

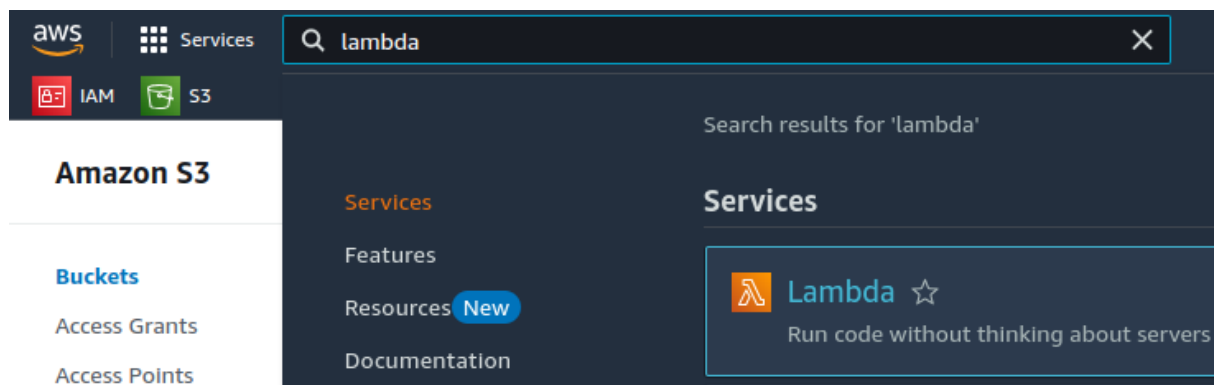
AWS Lambda Tasks

Introduction

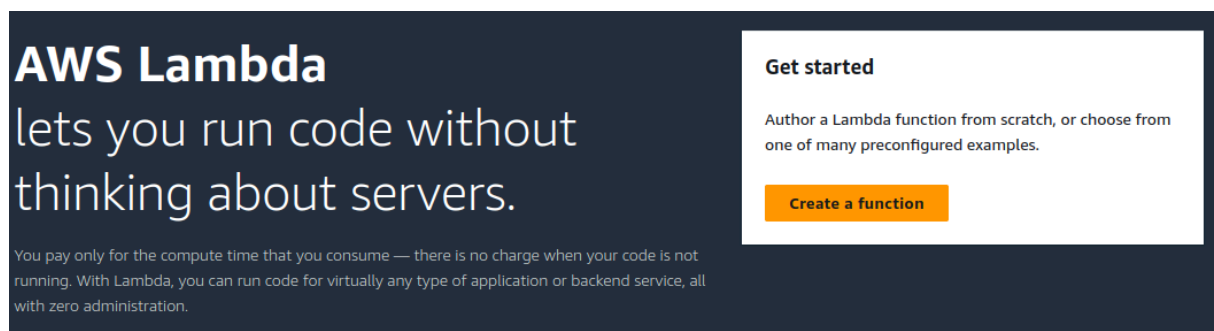
AWS Lambda is a serverless compute service that lets you run code without provisioning or managing servers. You can use AWS Lambda to execute code in response to events, such as changes to data in an Amazon S3 bucket or updates to a DynamoDB table. It automatically scales applications by running code in response to events.

Steps

Go to the **AWS Management Console** and open the **Lambda console**



Click on "Create function"



Configure the function (name, runtime, permissions)

[Lambda](#) > [Functions](#) > Create function

Create function [Info](#)

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.

☐ **Use a template**
Build a Lambda application from a sample code and configuration presets for common use cases.

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.

Python 3.12 ▼

Architecture [Info](#)
Choose the instruction set architecture you want for your function code.

☒ x86_64

☐ arm64

Lambda Function created

Name of the function created is “ayush-crud-operation-boto”



Edit the lamda_function.py

Python code that defines a Lambda function that interacts with S3 buckets.

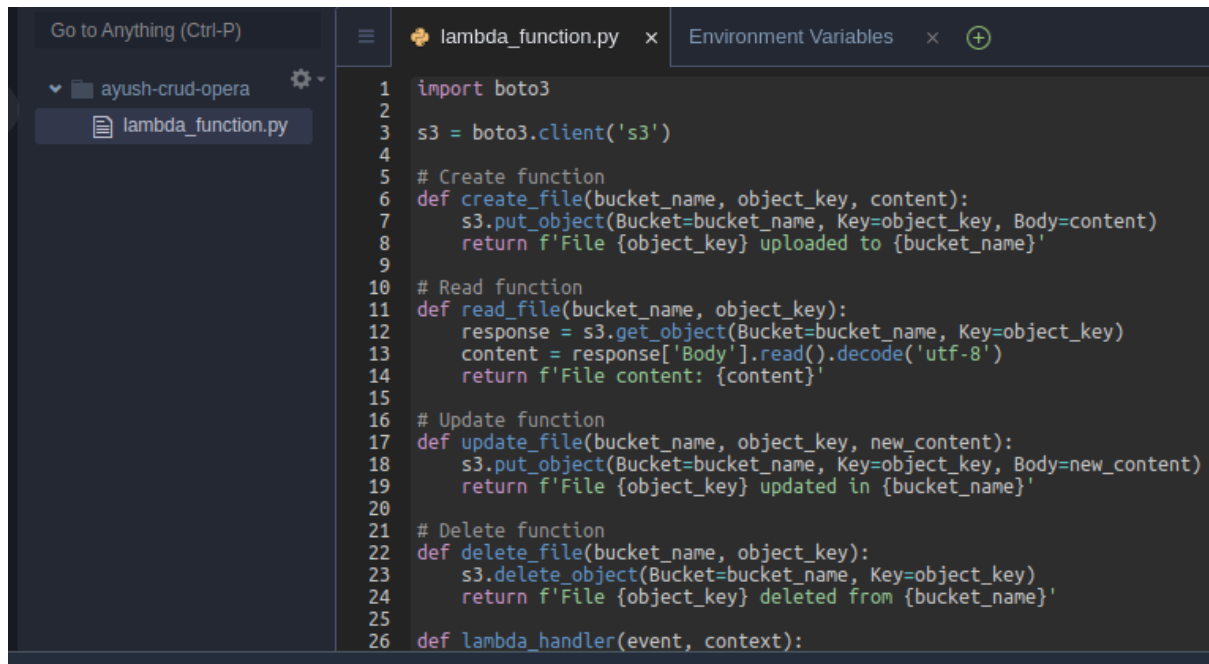
Libraries:

- Boto3: interacts with AWS services
- json: encodes and decodes JSON data
- logging: logs messages for debugging

Functions:

- `create_file`: uploads a file to S3 with given content
- `read_file`: retrieves a file's content from S3
- `update_file`: updates the content of an existing file in S3
- `delete_file`: deletes a file from S3
- `lambda_handler`: (the main function)
 - Takes an event and context as arguments

- Extracts the `object_key` (file name) and `action` (operation) from the event
- Validates the presence of `object_key` and `action`
- Calls the appropriate function (`create_file`, `read_file`, etc.) based on the action
- Handles errors and returns appropriate status codes and messages



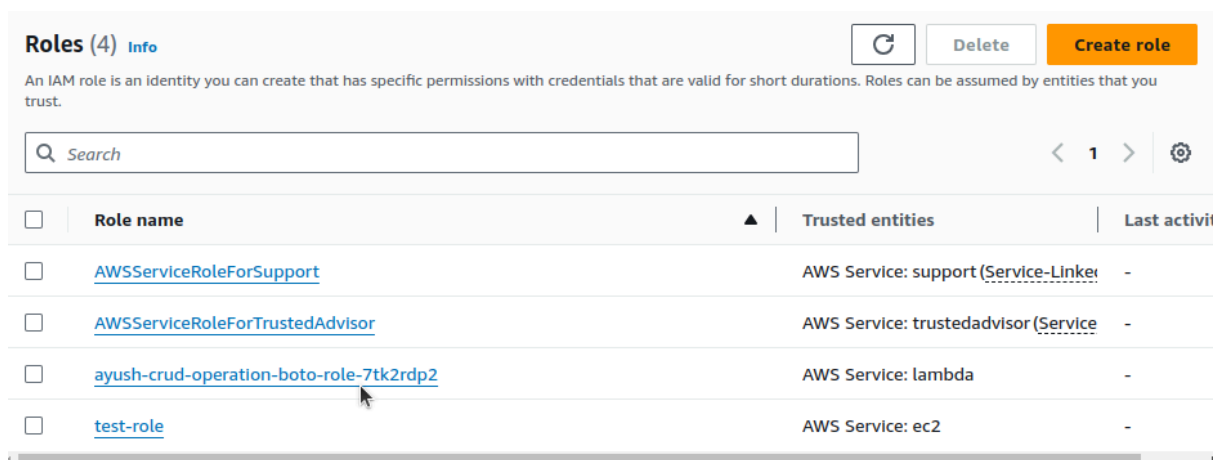
```

1 import boto3
2
3 s3 = boto3.client('s3')
4
5 # Create function
6 def create_file(bucket_name, object_key, content):
7     s3.put_object(Bucket=bucket_name, Key=object_key, Body=content)
8     return f'File {object_key} uploaded to {bucket_name}'
9
10 # Read function
11 def read_file(bucket_name, object_key):
12     response = s3.get_object(Bucket=bucket_name, Key=object_key)
13     content = response['Body'].read().decode('utf-8')
14     return f'File content: {content}'
15
16 # Update function
17 def update_file(bucket_name, object_key, new_content):
18     s3.put_object(Bucket=bucket_name, Key=object_key, Body=new_content)
19     return f'File {object_key} updated in {bucket_name}'
20
21 # Delete function
22 def delete_file(bucket_name, object_key):
23     s3.delete_object(Bucket=bucket_name, Key=object_key)
24     return f'File {object_key} deleted from {bucket_name}'
25
26 def lambda_handler(event, context):

```

Assigning Proper Roles to Lambda Function

Navigate to Roles in IAM Dashboard



<input type="checkbox"/>	Role name	Trusted entities	Last activity
<input type="checkbox"/>	AWSServiceRoleForSupport	AWS Service: support (Service-Linker)	-
<input type="checkbox"/>	AWSServiceRoleForTrustedAdvisor	AWS Service: trustedadvisor (Service)	-
<input type="checkbox"/>	ayush-crud-operation-boto-role-7tk2rdp2	AWS Service: lambda	-
<input type="checkbox"/>	test-role	AWS Service: ec2	-

Select appropriate permission

Giving S3 Full Access to the lambda function

[IAM](#) > [Roles](#) > [ayush-crud-operation-boto-role-7tk2rdp2](#) > Add permissions

Attach policy to ayush-crud-operation-boto-role-7tk2rdp2

► Current permissions policies (1)

Other permissions policies (1/949)

Q s3fuX

Filter by Type

All types▼

1 match

< 1 > ⚙

<input checked="" type="checkbox"/>	Policy name	Type	Description
<input checked="" type="checkbox"/>	<div><div></div><div>AmazonS3FullAccess</div></div>	AWS managed	Provides full access to all buckets via the ...

Cancel

Add permissions

ayush-crud-operation-boto-role-7tk2rdp2InfoDelete

SummaryEdit

Creation date

September 11, 2024, 16:27 (UTC+05:30)

ARN

arn:aws:iam::257394483480:role/service-role/ayush-crud-operation-boto-role-7tk2rdp2

Last activity

-

Maximum session duration

1 hour

Permissions

Trust relationships

Tags

Access Advisor

Revoke sessions

Permissions policies (2)Info

↻

Simulate

Remove

Add permissions▼

You can attach up to 10 managed policies.

Q Search

Filter by Type

All types▼

< 1 > ⚙

<input type="checkbox"/>	Policy name	Type	Attached entities
<input type="checkbox"/>	<div><div></div><div>AmazonS3FullAccess</div></div>	AWS managed	2

Permission successfully added now we can proceed to write test events

Create a 'Create Operation' Event

```
{
  "action": "create",
  "object_key": "demo/myfile.txt",
  "content": "This is a test file. Created by Ayush Prajapati"
}
```

Event name

ap-create-op-event

Event JSON

```
1 {
2   "action": "create",
3   "object_key": "demo/myfile.txt",
4   "content": "This is a test file. Created by Ayush Prajapati"
5 }
6
```

Testing the 'ap-create-op-event' Event

EXECUTION RESULTS

STATUS: SUCCEEDED MAX MEMORY USED: 80 MB TIME: 609.11 MS

Test Event Name

ap-create-op-event

Response

```
{
  "statusCode": 200,
  "body": "\\File demo/myfile.txt successfully uploaded to ayush-boto-crud-bucket\\"
}
```

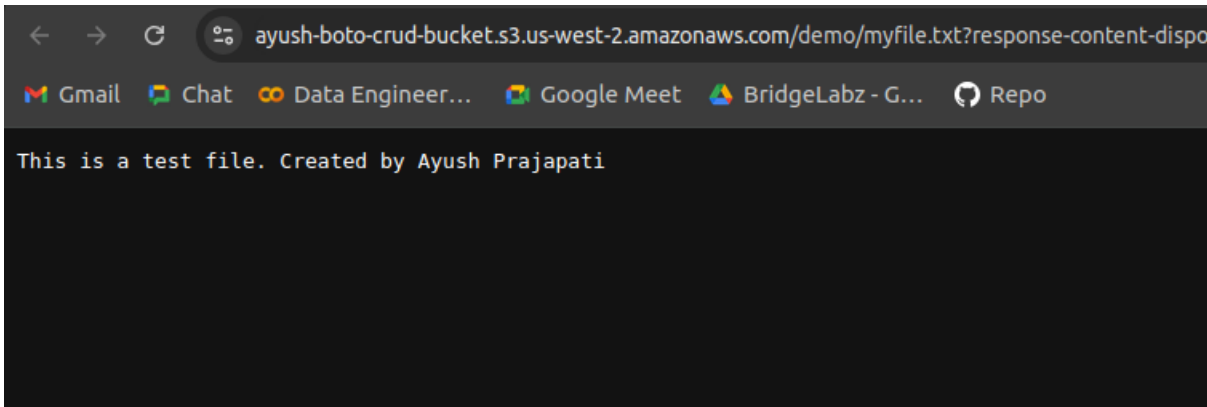
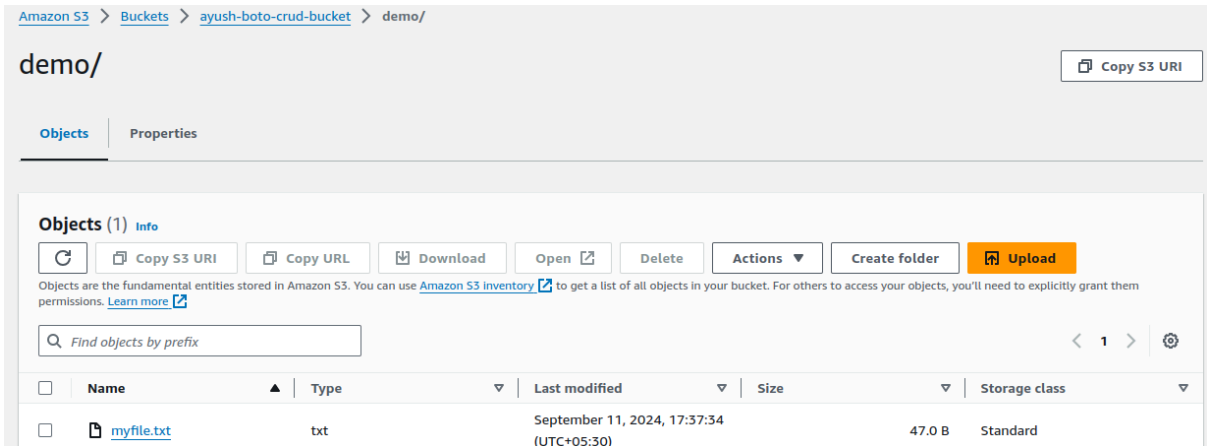
Function Logs

```
START RequestId: f6528375-c8ba-4ef6-bd06-9eb0081eec3e Version: $LATEST
[INFO] 2024-09-11T12:07:33.796Z f6528375-c8ba-4ef6-bd06-9eb0081eec3e File demo/myfile.txt uploaded to ayush-boto-crud-bucket
END RequestId: f6528375-c8ba-4ef6-bd06-9eb0081eec3e
REPORT RequestId: f6528375-c8ba-4ef6-bd06-9eb0081eec3e Duration: 609.11 ms Billed Duration: 610 ms Memory Size: 128 MB Max Memory Used: 80 MB Init Duration: 0.00 ms
```

Request ID

f6528375-c8ba-4ef6-bd06-9eb0081eec3e

File Created Successfully



Create a 'Read Operation' Event

```
{
  "action": "read",
  "object_key": "demo/myfile.txt"
}
```

Event name

ap-read-op-event

Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.

Event sharing settings

☒ Private

This event is only available in the Lambda console and to the event creator. You can configure a total of 10. [Learn more](#)

☐ Shareable

This event is available to IAM users within the same account who have permissions to access and use shareable events. [Learn more](#)

Template - optional

Event JSON

Format JSON

```
1 {
2   "action": "read",
3   "object_key": "demo/myfile.txt"
4 }
5
```

Cancel

Invoke

Save

Testing the 'ap-read-op-event' Event

EXECUTION RESULTS

STATUS: SUCCEEDED MAX MEMORY USED: 81 MB TIME: 549.54 MS

Test Event Name

ap-read-op-event

Response

```
{
  "statusCode": 200,
  "body": "\File content: This is a test file. Created by Ayush Prajapati\""}

```

Function Logs

```
START RequestId: cf045db7-50bd-495e-b53f-fc7b9f13afae Version: $LATEST
[INFO] 2024-09-11T12:10:55.666Z cf045db7-50bd-495e-b53f-fc7b9f13afae File demo/myfile.txt read from ayush-boto-crud-bucket
END RequestId: cf045db7-50bd-495e-b53f-fc7b9f13afae
REPORT RequestId: cf045db7-50bd-495e-b53f-fc7b9f13afae Duration: 549.54 ms Billed Duration: 550 ms Memory Size: 128 MB Max Memory Used: 81 MB
```

Request ID

cf045db7-50bd-495e-b53f-fc7b9f13afae

Create a 'Update Operation' Event

```
{
  "action": "update",
  "object_key": "demo/myfile.txt",
  "new_content": "Updated file content. Updated by Ayush Prajapati"
}
```


Event name

ap-update-op-event

Delete

Event JSON

Format JSON

```
1 {
2   "action": "update",
3   "object key": "demo/myfile.txt",
4   "new_content": "Updated file content. Updated by Ayush Prajapati"
5 }
```

Testing the 'ap-update-op-event' Event

lambda_function.py × Environment Variables × Execution results × +

EXECUTION RESULTS

STATUS: SUCCEEDED MAX MEMORY USED:

Test Event Name

ap-update-op-event

Response

```
{
  "statusCode": 200,
  "body": "\"File demo/myfile.txt successfully updated in ayush-boto-crud-bucket\""
}
```

Function Logs

START RequestId: f922b353-c52f-4263-90c2-8533cbadc4b7 Version: \$LATEST
[INFO] 2024-09-12T05:01:54.745Z f922b353-c52f-4263-90c2-8533cbadc4b7 File demo/myfile.txt updated in ayush-boto-crud-bucket
END RequestId: f922b353-c52f-4263-90c2-8533cbadc4b7
REPORT RequestId: f922b353-c52f-4263-90c2-8533cbadc4b7 Duration: 584.03 ms Billed Duration: 585 ms Memory Size: 128 MB Max Memory Us

Request ID

f922b353-c52f-4263-90c2-8533cbadc4b7

File Updated Successfully

← → ↺ ⚙ ayush-boto-crud-bucket.s3.us-west-2.amazonaws.com/demo/myfile.txt?respon

Gmail Chat Data Engineer... Google Meet BridgeLabz - G... Repo

Updated file content. Updated by Ayush Prajapati

Create a 'Delete Operation' Event

```
{
  "action": "delete",
  "object_key": "demo/myfile.txt"
}
```

☒ Create new event

☐ Edit saved event

Event name

ap-delete-op-event

Maximum of 25 characters consisting of letters, numbers, dots, hyphens and underscores.

Event sharing settings

☒ Private

This event is only available in the Lambda console and to the event creator. You can configure a total of 10. [Learn more](#)

☐ Shareable

This event is available to IAM users within the same account who have permissions to access and use shareable events. [Learn more](#)

Template - optional

Event JSON

Format JSON

```
1 {
2   "action": "delete",
3   "object_key": "demo/myfile.txt"
4 }
5
```

Testing the 'ap-delete-op-event' Event

lambda_function.py × Environment Variables × Execution results ×

EXECUTION RESULTS STATUS: SUCCEEDED MAX MEMORY USED: 80

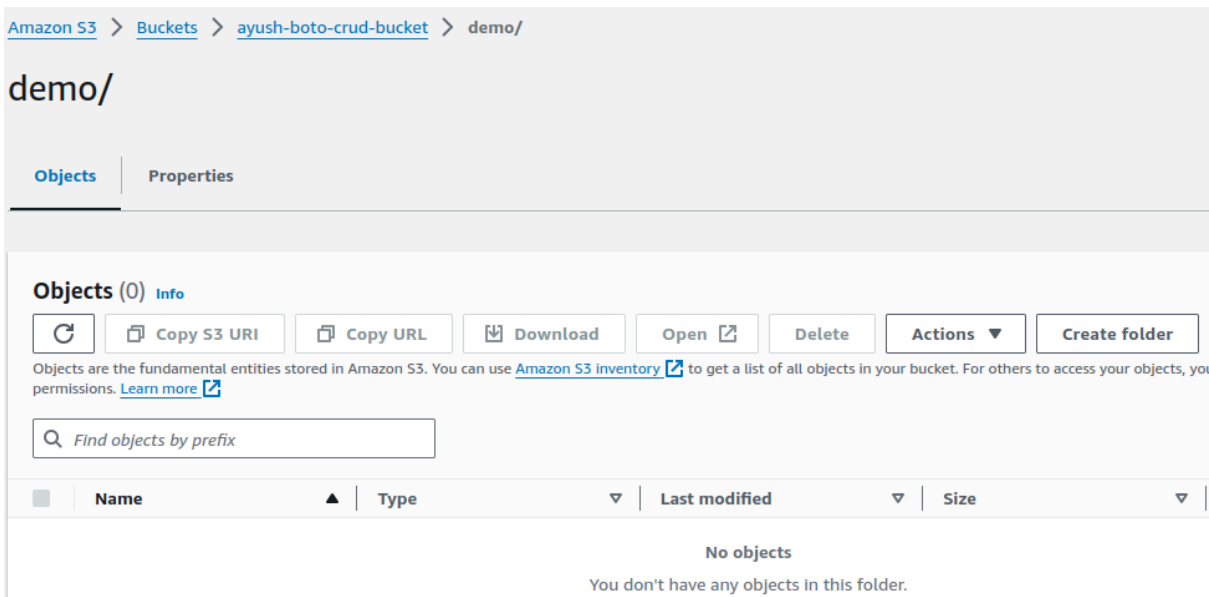
Test Event Name
ap-delete-op-event

Response
{
 "statusCode": 200,
 "body": "\"File demo/myfile.txt successfully deleted from ayush-boto-crud-bucket\""
}

Function Logs
START RequestId: 65e70605-c24f-4415-9fe3-4ecbafa0e1cf Version: \$LATEST
[INFO] 2024-09-12T05:08:22.213Z 65e70605-c24f-4415-9fe3-4ecbafa0e1cf File demo/myfile.txt deleted from ayush-boto-crud-bucket
END RequestId: 65e70605-c24f-4415-9fe3-4ecbafa0e1cf
REPORT RequestId: 65e70605-c24f-4415-9fe3-4ecbafa0e1cf Duration: 595.48 ms Billed Duration: 596 ms Memory Size: 128 MB Max Memory Used:

Request ID
65e70605-c24f-4415-9fe3-4ecbafa0e1cf

File Deleted Successfully



All the Test Events Created

