

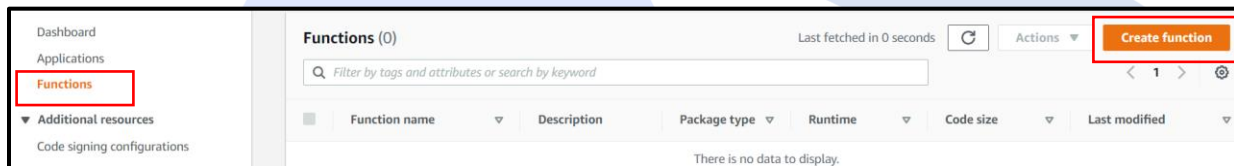
Event-driven architecture using AWS Lambda & Amazon S3.

Tutorial Objectives:

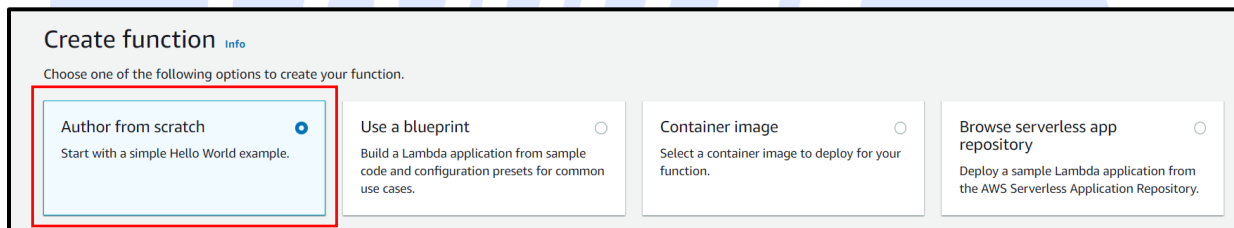
1. Learn to create Lambda using AWS Management Console.
2. Learn to implement event-driven architecture using S3 as event source to invoke Lambda function

Step 1: In **Lambda** service console, go to **Function** in side panel.

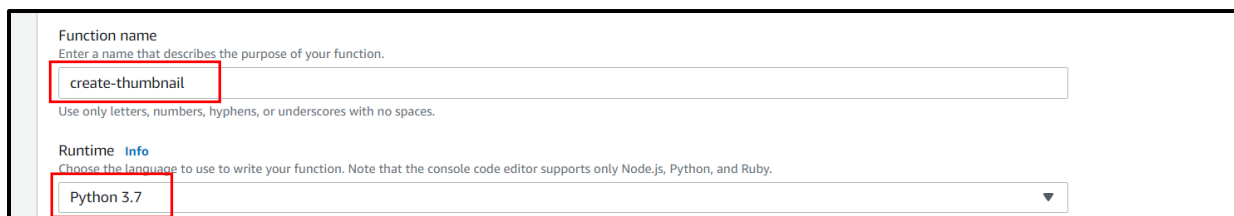
Click on **Create Function**.



Select **Author from Scratch** to create a Function.



- Function Name: **create-thumbnail**
- Runtime: **Python 3.7**



Expand **Change default execution role**.

Execution Role: **Create a new role with basic Lambda permissions.**

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Click **Create Function**.

▼ 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.

Lambda will create an execution role named create-thumbnail-role-ntwgpuc5, with permission to upload logs to Amazon CloudWatch Logs.

► Advanced settings

Cancel **Create function**

Click on **Configuration**. In the left side panel, Click on **Permissions**.

Click on the role name which appears.

Code Test Monitor **Configuration** Aliases Versions

General configuration Triggers **Permissions** Destinations

Execution role Edit

Role name
create-thumbnail-role-ntwgpuc5

This will redirect you to **IAM console**.

Click on **Attach policies**.

Roles Policies Identity providers Account settings Access reports Access analyzer Archive rules Analyzers Settings

Path /service-role/
Creation time 2021-10-02 12:55 UTC+0530
Last activity Not accessed in the tracking period
Maximum session duration 1 hour [Edit](#)

Permissions Trust relationships Tags Access Advisor Revoke sessions

▼ Permissions policies (1 policy applied)

Attach policies [Add inline policy](#)

Select Policy Name: **AmazonS3FullAccess** and Click **Attach policy**.

Filter policies Showing 1 result

Policy name	Type	Used as
AmazonS3FullAccess	AWS managed	Permissions policy (7)

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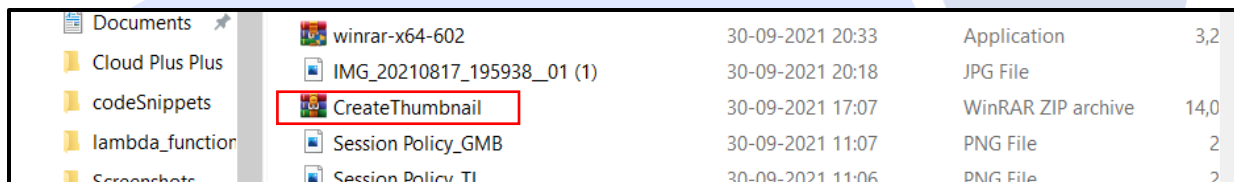
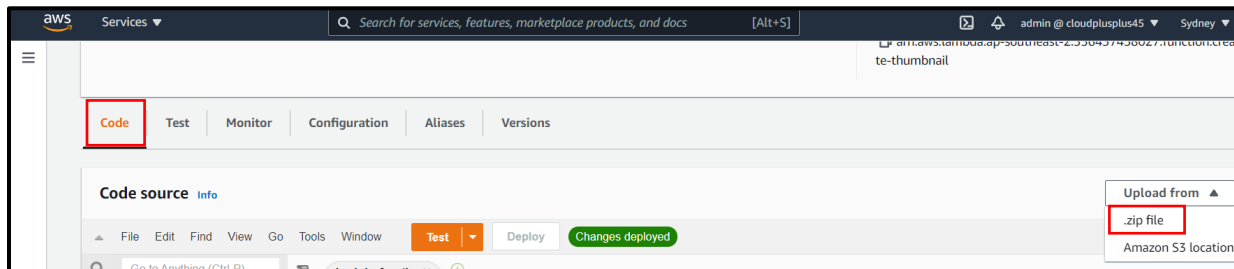


Step 2: Click on the following link: <https://s3-us-west-2.amazonaws.com/us-west-2-aws-training/awsu-spl/spl-88/2.3.15.prod/scripts/CreateThumbnail.zip>

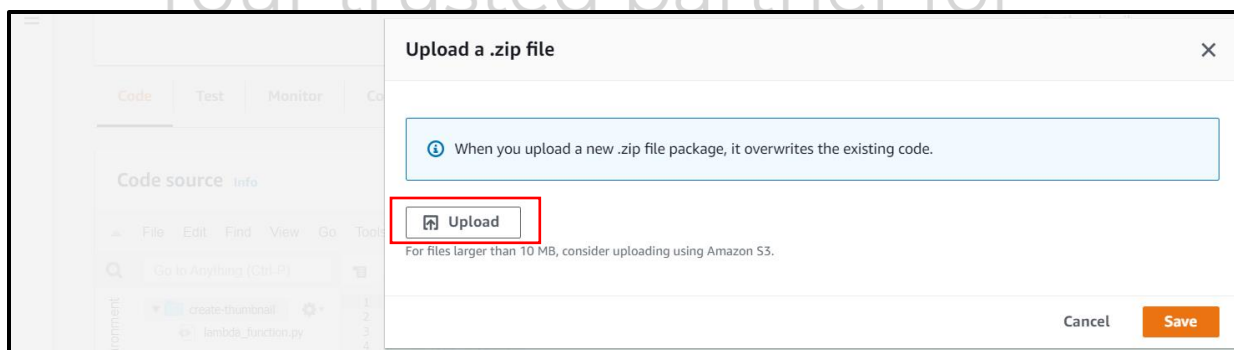
This will download the **CreateThumbnail.zip** file on your local machine.

Go back to **Lambda** console.

Click on **Code** and at the right corner upload from **.zip file**

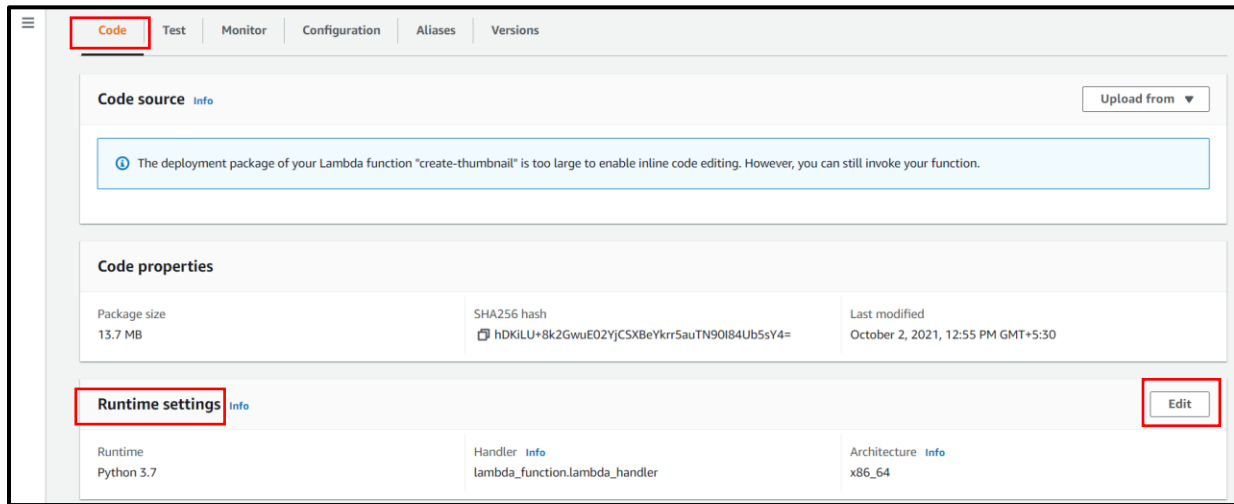


Select **CreateThumbnail** file and Click **Save**.



Click on **Code**.

In **Runtime settings** Click on **Edit**.



- Handler: **CreateThumbnail.handler**

The zip file we have downloaded has a python program with name **CreateThumbnail.py**.

This code has a function called handler.

Thus the handler name is **CreateThumbnail.handler**

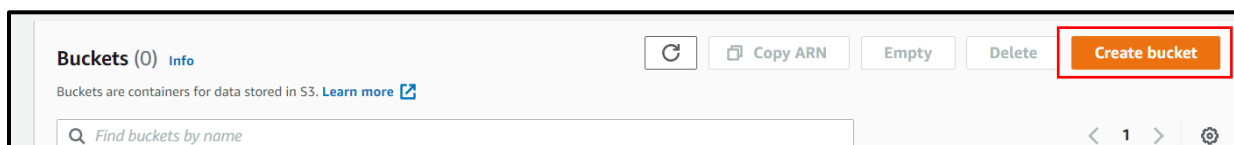
Click **Save**.

Step 3: Open the new AWS tab and go to **S3 console**.

Create two buckets in the same region as of Lambda Function i.e. **Sydney** here.

Create first bucket.

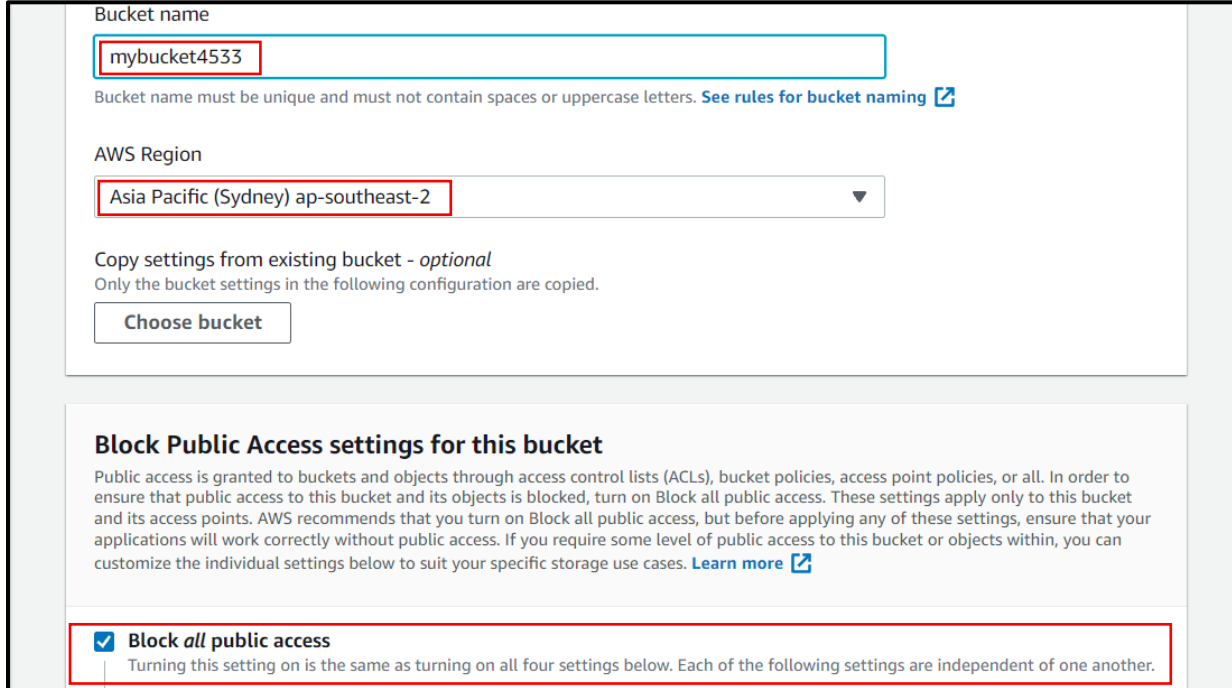
Click on **Create bucket**.



Bucket name: **mybucket4533**

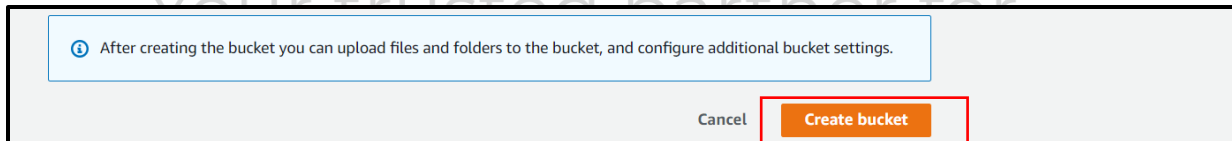
AWS region should be same.

Public Access should be blocked.



The screenshot shows the 'Create bucket' form in the AWS S3 console. The 'Bucket name' field is filled with 'mybucket4533'. The 'AWS Region' dropdown is set to 'Asia Pacific (Sydney) ap-southeast-2'. Below these fields, there is a section titled 'Block Public Access settings for this bucket' with explanatory text. At the bottom of this section, the checkbox 'Block all public access' is checked, and a note states: 'Turning this setting on is the same as turning on all four settings below. Each of the following settings are independent of one another.'

Click **Create bucket.**



The screenshot shows the bottom of the 'Create bucket' form. It includes an information box stating: 'After creating the bucket you can upload files and folders to the bucket, and configure additional bucket settings.' At the bottom right, there are two buttons: 'Cancel' and 'Create bucket'.

Similarly follow the same above step for creating second bucket

- **Bucket Name:** Paste the name of the previous bucket you have created and append **-resized** at the end of the name i.e. (**mybucket4533-resized**)
- Click **Create.**

Now you have the buckets named as

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- **mybucket4533**
- **mybucket4533-resized**

Name	AWS Region	Access	Creation date
mybucket4533	Asia Pacific (Sydney) ap-southeast-2	Bucket and objects not public	October 2, 2021, 14:05:33 (UTC+05:30)
mybucket4533-resized	Asia Pacific (Sydney) ap-southeast-2	Bucket and objects not public	October 2, 2021, 14:06:53 (UTC+05:30)

Step 4: Go to **Lambda** Function.

Click **Add Trigger**.

create-thumbnail

Function overview

create-thumbnail

Layers (0)

+ Add trigger

+ Add destination

Description

Last modified 39 minutes ago

Function ARN

arn:aws:lambda:ap-southeast-2:336437458027:function:create-thumbnail

Select **S3** Trigger.

Lambda > Add trigger

Add trigger

Trigger configuration

Select a trigger

Q s3


S3 aws storage

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Select Bucket: **mybucket4533**

Trigger configuration

 **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.

mybucket4533



Click on **I Acknowledge** and click **Add**.

ap-southeast-2.console.aws.amazon.com/lambda/home?region=ap-southeast-2#/add/relation?focus=lambda&target=arn%3Aaws%3Alambda%3Aap-southeast-2%3A36437458027%3Afun...

Services Search for services, features, marketplace products, and docs [Alt+S]

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.
e.g. images/

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

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

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.

Cancel **Add**

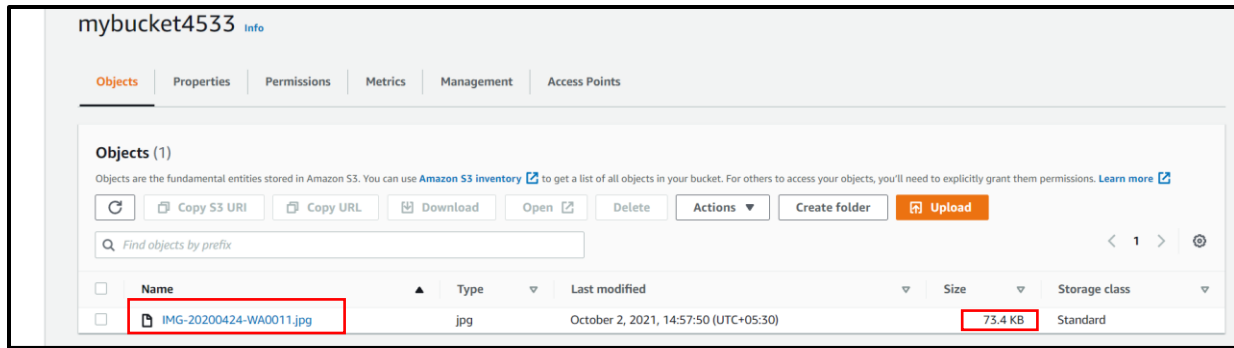
Step 5: Go to **S3** console.

Go to **Source** bucket and upload any image file with no space in the file name.

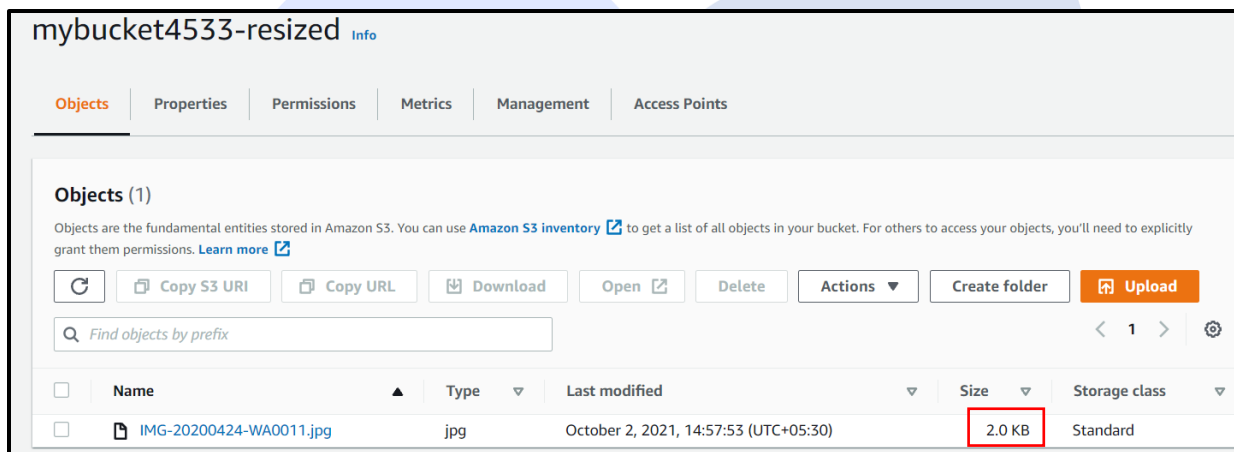
	Name	AWS Region	Access	Creation date
<input type="radio"/>	mybucket4533	Asia Pacific (Sydney) ap-southeast-2	Bucket and objects not public	October 2, 2021, 14:05:33 (UTC+05:30)
<input type="radio"/>	mybucket4533-resized	Asia Pacific (Sydney) ap-southeast-2	Bucket and objects not public	October 2, 2021, 14:06:53 (UTC+05:30)

Size of the file here is **73.4 KB**.

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Now Go to **Resized** bucket and check **the resized image**.



So the size of newly resized file is **2 KB**.

NOTE: Empty S3 buckets and delete buckets. Delete Lambda function.

Was this document helpful? YES / NO

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Archis Davanpelli	2-October-2021

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