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Roll No: 10

Div:D15B

Advance DevOps-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.

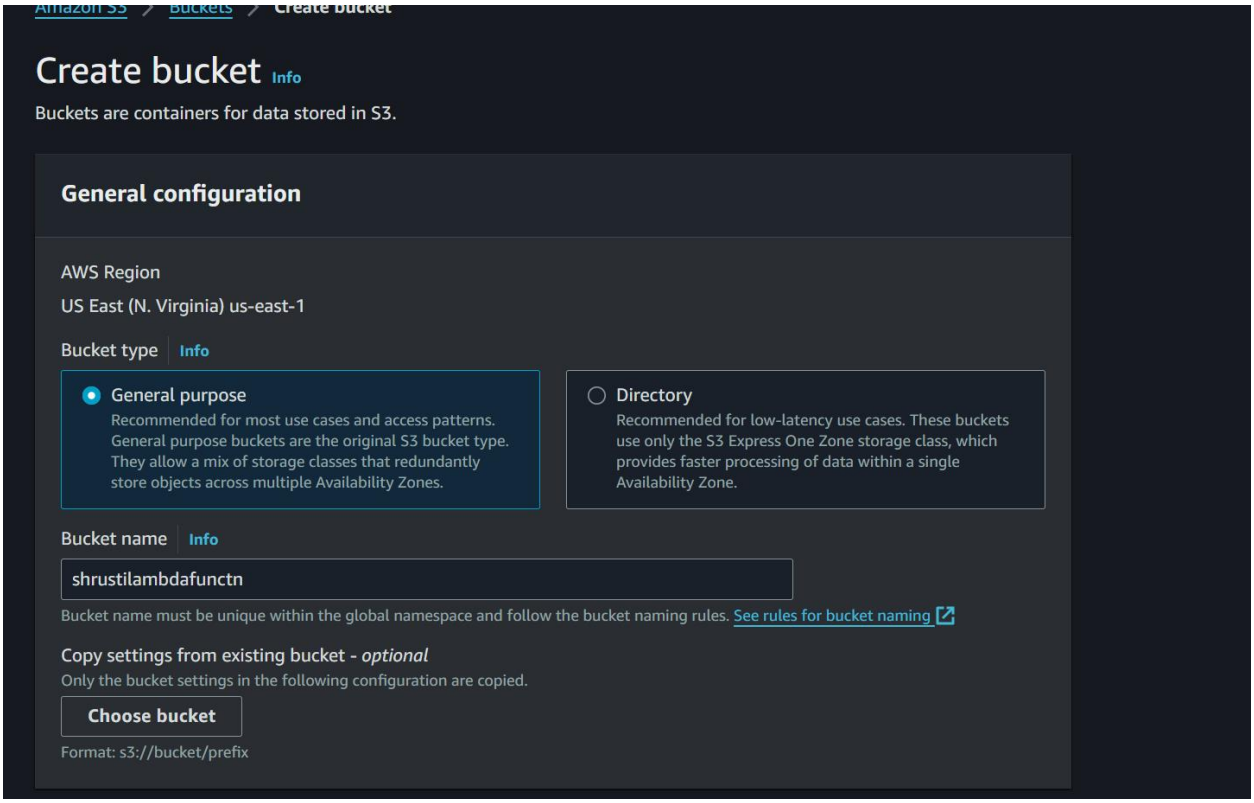
Workflow:

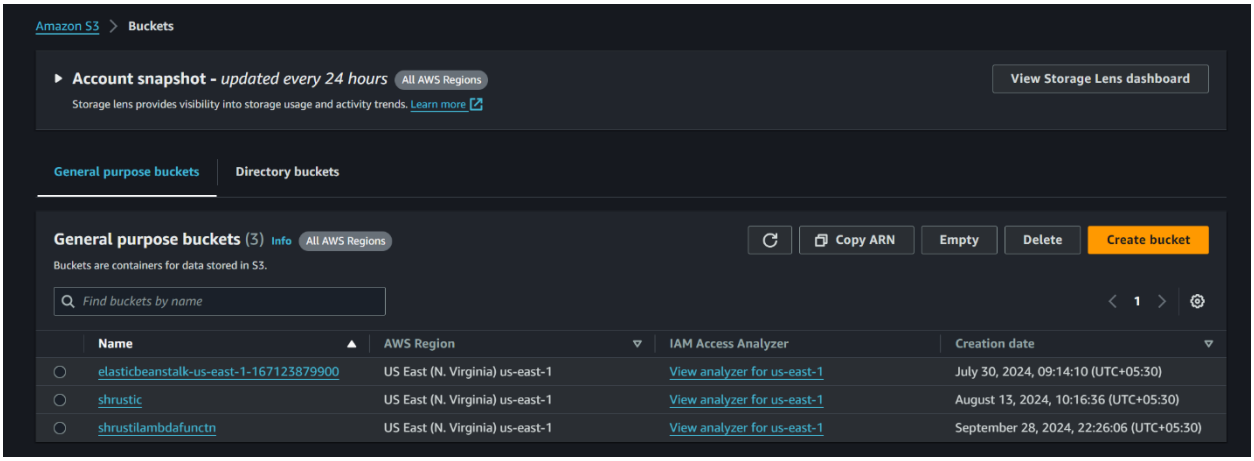
1. **Create an S3 Bucket:**
    - First, create an S3 bucket that will store the objects. This bucket will act as the trigger source for the Lambda function.
2. **Create the Lambda Function:**
    - Set up a new Lambda function using AWS Lambda's console. You can choose a runtime environment like Python, 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:**

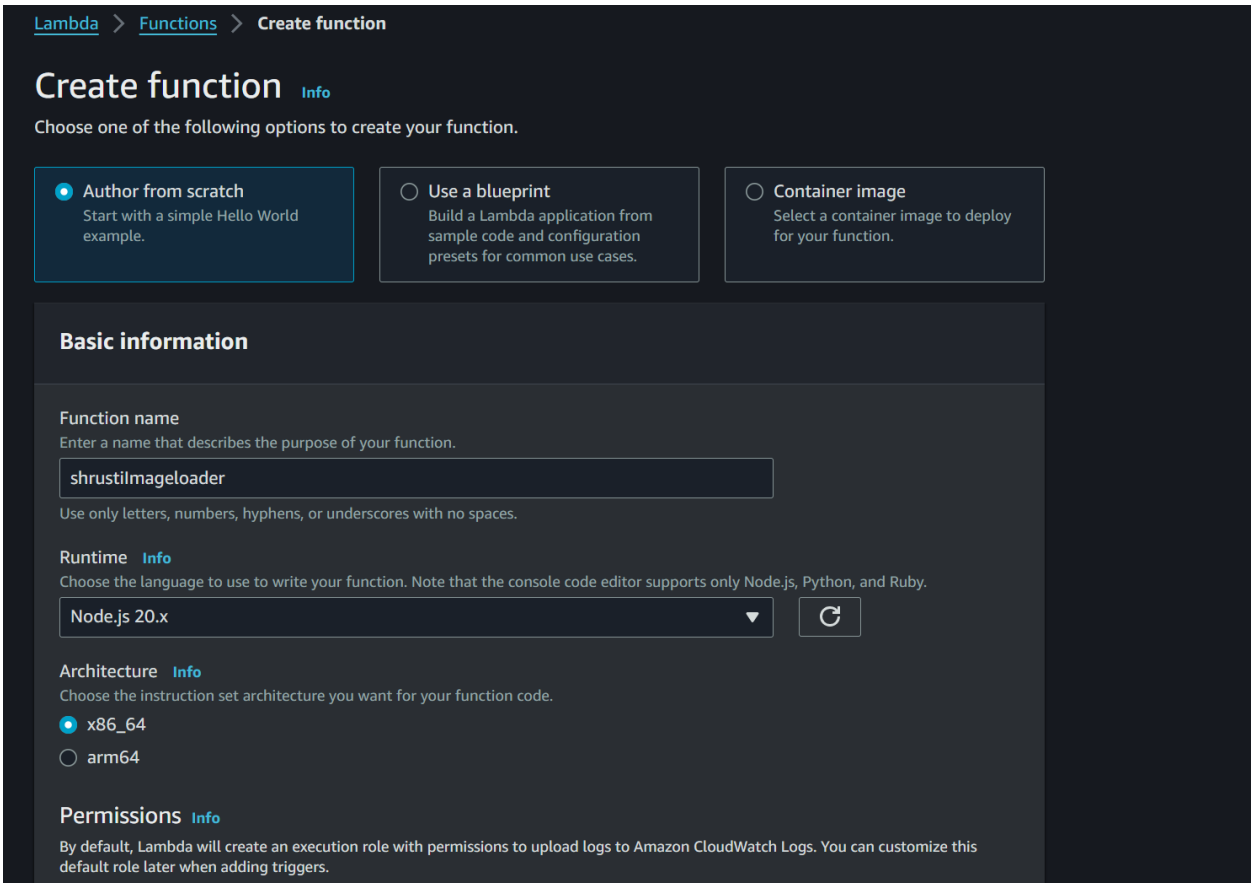
- Link the S3 bucket to the Lambda function by setting up a trigger. Specify that the function should be triggered when an object is created in the bucket (e.g., when an image is uploaded).

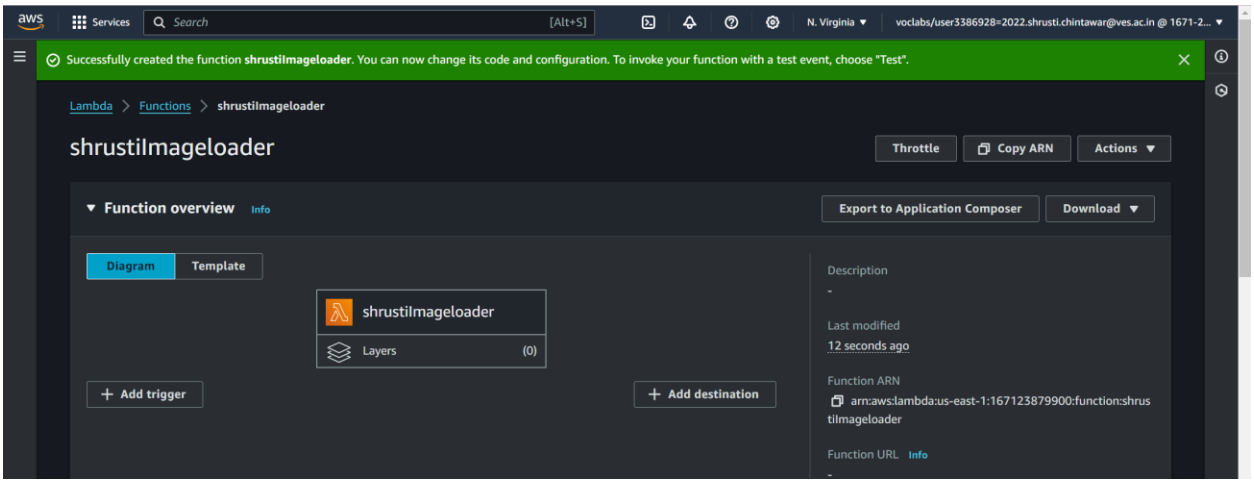
5. **Test the Setup:**

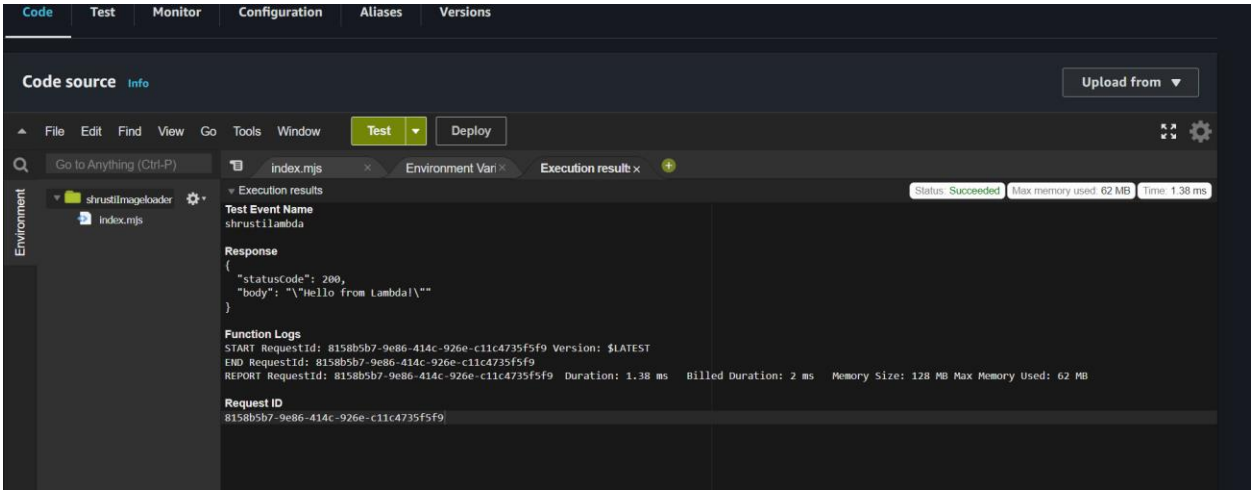
   - Upload an object (e.g., an image) to the S3 bucket to test the trigger. The Lambda function should execute and log the message “An Image has been added” in AWS CloudWatch Logs.

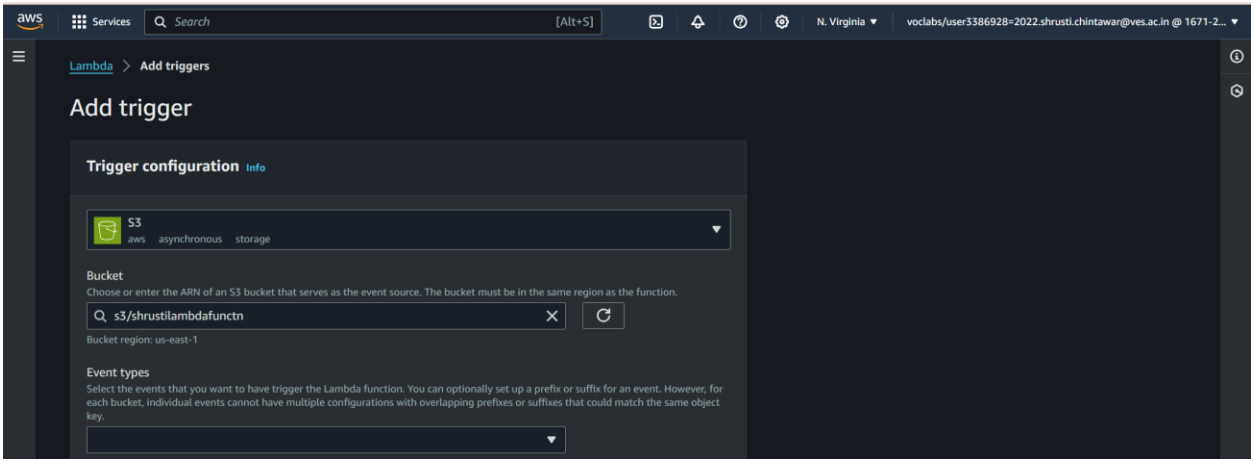


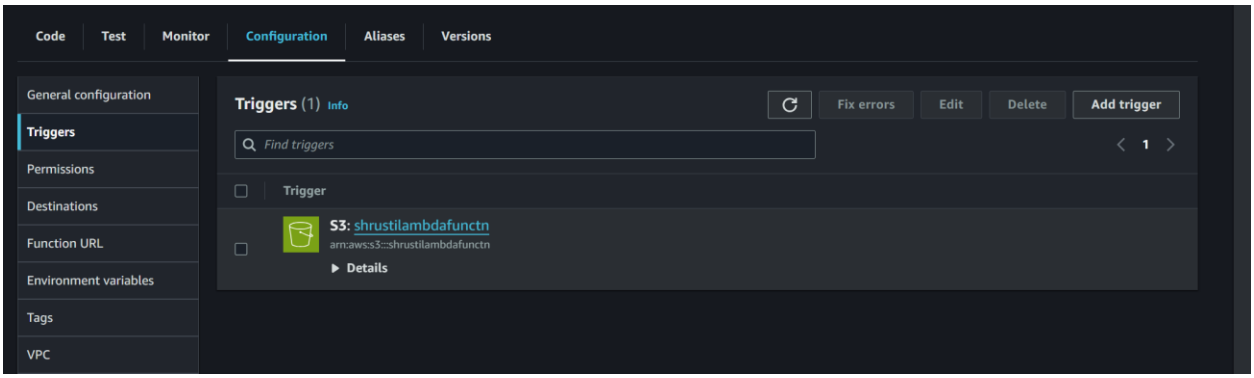

Amazon S3 > Buckets
Account snapshot - updated every 24 hours
All AWS Regions
Storage lens provides visibility into storage usage and activity trends. Learn more
View Storage Lens dashboard
General purpose buckets
Directory buckets
General purpose buckets (3) Info
All AWS Regions
Buckets are containers for data stored in S3.
Copy ARN
Empty
Delete
Create bucket
Find buckets by name
Name
AWS Region
IAM Access Analyzer
Creation date
elasticbeanstalk-us-east-1-167123879900
US East (N. Virginia) us-east-1
View analyzer for us-east-1
July 30, 2024, 09:14:10 (UTC+05:30)
shrustic
US East (N. Virginia) us-east-1
View analyzer for us-east-1
August 13, 2024, 10:16:36 (UTC+05:30)
shrustilambdafunctn
US East (N. Virginia) us-east-1
View analyzer for us-east-1
September 28, 2024, 22:26:06 (UTC+05:30)

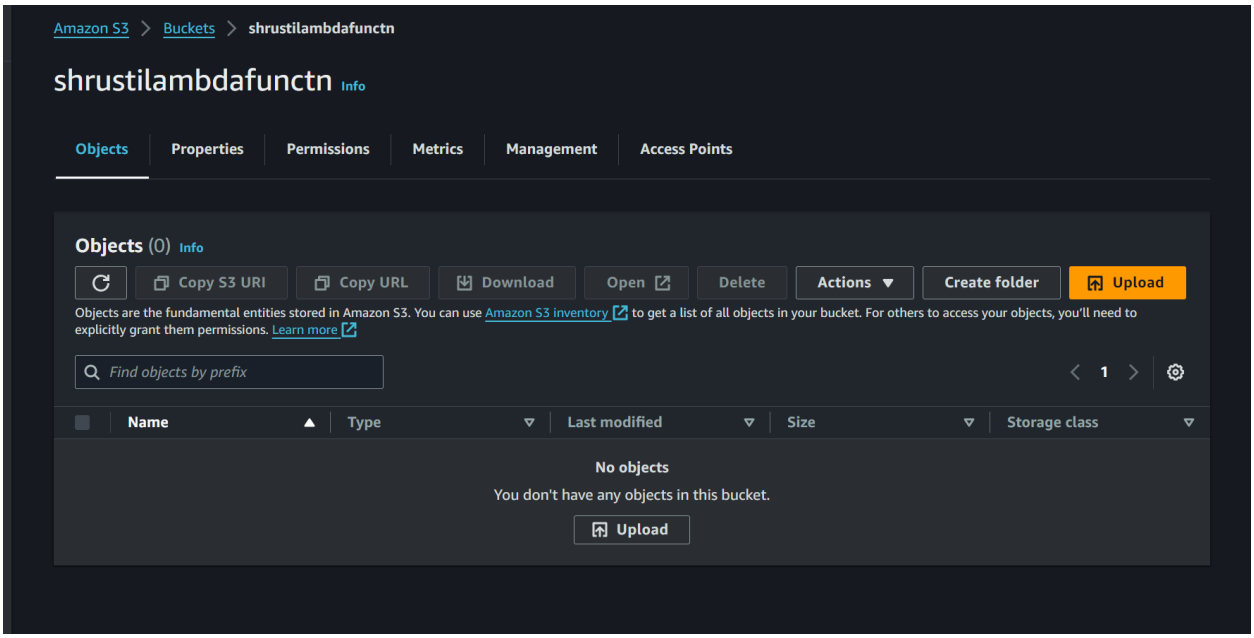

Lambda > Functions > Create function
Create function Info
Choose one of the following options to create your function.
Author from scratch
Start with a simple Hello World example.
Use a blueprint
Build a Lambda application from sample code and configuration presets for common use cases.
Container image
Select a container image to deploy for your function.
Basic information
Function name
Enter a name that describes the purpose of your function.
shrustiImageloader
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.
Node.js 20.x
Architecture Info
Choose the instruction set architecture you want for your function code.
x86_64
arm64
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.

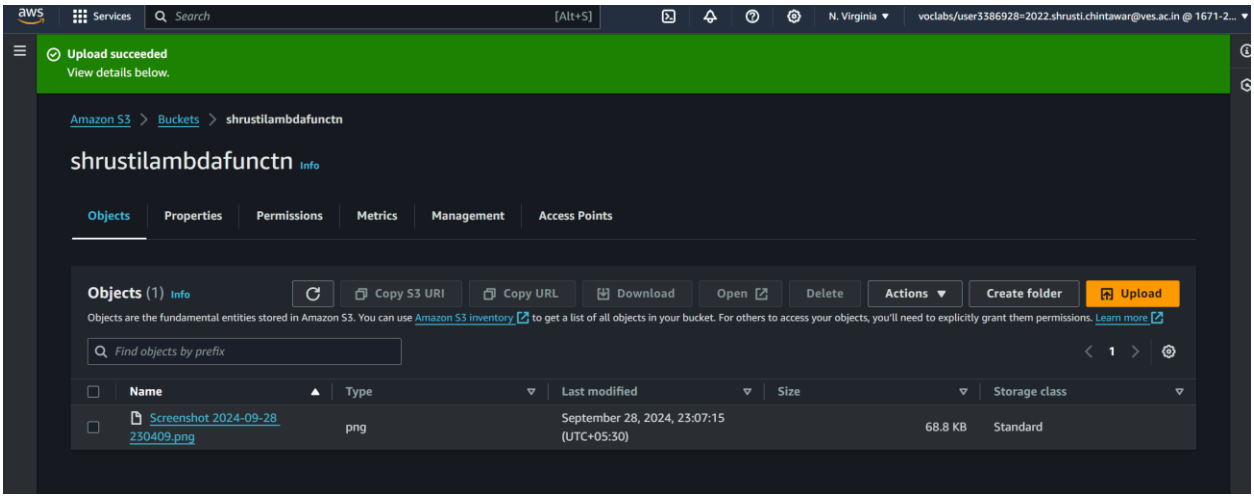

Services
Search
[Alt+S]
N. Virginia
Successfully created the function shrustilmageloader. You can now change its code and configuration. To invoke your function with a test event, choose "Test".
Lambda
Functions
shrustilmageloader
shrustilmageloader
Throttle
Copy ARN
Actions
Function overview
Info
Export to Application Composer
Download
Diagram
Template
shrustilmageloader
Layers
(0)
Add trigger
Add destination
Description
-
Last modified
12 seconds ago
Function ARN
arn:aws:lambda:us-east-1:167123879900:function:shrustilmageloader
Function URL
Info
-

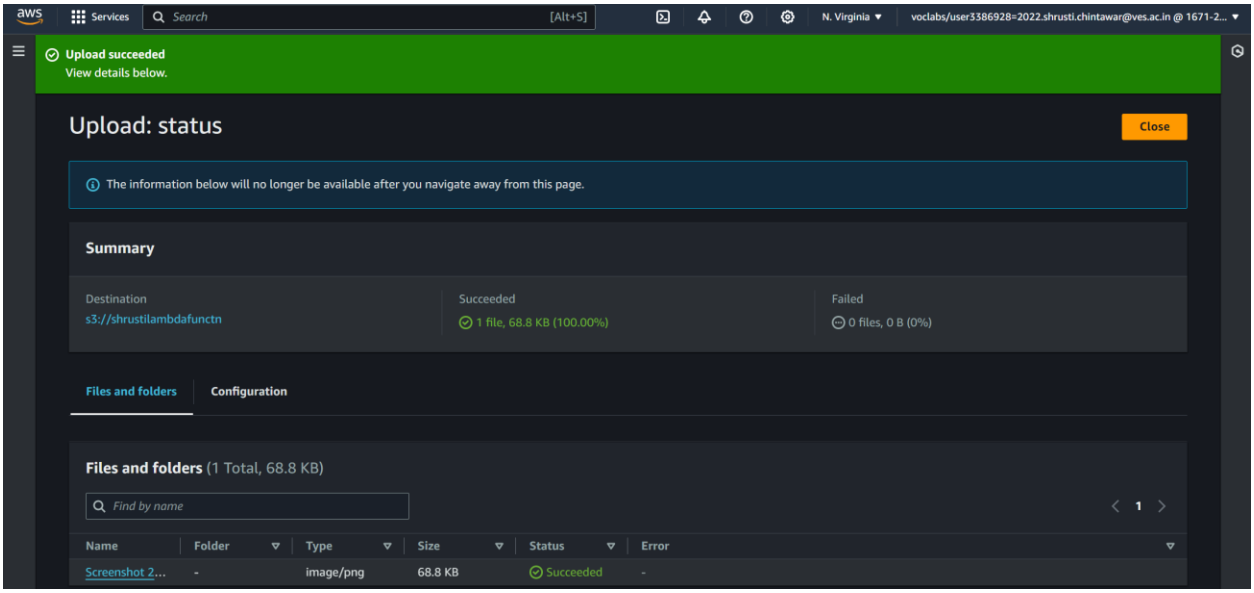

Code
Test
Monitor
Configuration
Aliases
Versions
Code source
Info
Upload from
File
Edit
Find
View
Go
Tools
Window
Test
Deploy
Go to Anything (Ctrl-P)
index.mjs
Environment Vari
Execution result
Environment
shrustilmageloader
index.mjs
Execution results
Status: Succeeded
Max memory used: 62 MB
Time: 1.38 ms
Test Event Name
shrustilambda
Response
{
"statusCode": 200,
"body": "\"Hello from Lambda!\""
}
Function Logs
START RequestId: 8158b5b7-9e86-414c-926e-c11c4735f5f9 Version: $LATEST
END RequestId: 8158b5b7-9e86-414c-926e-c11c4735f5f9
REPORT RequestId: 8158b5b7-9e86-414c-926e-c11c4735f5f9 Duration: 1.38 ms Billed Duration: 2 ms Memory Size: 128 MB Max Memory Used: 62 MB
Request ID
8158b5b7-9e86-414c-926e-c11c4735f5f9

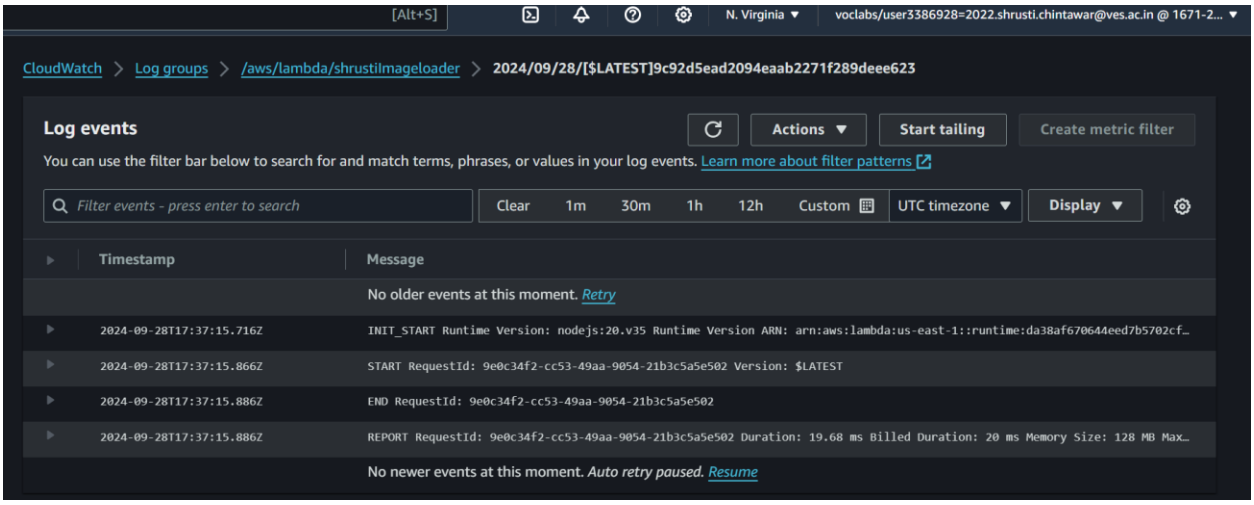

Services
Search
[Alt+S]
N. Virginia
Lambda
Add triggers
Add trigger
Trigger configuration Info
S3
aws asynchronous storage
Bucket
Choose or enter the ARN of an S3 bucket that serves as the event source. The bucket must be in the same region as the function.
s3/shrustilambdafunctn
Bucket region: us-east-1
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.


Code
Test
Monitor
Configuration
Aliases
Versions
General configuration
Triggers
Permissions
Destinations
Function URL
Environment variables
Tags
VPC
Triggers (1) Info
Fix errors
Edit
Delete
Add trigger
Find triggers
Trigger
S3: shrustilambdafunctn
arn:aws:s3:::shrustilambdafunctn
Details


Amazon S3
Buckets
shrustilambdafunctn
shrustilambdafunctn Info
Objects
Properties
Permissions
Metrics
Management
Access Points
Objects (0) Info
Copy S3 URI
Copy URL
Download
Open
Delete
Actions
Create folder
Upload
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
Find objects by prefix
Name
Type
Last modified
Size
Storage class
No objects
You don't have any objects in this bucket.
Upload


Upload succeeded
View details below.
Amazon S3 > Buckets > shrustilambdafunctn
shrustilambdafunctn Info
Objects
Properties
Permissions
Metrics
Management
Access Points
Objects (1) Info
Copy S3 URI
Copy URL
Download
Open
Delete
Actions
Create folder
Upload
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
Find objects by prefix
Name
Type
Last modified
Size
Storage class
Screenshot 2024-09-28 230409.png
png
September 28, 2024, 23:07:15 (UTC+05:30)
68.8 KB
Standard


Upload succeeded
View details below.
Upload: status
Close
The information below will no longer be available after you navigate away from this page.
Summary
Destination
s3://shrustilambdafunctn
Succeeded
1 file, 68.8 KB (100.00%)
Failed
0 files, 0 B (0%)
Files and folders
Configuration
Files and folders (1 Total, 68.8 KB)
Find by name
Name
Folder
Type
Size
Status
Error
Screenshot 2...
-
image/png
68.8 KB
Succeeded
-


CloudWatch > Log groups > /aws/lambda/shrustiImageloader > 2024/09/28/[$LATEST]9c92d5ead2094eaab2271f289deee623
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
2024-09-28T17:37:15.716Z
INIT_START Runtime Version: nodejs:20.v35 Runtime Version ARN: arn:aws:lambda:us-east-1::runtime:da38af670644eed7b5702cf...
2024-09-28T17:37:15.866Z
START RequestId: 9e0c34f2-cc53-49aa-9054-21b3c5a5e502 Version: $LATEST
2024-09-28T17:37:15.886Z
END RequestId: 9e0c34f2-cc53-49aa-9054-21b3c5a5e502
2024-09-28T17:37:15.886Z
REPORT RequestId: 9e0c34f2-cc53-49aa-9054-21b3c5a5e502 Duration: 19.68 ms Billed Duration: 20 ms Memory Size: 128 MB Max...
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.