Advanced DevOps Exp-12

Sanket More
D15A 30

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:

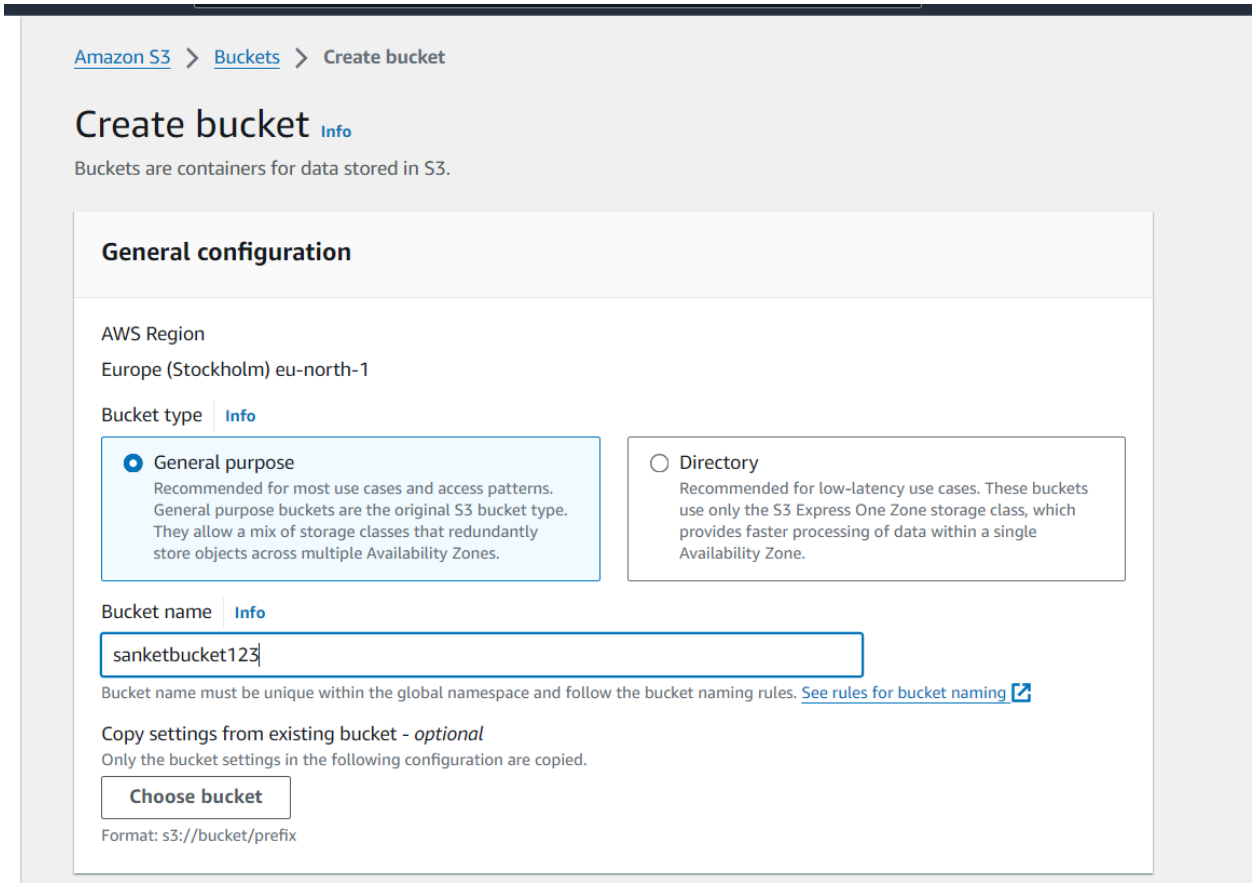
○ Link the S3 bucket to the Lambda function by setting up a trigger. Specify that the function should be triggered when an object is created in the bucket (e.g., when an image is uploaded).

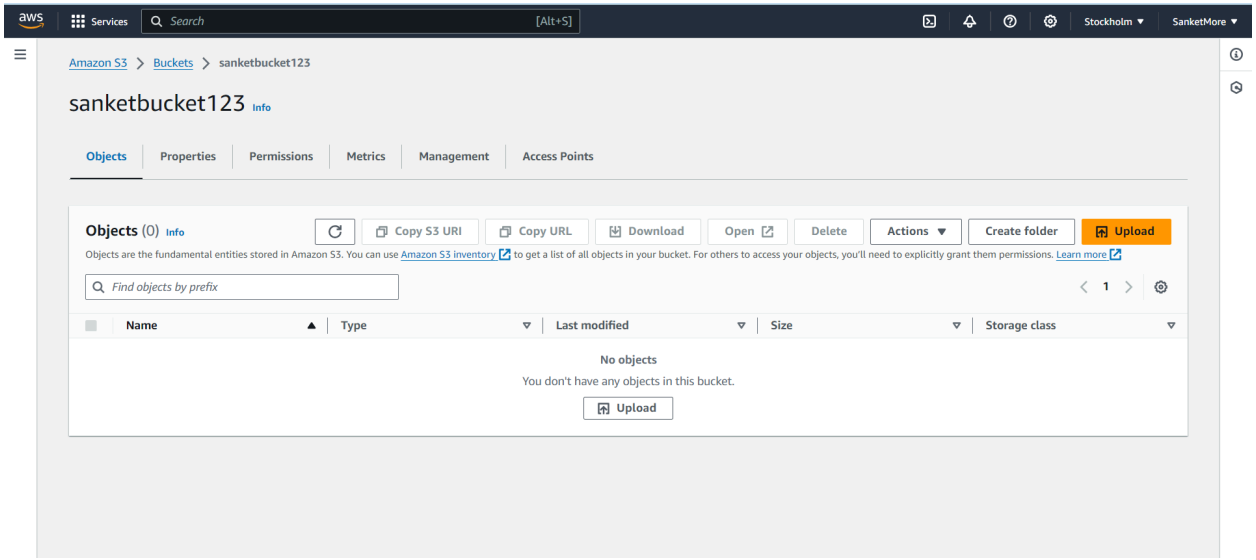
5. Test the Setup:

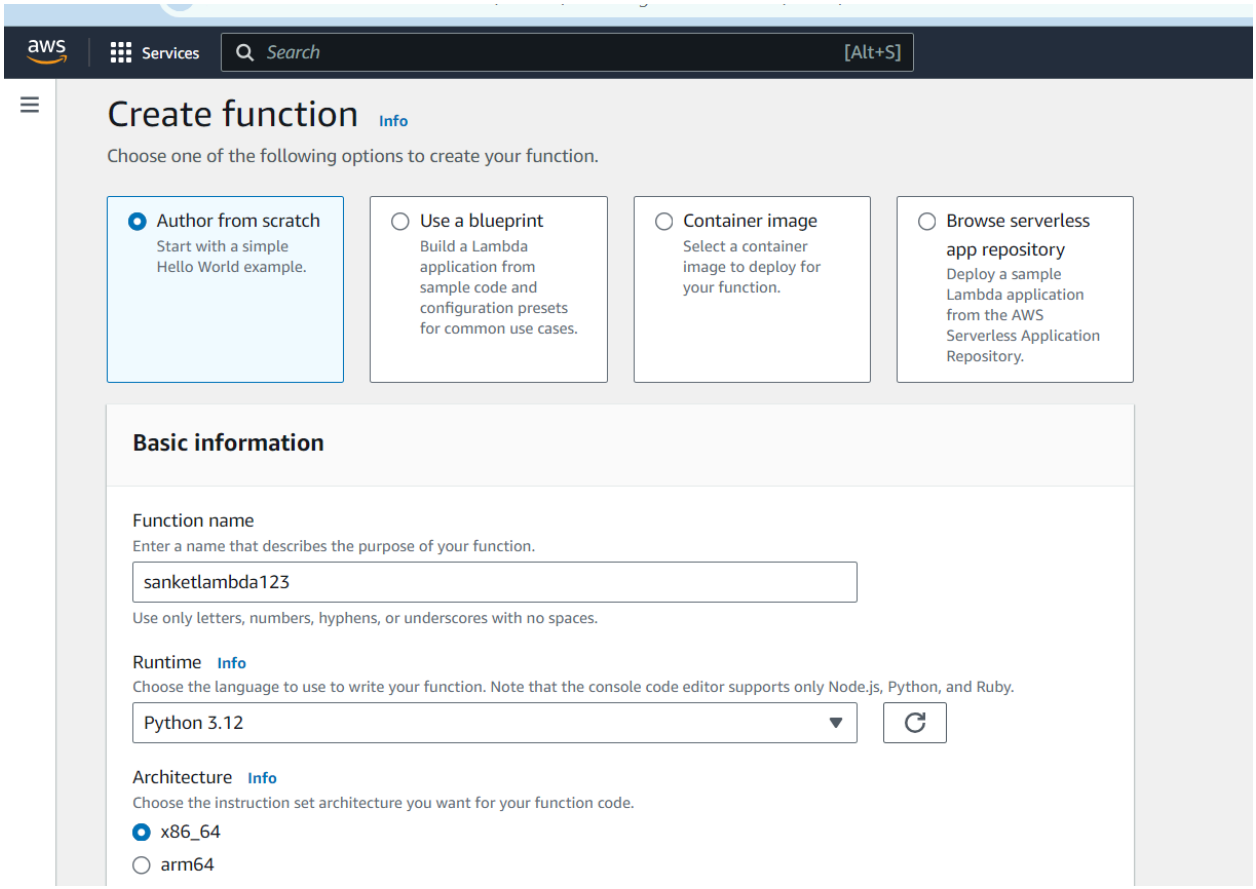
○ Upload an object (e.g., an image) to the S3 bucket to test the trigger. The Lambda function should execute and log the message “An Image has been added” in AWS CloudWatch Logs.

Procedure:-

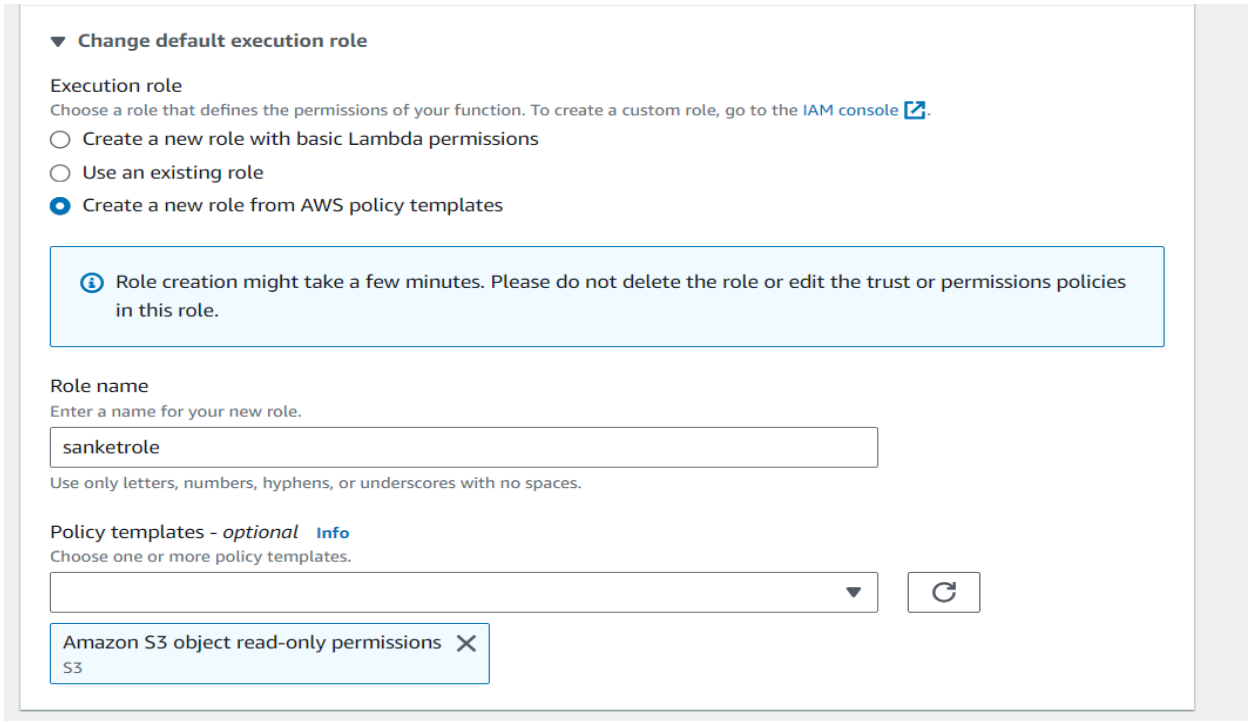
1. Create an S3 bucket of the same location as that of the Lambda function

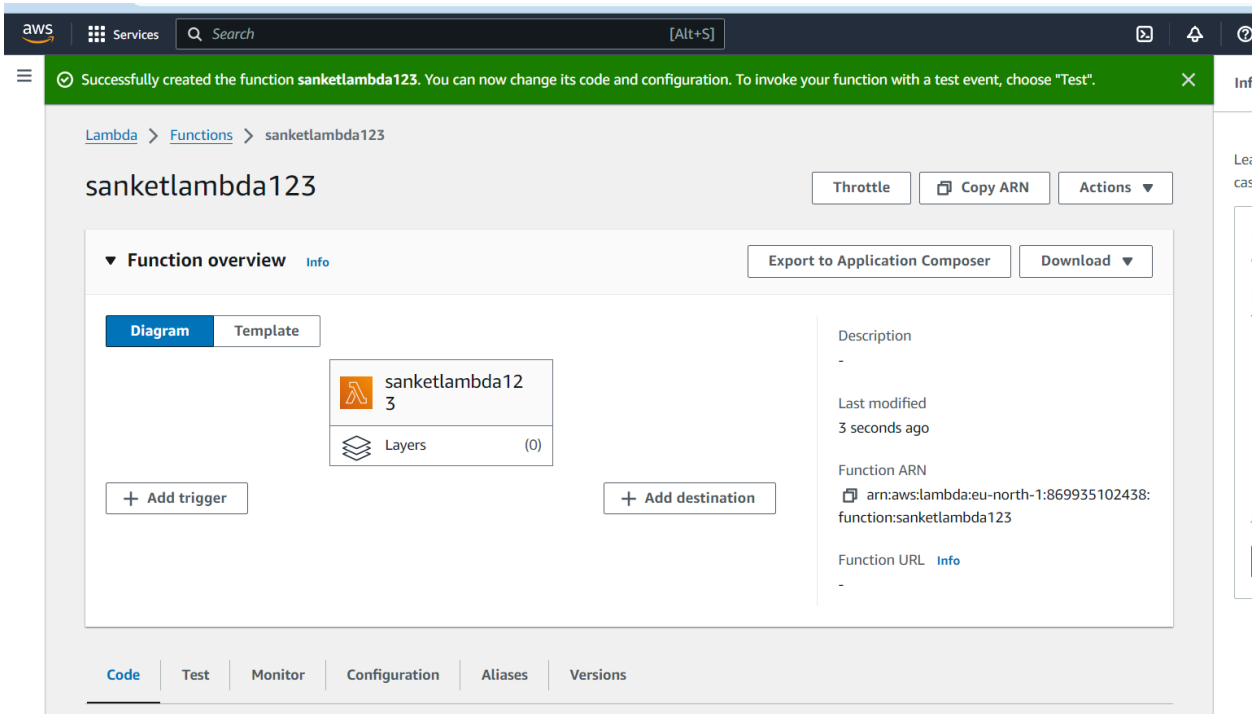




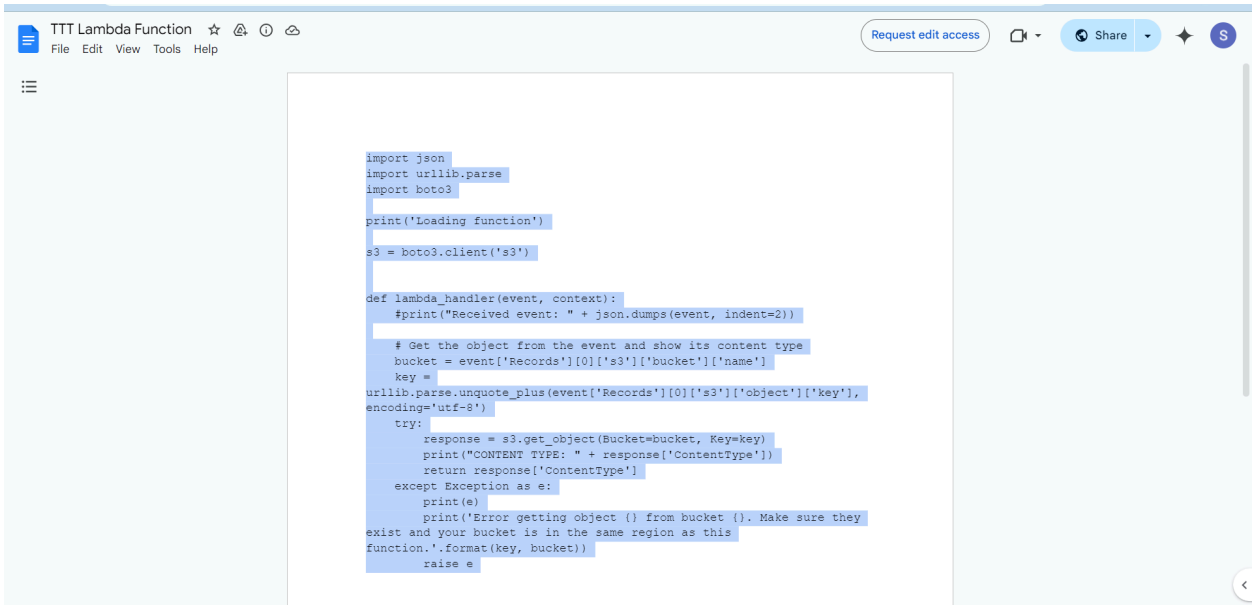


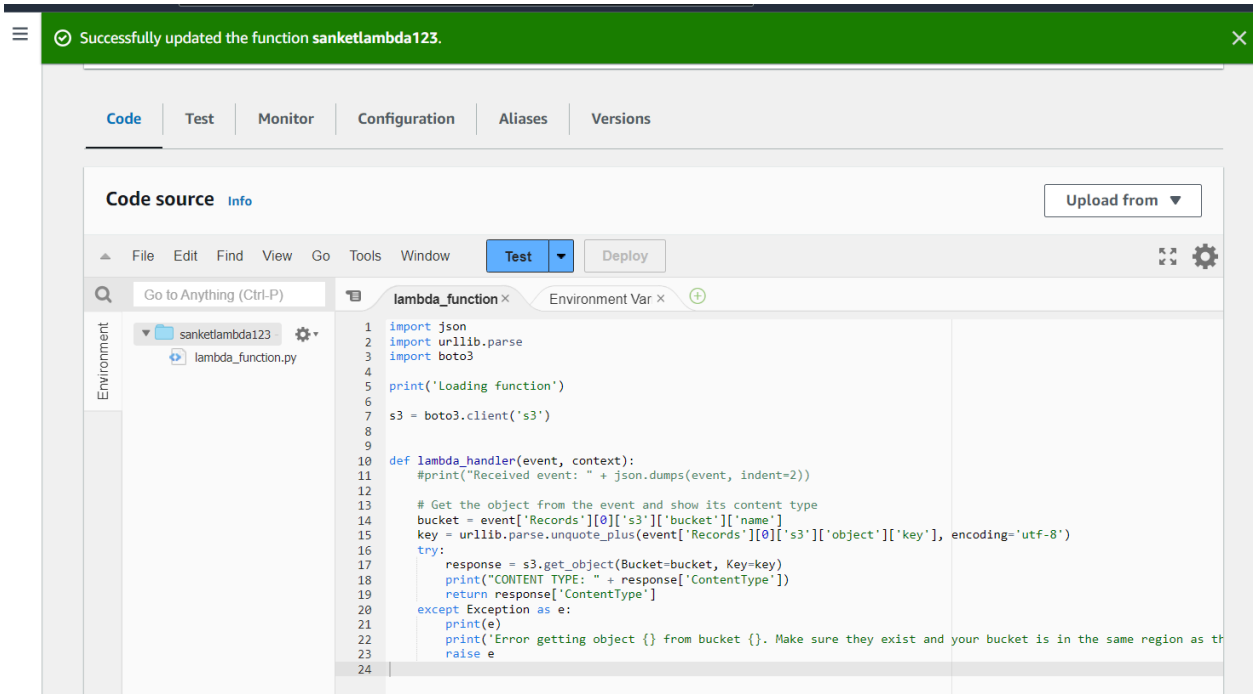
2. Add roles while creating the Lambda function and give permissions for accessing the S3 bucket



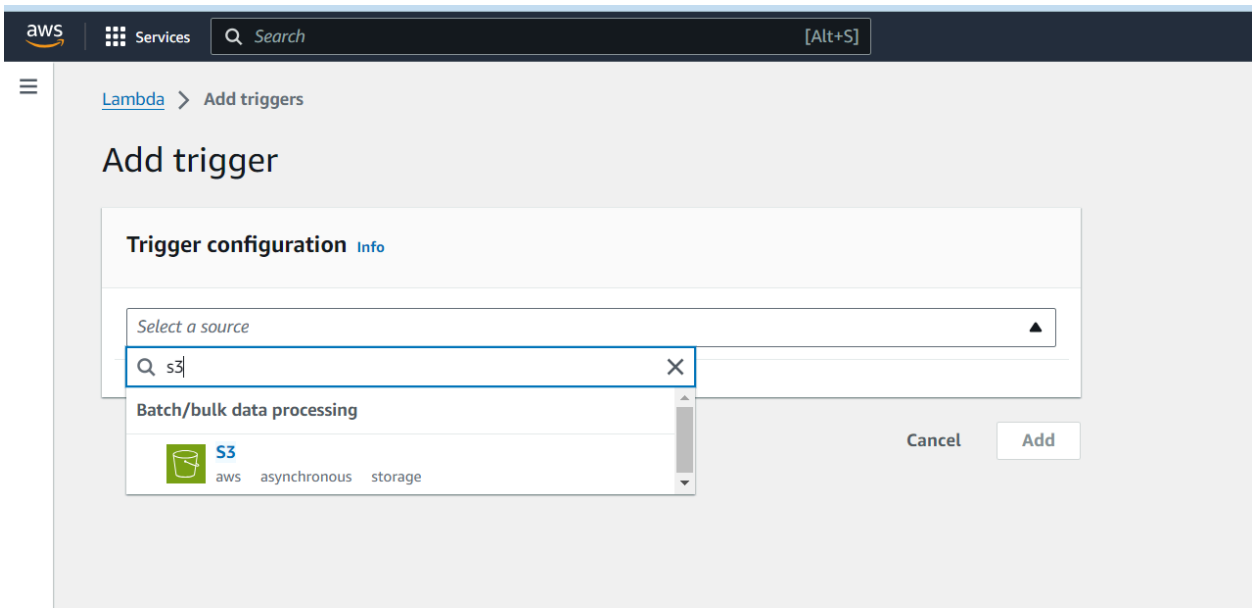


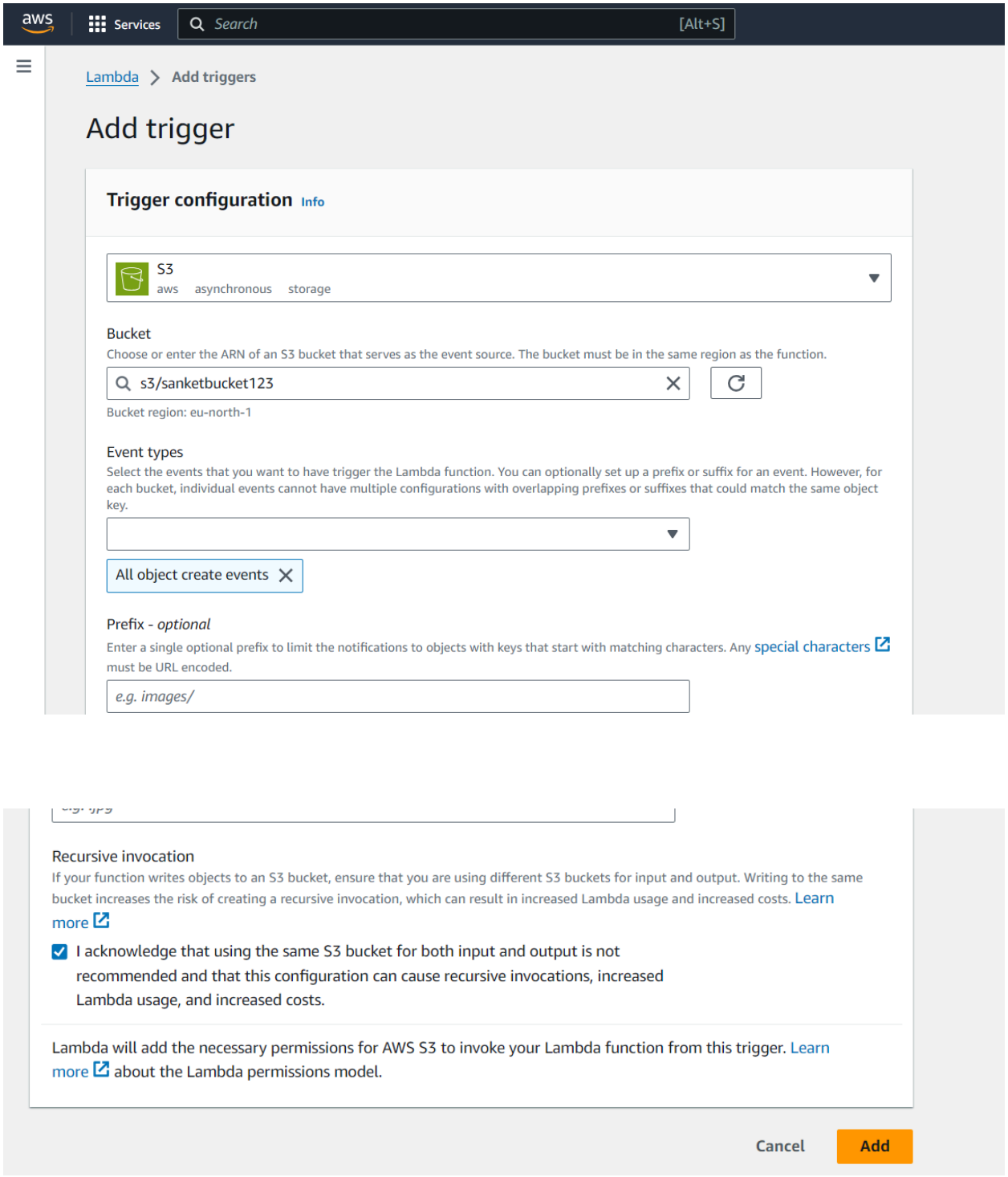
3. After creating the Lambda function copy a code available on the internet which allows the Lambda function to access the S3 bucket contents.

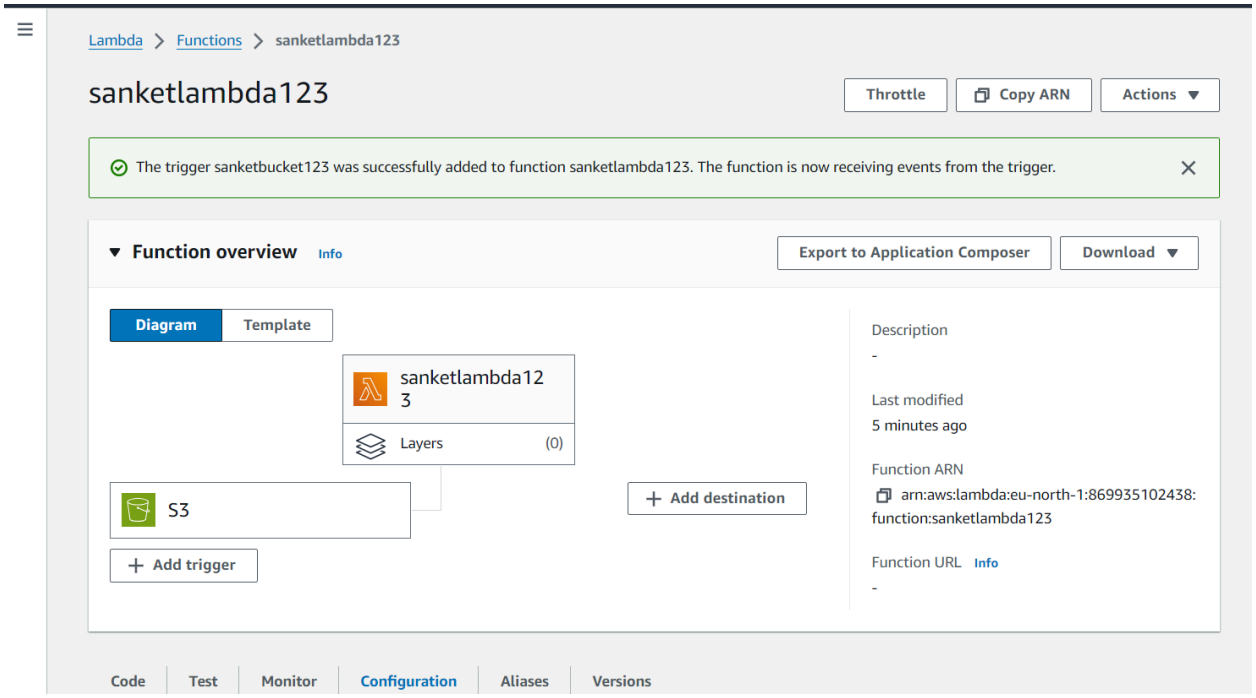




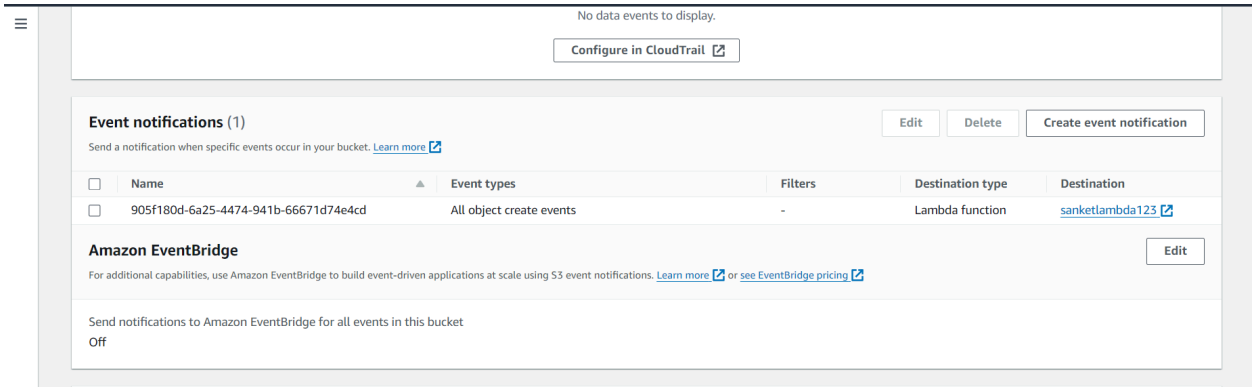
4. Add a trigger to the Lambda function so any changes in the S3 bucket will be first visible to the user.

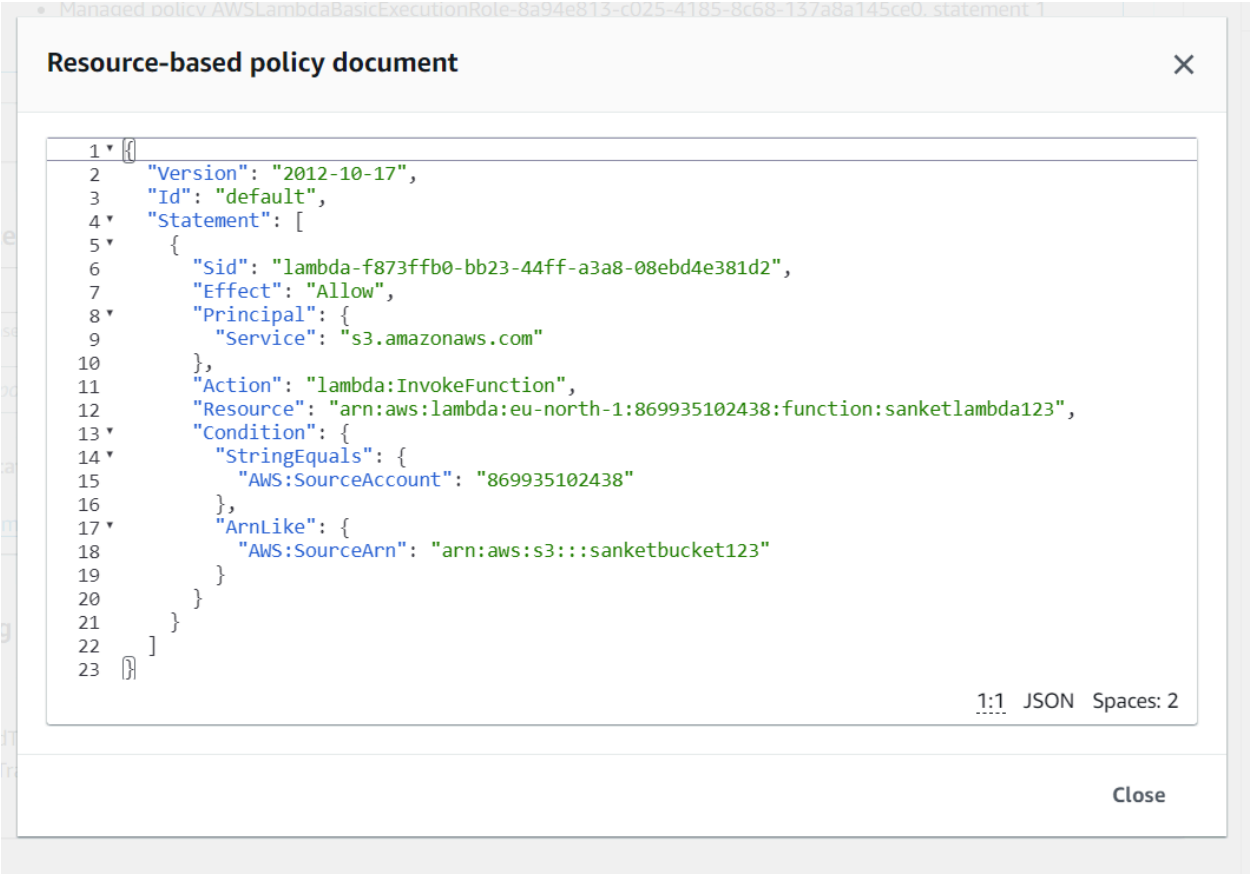



aws
Services
Search
[Alt+S]
Lambda
Add triggers
Add trigger
Trigger configuration
Info
S3
aws
asynchronous
storage
Bucket
Choose or enter the ARN of an S3 bucket that serves as the event source. The bucket must be in the same region as the function.
s3/sanketbucket123
Bucket region: eu-north-1
Event 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/
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.
Cancel
Add

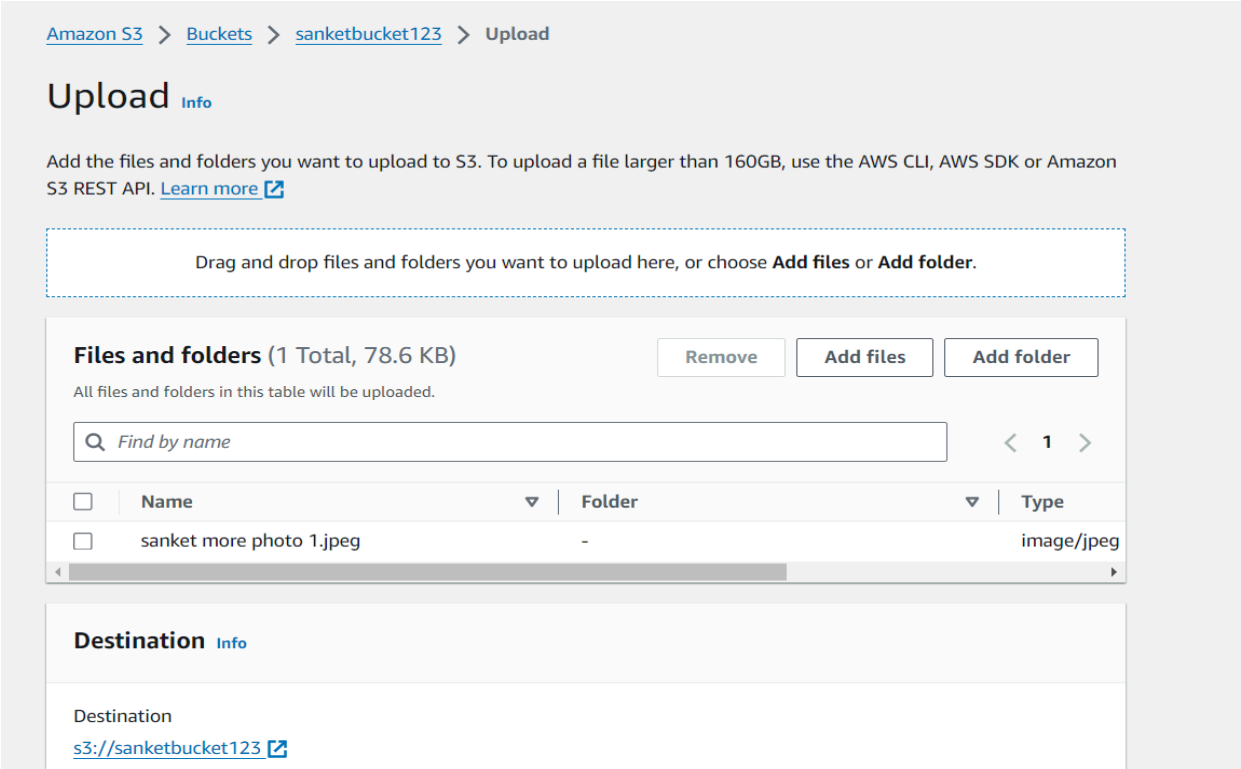


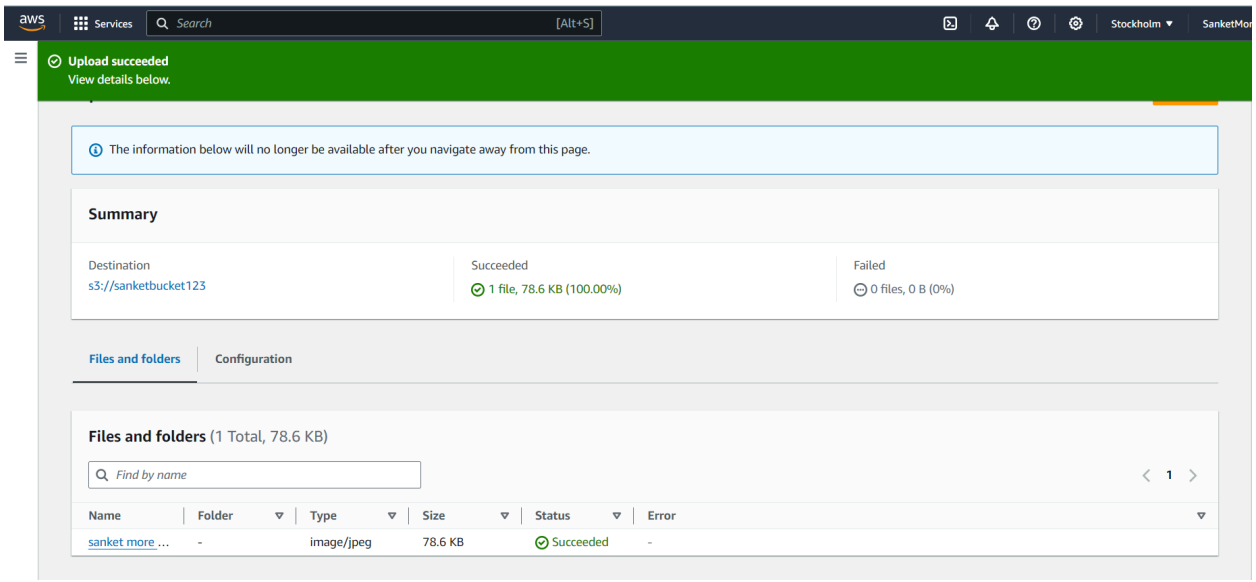
5. In the event notification of the S3 bucket we can see that it has been connected to the Lambda function .



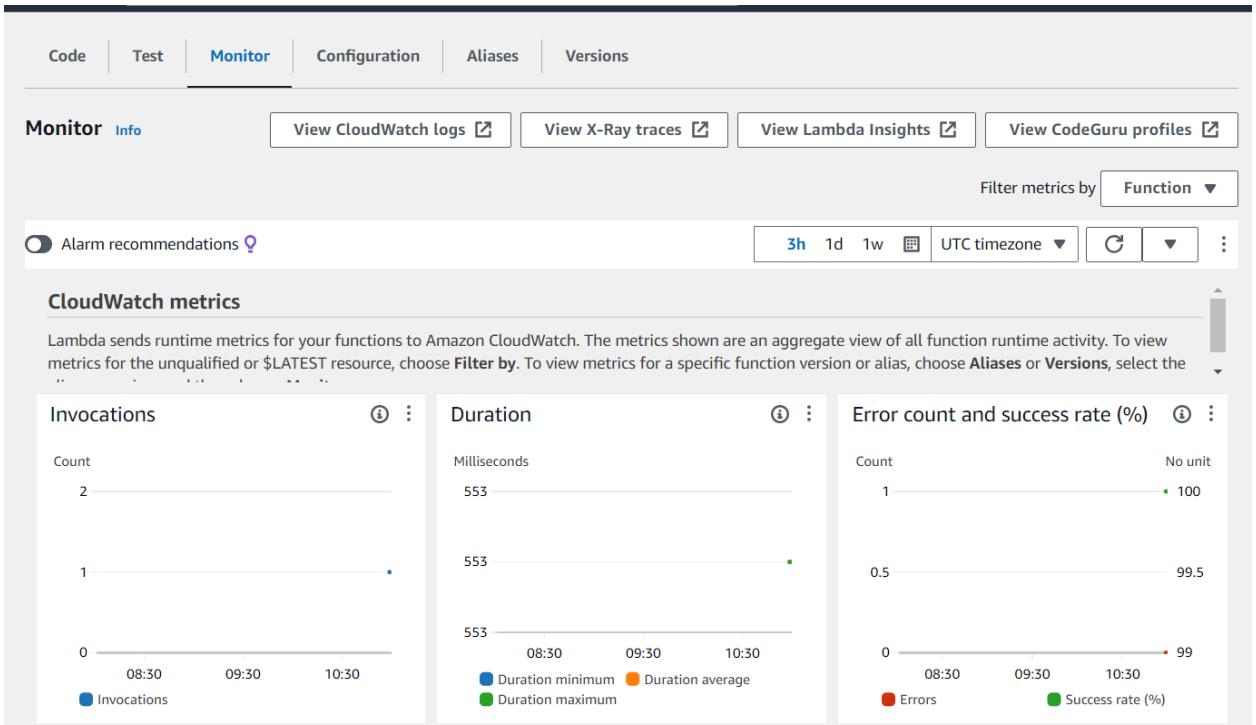


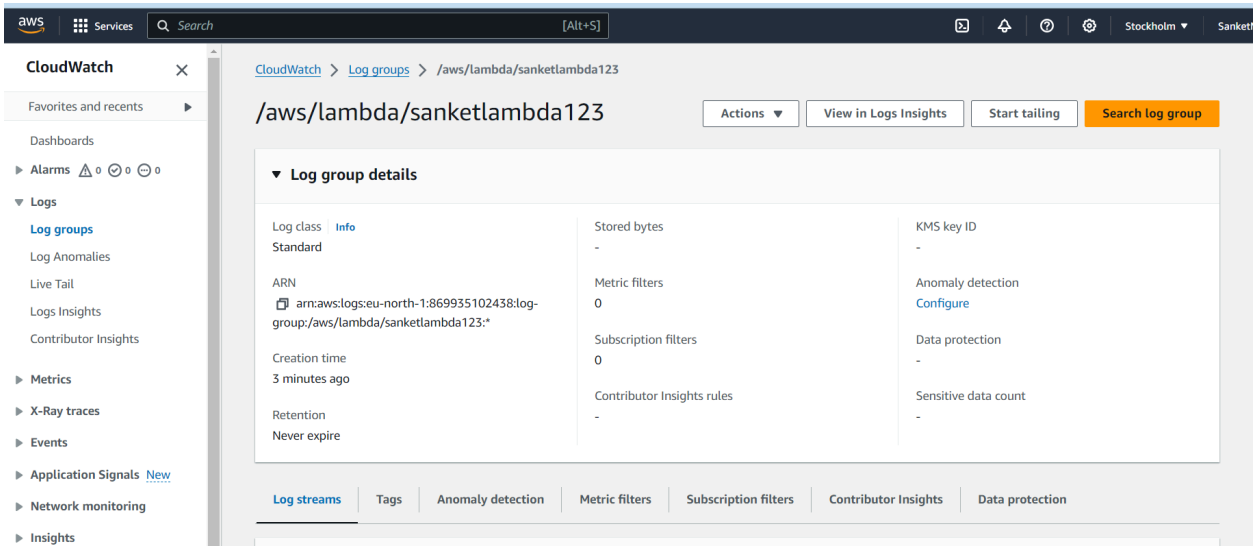
6. Upload a photo to the S3 bucket





7. Now run the function and in the cloud watch logs of AWS you can see the message printed and all the other details of the working of the Lambda function.




aws
Services
Search
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Stockholm
CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Log groups
Log Anomalies
Live Tail
Logs Insights
Contributor Insights
Metrics
X-Ray traces
Events
Application Signals New
Network monitoring
Insights
CloudWatch > Log groups > /aws/lambda/sanketlambda123
/aws/lambda/sanketlambda123
Actions
View in Logs Insights
Start tailing
Search log group
Log group details
Log class Info
Standard
ARN
arn:aws:logs:eu-north-1:869935102438:log-group:/aws/lambda/sanketlambda123:*
Creation time
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Retention
Never expire
Stored bytes
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Metric filters
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Subscription filters
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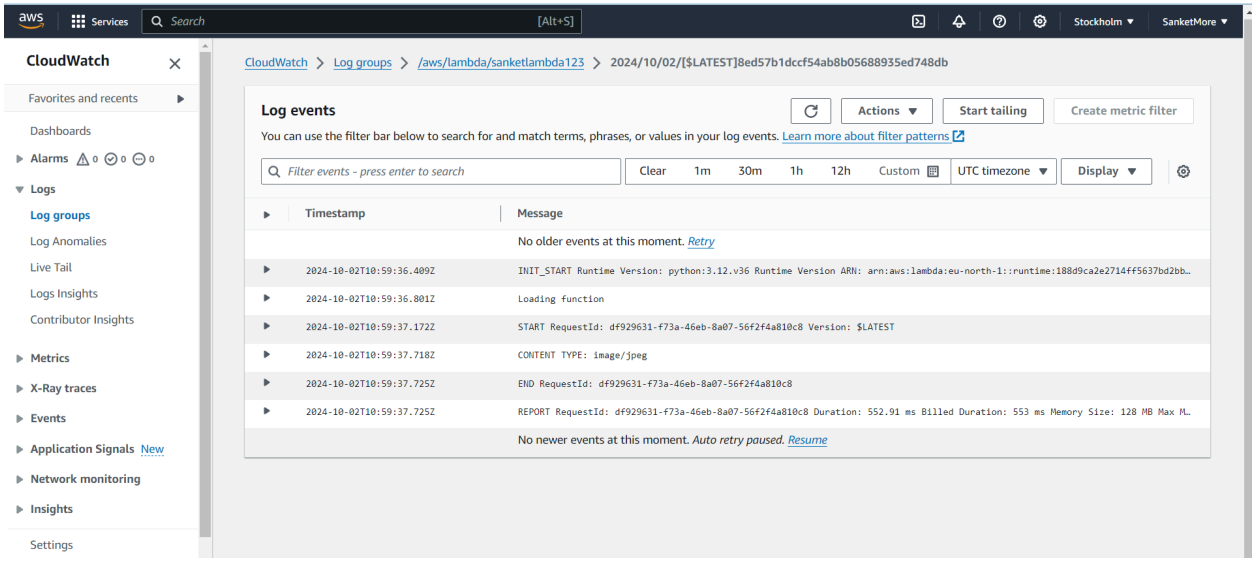
Contributor Insights rules
-
KMS key ID
-
Anomaly detection
Configure
Data protection
-
Sensitive data count
-
Log streams
Tags
Anomaly detection
Metric filters
Subscription filters
Contributor Insights
Data protection


aws
Services
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CloudWatch
Favorites and recents
Dashboards
Alarms
Logs
Log groups
Log Anomalies
Live Tail
Logs Insights
Contributor Insights
Metrics
X-Ray traces
Events
Application Signals New
Network monitoring
Insights
Settings
CloudWatch > Log groups > /aws/lambda/sanketlambda123 > 2024/10/02/[$LATEST]8ed57b1dccf54ab8b05688935ed748db
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
2024-10-02T10:59:36.409Z INIT_START Runtime Version: python:3.12.v36 Runtime Version ARN: arn:aws:lambda:eu-north-1::runtime:188d9ca2e2714ff5637bd2bb…
2024-10-02T10:59:36.801Z Loading function
2024-10-02T10:59:37.172Z START RequestId: df929631-f73a-46eb-8a07-56f2f4a810c8 Version: $LATEST
2024-10-02T10:59:37.718Z CONTENT TYPE: image/jpeg
2024-10-02T10:59:37.725Z END RequestId: df929631-f73a-46eb-8a07-56f2f4a810c8
2024-10-02T10:59:37.725Z REPORT RequestId: df929631-f73a-46eb-8a07-56f2f4a810c8 Duration: 552.91 ms Billed Duration: 553 ms Memory Size: 128 MB Max M…
No newer events at this moment. Auto retry paused. Resume