

LAMBDA 👍

AWS Lambda

Definition

AWS Lambda is a service that lets you run code without having to manage servers. You just write your code, and AWS Lambda runs it for you whenever it's needed.

Explanation

Imagine you have a magic box that can do your homework for you. You tell the box what you need it to do (like solving math problems), and whenever you need help, you just call the box, and it does the work instantly.

AWS Lambda works in a similar way:

1. **You Write the Code:** You write instructions for the magic box (Lambda function). For example, you might tell it to resize a picture or calculate a number.
2. **AWS Takes Care of the Rest:** You don't need to worry about where the box is or how it works. AWS handles all the complicated parts like providing the electricity (computing power) and storage.
3. **It's Fast and On-Demand:** Whenever you need the code to run, you just call it, and it runs immediately. You only pay for the time it takes to do the work.

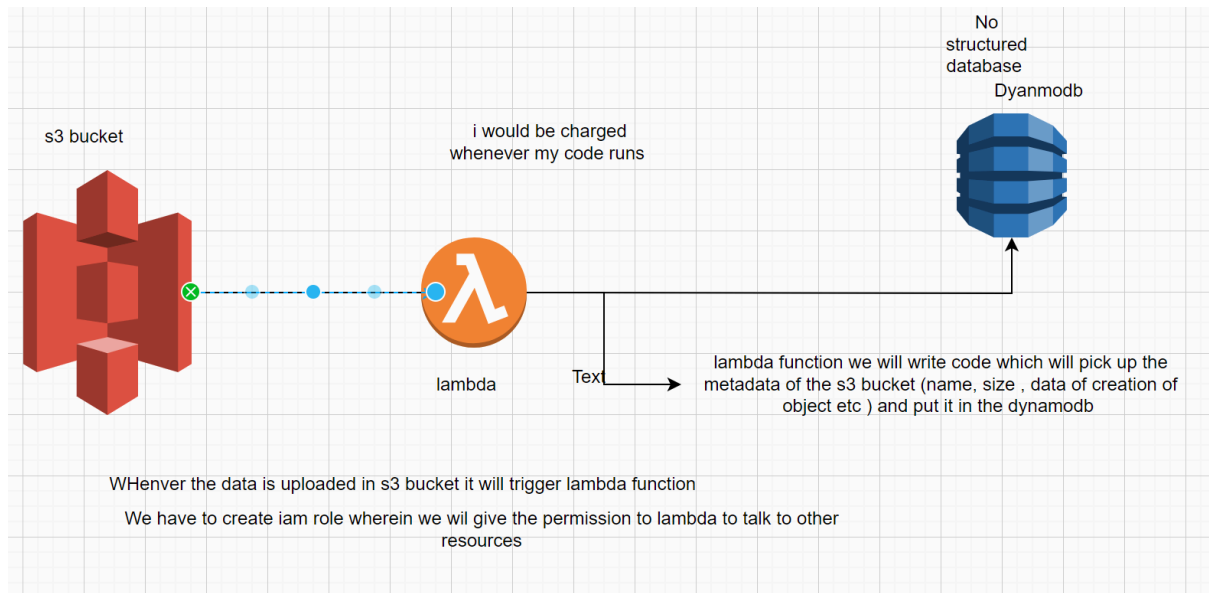
Example

Let's say you have a website where people can upload pictures. You want every picture to be resized to fit nicely on the webpage.

- **You Write a Lambda Function:** You write code that resizes pictures.
- **Someone Uploads a Picture:** When a picture is uploaded to your website, AWS Lambda automatically runs your resizing code.
- **Picture is Resized:** The picture is resized and ready to be displayed on your website.

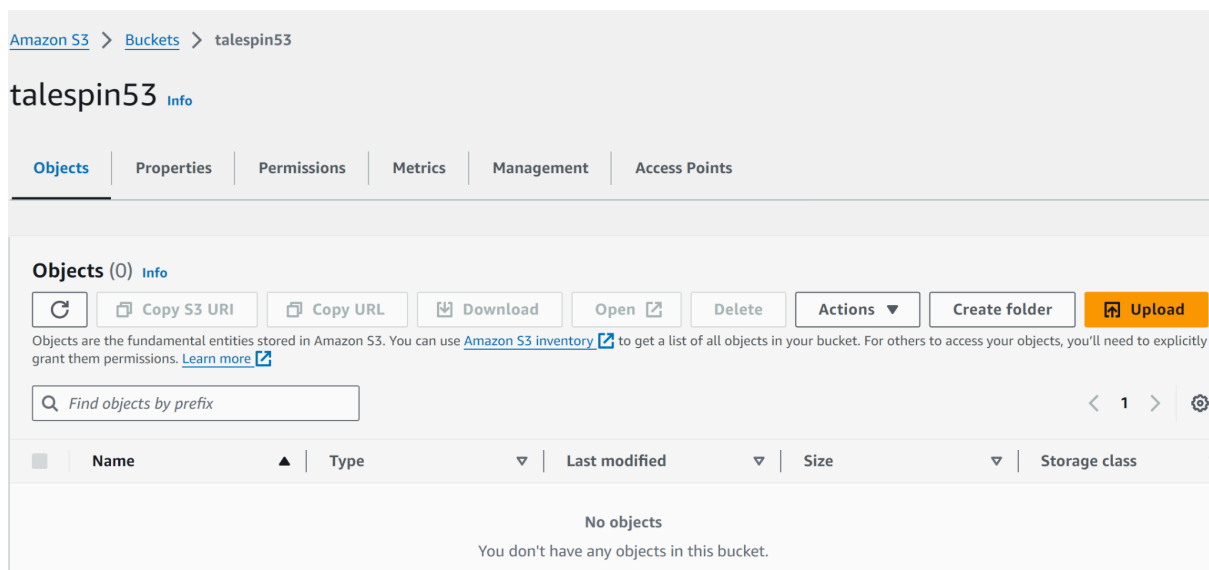
So, AWS Lambda is like having a magical helper that does specific tasks for you whenever you need them, and you only have to tell it what to do without worrying about the details of how it gets done.

CASE STUDY



We will first create s3 bucket

Create bucket (bucket name are globally unique so keep some unique name and create)



create a database dynamdb

[DynamoDB](#) > [Tables](#) > Create table

Create table

Table details [Info](#)

DynamoDB is a schemaless database that requires only a table name and a primary key when you create the table.

Table name
This will be used to identify your table.

mynewtable

Between 3 and 255 characters, containing only letters, numbers, underscores (_), hyphens (-), and periods (.).

Partition key
The partition key is part of the table's primary key. It is a hash value that is used to retrieve items from your table and allocate data across hosts for scalability and availability.

sno

String

1 to 255 characters and case sensitive.

Create table

we will now create a iam role where we will give the permission to lambda to access other resources (s3 and dynamodb) on our behalf

us-east-1.console.aws.amazon.com/iam/home?region=ap-south-1#/roles

Identity and Access Management (IAM)

Search IAM

Dashboard

Access management

- User groups
- Users
- Roles**
- Policies

Roles (62) [Info](#)

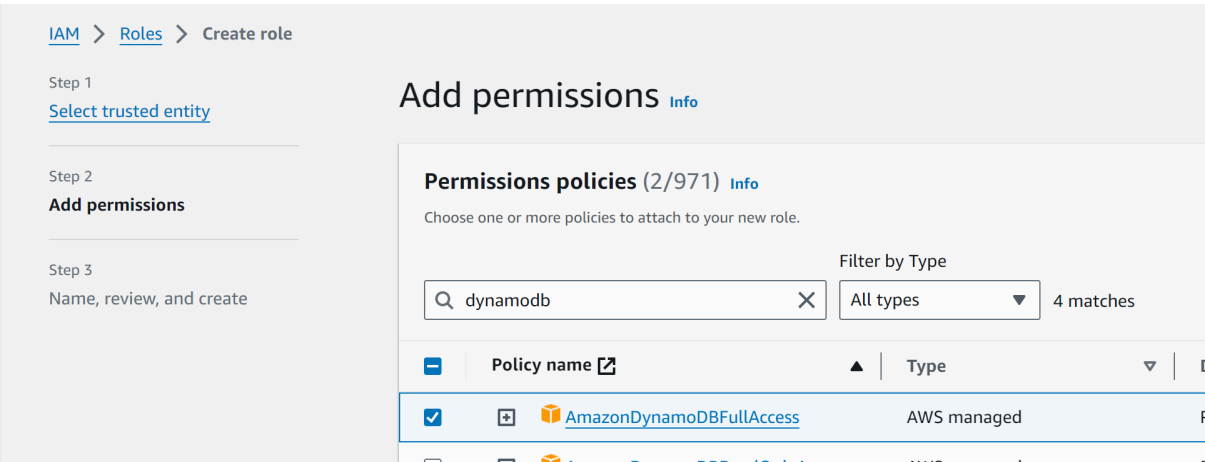
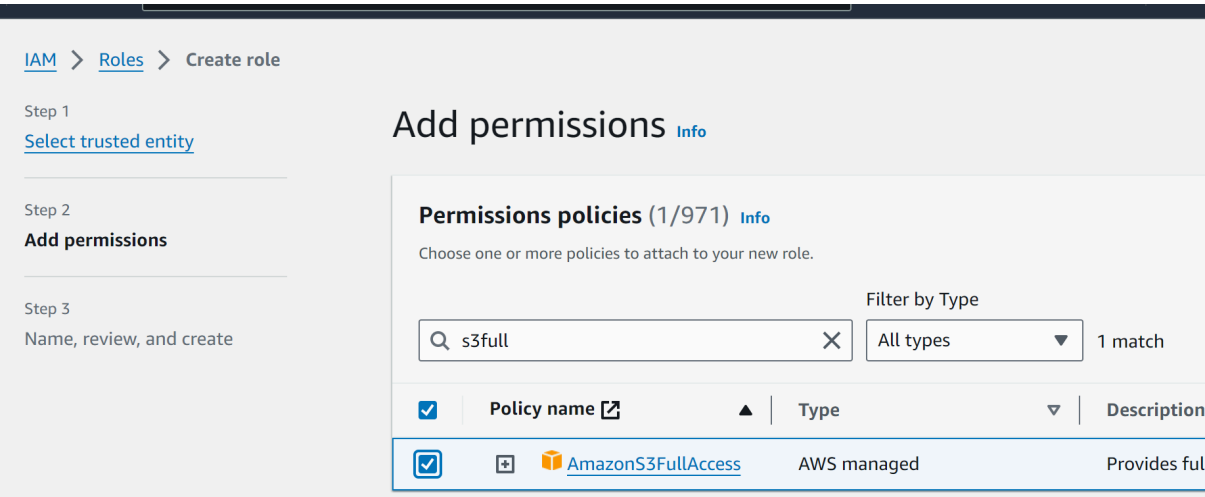
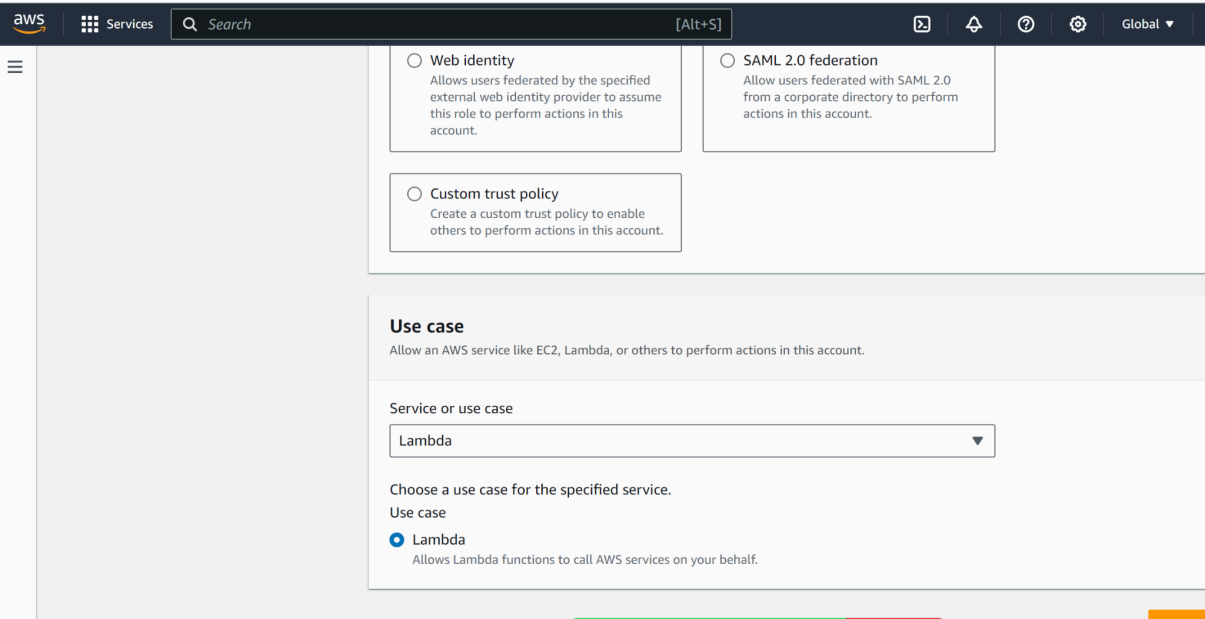
An IAM role is an identity you can create that has specific permissions with credentials that are valid for short durations. Roles can be assumed by entities that you trust.

Search

1 2 3 4

<input type="checkbox"/>	Role name	Trusted entities
<input type="checkbox"/>	13julyrole	AWS Service: lambda
<input type="checkbox"/>	21julyrole	AWS Service: ec2
<input type="checkbox"/>	akshat-iam-rl	AWS Service: export.rds

Create Role



Create role

now we will create lambda function and to trigger whenever there any event happening the s3
(like uploading any object or deletion of object)

Go to lambda -> create function

Choose one of the following options to create your function.

- ☒ **Author from scratch**
Start with a simple Hello World example.
- ☐ **Use a blueprint**
Build a Lambda application from sample code and configuration presets for common use cases.
- ☐ **Container image**
Select a container image to deploy for your function.

Basic information

Function name
Enter a name that describes the purpose of your function.

Use only letters, numbers, hyphens, or underscores with no spaces.

Runtime [Info](#)
Choose the language to use to write your function. Note that the console code editor supports only Node.js, Python, and Ruby.

Architecture [Info](#)
Choose the instruction set architecture you want for your function code.
☒ **x86_64**
☐ arm64

Permissions [Info](#)
By default, Lambda will create an execution role with permissions to upload logs to Amazon CloudWatch Logs. You can customize this default role later when adding triggers.

▼ **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 `akshat1staug-role-x85bo6ze`, with permission to upload logs to Amazon CloudWatch Logs.

We will attach the role which we created previously

arm64

Permissions

Info

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▼ Change default execution role

Execution role

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☐ Create a new role with basic Lambda permissions

☒ Use an existing role

☐ Create a new role from AWS policy templates

Existing role

Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.

1aug2024role

▼

↺

[View the 1aug2024role role](#) on the IAM console.

► Advanced settings

Create function

Lambda

>

Functions

>

akshat1staug

akshat1staug

▼ Function overview

Info

Export

Diagram

Template

akshat1staug


Layers

(0)

+ Add trigger

+ Add destination

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.

×
↺

Bucket region: ap-south-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 ×

All object delete events ×

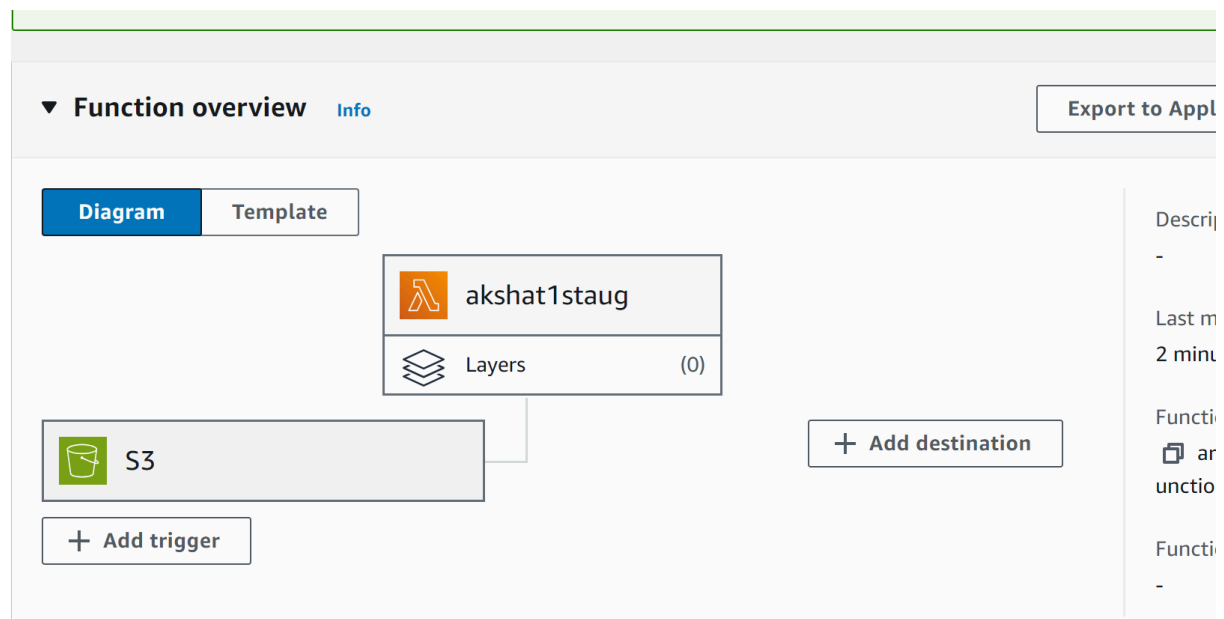
Permanently deleted ×

Delete marker created ×

Prefix - optional

Enter a single optional prefix to limit the notifications to objects with keys that start with matching characters.

(in event types select all delete events also)



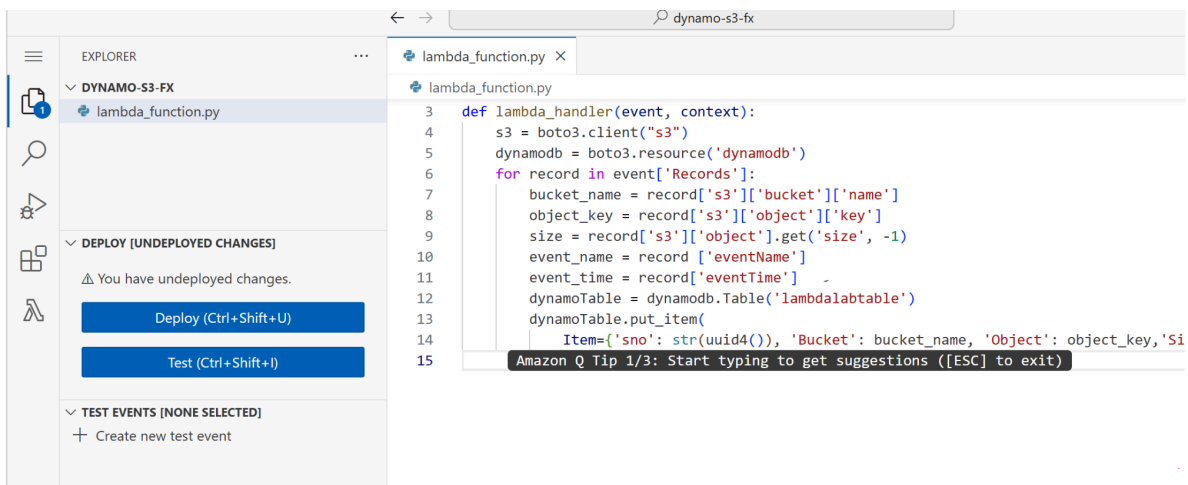
Scroll down and click on code

```
import boto3
from uuid import uuid4
def lambda_handler(event, context):
    s3 = boto3.client("s3")
    dynamodb = boto3.resource('dynamodb')
    for record in event['Records']:
```

```

bucket_name = record['s3']['bucket']['name']
object_key = record['s3']['object']['key']
size = record['s3']['object'].get('size', -1)
event_name = record['eventName']
event_time = record['eventTime']
dynamoTable = dynamodb.Table('mynewtable')
dynamoTable.put_item(
    Item={'sno': str(uuid4()), 'Bucket': bucket_name, 'Object': object_key, 'Size': size,
'Event': event_name, 'EventTime': event_time})

```



Click on deploy

Or press ctrl shift u to deploy

now lets check if we update anything in s3 whether the dynamodb is getting updated or not

Go to s3 -> click on your bucket
Click on upload button

Amazon S3 > Buckets > talespin53

talespin53 Info

Objects | Properties | Permissions | Metrics | Management | Access Points

Objects (1) Info

Copy S3 URI Copy URL Download Open Delete **Actions** **Create folder**

Objects are the fundamental entities stored in Amazon S3. You can use [Amazon S3 inventory](#) to get a list of all objects in your bucket. For others to access your objects, you must grant them permissions. [Learn more](#)

<input type="checkbox"/>	Name	Type	Last modified	Size
<input type="checkbox"/>	PHP Project.docx	docx	August 1, 2024, 23:05:46 (UTC+05:30)	42.7 MB

You can upload anything

Now lets go and check dynamodb

ap-south-1.console.aws.amazon.com/dynamodbv2/home?region=ap-south-1#table?name=mynewtable

WS Services Search [Alt+S]

DynamoDB X

Dashboard
Tables
Explore items
 PartiQL editor
Backups
Exports to S3
Imports from S3
Integrations New
Reserved capacity
Settings

DynamoDB > Tables > mynewtable

Tables (1) X

Any tag key

Any tag value

< 1 >

mynewtable

mynewtable **Actions** **Explore table items**

< **Overview** | Indexes | Monitor | Global tables | Back >

Protect your DynamoDB table from accidental writes and deletes X

When you turn on point-in-time recovery (PITR), DynamoDB backs up your table data automatically so that you can restore to any given second in the preceding 35 days. Additional charges apply. [Learn more](#)

Edit PITR

