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Advance Devops-12

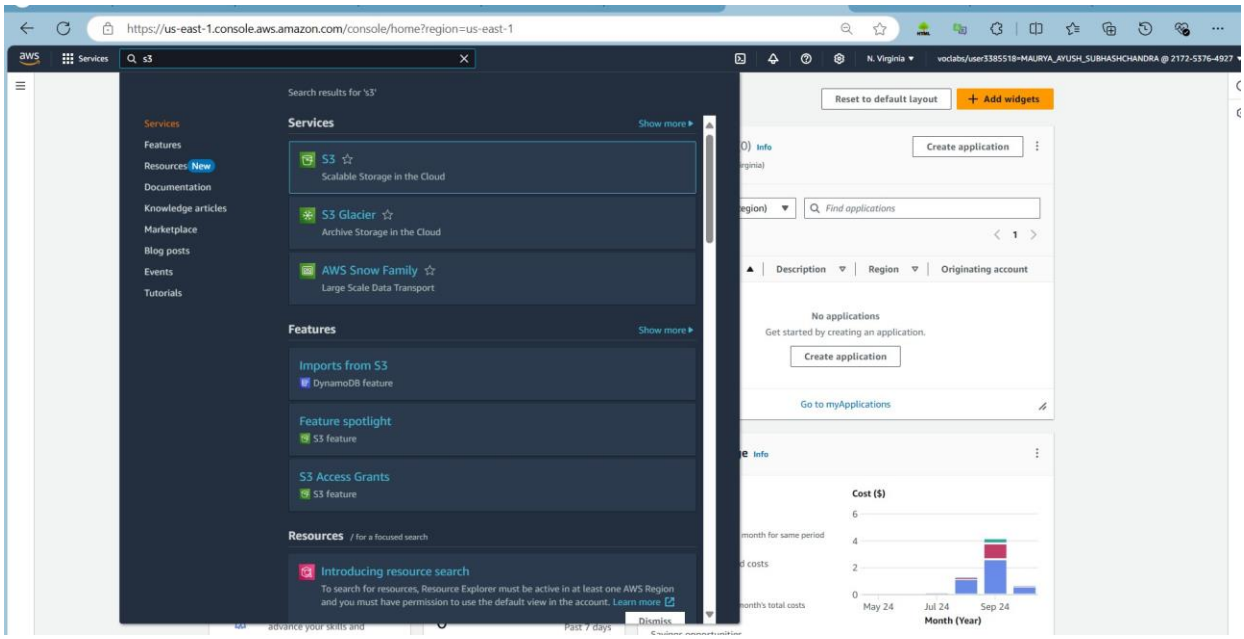
Aim: To create a Lambda function which will log “An Image has been added” once you add an object to a specific bucket in S3

Prerequisites:

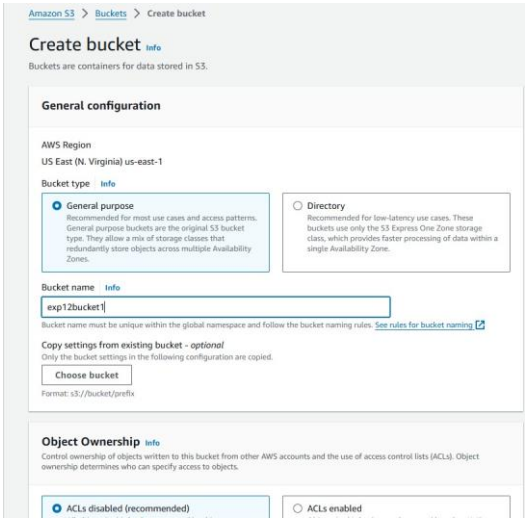
1) AWS account (academy preferable)
2) Lambda function (created in the previous experiment).

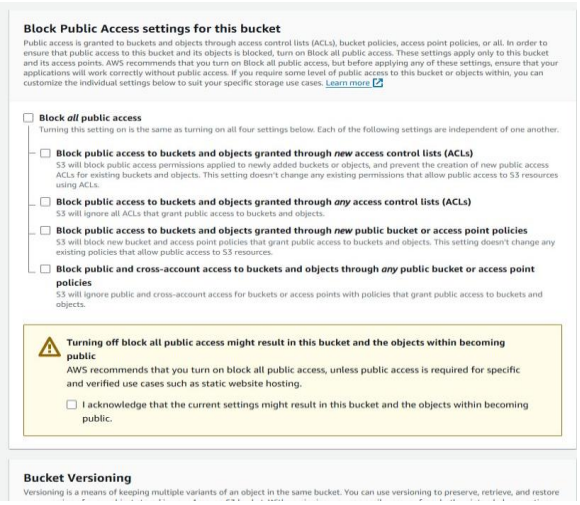
Step 1: Create a s3 bucket.

1) Search for S3 bucket in the services search. Then click on create bucket.

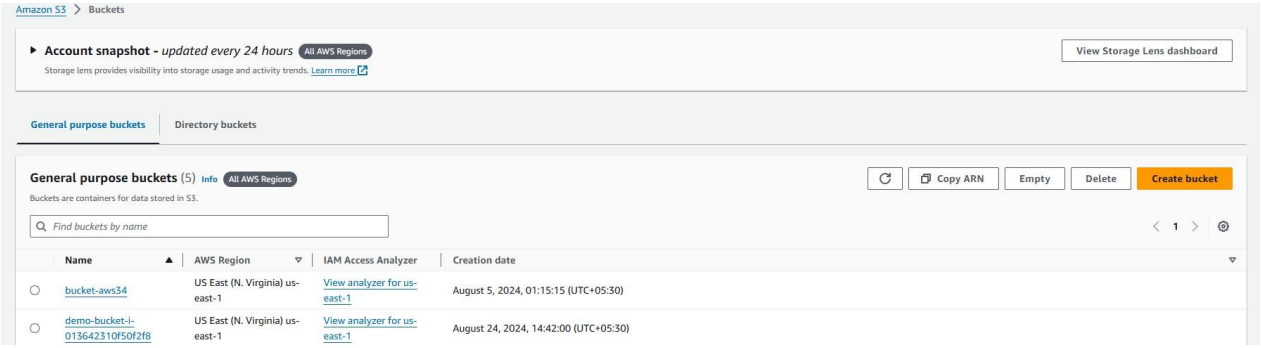


2) Keep the bucket as a general purpose bucket. Give a name to your bucket. 3) Uncheck block all public access.

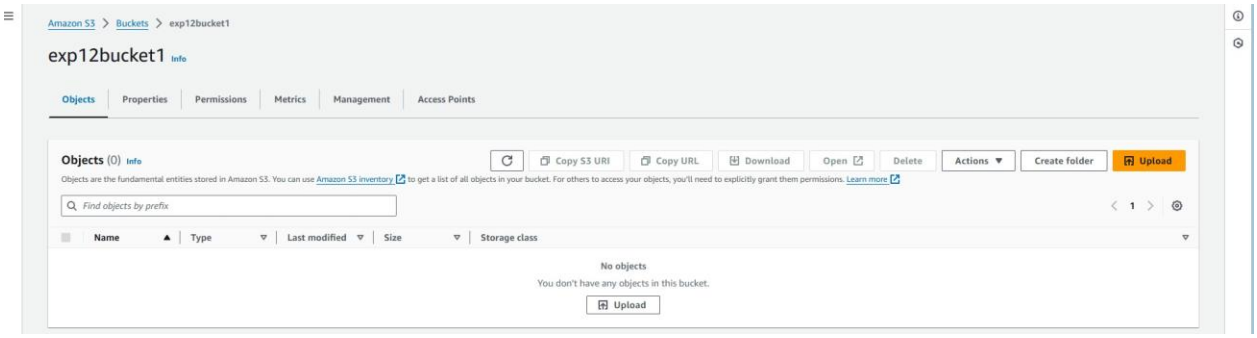


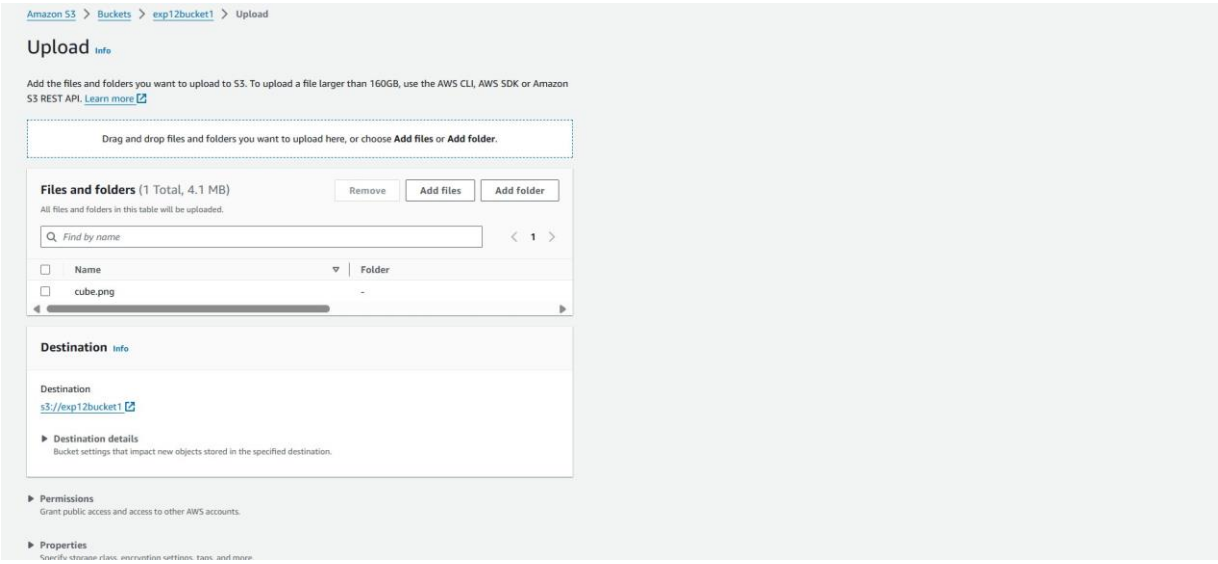


3) Keeping all other options the same, click on create. This would create your bucket. Now click on the name of the bucket.

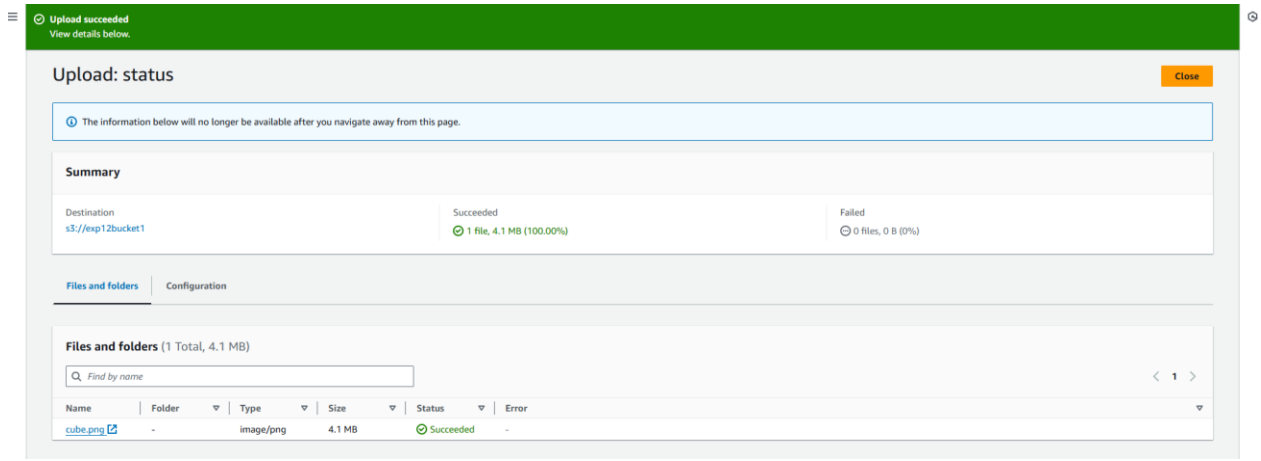


4) Here, click on upload, then add files. Select any image that you want to upload in the bucket and click on upload.



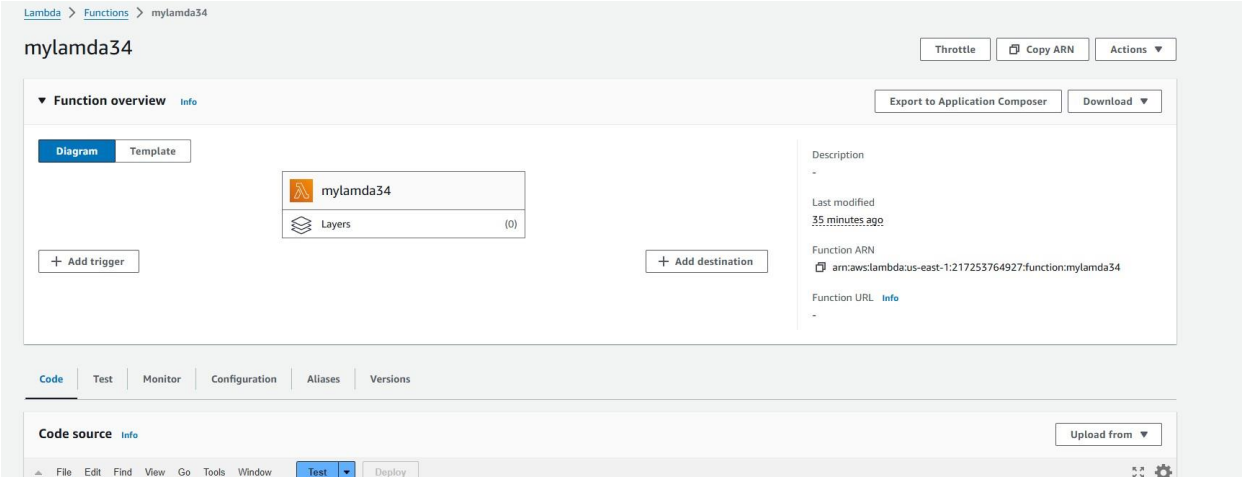


5) The image has been uploaded to the bucket.

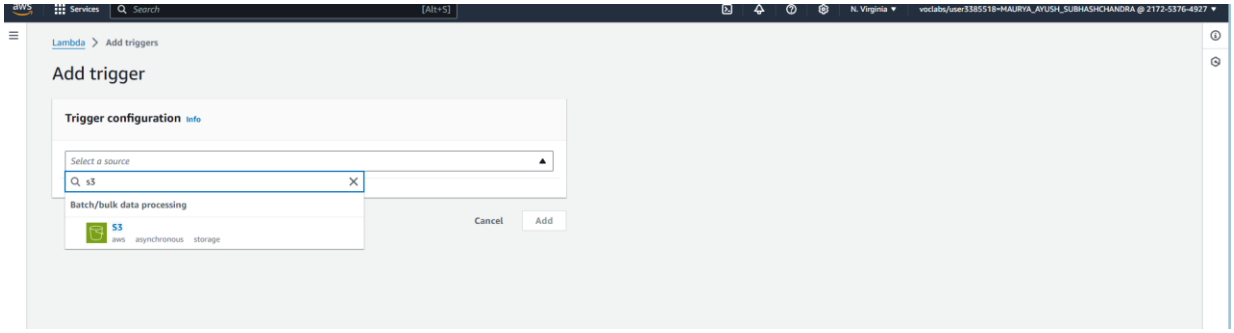


Step 2: Configure Lambda function

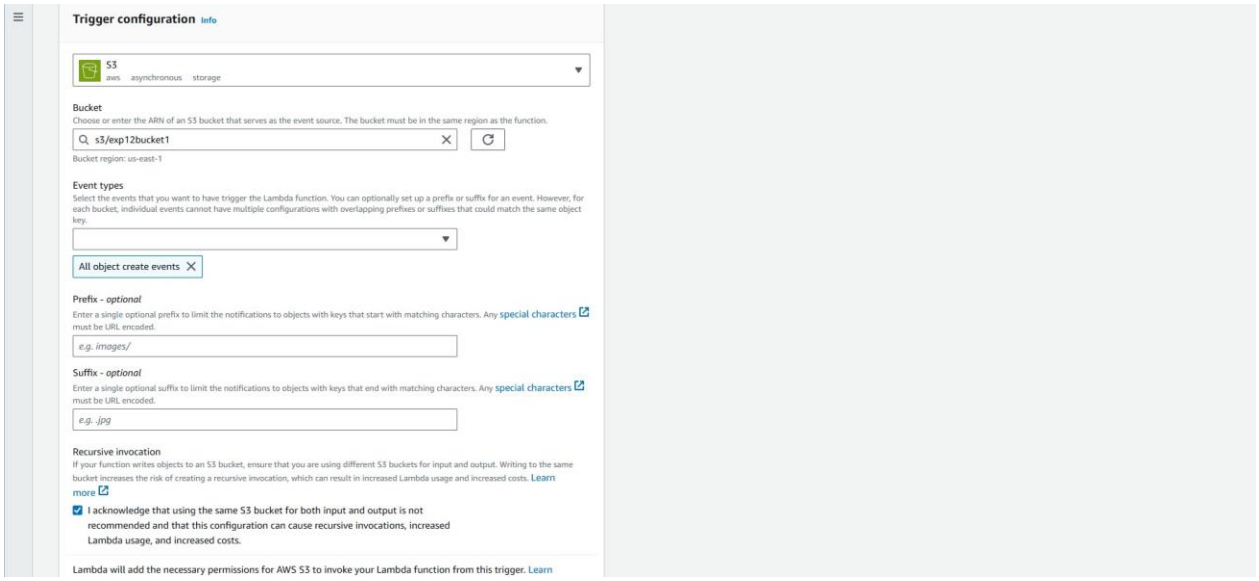
1) Go to the lambda function you had created before. (Services → Lambda → Click on name of function). Here, click on add trigger.

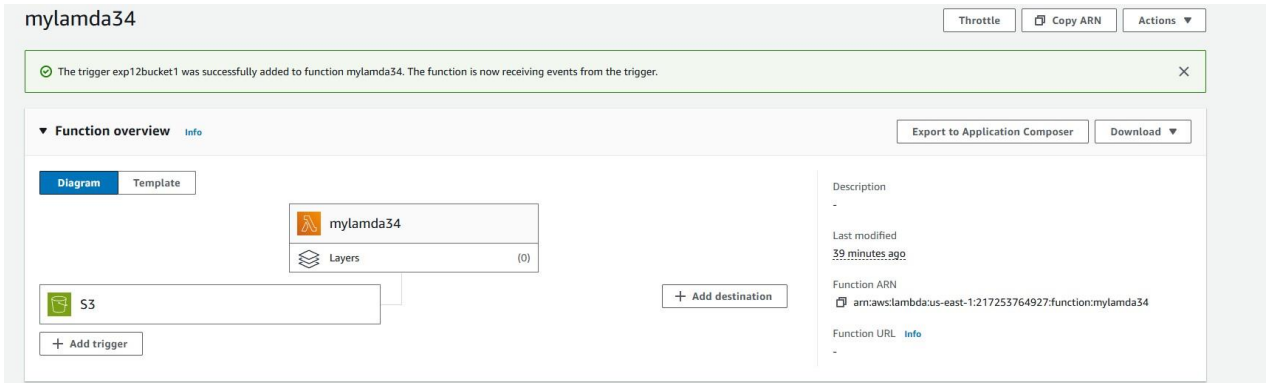


2) Under trigger configuration, search for S3 and select it.



3) Here, select the S3 bucket you created for this experiment. Acknowledge the condition given by AWS. then click on Add. This will add the S3 bucket trigger to your function.



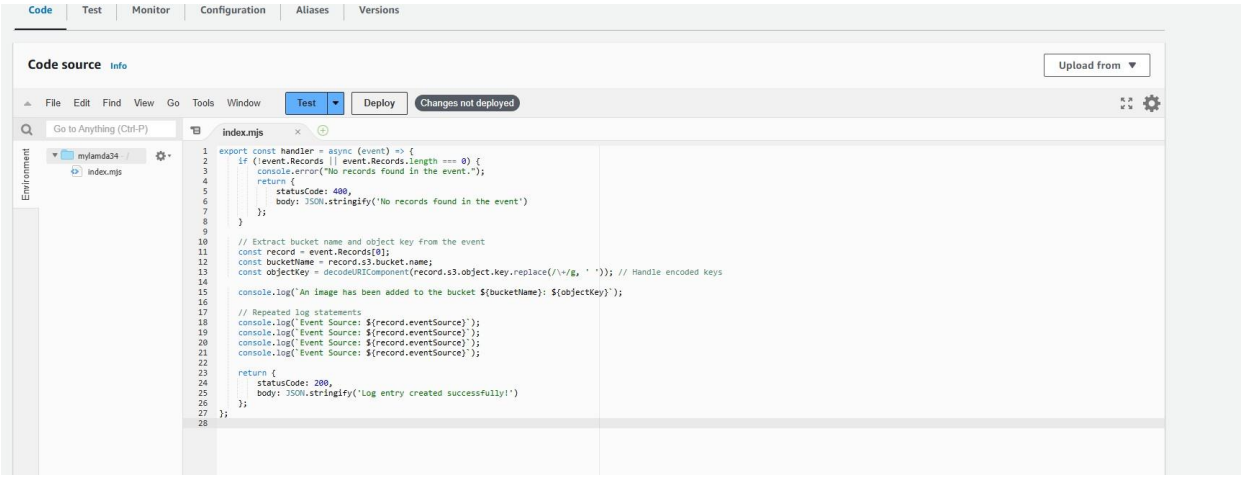


4) Scroll down to the code section of the function. Add the following javascript code to the code area by replacing the existing code.

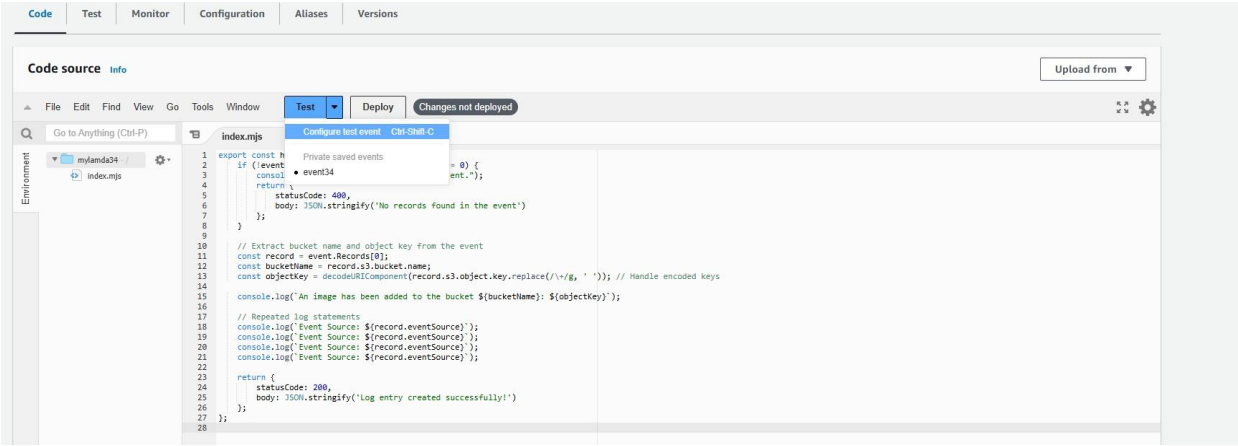
```
export const handler = async (event) => {
  if (!event.Records || event.Records.length === 0) {
    console.error("No records found in the event.");
    return {
      statusCode: 400,
      body: JSON.stringify('No records found in the event')
    };
  }

  // Extract bucket name and object key from the event
  const record = event.Records[0];
```

```
    const bucketName = record.s3.bucket.name;
    const objectKey = decodeURIComponent(record.s3.object.key.replace(/\+/g, ' ')); //
Handle encoded keys

    console.log(`An image has been added to the bucket ${bucketName}: ${objectKey}`);

    // Repeated log statements
    console.log(`Event Source: ${record.eventSource}`);
    console.log(`Event Source: ${record.eventSource}`);
    console.log(`Event Source: ${record.eventSource}`);
    console.log(`Event Source: ${record.eventSource}`);

    return {
        statusCode: 200,
        body: JSON.stringify('Log entry created successfully!')
    };
};
```

This code checks for records in the event, extracts the bucket name and object key, logs the details, and returns a success message if an image is added to the bucket.



5) Now, click on the dropdown near the test, then click on the configure test event.

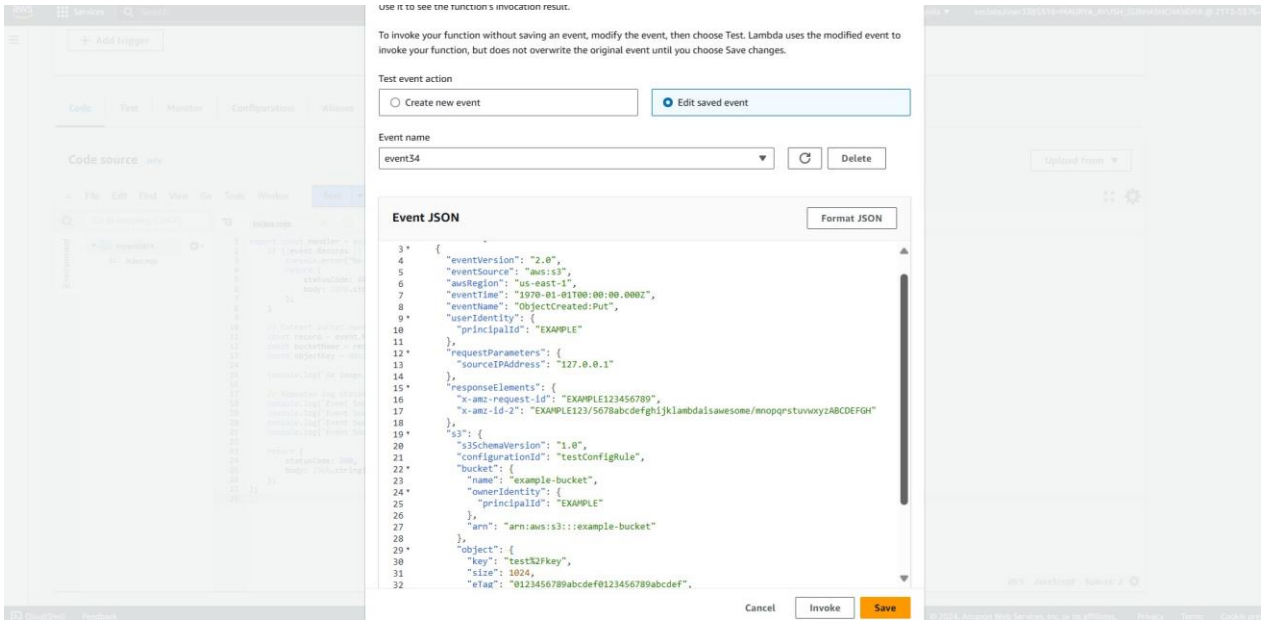


6) Here, select edit saved event. Select the event that you had created before. Under Event JSON, paste the following code.

```
{
  "Records": [
    {
      "eventVersion": "2.0",
      "eventSource": "aws:s3",
      "awsRegion": "us-east-1",
      "eventTime": "1970-01-01T00:00:00.000Z",
      "eventName": "ObjectCreated:Put",
      "userIdentity": {
        "principalId": "EXAMPLE"
      },
      "requestParameters": {
        "sourceIPAddress": "127.0.0.1"
      },
      "responseElements": {
        "x-amz-request-id": "EXAMPLE123456789",
        "x-amz-id-2":
"EXAMPLE123/5678abcdefghijklambdaisawesome/mnopqrstuvwxyzABCDEFGH"
      },
      "s3": {
        "s3SchemaVersion": "1.0",
        "configurationId": "testConfigRule",
        "bucket": {
          "name": "example-bucket",
          "ownerIdentity": {
          "principalId": "EXAMPLE"
```

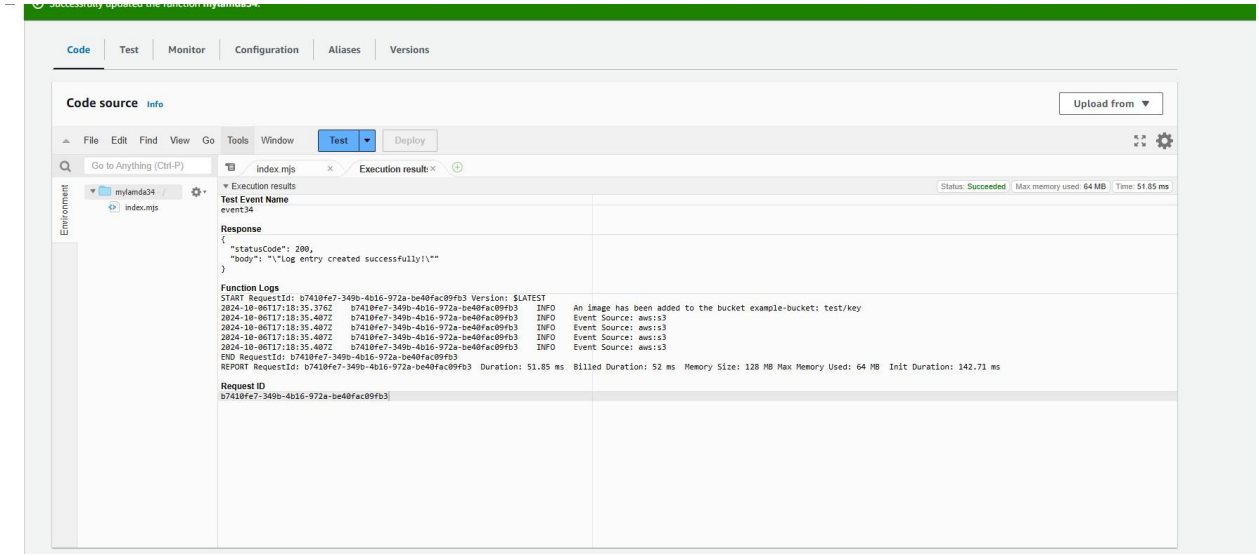
```
        },
        "arn": "arn:aws:s3:::example-bucket"
      },
      "object": {
        "key": "test%2Fkey",
        "size": 1024,
        "eTag": "0123456789abcdef0123456789abcdef",
        "sequencer": "0A1B2C3D4E5F678901"
      }
    }
  }
 ]
}
```

This JSON structure represents an S3 event notification triggered when an object is uploaded to an S3 bucket. It contains details about the event, including the bucket name (example-bucket), the object key (test/key), and metadata like the object's size, the event source (aws:s3), and the event time.



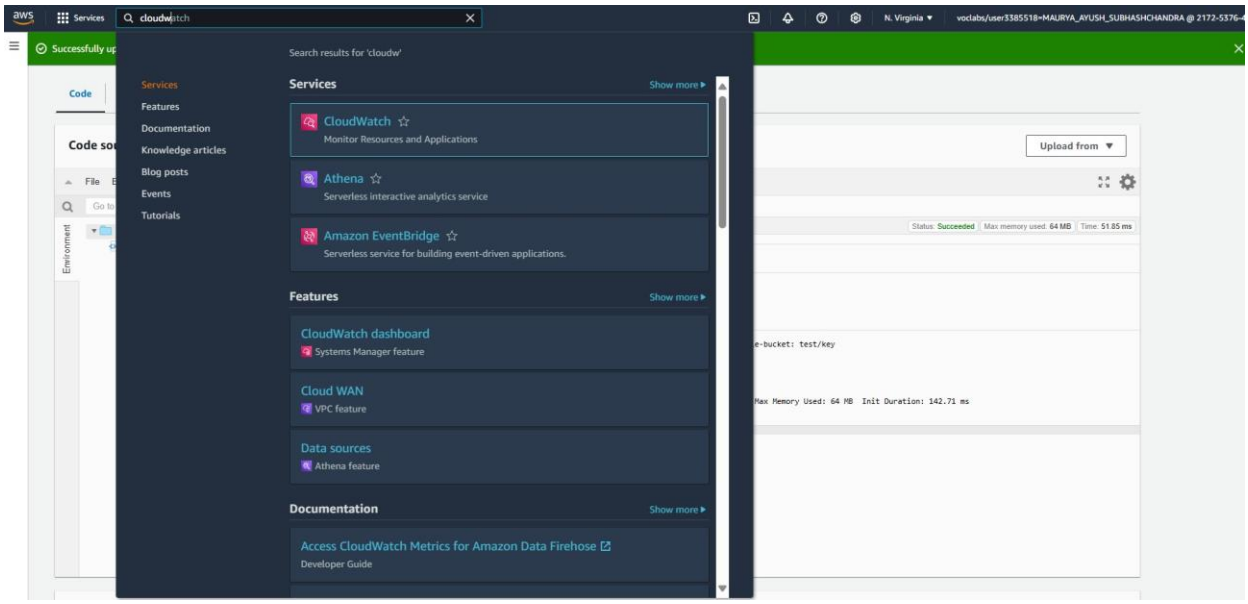
Save the changes. Then deploy the code changes by clicking on deploy

7) After deploying, click on Test. The console output shows that ‘an image has been added to the bucket’
   The JSON response shows that the log entry was created successfully.

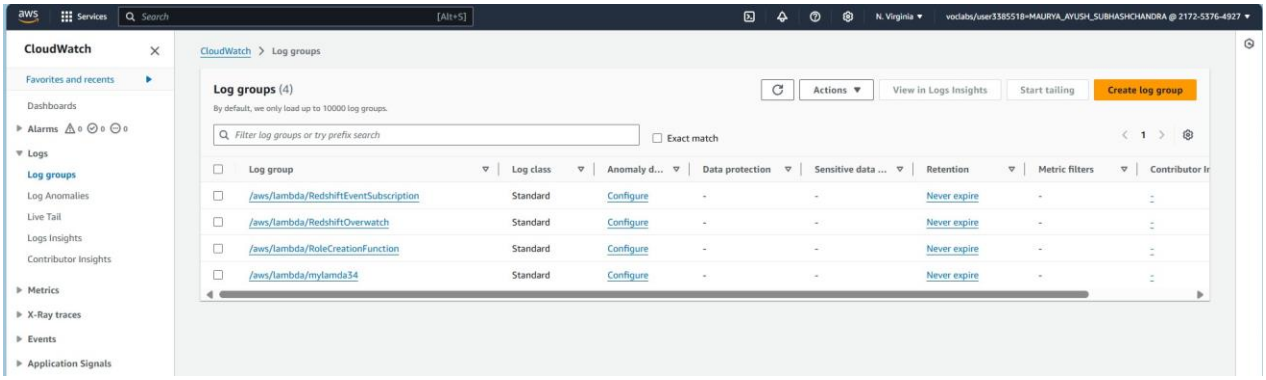


Step 3: Check the logs

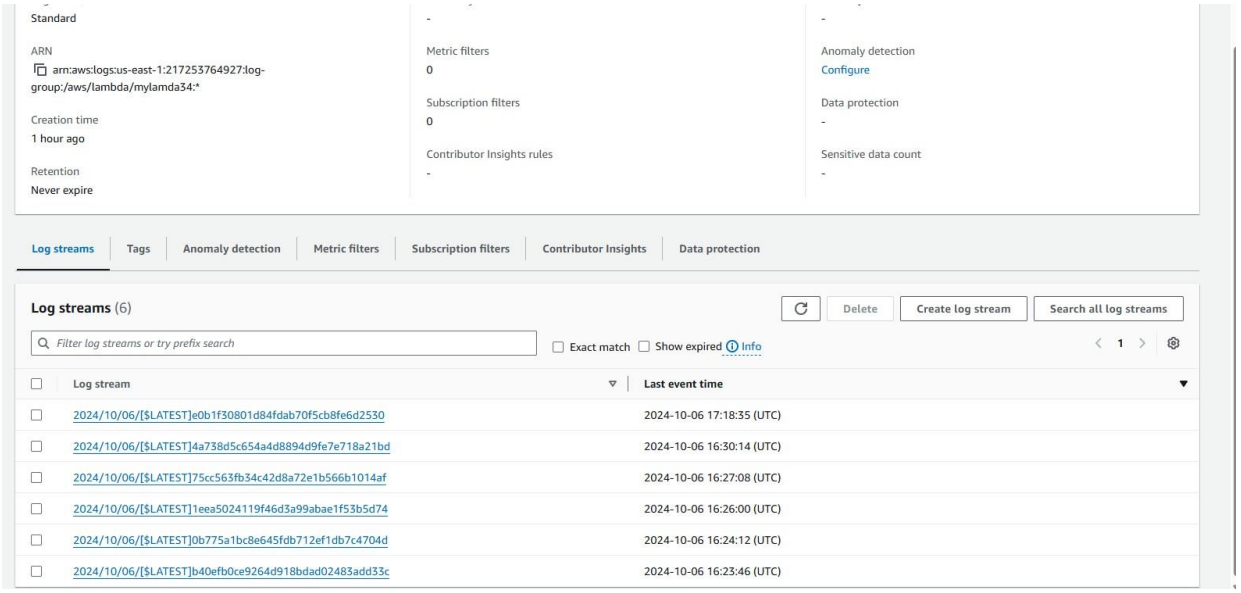
1) To check the logs explicitly, search for CloudWatch on services and open it in a new tab



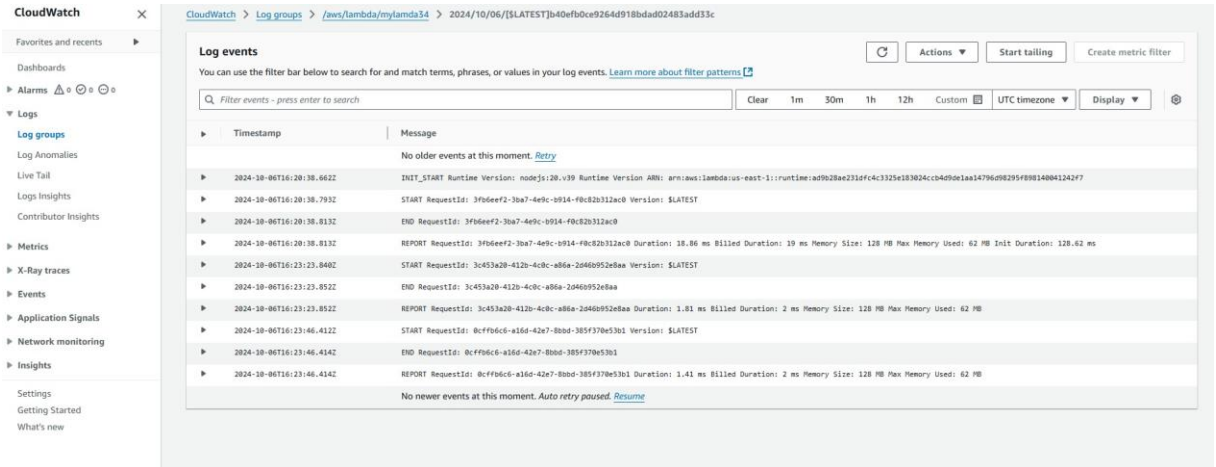
2) Here, Click on Logs → Log Groups. Select the log that has the lambda function name you just ran.



3) Here, under Log streams, select the log stream you want to check



4) Here again, we can see that ‘An image has been added to the bucket’.



Conclusion:

In this experiment, we successfully created and configured an AWS Lambda function to log when an image is added to a specific S3 bucket. We explored the integration between AWS Lambda and S3, demonstrating how event-driven processes can automate tasks. By setting up an S3 bucket trigger, we enabled the Lambda function to detect object uploads and log essential details like the bucket name and object key. After deploying and testing the function, we verified the logs in CloudWatch, confirming that the function worked as expected, accurately detecting and logging the addition of images to the bucket. This experiment showcases how AWS services can seamlessly collaborate for automation.