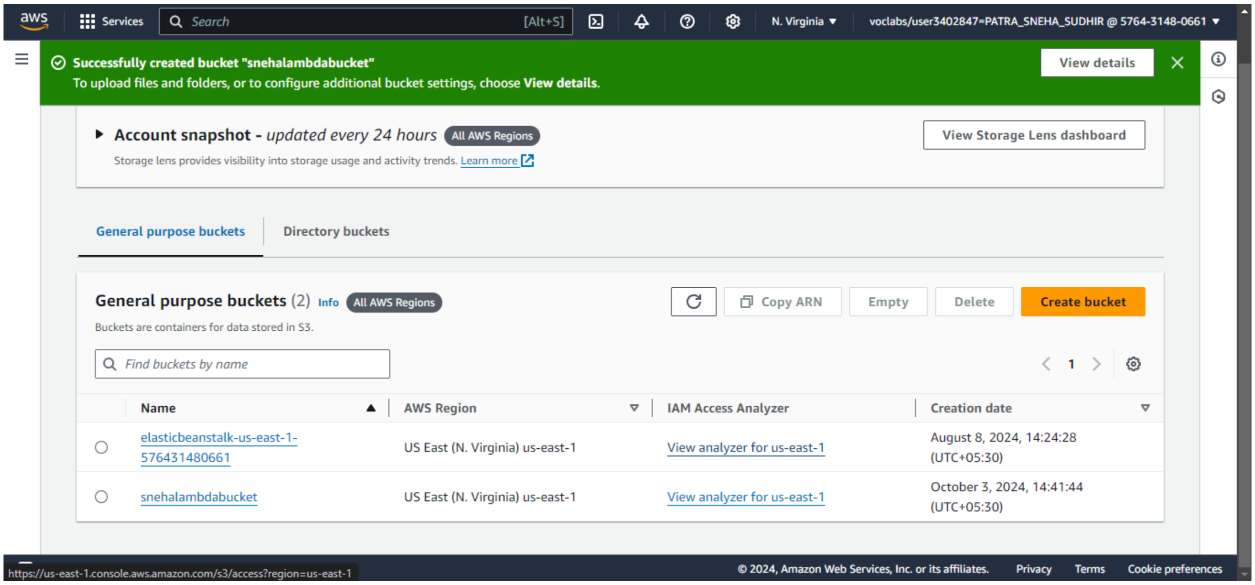
● General purpose
Recommended for most use cases and access patterns. General purpose buckets are the original S3 bucket type. They allow a mix of storage classes that redundantly store objects across multiple Availability Zones.

○ 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
snehalambdabucket

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.


aws
Services
Search
[Alt+S]
N. Virginia
voclabs/user3402847=PATRA_SNEHA_SUDHIR @ 5764-3148-0661
View details
View Storage Lens dashboard
General purpose buckets
Directory buckets
Copy ARN
Empty
Delete
Create bucket
Find buckets by name
https://us-east-1.console.aws.amazon.com/s3/access?region=us-east-1
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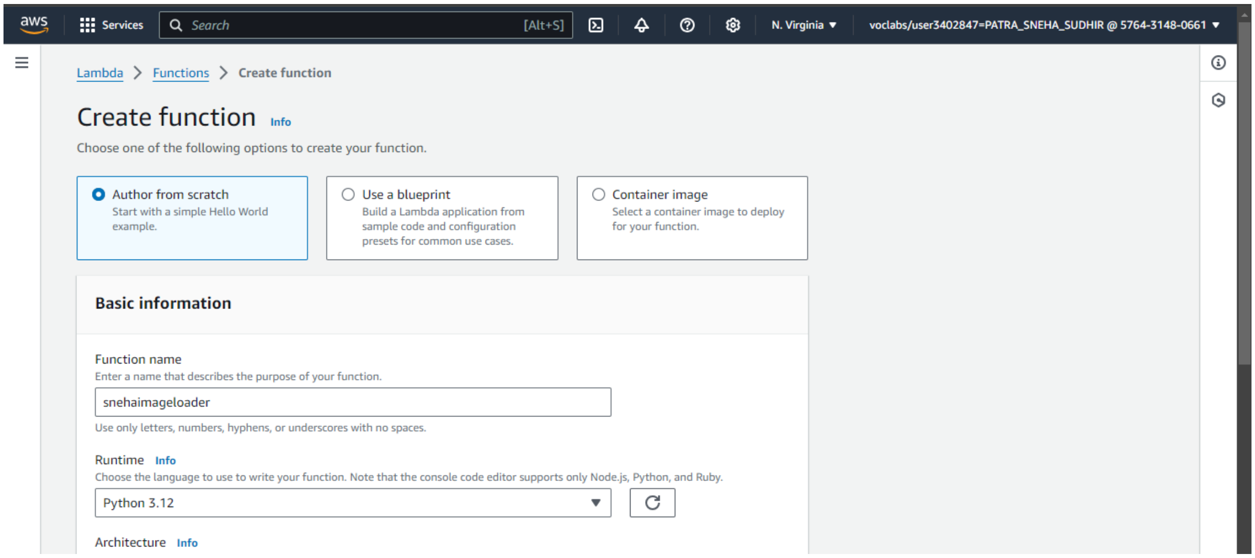
Successfully created bucket "snehalambdabucket"
To upload files and folders, or to configure additional bucket settings, choose **View details.**

Account snapshot - *updated every 24 hours* All AWS Regions
Storage lens provides visibility into storage usage and activity trends. Learn more

General purpose buckets (2) Info All AWS Regions
Buckets are containers for data stored in S3.

	Name	AWS Region	IAM Access Analyzer	Creation date
○	elasticbeanstalk-us-east-1-576431480661	US East (N. Virginia) us-east-1	View analyzer for us-east-1	August 8, 2024, 14:24:28 (UTC+05:30)
○	snehalambdabucket	US East (N. Virginia) us-east-1	View analyzer for us-east-1	October 3, 2024, 14:41:44 (UTC+05:30)

Step 2: Set up a new Lambda function using AWS Lambda's console. You can choose a runtime environment like Python, Node.js, or Java. I have selected python environment.



Lambda > Functions > Create function

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.

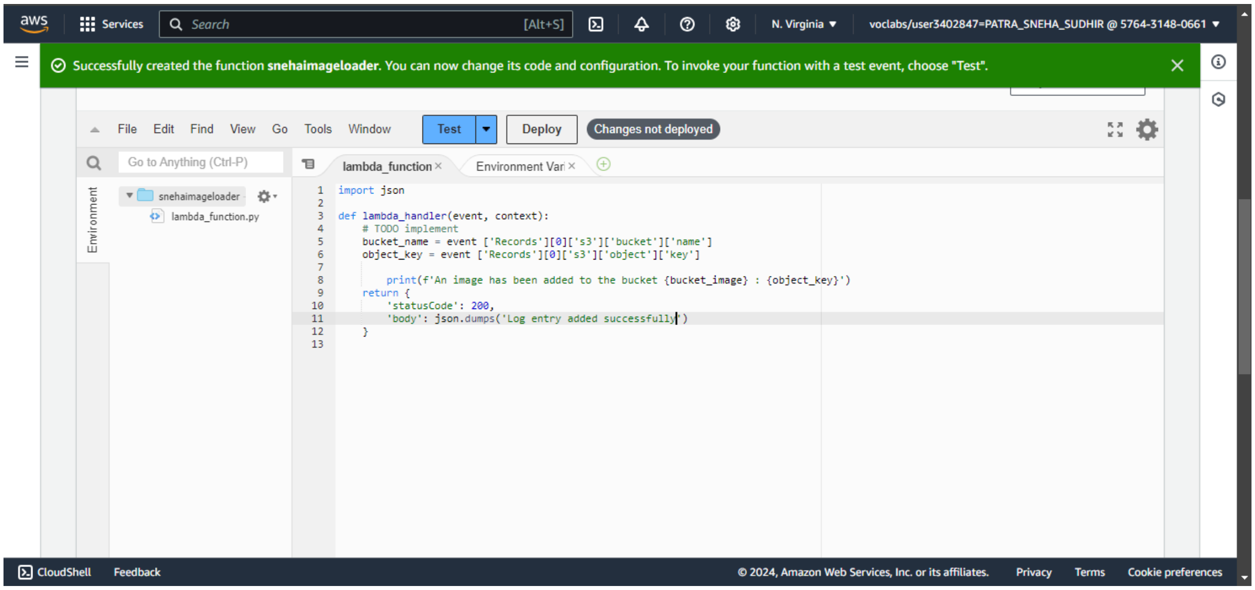
○ Container image
Select a container image to deploy for your function.

Basic information

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

Architecture Info



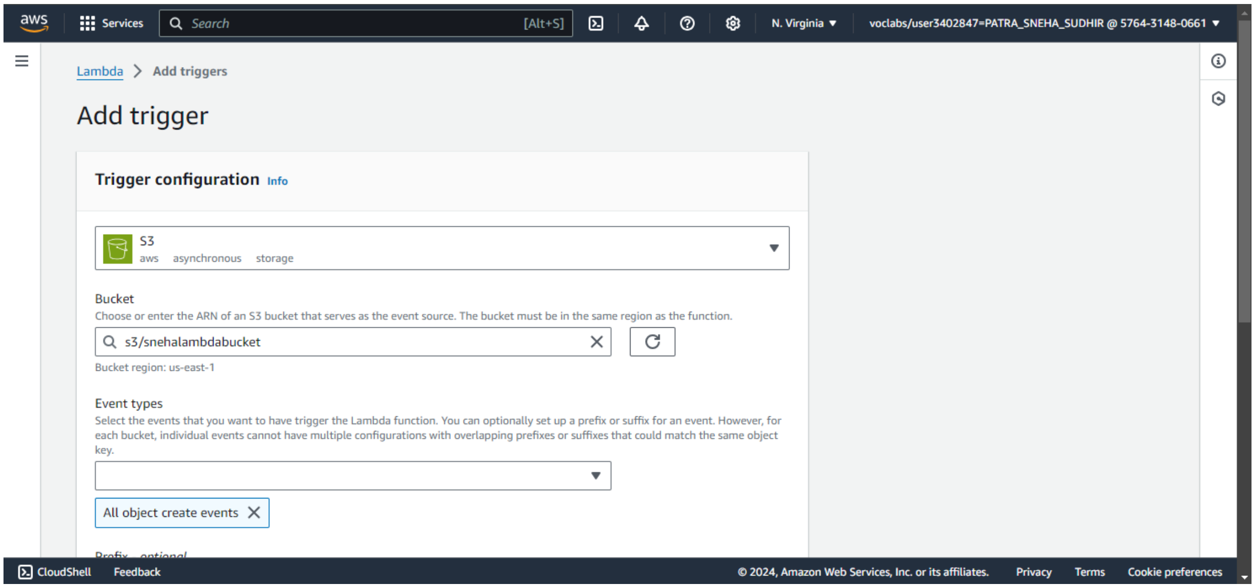
Successfully created the function **snehaimageloader**. You can now change its code and configuration. To invoke your function with a test event, choose "Test".

```
import json

def lambda_handler(event, context):
    # TODO implement
    bucket_name = event ['Records'][0]['s3']['bucket']['name']
    object_key = event ['Records'][0]['s3']['object']['key']

        print(f'An image has been added to the bucket {bucket_image} : {object_key}')
    return {
        'statusCode': 200,
        'body': json.dumps('Log entry added successfully')
    }
```

Step 3:Link the S3 bucket to the Lambda function by setting up a trigger.


aws
Services
Search [Alt+S]
N. Virginia
voclabs/user3402847=PATRA_SNEHA_SUDHIR @ 5764-3148-0661
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Lambda > Add triggers

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.

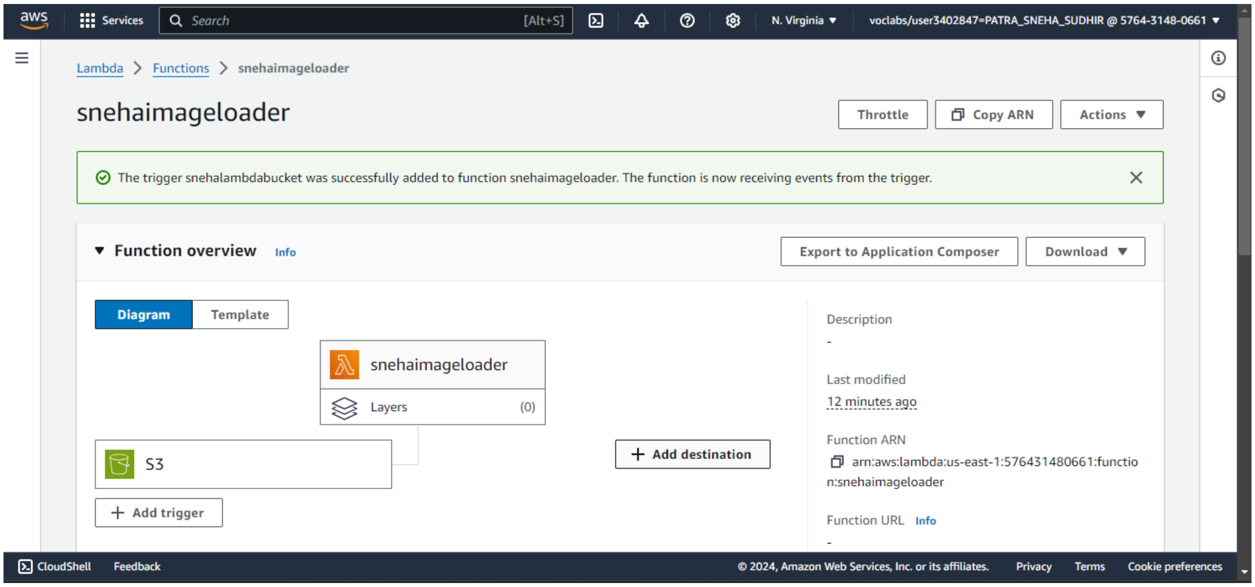
s3/snehalambdabucket

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

Prefix - optional



Lambda > Functions > snehaimageloader

snehaimageloader

The trigger snehalambdabucket was successfully added to function snehaimageloader. The function is now receiving events from the trigger.

Function overview Info

snehaimageloader

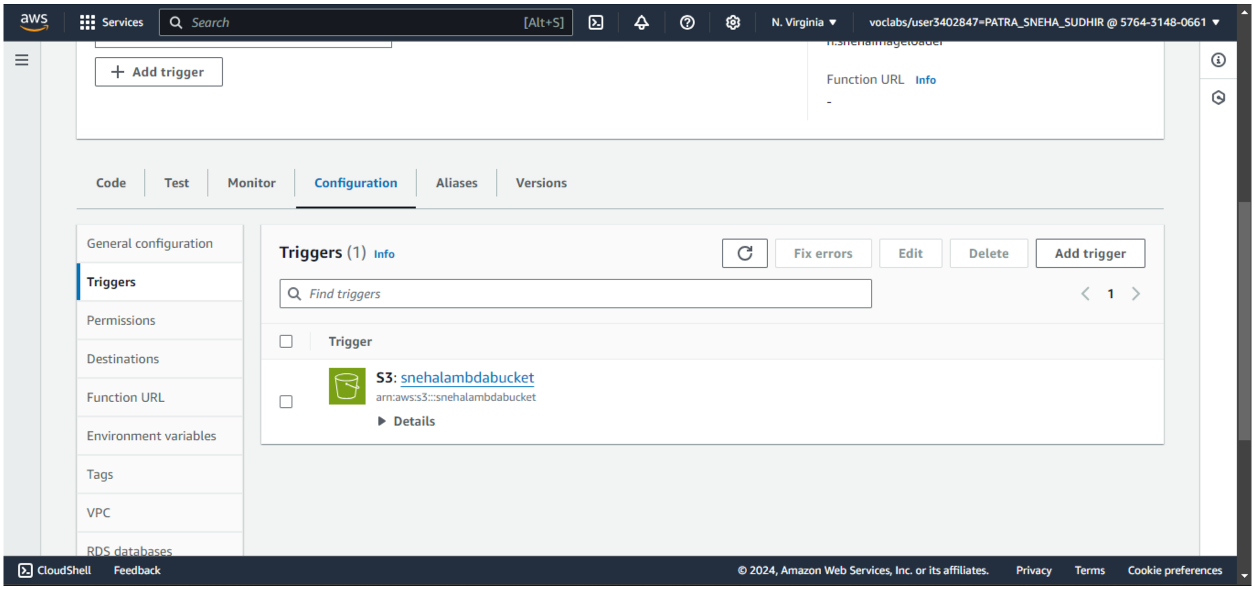
S3

Description
-

Last modified
12 minutes ago

Function ARN
arn:aws:lambda:us-east-1:576431480661:function:snehaimageloader

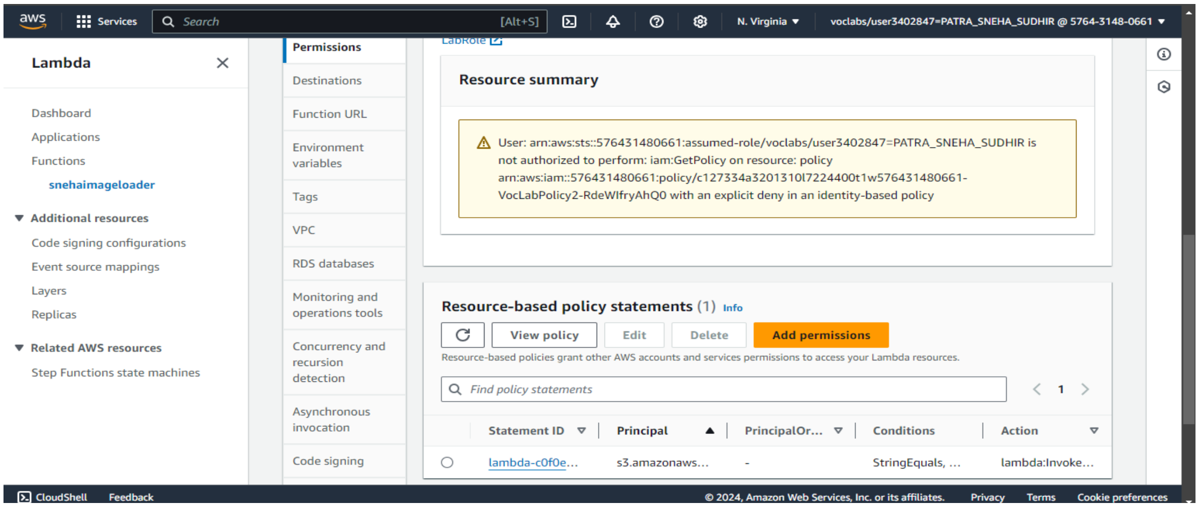
Function URL Info
-



Triggers (1) Info

□	Trigger
□	S3: snehalambdabucket arn:aws:s3:::snehalambdabucket ▶ Details

Step 4:Setup rthe required permissions.



Resource summary

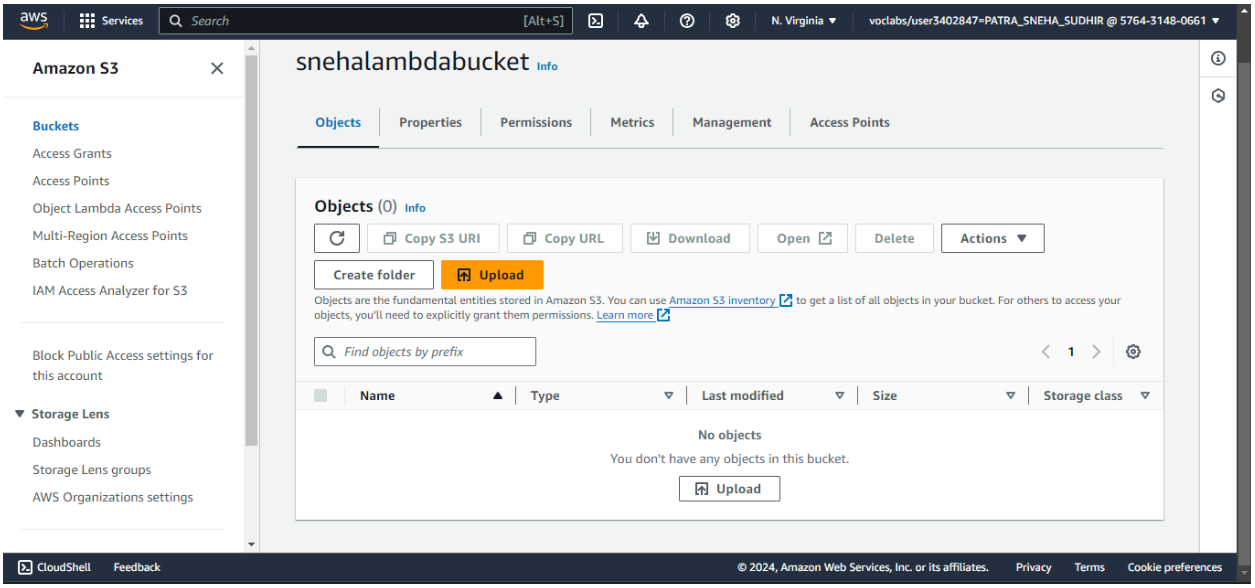
User: arn:aws:sts::576431480661:assumed-role/voclabs/user3402847=PATRA_SNEHA_SUDHIR is not authorized to perform: iam:GetPolicy on resource: policy arn:aws:iam::576431480661:policy/c127334a3201310l7224400t1w576431480661-VocLabPolicy2-RdeWIfryAhQ0 with an explicit deny in an identity-based policy

Resource-based policy statements (1) Info

Resource-based policies grant other AWS accounts and services permissions to access your Lambda resources.

	Statement ID	Principal	PrincipalOr…	Conditions	Action
○	lambda-c0f0e…	s3.amazonaws…	-	StringEquals, …	lambda:Invoke…

Step 5: 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.



Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more

No objects

You don't have any objects in this bucket.

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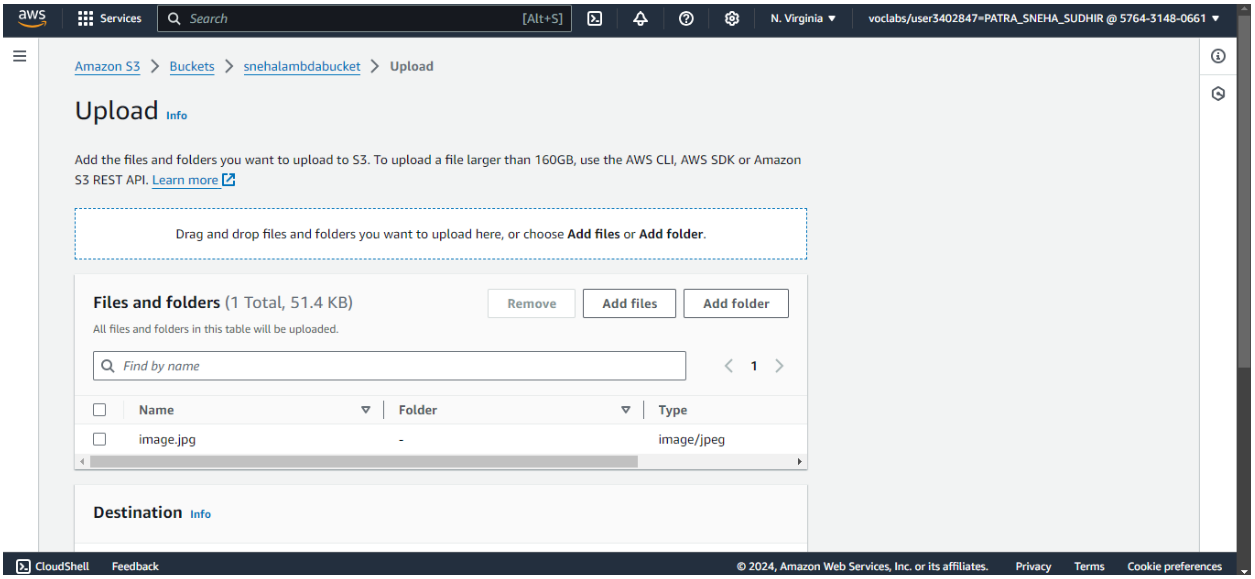

Add the files and folders you want to upload to S3. To upload a file larger than 160GB, use the AWS CLI, AWS SDK or Amazon S3 REST API. Learn more

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

Files and folders (1 Total, 51.4 KB)

All files and folders in this table will be uploaded.

□	Name	Folder	Type
□	image.jpg	-	image/jpeg

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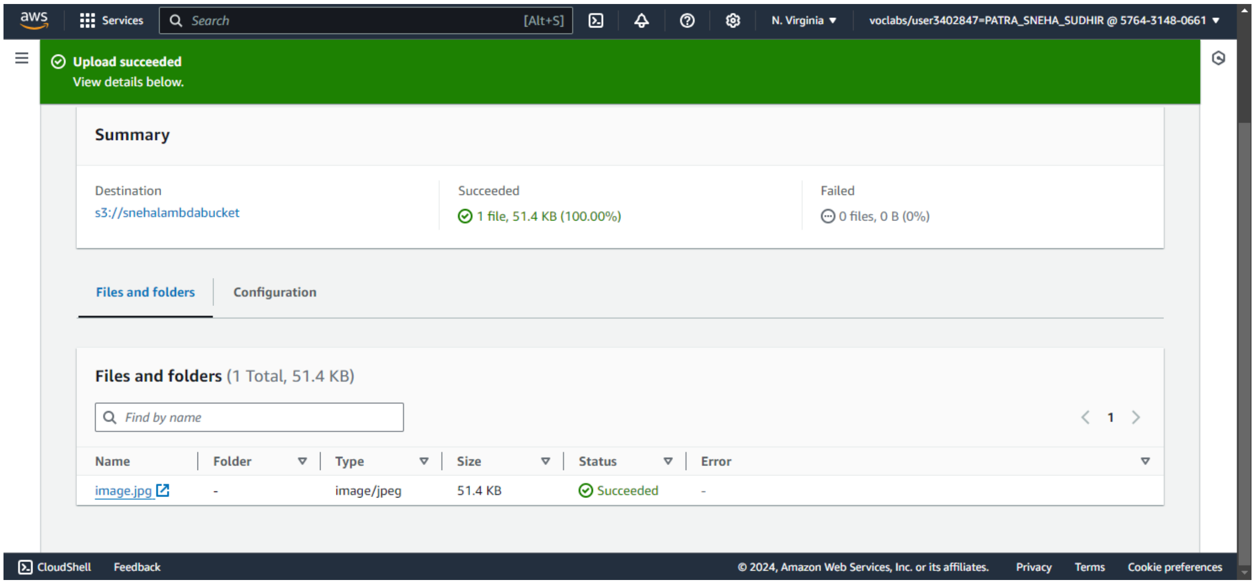


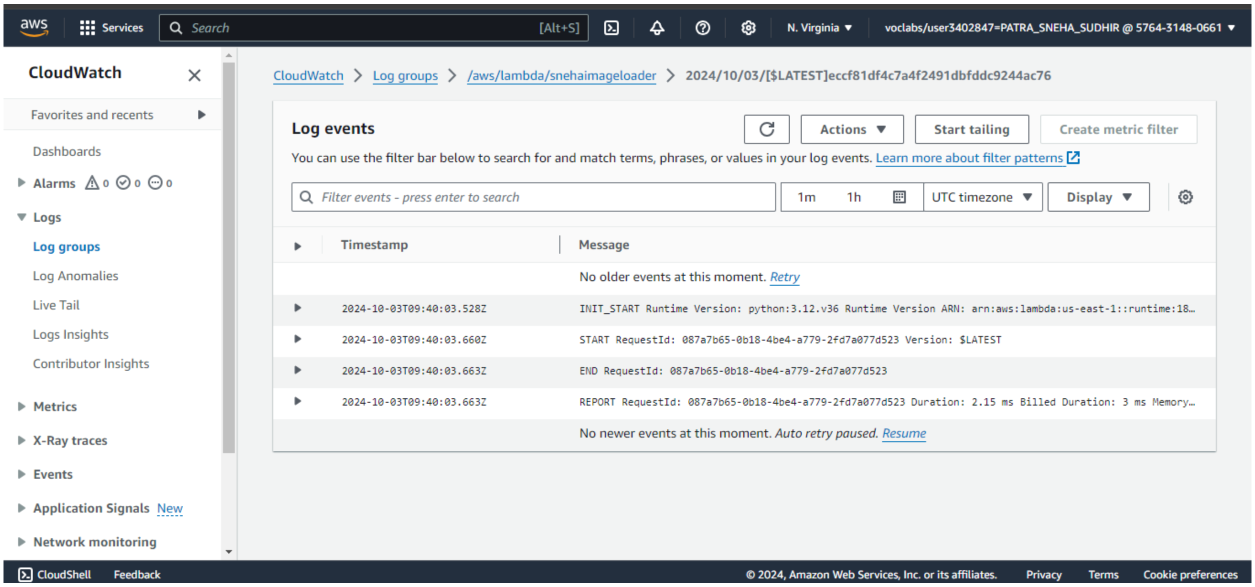
Upload succeeded
View details below.

Summary

Destination	Succeeded	Failed
s3://snehalambdabucket	1 file, 51.4 KB (100.00%)	0 files, 0 B (0%)

Files and folders (1 Total, 51.4 KB)

Name	Folder	Type	Size	Status	Error
image.jpg	-	image/jpeg	51.4 KB	Succeeded	-



CloudWatch > Log groups > /aws/lambda/snehaimageloader > 2024/10/03/[$LATEST]eccf81df4c7a4f2491dbfddc9244ac76

Log events

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

```
Timestamp                  Message
                           No older events at this moment. Retry
2024-10-03T09:40:03.528Z   INIT_START Runtime Version: python:3.12.v36 Runtime Version ARN: arn:aws:lambda:us-east-1::runtime:18…
2024-10-03T09:40:03.660Z   START RequestId: 087a7b65-0b18-4be4-a779-2fd7a077d523 Version: $LATEST
2024-10-03T09:40:03.663Z   END RequestId: 087a7b65-0b18-4be4-a779-2fd7a077d523
2024-10-03T09:40:03.663Z   REPORT RequestId: 087a7b65-0b18-4be4-a779-2fd7a077d523 Duration: 2.15 ms Billed Duration: 3 ms Memory…
                           No newer events at this moment. Auto retry paused. Resume
```

Conclusion:

Integrating AWS Lambda with S3 allows for real-time, automated processing of events such as file uploads. In this example, a Lambda function is configured to log a message whenever an image is added to a specific S3 bucket. This setup demonstrates the power and flexibility of serverless computing by automating tasks without requiring manual intervention or server management. By leveraging AWS Lambda, developers can efficiently handle event-driven workflows, reduce operational overhead, and quickly deploy scalable solutions that respond to specific actions within cloud environments.