

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.

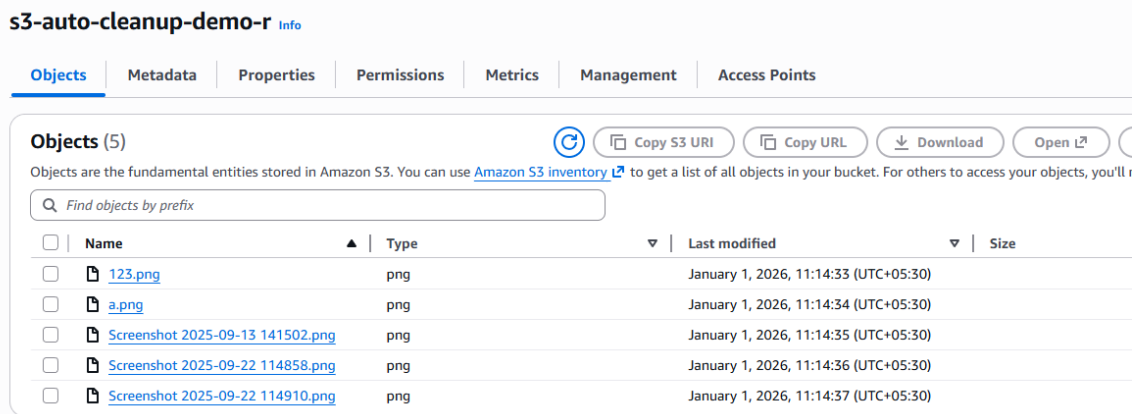
AWS Services Used

- 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.



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	
<input type="text" value="Search"/>	All type
<input type="checkbox"/> Policy name ↗	Type
<input type="checkbox"/>  AmazonS3FullAccess	AWS managed
<input type="checkbox"/>  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 [Throttle](#) [Copy ARN](#)

▼ **Function overview** [Info](#)

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

[+ Add trigger](#) [+ Add destination](#)

Description
-

Last modified
17 minutes ago

Function ARN
[arn:aws:lambda:us-west-1:975050024946:function:Lambda-S3-Cleanup-Role](#)

Function URL [Info](#)

-

[Export to Infrastructure Composer](#) [Doc](#)

Configuration

General configuration [Info](#)

Description -	Memory 128 MB	Ephemeral storage 512 MB
Timeout 0 min 30 sec	SnapStart Info None	

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 [Current](#)

[Deploy \(Ctrl+Shift+U\)](#)

[Test \(Ctrl+Shift+I\)](#)

TEST EVENTS (NONE SELECTED)

[+ Create new test event](#)

lambda_function.py

```
4 def lambda_handler(event, context):
14     if 'Contents' not in response:
19         return
20
21     deleted_files = []
22
23     for obj in response['Contents']:
24         if obj['LastModified'] < cutoff_time:
25             s3.delete_object(
26                 Bucket=BUCKET_NAME,
27                 Key=obj['Key']
28             )
29             deleted_files.append(obj['Key'])
30
31     if deleted_files:
32         print("Deleted files:")
33         for file in deleted_files:
34             print(file)
35     else:
36         print("No files older than 2 minutes found")
37
38     return {
39         'statusCode': 200,
40         'body': 'S3 cleanup executed successfully'
41     }
42
```

Step 5: Testing and Verification

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

Screenshot:

```
✔ Success! updated the function Lambda-S3-Cleanup-Rol.

{
  "statusCode": 200,
  "body": "S3 cleanup executed successfully"
}
```

Summary

Code SHA-256
R6FL2f5y9xHPTo4NojRTY2hz04DIAxWgwXm4xSMnwRQ=

Function version
SLATEST

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.

```
START RequestId: 30b7aa71-aba8-4798-a295-09d9da1d8a65 Version: SLATEST
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
```

Execution time
4 seconds ago

Request ID
30b7aa71-aba8-4798-a295-09d9da1d8a65

Billed duration
3525 ms

Max memory used
96 MB

Time	Event
2026-01-01T05:30:31.437Z	INIT_START Runtime Version: python3.14.v32 Runtime Version ARN: arn:aws:lambda:us-west-1::runtime:1ee4e6d61a50fb29d03b87572cc627d0a92de84530be7b1838aeed9675804
2026-01-01T05:30:31.777Z	START RequestId: d38468ef-f6e4-4388-8a56-276c5229ccff Version: \$LATEST
2026-01-01T05:30:34.869Z	Deleted files:
2026-01-01T05:30:34.869Z	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>