

AWS Lambda Assignment

Naman Moolri

CEQ-525

- 1. Create lambda function that will trigger when an object is uploaded in S3 bucket. Create a new bucket and upload the same object (used for triggering) in new bucket using boto3.**

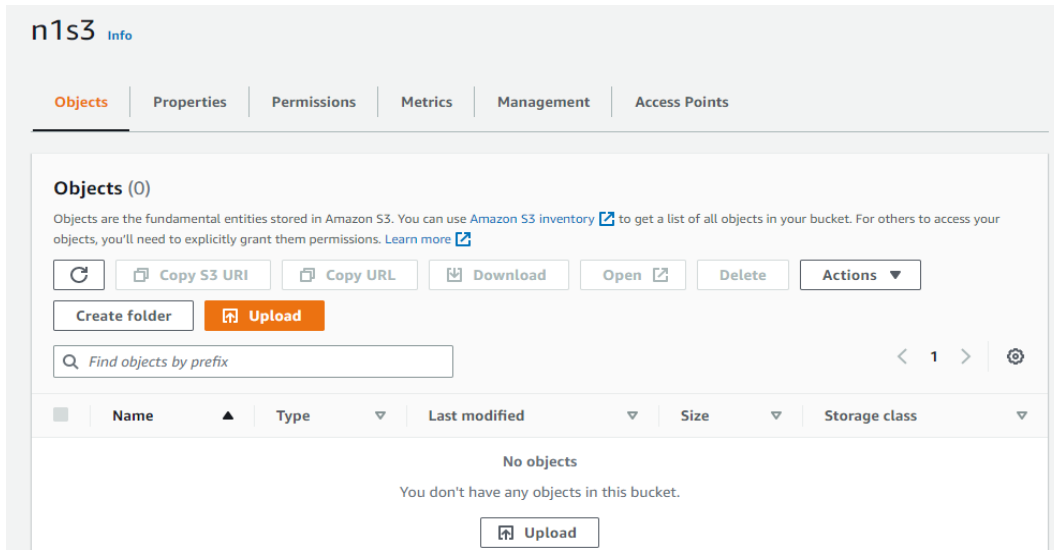
Steps to Create AWS Lambda Function:

1. Go to lambda.
2. Click on Create function.
3. Select Author from Scratch
4. Give name to function.
5. Provide Runtime ex. Python or Ruby etc. according to your requirements
6. Select architecture.
7. Permissions
8. Change default execution role.
9. Advance settings (enables tags)
10. Click on create function.

Now our function is successfully created.

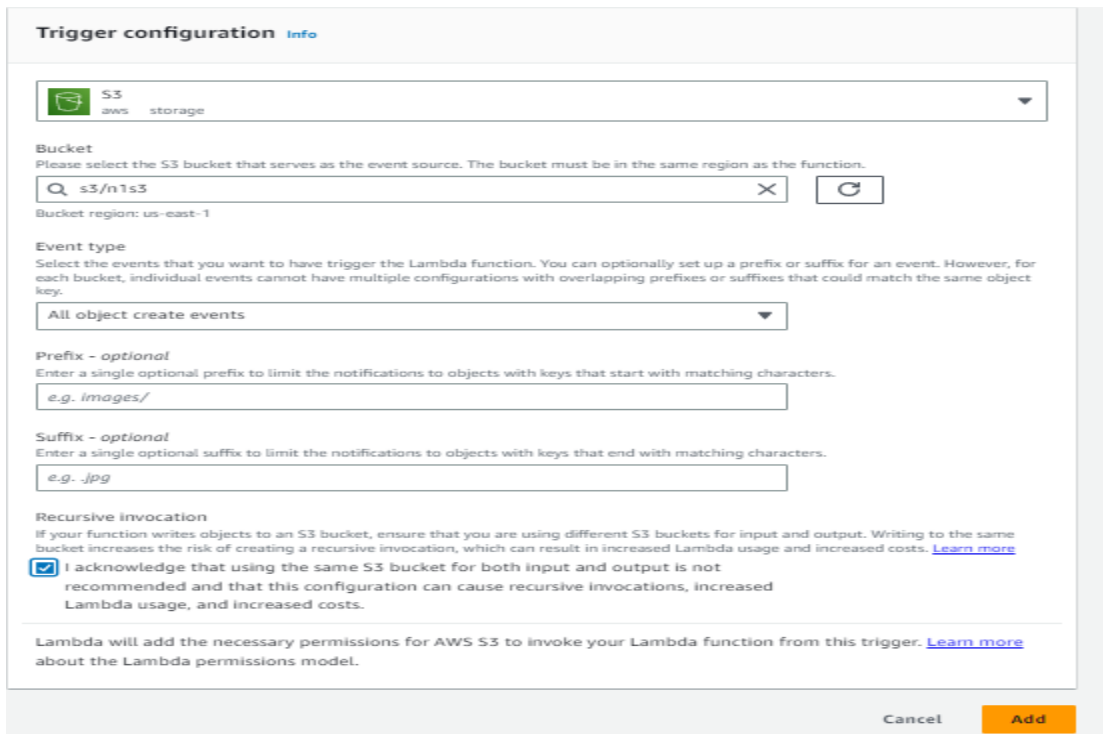
Steps to Create S3 Bucket:

1. Go to S3
2. Click on Create Bucket button.
3. Give name to Bucket.
4. Select Object Ownership
5. Uncheck Block all public access box.
6. Select Bucket Versioning
7. Add Tags
8. Finally, Click on Create Bucket Button.




Steps to add S3 Bucket in Lambda Function:

1. Click on add Trigger Button.
2. Select Source Type
3. Give Bucket Name
4. Select Event Type
5. Check Recursive invocation acknowledge box.




Add Object to S3 Bucket:



 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://n1s3	Succeeded  1 file, 1.1 KB (100.00%)	Failed  0 files, 0 B (0%)
--------------------------	---	---

Files and folders | Configuration

Files and folders (1 Total, 1.1 KB)

< 1 >

Name	Folder	Type	Size	Status	Error
five.py	-	text/plain	1.1 KB	 Succeeded	-








Add Second S3 Bucket in Lambda Function:


n2s3 [Info](#)

Objects | Properties | Permissions | Metrics | Management | Access Points


Objects (0)

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](#)

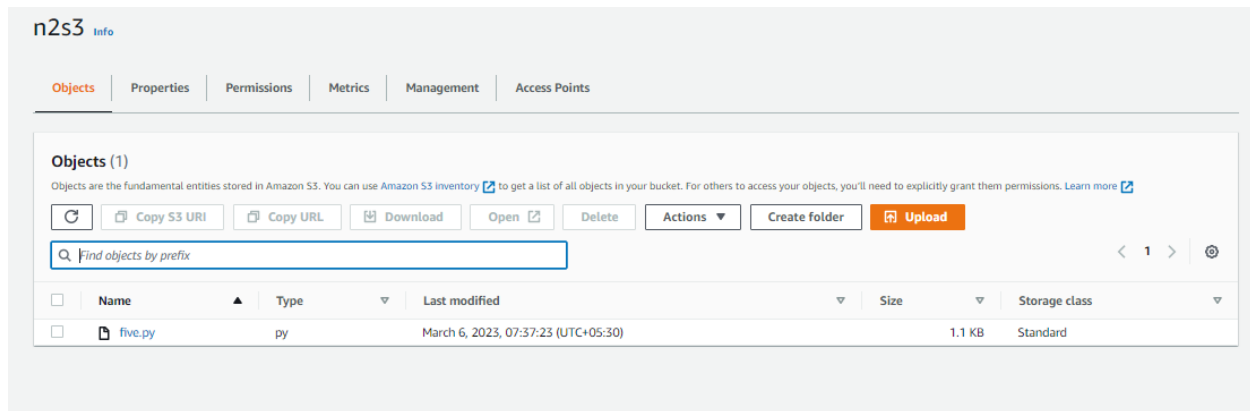
  Copy S3 URI  Copy URL  Download  Open  Delete Actions ▾ Create folder  Upload

< 1 > 

Name	Type	Last modified	Size	Storage class
No objects You don't have any objects in this bucket.				

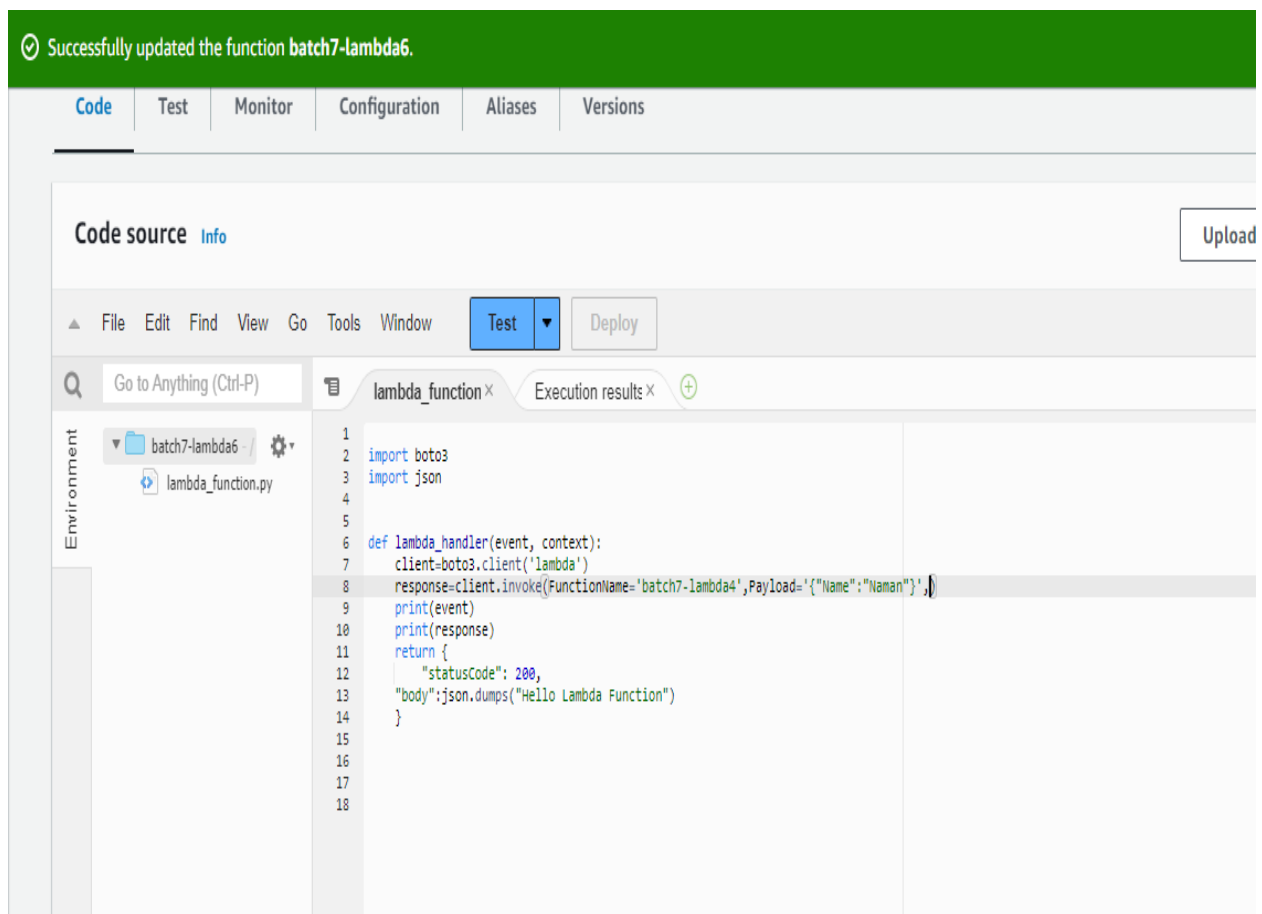
 Upload

Add same object in new Bucket using Boto3:



2. Create a lambda function which will invoke another lambda function.

1. Create (Batch-7-lambda6) and (batch-7-lambda4) function.
2. Add triggers in both functions.
3. Call (batch-3-lambda4) function inside (batch-7-lambda3) function.



Output:

Successfully updated the function batch7-lambda6.

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)

Environment

- batch7-lambda6
 - lambda_function.py

Execution result: x +

Status: Succeeded Max memory used: 65 MB Time: 1705.36 ms

```

Test Event Name
NamanEvent

Response
{
  "statusCode": 200,
  "body": "\\Hello Lambda Function\\"
}

Function Logs
START RequestId: 538943d1-34d0-40f8-aall-86113787bb06 Version: $LATEST
{'Name': 'Naman_Moolri'}
{'ResponseMetadata': {'RequestId': '4117bcf2-a302-4eb3-959b-9dcf1f17b666', 'HTTPStatusCode': 200, 'HTTPHeaders': {'date': 'Mon, 06 Mar 2023 02:2
END RequestId: 538943d1-34d0-40f8-aall-86113787bb06
REPORT RequestId: 538943d1-34d0-40f8-aall-86113787bb06 Duration: 1705.36 ms Billed Duration: 1706 ms Memory Size: 128 MB Max Memory Used:

Request ID
538943d1-34d0-40f8-aall-86113787bb06

```

Logs Groups Output:

CloudWatch

Log groups

/aws/lambda/batch7-lambda6

2023/03/06/[\$LATEST]e385c9305f2d42da9e6a1145bfa50d19

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](#)

Actions

Create metric filter

Q

Filter events

Clear

1m

30m

1h

12h

Custom

Display


	Timestamp	Message
	No older events at this moment. Retry	
	2023-03-06T07:50:55.850+05:30	INIT_START Runtime Version: python:3.9.v16 Runtime Version ARN: arn:aws:lambda:us-east-1::runtime:0...
	2023-03-06T07:50:56.216+05:30	START RequestId: 538943d1-34d0-40f8-aa11-86113787bb06 Version: \$LATEST
	2023-03-06T07:50:57.919+05:30	{'Name': 'Naman_Moolri'}
	2023-03-06T07:50:57.919+05:30	{'ResponseMetadata': {'RequestId': '4117bcf2-a302-4eb3-959b-9dcf1f17b666', 'HTTPStatusCode': 200, '... {'ResponseMetadata': {'RequestId': '4117bcf2-a302-4eb3-959b-9dcf1f17b666', 'HTTPStatusCode': 200, 'HTTPHeaders': {'date': 'Mon, 06 Mar 2023 02:20:57 GMT', 'content-type': 'application/json', 'content-length': '51', 'connection': 'keep-alive', 'x-amzn-requestid': '4117bcf2-a302-4eb3-959b-9dcf1f17b666', 'x-amzn-remapped-content-length': '0', 'x-amz-executed-version': '\$LATEST', 'x-amzn-trace-id': 'root=1-64054e09-77ace67269b3cae348a4443;samed=0'}, 'RetryAttempts': 0}, 'StatusCode': 200, 'ExecutedVersion': '\$LATEST', 'Payload': <botocore.response.StreamingBody object at 0x7f65a3f146d0>}
	2023-03-06T07:50:57.924+05:30	END RequestId: 538943d1-34d0-40f8-aa11-86113787bb06
	2023-03-06T07:50:57.924+05:30	REPORT RequestId: 538943d1-34d0-40f8-aa11-86113787bb06 Duration: 1705.36 ms Billed Duration: 1706 m...



Second Lambda Function Logs Group Output:

CloudWatch > Log groups > /aws/lambda/batch7-lambda4 > 2023/03/06/[\$LATEST]08cbc485f6a1488eba93bd8f8de8fb02

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](#)

 **Actions** ▾


Clear 1m 30m 1h 12h Custom  **Display** ▾ 

▶	Timestamp	Message
No older events at this moment. Retry		
▶	2023-03-06T07:50:57.527+05:30	INIT_START Runtime Version: python:3.9.v16 Runtime Version ARN: arn:aws:lambda:us-east-1::runtime:07a4...
▶	2023-03-06T07:50:57.915+05:30	START RequestId: 4117bcf2-a302-4eb3-959b-9dcf1f17b666 Version: \$LATEST
▶	2023-03-06T07:50:57.916+05:30	None
▼	2023-03-06T07:50:57.916+05:30	<pre>{'Name': 'Naman'} {'Name': 'Naman'}</pre> <div>Copy</div>
▼	2023-03-06T07:50:57.917+05:30	END RequestId: 4117bcf2-a302-4eb3-959b-9dcf1f17b666 END RequestId: 4117bcf2-a302-4eb3-959b-9dcf1f17b666 <div>Copy</div>
▶	2023-03-06T07:50:57.917+05:30	REPORT RequestId: 4117bcf2-a302-4eb3-959b-9dcf1f17b666 Duration: 1.93 ms Billed Duration: 2 ms Memory ...
No newer events at this moment. <i>Auto retry paused.</i> Resume		

3. Create a lambda that will have 2 triggers:

- When object is uploaded in s3 bucket and
- When object is deleted from s3 bucket. And have SNS as destination and the result should display only the bucket name.

Trigger configuration
Info

 S3
aws storage

Bucket
Please select the S3 bucket that serves as the event source. The bucket must be in the same region as the function.

Bucket region: us-east-1

Event type
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.

Prefix - optional
Enter a single optional prefix to limit the notifications to objects with keys that start with matching characters.

Suffix - optional
Enter a single optional suffix to limit the notifications to objects with keys that end with matching characters.


Recursive invocation
If your function writes objects to an S3 bucket, ensure that you are using different S3 buckets for input and output. Writing to the same bucket increases the risk of creating a recursive invocation, which can result in increased Lambda usage and increased costs. [Learn more](#)

☒ I acknowledge that using the same S3 bucket for both input and output is not recommended and that this configuration can cause recursive invocations, increased Lambda usage, and increased costs.

Lambda will add the necessary permissions for AWS S3 to invoke your Lambda function from this trigger. [Learn more](#) about the Lambda permissions model.

Add trigger

Trigger configuration
Info

 S3
aws storage

Bucket
Please select the S3 bucket that serves as the event source. The bucket must be in the same region as the function.

Bucket region: us-east-1

Event type
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.

Prefix - optional
Enter a single optional prefix to limit the notifications to objects with keys that start with matching characters.

Add Topics:

1. Go to SNS Services
2. Click on create topics.
3. Select Standard type.
4. Give Topic name.

5. Add Tags

Finally, click on Create Topic Button. Now, successfully your Topic is created.

Topic naman-topic created successfully.
You can create subscriptions and send messages to them from this topic. [Publish message](#)

[Amazon SNS](#) > [Topics](#) > naman-topic

naman-topic

[Edit](#) [Delete](#) [Publish message](#)

Details	
Name naman-topic	Display name -
ARN arn:aws:sns:us-east-1:528519205020:naman-topic	Topic owner 528519205020
Type Standard	

Add Subscription:

1. Topic ARN (topic name)
2. Select protocol.
3. Now, create on subscription button.
4. Now, you got an Email on your mail id for confirmation.

Subscription to naman-topic created successfully.
The ARN of the subscription is arn:aws:sns:us-east-1:528519205020:naman-topic:433e2c3a-fdea-4191-a6a8-1671382d1b32.

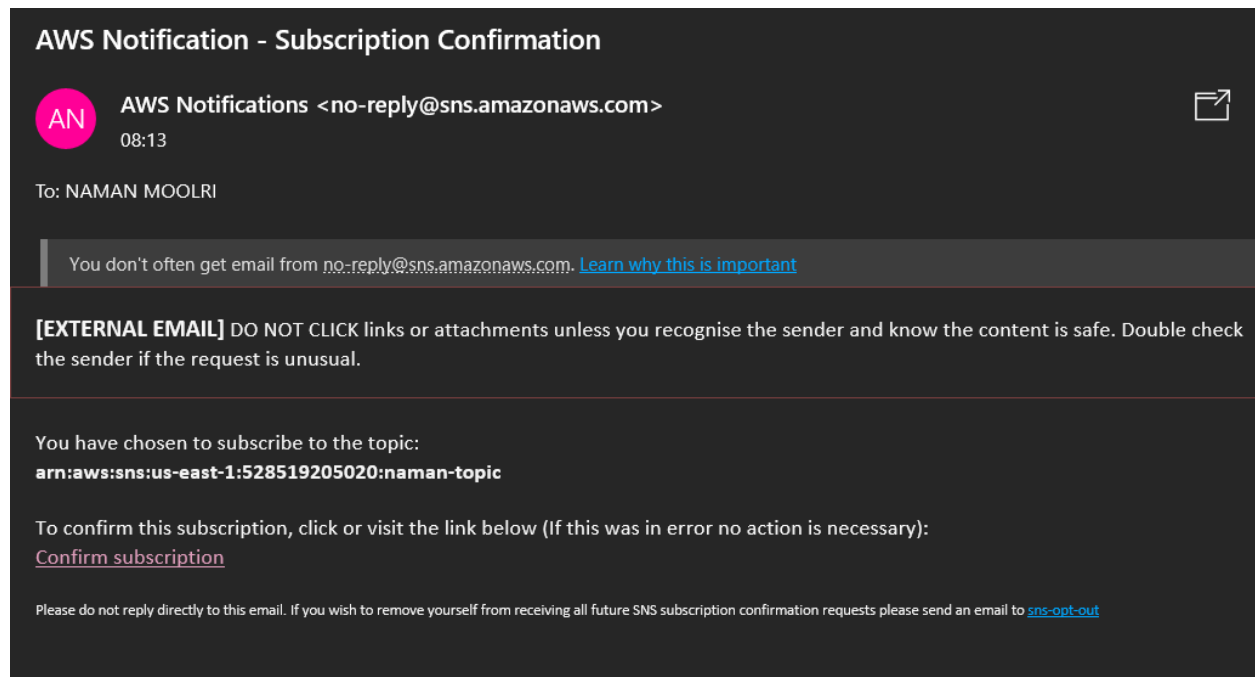
[Amazon SNS](#) > [Topics](#) > [naman-topic](#) > Subscription: 433e2c3a-fdea-4191-a6a8-1671382d1b32

Subscription: 433e2c3a-fdea-4191-a6a8-1671382d1b32

[Edit](#) [Delete](#)

Details	
ARN arn:aws:sns:us-east-1:528519205020:naman-topic:433e2c3a-fdea-4191-a6a8-1671382d1b32	Status ⌚ Pending confirmation
Endpoint naman.moolri@cloudeq.com	Protocol EMAIL
Topic naman-topic	
Subscription Principal arn:aws:iam::528519205020:role/aws-reserved/sso.amazonaws.com/us-west-2/AWSReservedSSO_AWSPowerUserAccess_b00d16aa23c215a9	

Subscription Confirmation:



5. Now, Click on Confirm Subscription.



Simple Notification Service

Subscription confirmed!

You have successfully subscribed.

Your subscription's id is:

arn:aws:sns:us-east-1:528519205020:naman-topic:433e2c3a-fdea-4191-a6a8-1671382d1b32

If it was not your intention to subscribe, [click here to unsubscribe](#).

○ 433e2c3a-fdea-4191-a6... naman.moolri@cloudq...  Confirmed EMAIL naman-topic

Adding file in S3 Bucket using SNS

AWS Notification Message



AWS Notifications <no-reply@sns.amazonaws.com>

18:22



To: NAMAN MOOLRI

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[EXTERNAL EMAIL] DO NOT CLICK links or attachments unless you recognise the sender and know the content is safe. Double check the sender if the request is unusual.

```
{ "version": "1.0", "timestamp": "2023-03-06T12:52:04.571Z", "requestContext": { "requestId": "28bc7433-b3a9-4aa3-90a5-99c69aff8b8", "functionArn": "arn:aws:lambda:us-east-1:528519205020:function:batch7-lambda6:$LATEST", "condition": "Success", "approximateInvokeCount": 1 }, "requestPayload": { "Records": [ { "eventVersion": "2.1", "eventSource": "aws:s3", "awsRegion": "us-east-1", "eventTime": "2023-03-06T12:52:03.602Z", "eventName": "ObjectCreated:Put", "userIdentity": { "principalId": "AWS:AROAXWDRTCCODXSZQHRYW:naman.moolri@cloudeq.com" }, "requestParameters": { "sourceIPAddress": "14.99.158.18" }, "responseElements": { "x-amz-request-id": "XBQ3TV7JW47KFTHK", "x-amz-id-2": "8I7UQtEvBW5fyhoatGby3T6Yh6lfef391KN+/gAs1xKQmp/2Jz8rvTDu0a6Q212GtfpQdxez9L7yveJ6Sft+PLePU5DGdHqP" }, "s3": { "s3SchemaVersion": "1.0", "configurationId": "718db785-2f99-44a1-88ba-ab9ed5377954", "bucket": { "name": "n2s3", "ownerIdentity": { "principalId": "AC5158JBMTNOO" }, "arn": "arn:aws:s3:::n2s3" }, "object": { "key": "Naman+AWS+Documentation.docx", "size": 29067, "eTag": "7dbdbf403f80b7e32be5b4f245494e44", "sequencer": "006405E1F38E1AB882" } } } ], "responseContext": { "statusCode": 200, "executedVersion": "$LATEST", "responsePayload": { "statusCode": 200, "body": "\\Hello Lambda Function\\\""} } }
```

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<https://sns.us-east-1.amazonaws.com/unsubscribe.html?SubscriptionArn=arn:aws:sns:us-east-1:528519205020:naman+topic:00116ee5-b0da-418c-a736-b9c62f34b677&Endpoint=naman.moolri@cloudeq.com>

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Deleting file in S3 Bucket using SNS

AWS Notification Message



AWS Notifications <no-reply@sns.amazonaws.com>

18:23



To: NAMAN MOOLRI

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```
{"version":"1.0","timestamp":"2023-03-06T12:53:23.088Z","requestContext":{"requestId":"8218f8cf-61e8-42bd-b78d-aae8ca831b47","functionArn":"arn:aws:lambda:us-east-1:528519205020:function:batch7-lambda6:$LATEST","condition":"Success","approximateInvokeCount":1},"requestPayload":{"Records":[{"eventVersion":"2.1","eventSource":"aws:s3","awsRegion":"us-east-1","eventTime":"2023-03-06T12:53:22.054Z","eventName":"ObjectCreated:Put","userIdentity":{"principalId":"AWS:AROAXWDRTCCODXSZQHRYW:naman.moolri@cloudeq.com"},"requestParameters":{"sourceIPAddress":"14.99.158.18"},"responseElements":{"x-amz-request-id":"GEH0GSE6579PN5EY","x-amz-id-2":"Xf9Acuz3xB/Qn1pOINnckQZIZWVxCcolg0aFi3/dFVBZ7h8WvrcA0NYfnhO0l8nA8bP9J5zCkMj9e0inQUX74yd5DMwsLUN"},"s3":{"s3SchemaVersion":"1.0","configurationId":"a69d0431-3302-4525-83b9-c06eb1743f6a","bucket":{"name":"n1s3","ownerIdentity":{"principalId":"AC5158JBMTN0O"},"arn":"arn:aws:s3:::n1s3"},"object":{"key":"Naman+AWS+Documentation.docx","size":29067,"eTag":"7dbdbf403f80b7e32be5b4f245494e44","sequencer":"006405E24203A67D57"}]}]}],"responseContext":{"statusCode":200,"executedVersion":"$LATEST"},"responsePayload":{"statusCode": 200, "body": "\Hello Lambda Function\""}}}
```

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