**ADVANCE DEVOPS EXPERIMENT - 12**

Prajjwal Pandey D15A / 33

**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.

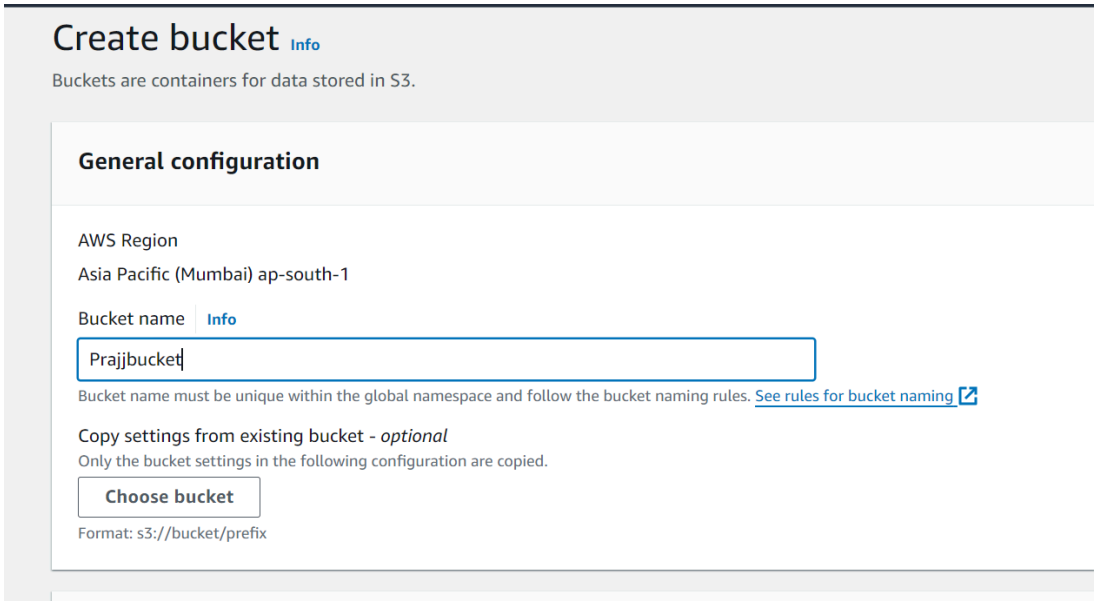
2. Create the Lambda Function:
○ Set up a new Lambda function using AWS Lambda’s console. You can choose a runtime environment like Python, Node.js, or Java.
○ Write code that logs a message like “An Image has been added” when triggered.
3. Set Up Permissions:
○ Ensure that the Lambda function has the 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.

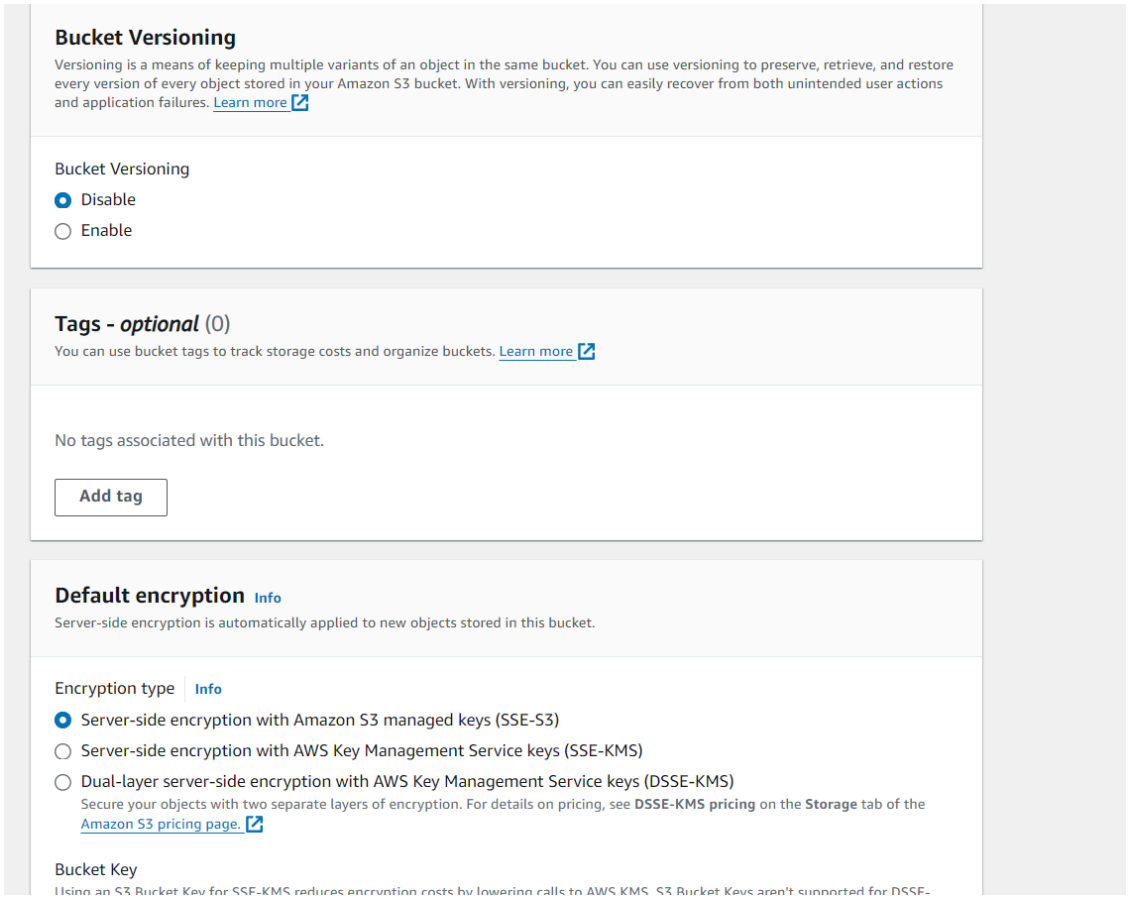
4. Configure S3 Trigger:
○ Link the S3 bucket to the Lambda function by setting up a trigger. Specify that the function should be triggered when an object is created in the bucket (e.g., when an image is uploaded).

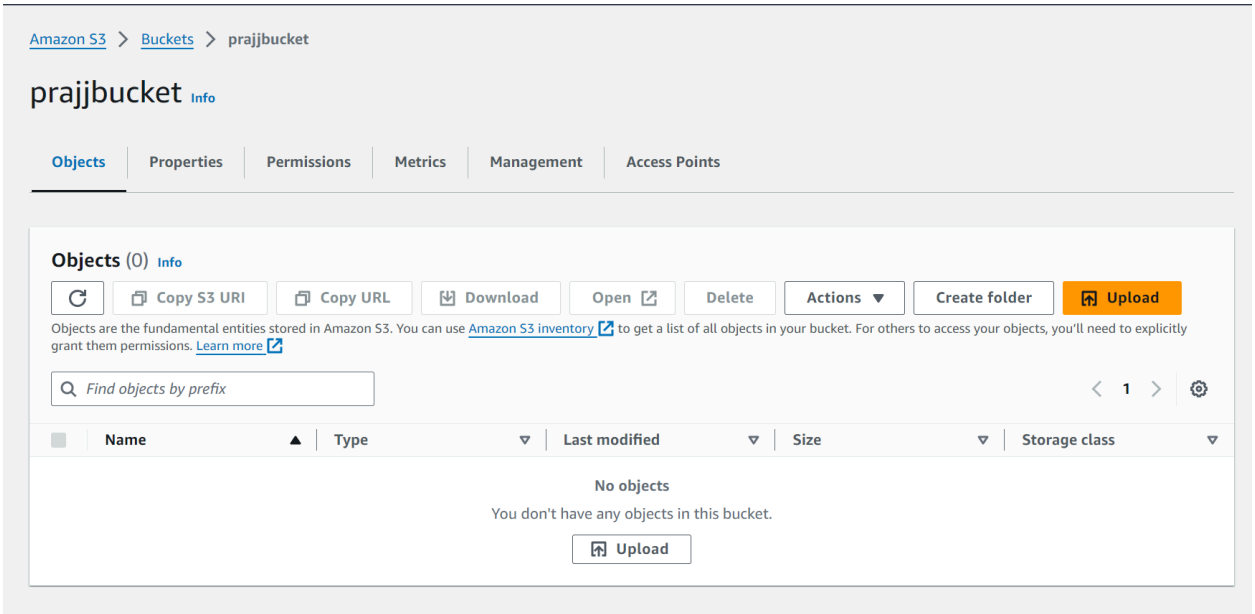
5. Test the Setup:
○ Upload an object (e.g., an image) to the S3 bucket to test the trigger. The Lambda function should execute and log the message “An Image has been added” in AWS CloudWatch Logs.

**STEPS:-**

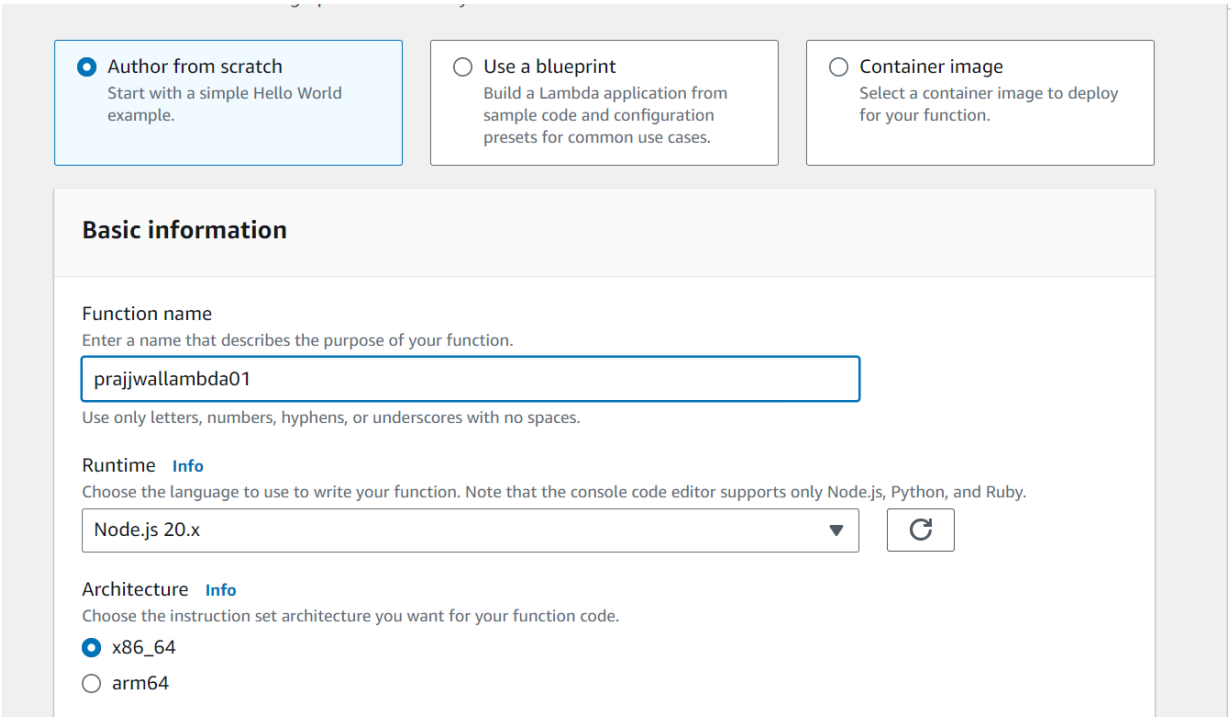
1. Create an S3 bucket of the same location as that of the Lambda function.

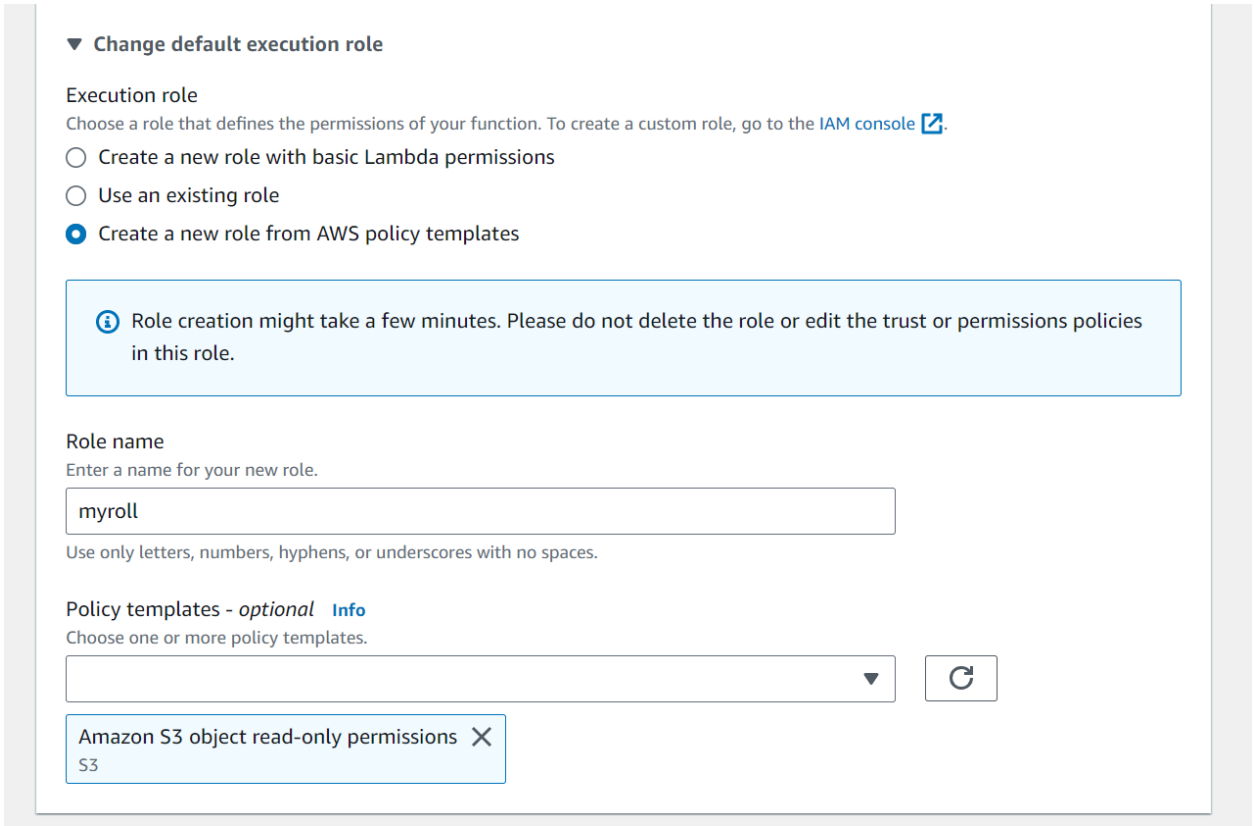


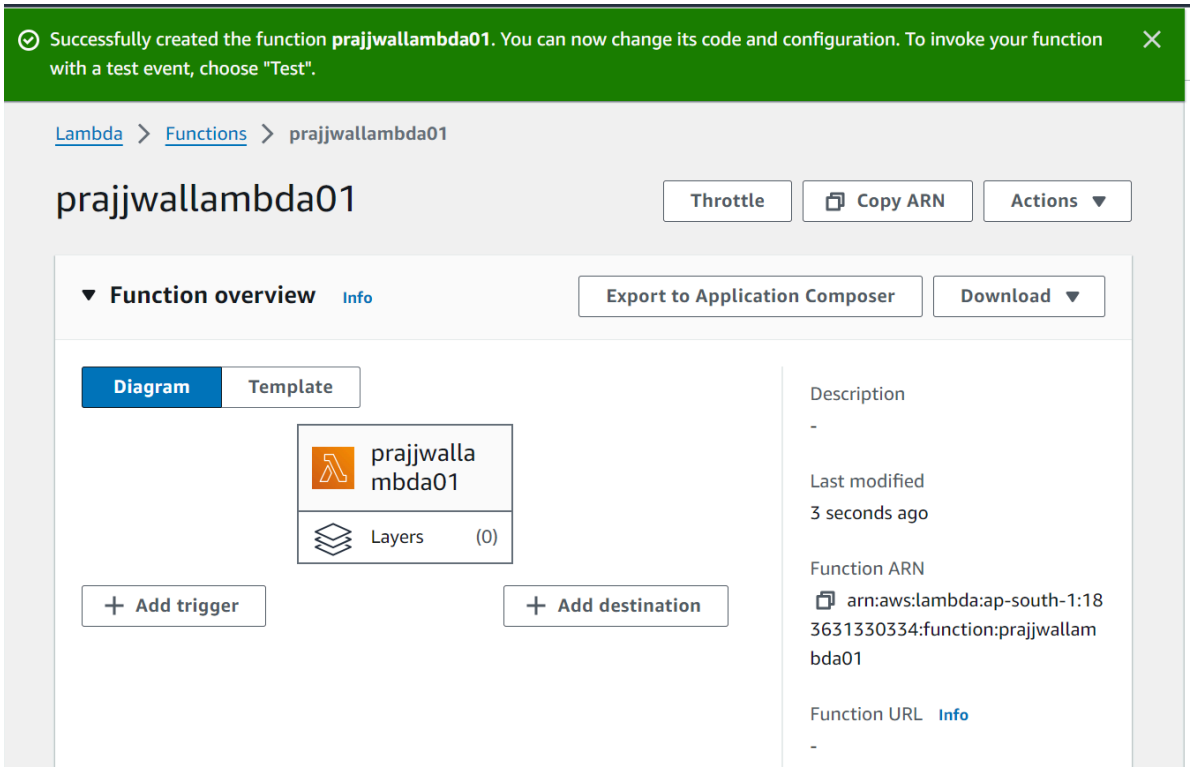





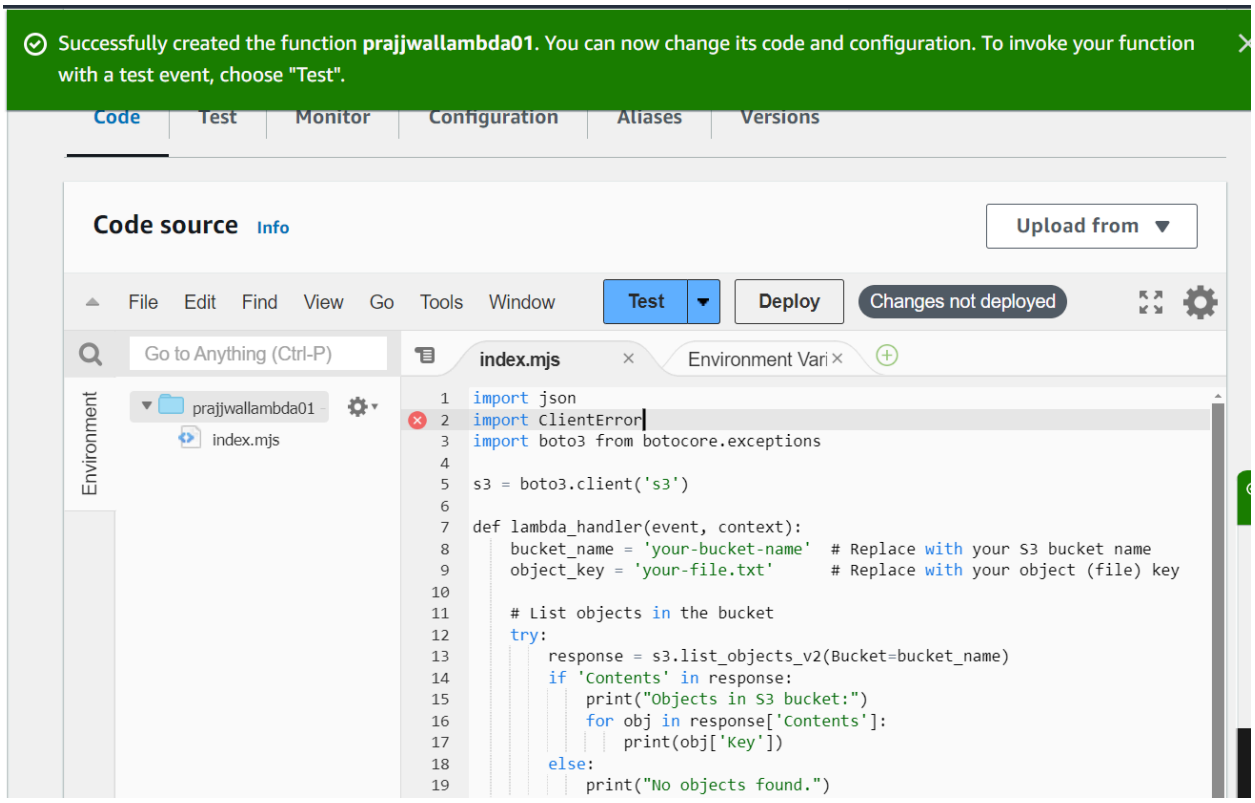

2. Add roles while creating the Lambda function and give permissions for accessing the S3 bucket.



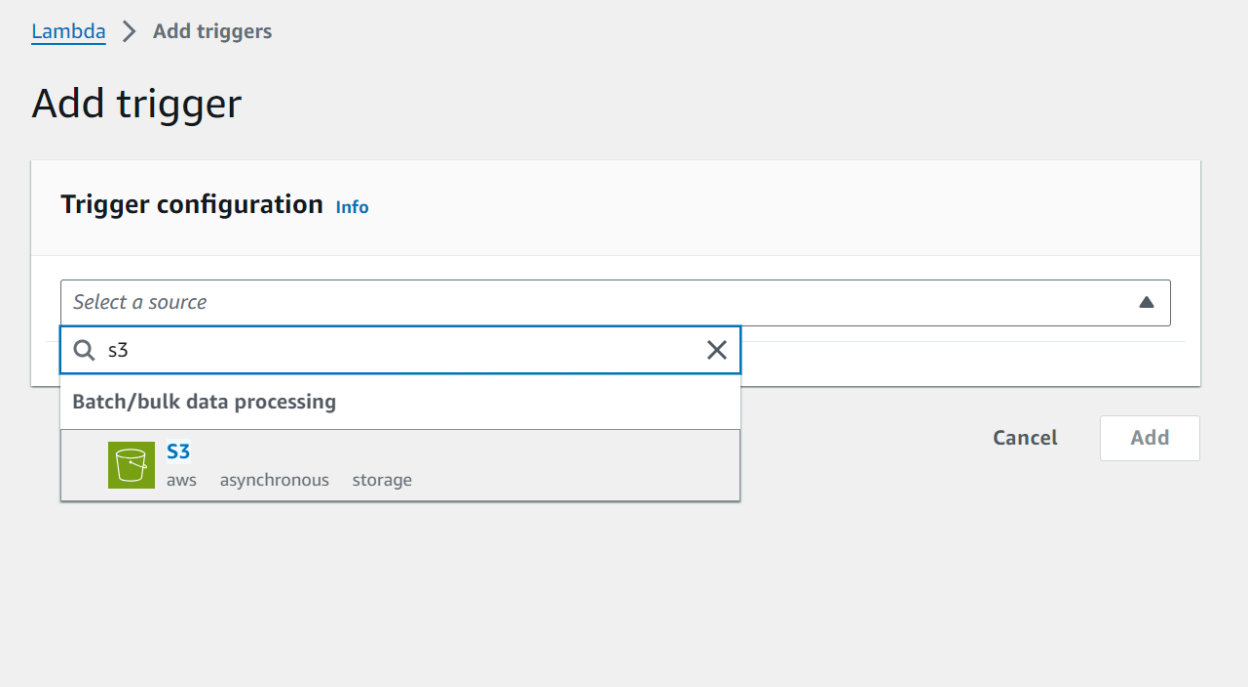

Change default execution role
Execution role
Choose a role that defines the permissions of your function. To create a custom role, go to the IAM console.
Create a new role with basic Lambda permissions
Use an existing role
Create a new role from AWS policy templates
Role creation might take a few minutes. Please do not delete the role or edit the trust or permissions policies in this role.
Role name
Enter a name for your new role.
myroll
Use only letters, numbers, hyphens, or underscores with no spaces.
Policy templates - optional Info
Choose one or more policy templates.
Amazon S3 object read-only permissions
S3

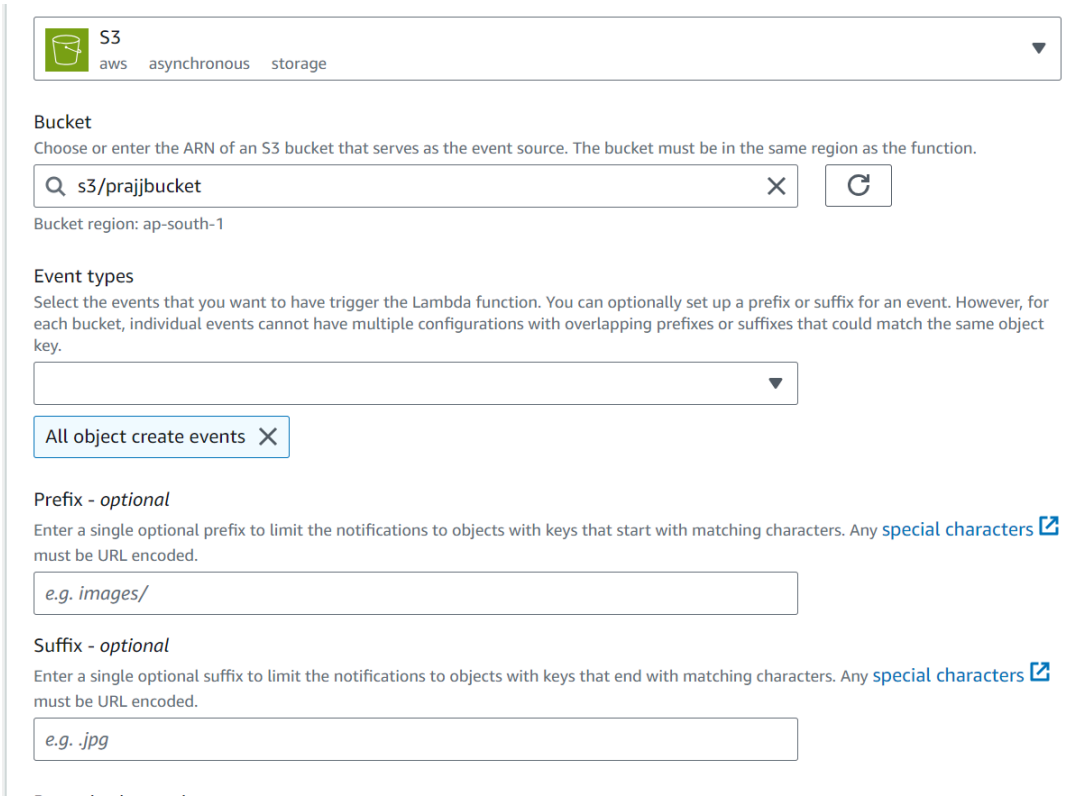

Successfully created the function prajjwallambda01. You can now change its code and configuration. To invoke your function with a test event, choose "Test".
Lambda > Functions > prajjwallambda01
prajjwallambda01
Throttle
Copy ARN
Actions
Function overview Info
Export to Application Composer
Download
Diagram
Template
prajjwallambda01
Layers (0)
Add trigger
Add destination
Description
-
Last modified
3 seconds ago
Function ARN
arn:aws:lambda:ap-south-1:183631330334:function:prajjwallambda01
Function URL Info
-

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

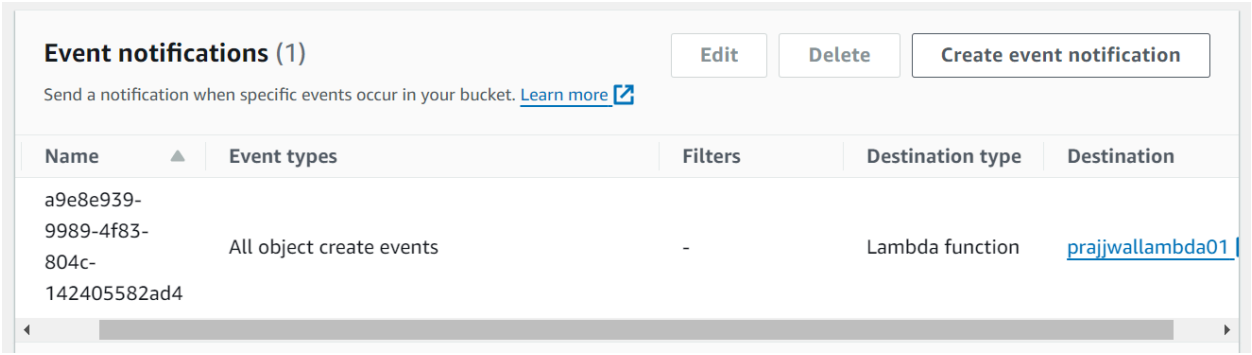



4. Add a trigger to the Lambda function so any changes in the S3 bucket will be first visible to the user.

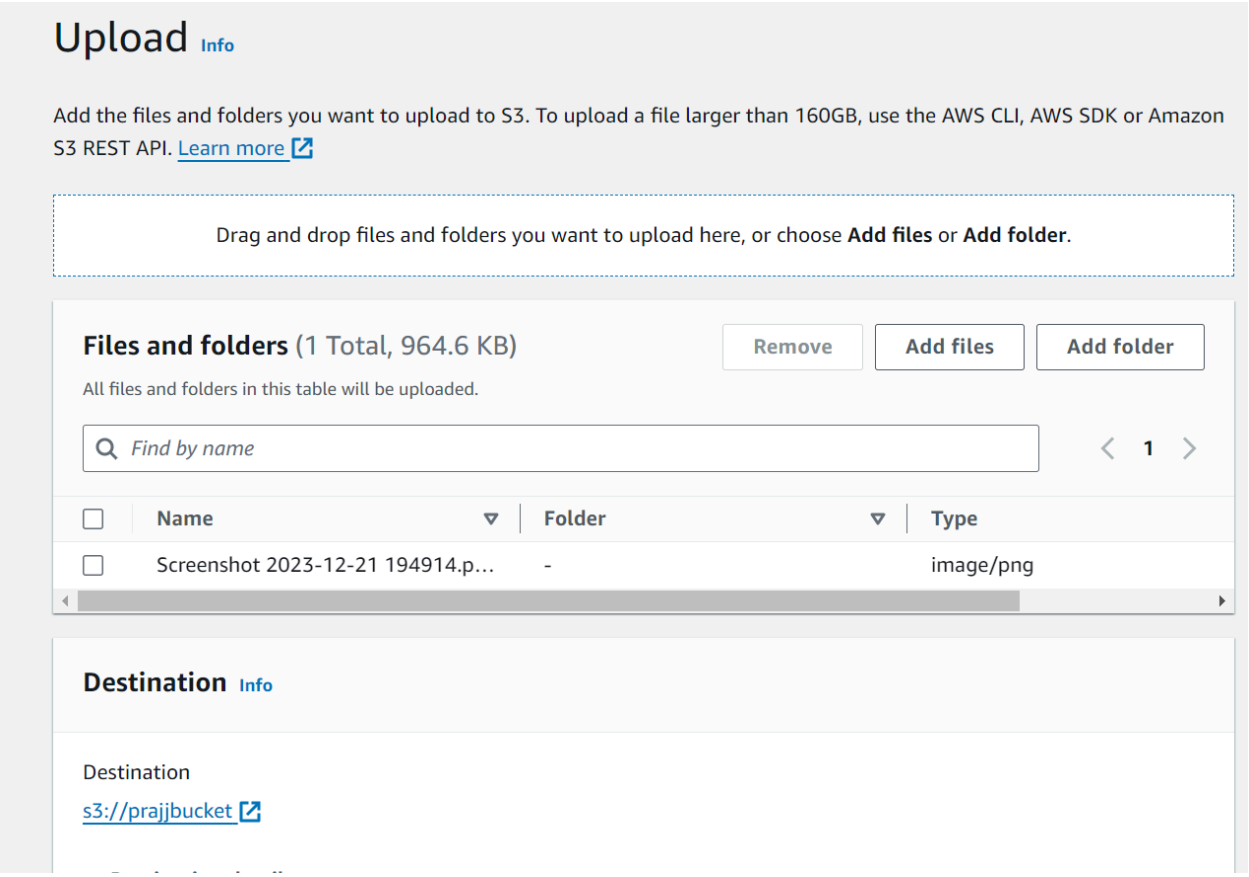


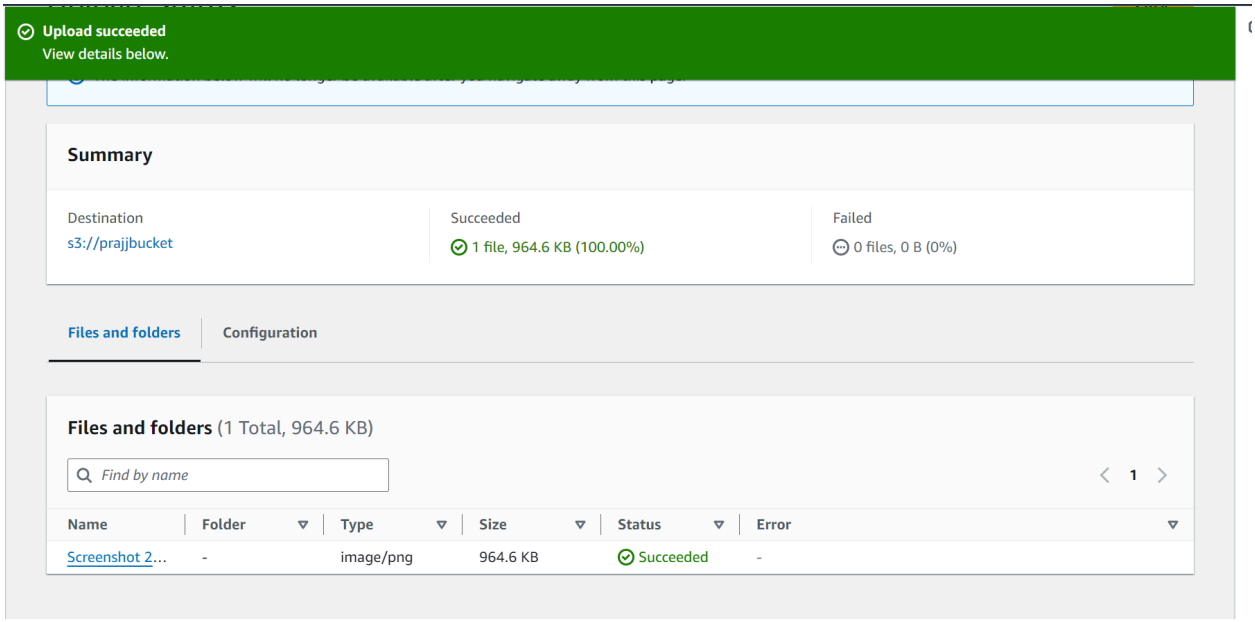



5. In the event notification of the S3 bucket we can see that it has been connected to the Lambda function .

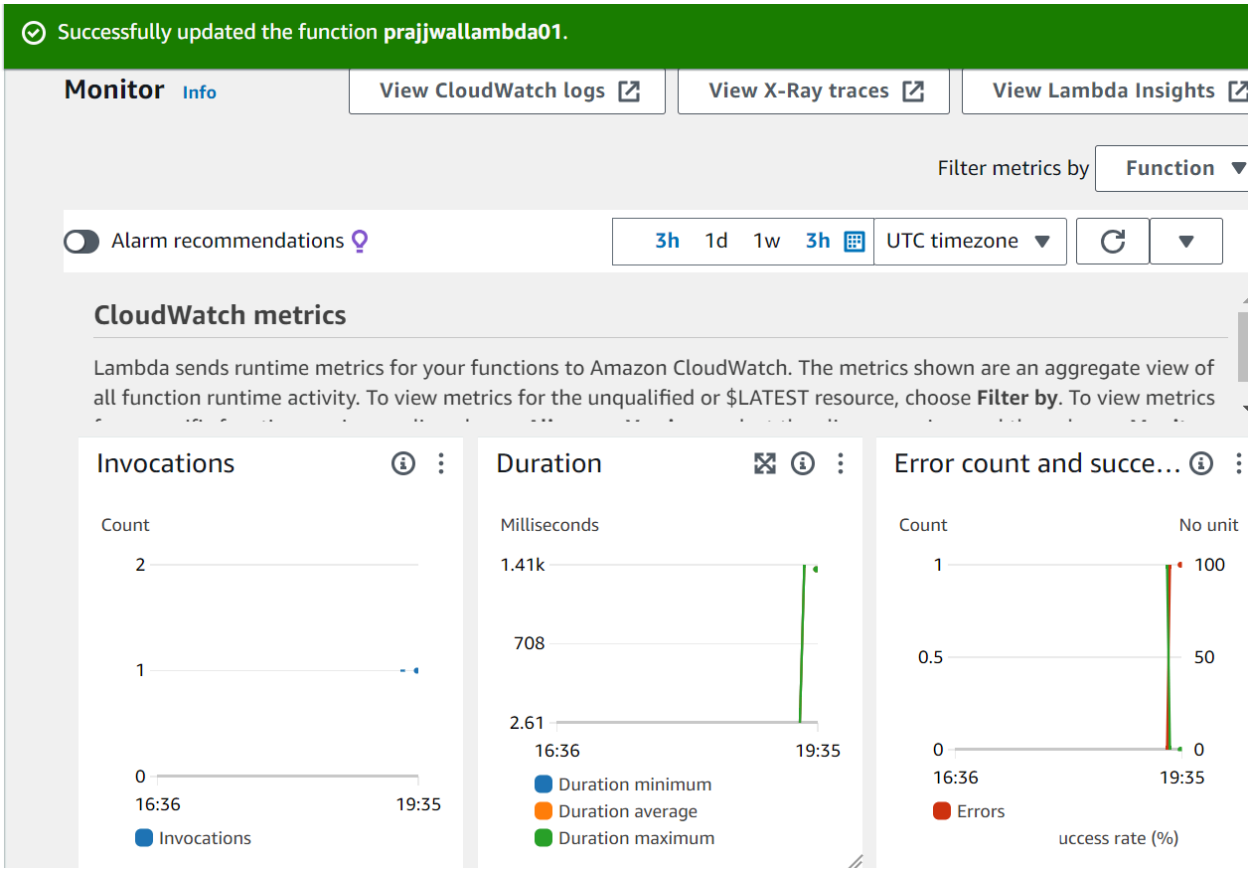


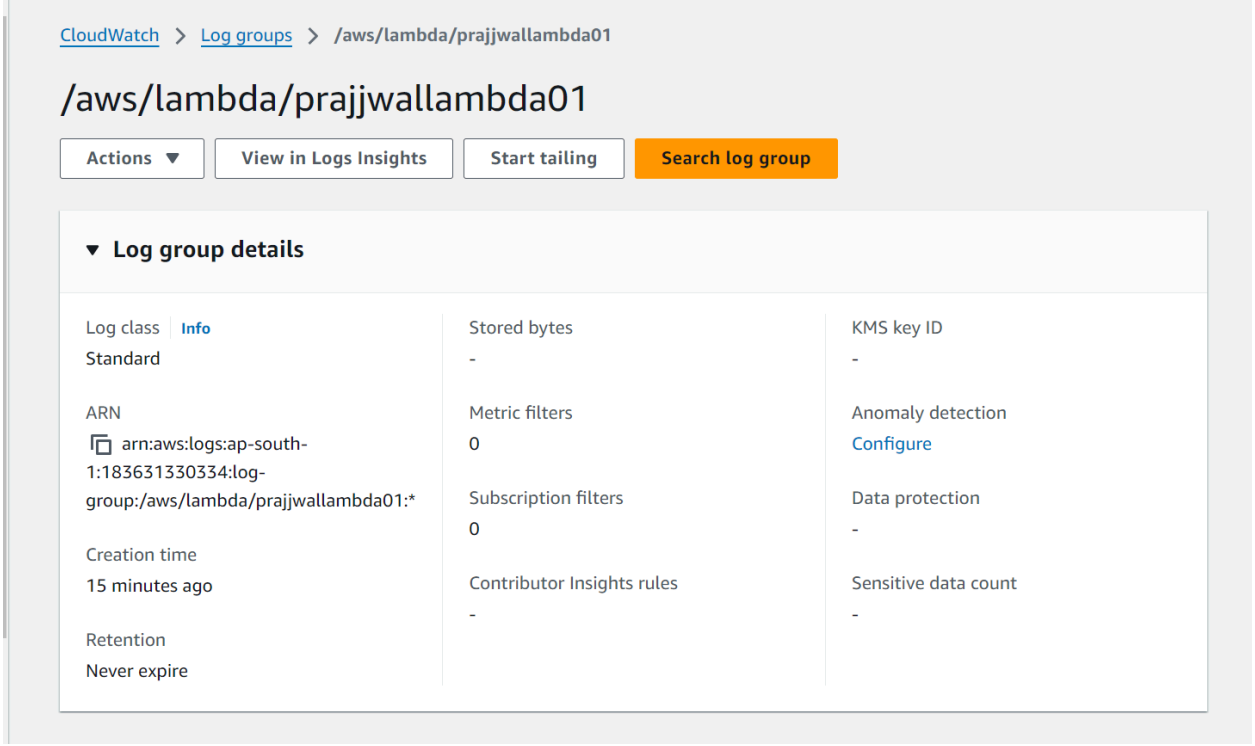
6. Upload a photo to the S3 bucket

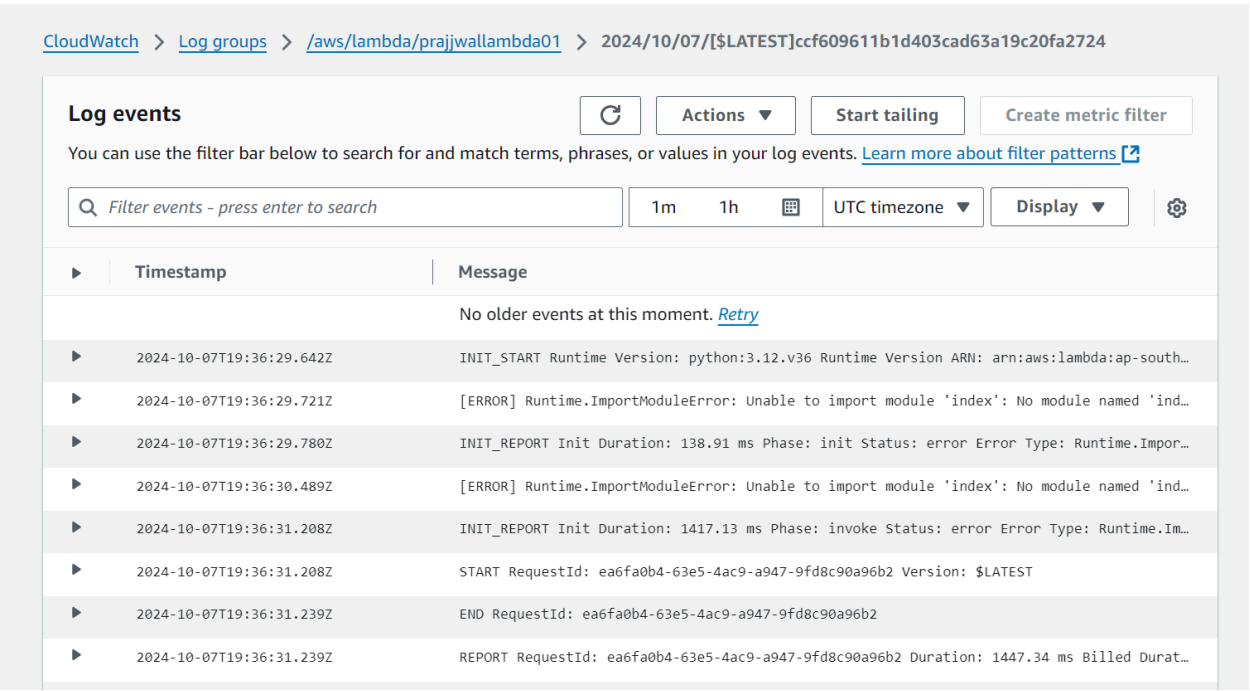



7. Now run the function and in the cloud watch logs of AWS you can see the message printed and all the other details of the working of the Lambda function.


Successfully updated the function prajjwallambda01.
Monitor Info
View CloudWatch logs
View X-Ray traces
View Lambda Insights
Filter metrics by
Function
Alarm recommendations
3h 1d 1w 3h
UTC timezone
CloudWatch metrics
Lambda sends runtime metrics for your functions to Amazon CloudWatch. The metrics shown are an aggregate view of all function runtime activity. To view metrics for the unqualified or $LATEST resource, choose Filter by. To view metrics
Invocations
Count
2
1
0
16:36
19:35
Invocations
Duration
Milliseconds
1.41k
708
2.61
16:36
19:35
Duration minimum
Duration average
Duration maximum
Error count and succe...
Count
No unit
1
0.5
0
100
50
0
16:36
19:35
Errors
uccess rate (%)


CloudWatch > Log groups > /aws/lambda/prajjwallambda01
/aws/lambda/prajjwallambda01
Actions
View in Logs Insights
Start tailing
Search log group
Log group details
Log class Info
Standard
ARN
arn:aws:logs:ap-south-1:183631330334:log-group:/aws/lambda/prajjwallambda01:*
Creation time
15 minutes ago
Retention
Never expire
Stored bytes
-
Metric filters
0
Subscription filters
0
Contributor Insights rules
-
KMS key ID
-
Anomaly detection
Configure
Data protection
-
Sensitive data count
-


CloudWatch > Log groups > /aws/lambda/prajjwallambda01 > 2024/10/07/[$LATEST]ccf609611b1d403cad63a19c20fa2724
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
1m
1h
UTC timezone
Display
Timestamp
Message
No older events at this moment. Retry
2024-10-07T19:36:29.642Z
INIT_START Runtime Version: python:3.12.v36 Runtime Version ARN: arn:aws:lambda:ap-south…
2024-10-07T19:36:29.721Z
[ERROR] Runtime.ImportModuleError: Unable to import module 'index': No module named 'ind…
2024-10-07T19:36:29.780Z
INIT_REPORT Init Duration: 138.91 ms Phase: init Status: error Error Type: Runtime.Impor…
2024-10-07T19:36:30.489Z
[ERROR] Runtime.ImportModuleError: Unable to import module 'index': No module named 'ind…
2024-10-07T19:36:31.208Z
INIT_REPORT Init Duration: 1417.13 ms Phase: invoke Status: error Error Type: Runtime.Im…
2024-10-07T19:36:31.208Z
START RequestId: ea6fa0b4-63e5-4ac9-a947-9fd8c90a96b2 Version: $LATEST
2024-10-07T19:36:31.239Z
END RequestId: ea6fa0b4-63e5-4ac9-a947-9fd8c90a96b2
2024-10-07T19:36:31.239Z
REPORT RequestId: ea6fa0b4-63e5-4ac9-a947-9fd8c90a96b2 Duration: 1447.34 ms Billed Durat…