

## Assignment 2: Automated S3 Bucket Cleanup Using AWS Lambda and Boto3

### Objective

The objective of this assignment is to automate the cleanup of an Amazon S3 bucket by deleting objects older than a defined time threshold using AWS Lambda and Boto3. For demonstration and testing purposes, the threshold was set to 2 minutes instead of 30 days.

### AWS Services Used

- Amazon S3
- AWS Lambda
- AWS IAM
- Amazon CloudWatch Logs
- Boto3 (AWS SDK for Python)

### Step-by-Step Implementation

#### Step 1: S3 Bucket Creation

An S3 bucket named 's3-auto-cleanup-demo-r' was created using the AWS Management Console. Multiple files were uploaded to the bucket for testing the cleanup operation.

Name	Type	Last modified
123.png	png	January 1, 2026, 11:14:33 (UTC+05:30)
a.png	png	January 1, 2026, 11:14:34 (UTC+05:30)
Screenshot 2025-09-13 141502.png	png	January 1, 2026, 11:14:35 (UTC+05:30)
Screenshot 2025-09-22 114858.png	png	January 1, 2026, 11:14:36 (UTC+05:30)
Screenshot 2025-09-22 114910.png	png	January 1, 2026, 11:14:37 (UTC+05:30)

#### Step 2: IAM Role Creation

An IAM role was created for the Lambda function with the following permissions:

- AmazonS3FullAccess
- AWSLambdaBasicExecutionRole

This role allows the Lambda function to list and delete objects from S3 and write logs to CloudWatch.

**Lambda-S3-Cleanup-Role-r** Info

Allows Lambda functions to call AWS services on your behalf.

### Summary

#### Creation date

January 01, 2026, 10:52 (UTC+05:30)

#### Last activity

14 minutes ago

Permissions

Trust relationships

Tags

Last Accessed

Revoke sessions

### Permissions policies (2) Info

You can attach up to 10 managed policies.

Filter by

All type

Search

Policy name ↗

▲ Type

 [AmazonS3FullAccess](#)

AWS managed

 [AWSLambdaBasicExecutionRole](#)

AWS managed

### Step 3: Lambda Function Creation

A Lambda function was created using Python 3.x runtime. The previously created IAM role was attached to the function.

Lambda-S3-Cleanup-Role

**Function overview** [Info](#)

[Diagram](#) [Template](#)

**Lambda-S3-Cleanup-Role**

Layers (0)

+ Add trigger [+ Add destination](#)

Description

Last modified 17 minutes ago

Function ARN arn:aws:lambda:us-west-1:975050024946:function:Lambd  
nu-Role

Function URL | [Info](#)

Code Test Monitor Configuration Aliases Versions

**General configuration**

Triggers

Permissions

Destinations

**General configuration** [Info](#)

Description -

Memory 128 MB

Timeout 0 min 30 sec

SnapStart [Info](#) None

Ephemeral storage 512 MB

## Step 4: Lambda Code Implementation

The Lambda function uses Boto3 to list objects in the S3 bucket, compare their LastModified timestamp, and delete objects older than 2 minutes.

Successfully updated the function Lambda-S3-Cleanup-Role.

EXPLORER LAMBDA-S3-CLEANUP-ROLE lambda\_function.py Deploy (Ctrl+Shift+U) Test (Ctrl+Shift+I)

```

lambda_function.py
1  #!/usr/bin/python
2
3  def lambda_handler(event, context):
4      if 'Contents' not in response:
5          return {
6              'statusCode': 200,
7              'body': 'No files found'
8          }
9
10     deleted_files = []
11
12     for obj in response['Contents']:
13         if obj['LastModified'] < cutoff_time:
14             s3.delete_object(
15                 Bucket=BUCKET_NAME,
16                 Key=obj['Key']
17             )
18             deleted_files.append(obj['Key'])
19
20     if deleted_files:
21         print("Deleted files:")
22         for file in deleted_files:
23             print(file)
24
25     else:
26         print("No files older than 2 minutes found")
27
28     return {
29         'statusCode': 200,
30         'body': 'S3 cleanup executed successfully'
31     }
32
33
34
35
36
37
38
39
40
41
42

```

TEST EVENTS [NONE SELECTED] + Create new test event

## Step 5: Testing and Verification

The Lambda function was manually invoked. CloudWatch logs confirmed successful execution and deletion of eligible objects.

## Screenshot:

The screenshot shows the AWS Lambda function configuration page for 'Lambda-S3-Cleanup-Role'. It displays the following information:

- Successfully updated the function Lambda-S3-Cleanup-Role.**
- Code SHA-256:** R6fl2f5y9xHPTo4NojRtY2hz04DIAxWgwXm4xSMnwRQ=
- Function version:** \$LATEST
- Duration:** 3185.18 ms
- Resources configured:** 128 MB
- Init duration:** 339.58 ms
- Log output:** The area below shows the last 4 KB of the execution log. [Click here](#) to view the corresponding CloudWatch log group.
- Execution time:** 4 seconds ago
- Request ID:** 30b7aa71-aba8-4798-a295-09d9da1d8a65
- Billed duration:** 3525 ms
- Max memory used:** 96 MB

The log output shows the execution of the Lambda function, including file deletion and screenshot captures:

```
START RequestId: 30b7aa71-aba8-4798-a295-09d9da1d8a65 Version: $LATEST
Deleted files:
123.png
Screenshot 2025-09-13 141502.png
Screenshot 2025-09-22 114858.png
Screenshot 2025-09-22 114910.png
a.png
END RequestId: 30b7aa71-aba8-4798-a295-09d9da1d8a65
REPORT RequestId: 30b7aa71-aba8-4798-a295-09d9da1d8a65 Duration: 3185.18 ms Billed Duration: 3525 ms Memory Size: 128 MB Max Memory Used: 96 MB Init Duration: 339.58 ms
```

CloudWatch Log Stream (partial log output):

```
▶ 2026-01-01T05:30:31.437Z INIT_START Runtime Version: python:3.14.v32 Runtime Version ARN: arn:aws:lambda:us-west-1::runtime:1ee4e6d61a50fb29d83b87572cc627d0a92de84530be7b21838aaedd9675804
▶ 2026-01-01T05:30:31.777Z START RequestId: d38468ef-f6e4-4388-8a56-276c5229ccff Version: $LATEST
▶ 2026-01-01T05:30:34.869Z Deleted files:
123.png
▶ 2026-01-01T05:30:34.869Z Screenshot 2025-09-13 141502.png
▶ 2026-01-01T05:30:34.869Z Screenshot 2025-09-13 143002.png
▶ 2026-01-01T05:30:34.869Z Screenshot 2025-09-15 210426.png
▶ 2026-01-01T05:30:34.869Z a.png
▶ 2026-01-01T05:30:34.911Z END RequestId: d38468ef-f6e4-4388-8a56-276c5229ccff
▶ 2026-01-01T05:30:34.911Z REPORT RequestId: d38468ef-f6e4-4388-8a56-276c5229ccff Duration: 3132.31 ms Billed Duration: 3470 ms Memory Size: 128 MB Max Memory Used: 92 MB Init Duration: 336.77 ms
▶ 2026-01-01T05:31:20.803Z START RequestId: 4ab080c2-90df-46aa-af88-af58aa76d903 Version: $LATEST
▶ 2026-01-01T05:31:21.076Z Bucket is empty
▶ 2026-01-01T05:31:21.111Z END RequestId: 4ab080c2-90df-46aa-af88-af58aa76d903
▶ 2026-01-01T05:31:21.111Z REPORT RequestId: 4ab080c2-90df-46aa-af88-af58aa76d903 Duration: 306.41 ms Billed Duration: 307 ms Memory Size: 128 MB Max Memory Used: 93 MB
```

## Result

After execution, all files older than 2 minutes were successfully deleted from the S3 bucket, while newer files remained intact.

## GitHub Repository

GitHub Link: <https://github.com/RushiarGade/aws-lambda-s3-auto-cleanup.git>