



Semester: V  
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Class / Branch: TE IT  
Subject: Advanced Devops Lab (ADL)  
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## EXPERIMENT NO. 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

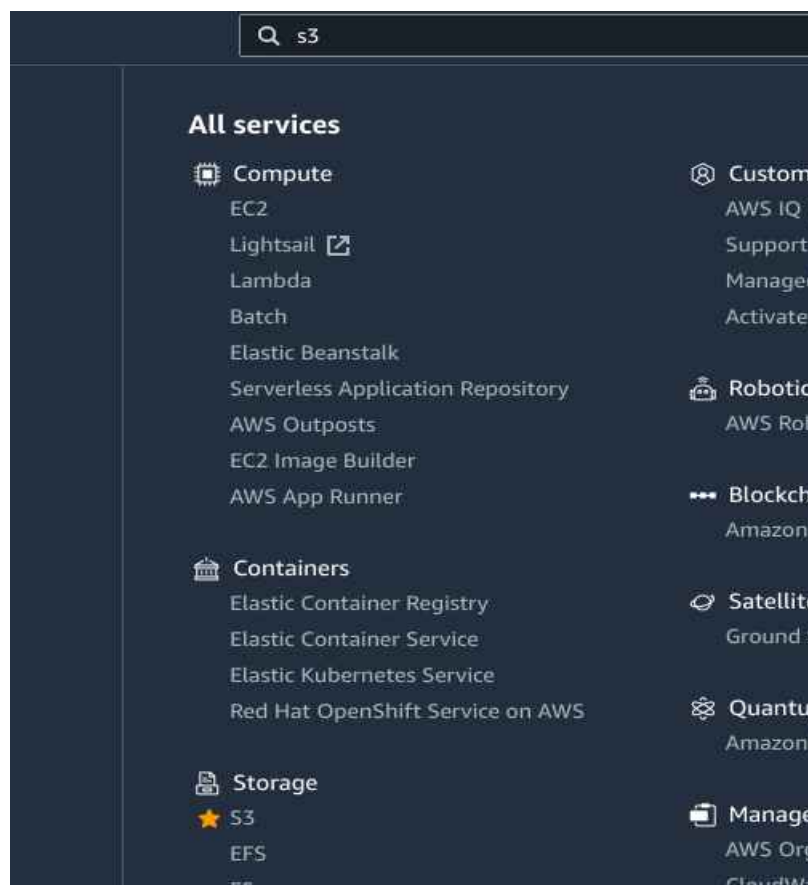
### Theory:

#### Creating S3 Bucket

Let us start first by creating a s3 bucket in AWS console using the steps given below –

#### Step 1

Go to Amazon services and click **S3** in storage section as highlighted in the image given below –





## Step 2

Click **S3** storage and **Create bucket** which will store the files uploaded.

The screenshot shows the AWS Management Console interface. At the top, there's a green banner that says "Successfully created bucket 'storageexp12'". Below this, there's a section for "General purpose buckets" with a "Create bucket" button. The console also displays a table of existing buckets, including "storageexp12" in the "US East (N. Virginia) us-east-1" region, created on "August 21, 2024, 12:07:26 (UTC+05:30)".

Name	AWS Region	IAM Access Analyzer	Creation date
<a href="#">storageexp12</a>	US East (N. Virginia) us-east-1	<a href="#">View analyzer for us-east-1</a>	August 21, 2024, 12:07:26 (UTC+05:30)

## Step 3

Once you click Create bucket button, you can see a screen as follows –



The screenshot shows the AWS S3 console interface. At the top, there's a green banner indicating 'Upload succeeded'. Below this, a 'Summary' section shows the destination as 's3://storageexp12', with 1 file (772.1 KB) successfully uploaded (100.00%) and 0 files failed (0%). The 'Files and folders' tab is selected, showing a table with one file: 'tiger.jpeg', which is an image/jpeg file, 772.1 KB in size, and its status is 'Succeeded'.

Name	Folder	Type	Size	Status	Error
tiger.jpeg	-	image/jpeg	772.1 KB	Succeeded	-

#### Step 4

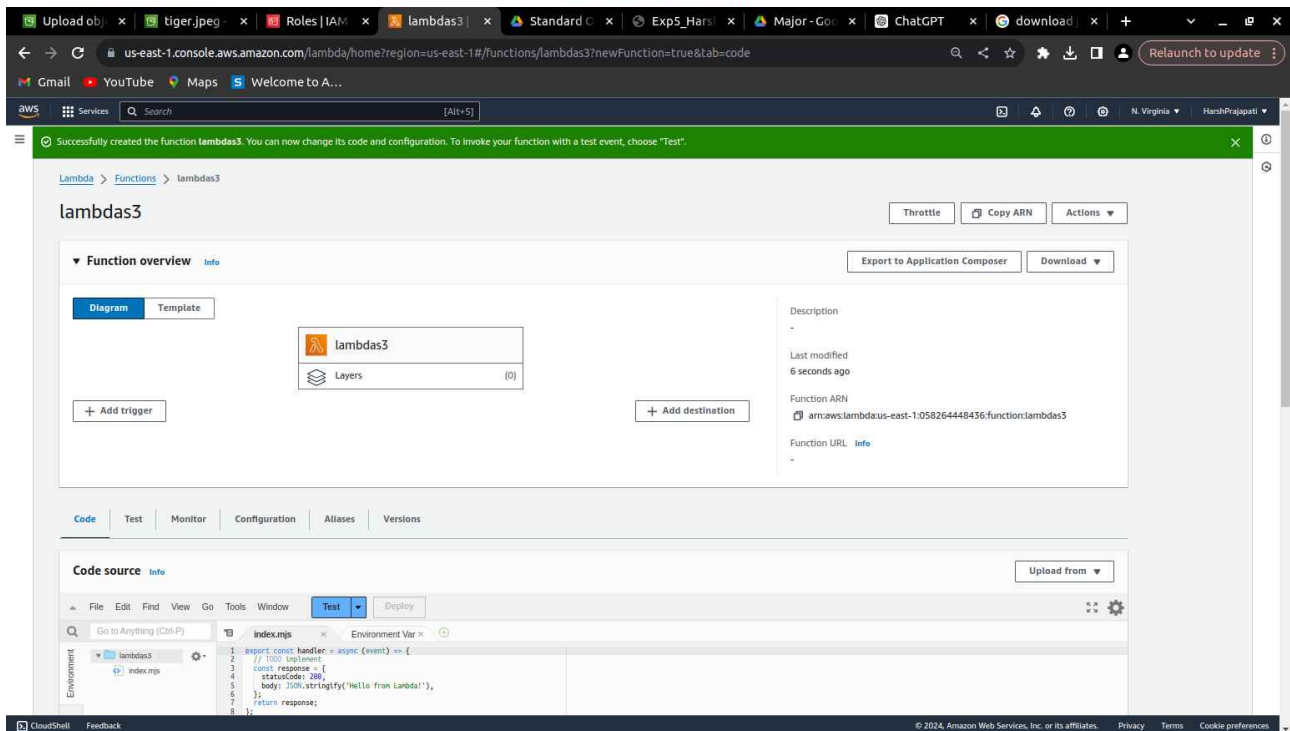
Enter the details Bucket name, Select the Region and click Create button at the bottom left side. Thus, we have created bucket with name :

#### Step 5

Now, click the bucket name and it will ask you to upload files as shown below –



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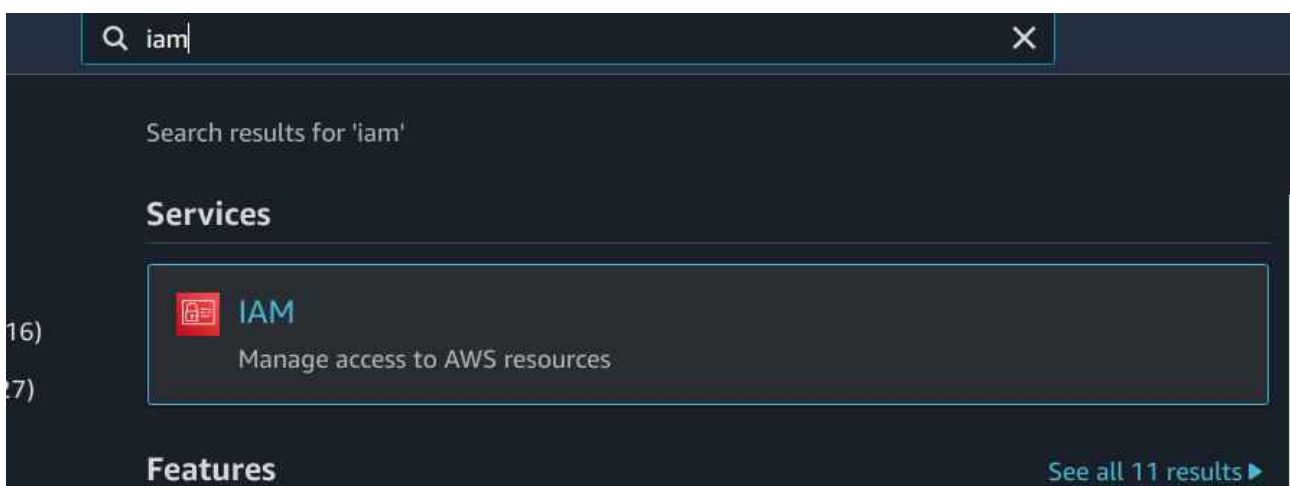
Thus, we are done with bucket creation in S3.

## Create Role that Works with S3 and Lambda

To create role that works with S3 and Lambda, please follow the Steps given below –

### Step 1

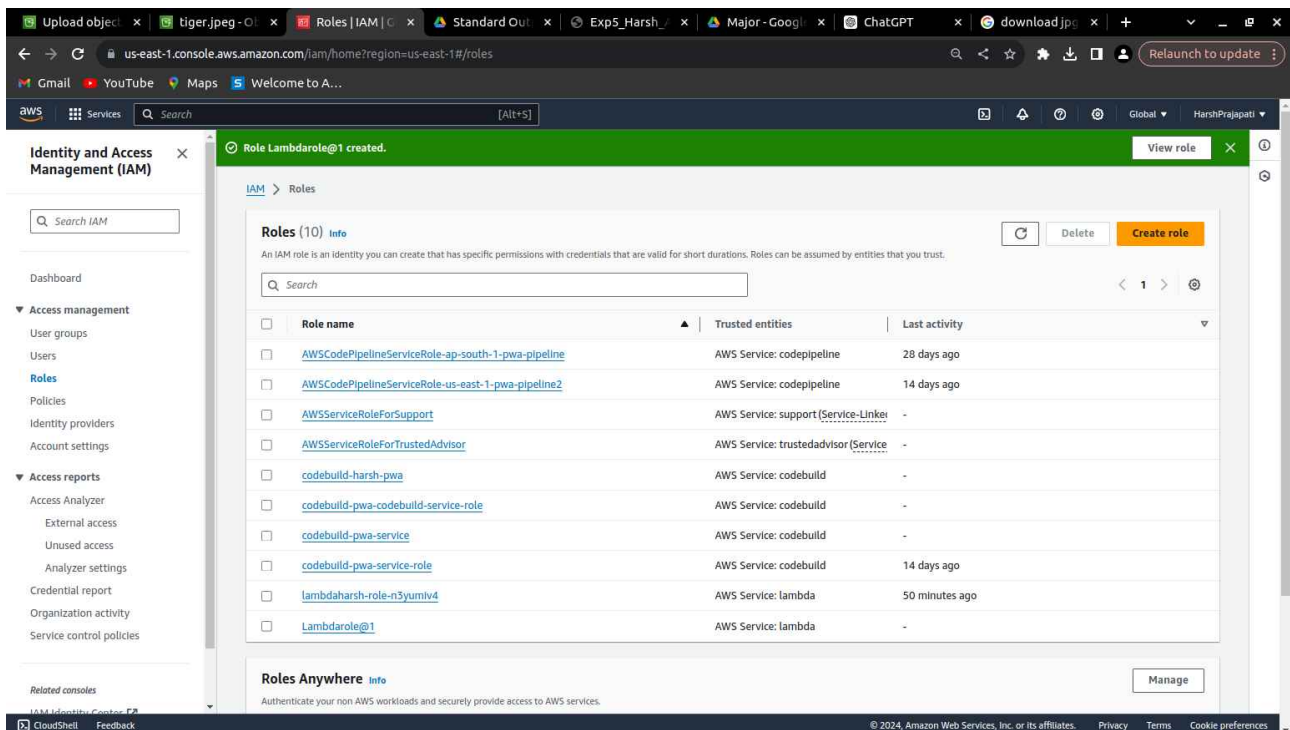
Go to AWS services and select IAM as shown below –





## Step 2

Now, click **IAM** -> **Roles** as shown below –



## Step 3

Now, click **Create role** and choose the services that will use this role. Select Lambda and click **Permission** button.

## Step 4

Add the permission from below and click Review.

**AmazonS3FullAccess, AWSLambdaFullAccess and CloudWatchFullAccess.**



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Step 1  
Select trusted entity

Step 2  
Add permissions

Step 3  
Name, review, and create

### Select trusted entity

**Trusted entity type**

- ☒ **AWS service**  
Allow AWS services like EC2, Lambda, or others to perform actions in this account.
- ☐ **AWS account**  
Allow entities in other AWS accounts belonging to you or a 3rd party to perform actions in this account.
- ☐ **Web identity**  
Allows users federated by the specified external web identity provider to assume this role to perform actions in this account.
- ☐ **SAML 2.0 federation**  
Allow users federated with SAML 2.0 from a corporate directory to perform actions in this account.
- ☐ **Custom trust policy**  
Create a custom trust policy to enable others to perform actions in this account.

**Use case**  
Allow an AWS service like EC2, Lambda, or others to perform actions in this account.

**Service or use case**  
Lambda

**Choose a use case for the specified service.**  
Use case  
☒ **Lambda**  
Allows Lambda functions to call AWS services on your behalf.

Cancel Next

## Step 5

Observe that we have chosen the following permissions –

## Create role

1 2 3

### Review

Provide the required information below and review this role before you create it.

**Role name\***

Use alphanumeric and '+ = , . @ \_ - ' characters. Maximum 64 characters.

**Role description**

Allows Lambda functions to call AWS services on your behalf.

Maximum 1000 characters. Use alphanumeric and '+ = , . @ \_ - ' characters.

**Trusted entities** AWS service: lambda.amazonaws.com

**Policies**

-  AmazonS3FullAccess
-  AWSLambda\_FullAccess
-  CloudWatchFullAccess

**Permissions boundary** Permissions boundary is not set

No tags were added.





Observe that the Policies that we have selected are **AmazonS3FullAccess**, **AWSLambdaFullAccess** and **CloudWatchFullAccess**.

### Step 6

Now, enter the Role name, Role description and click Create Role button at the bottom.

<input type="checkbox"/>	lambdawiths3service	AWS Service: lambda
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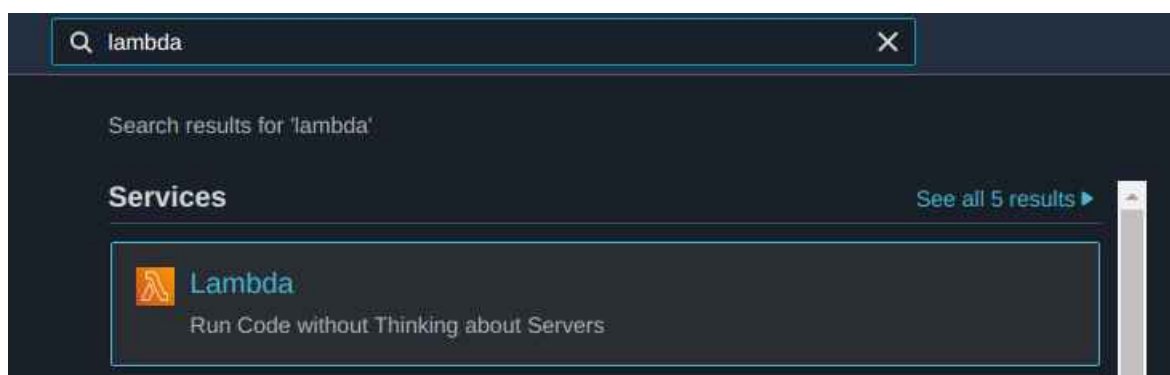
Thus, our role named lambdawiths3service is created.

## Create Lambda function and Add S3 Trigger

In this section, let us see how to create a Lambda function and add a S3 trigger to it. For this purpose, you will have to follow the Steps given below –

### Step 1

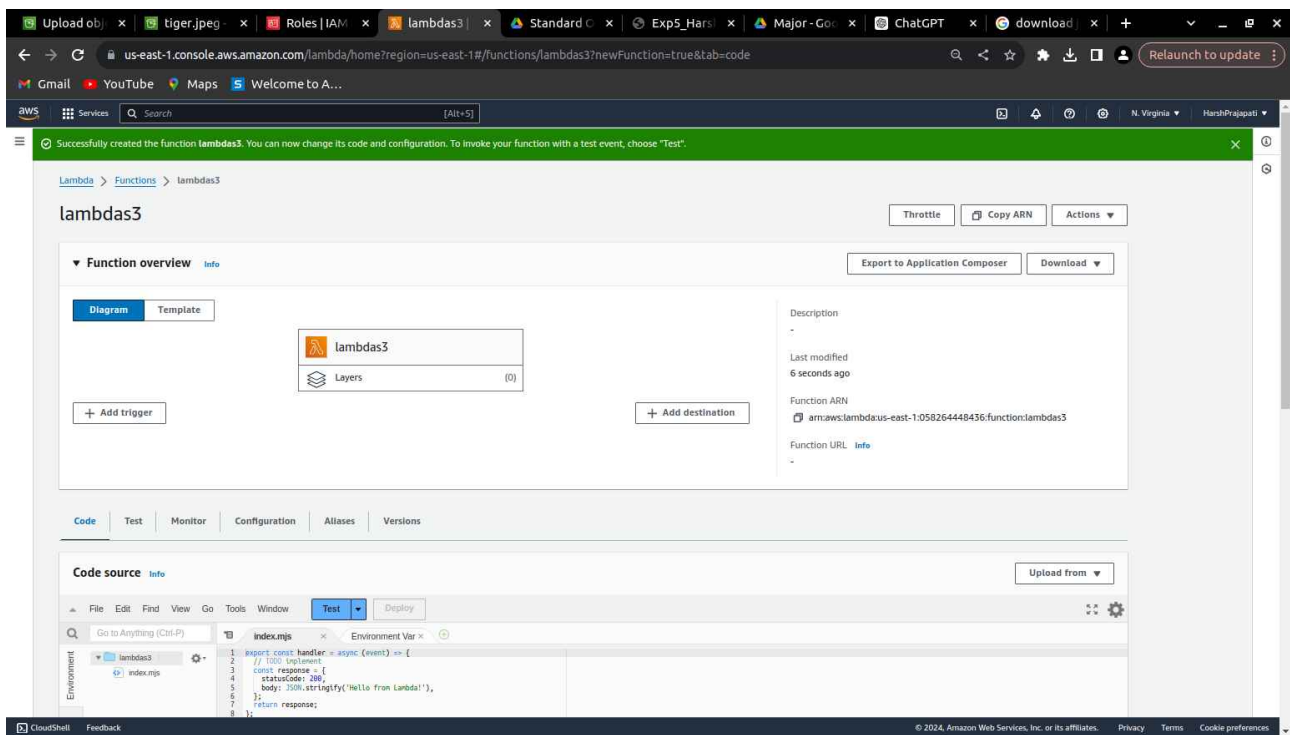
Go to AWS Services and select Lambda as shown below –





## Step 2

Click **Lambda** and follow the process for adding **Name**. Choose the **Runtime**, **Role** etc. and create the function. The Lambda function that we have created is shown in the screenshot below –



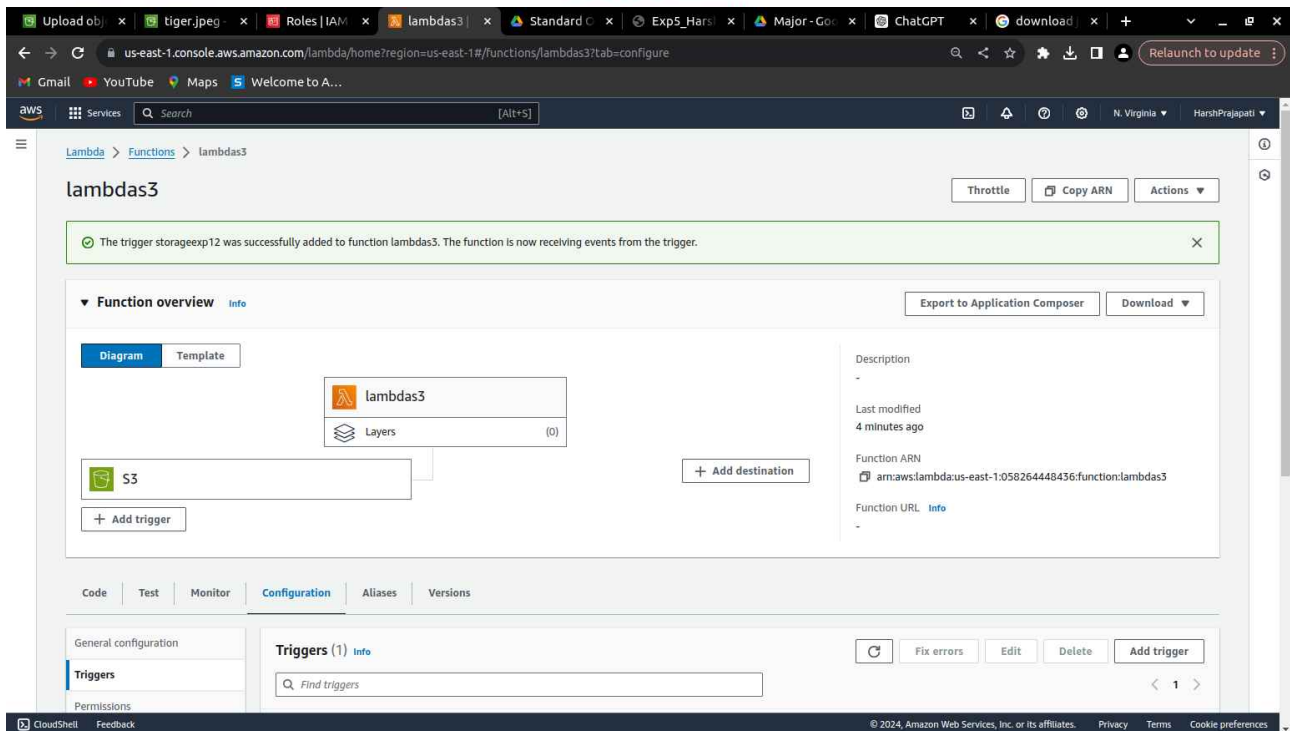
## Step 3

Now let us add the S3 trigger.





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#### Step 4

Choose the trigger from above and add the details as shown below –

You can add Prefix and File pattern which are used to filter the files added. For Example, to trigger lambda only for .jpg images. as we need to trigger Lambda for all jpg image files uploaded. Click Add button to add the trigger.

#### Step 5

You can find the the trigger display for the Lambda function as shown below –



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The screenshot displays the AWS Lambda console for a function named 'lambdas3'. A green notification bar at the top states: 'The trigger storageexp12 was successfully added to function lambdas3. The function is now receiving events from the trigger.' Below this, the 'Function overview' section shows a diagram with 'lambdas3' connected to 'S3'. The 'Triggers' section shows one trigger named 'storageexp12'.

## Step 6

Let's add the details for the aws lambda function. Here, we will use the online editor to add our code and use nodejs as the runtime environment.

To trigger S3 with AWS Lambda, we will have to use S3 event in the code as shown below –



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Lambda > Functions > lambdawiths3bucket

**lambdawiths3bucket** Throttle Copy ARN Actions

✓ The trigger lambdawiths3 was successfully added to function lambdawiths3bucket. The function is now receiving events from the trigger.

► **Function overview** [Info](#)

[Code](#) [Test](#) [Monitor](#) [Configuration](#) [Aliases](#) [Versions](#)

**Code source** [Info](#) Upload from

File Edit Find View Go Tools Window **Test** Deploy Changes not deployed

Go to Anything (Ctrl-P)

Environment

index.js

```
1 exports.handler = function(event, context, callback) {
2   console.log("Incoming Event: ", event);
3   const bucket = event.Records[0].s3.bucket.name;
4   const filename = decodeURIComponent(event.Records[0].s3.object.key.replace(/\+/g, ' '));
5   const message = 'An Image has been added - ${bucket} -> ${filename}';
6   console.log(message);
7   callback(null, message);
8 };
```

8:3 JavaScript Spaces: 4

**Code properties**

Package size 304.0 byte	SHA256 hash uTJfXt0sQYd8f6CtoZoBxLT6Hd0A48LniMm4gpxgDw	Last modified August 3, 2021, 11:36 AM GMT+5:30
----------------------------	---	--

**Runtime settings** [Info](#) Edit

Runtime Node.js 14.x	Handler <a href="#">Info</a> index.handler
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## Step 7:

let us save the changes and test the lambda function with S3upload.



## Step 8:

Now, save the Lambda function. Open S3 from Amazon services and open the bucket we created earlier namely lambdawiths3.

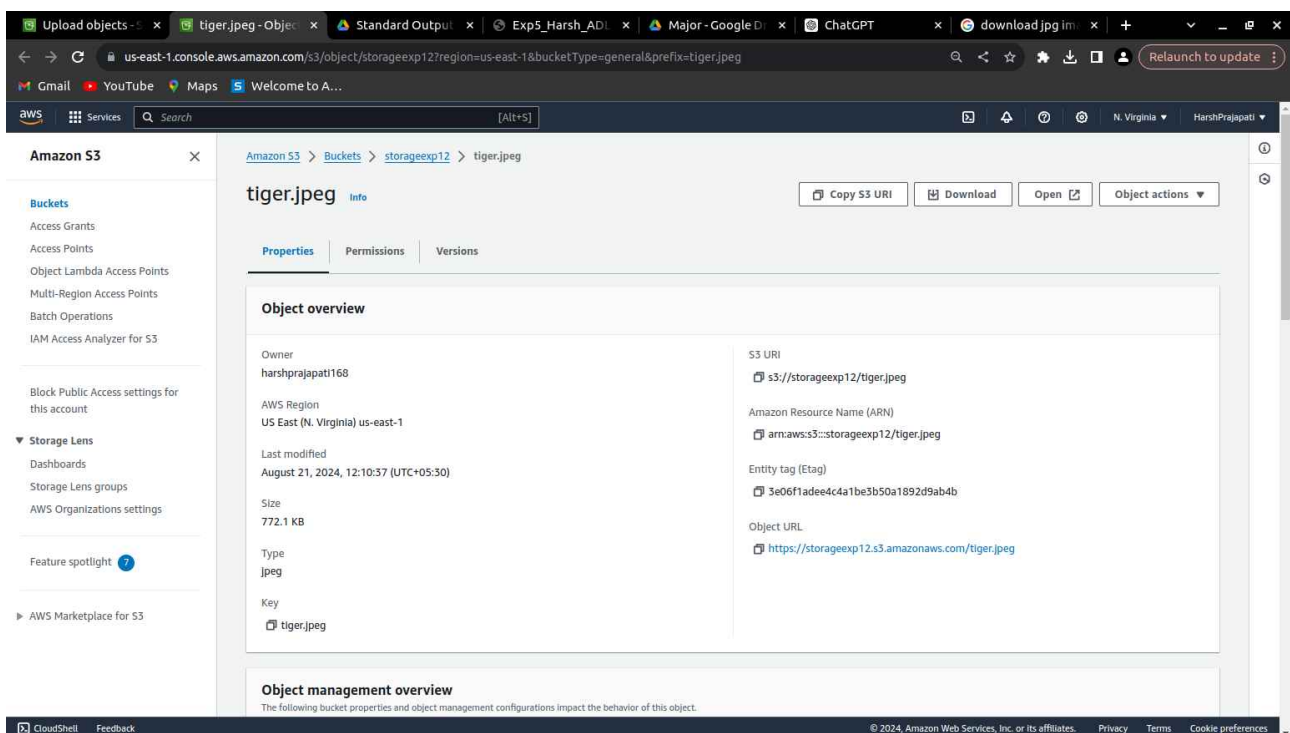
Upload the image in it as shown below –

Click **Add files** to add files. You can also drag and drop the files. Now, click **Upload** button.

Thus, we have uploaded one image in our S3 bucket.

## Step 9

To see the trigger details, go to AWS service and select CloudWatch. Open the logs for the Lambda AWS Lambda function gets triggered when file is uploaded in S3 bucket and the details are logged in Cloudwatch as shown below –





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**An image has been Added -> apsit\_logo.jpg you can see in cloudwatch logs.**

**Conclusion: Write your own findings.**