



Auto Backup System for Critical Files using AWS

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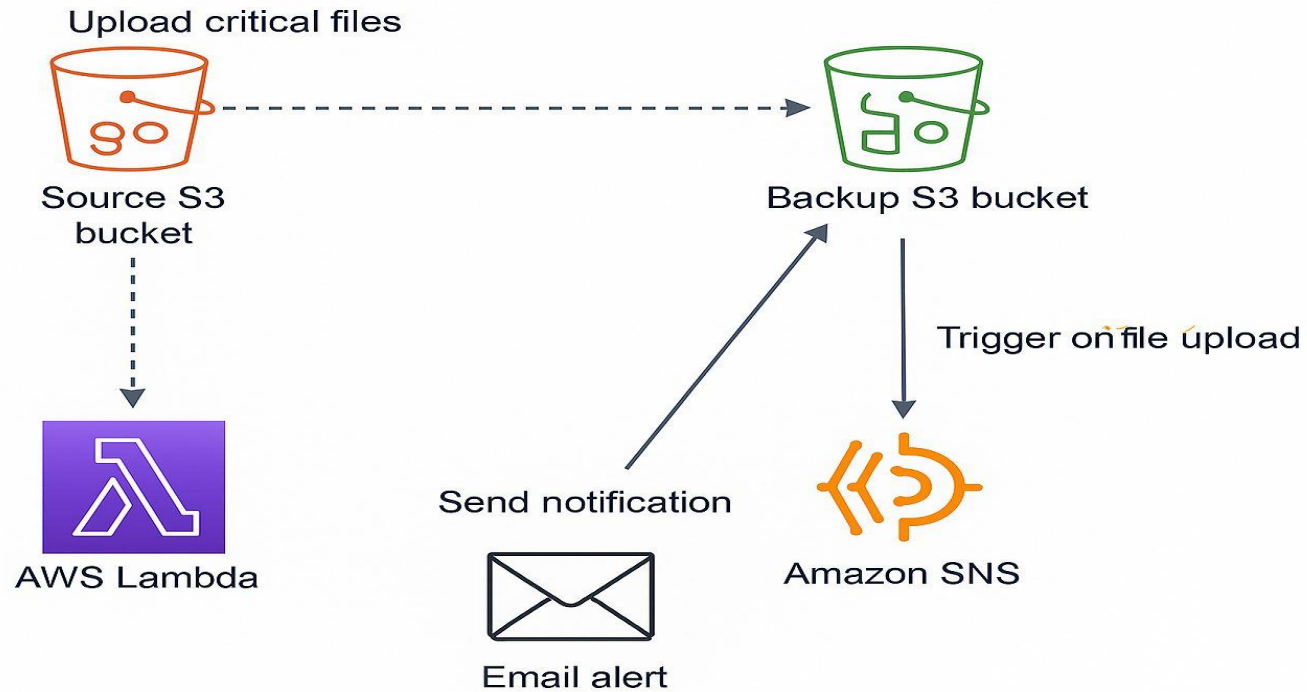
Date: 9-06-2025



Project Overview

- Objective: Automatically back up critical files from one S3 bucket to another.
- Technologies used: **Amazon S3, Lambda, SNS, IAM**
- Key feature: Sends email notifications on every successful backup.

Architecture Diagram



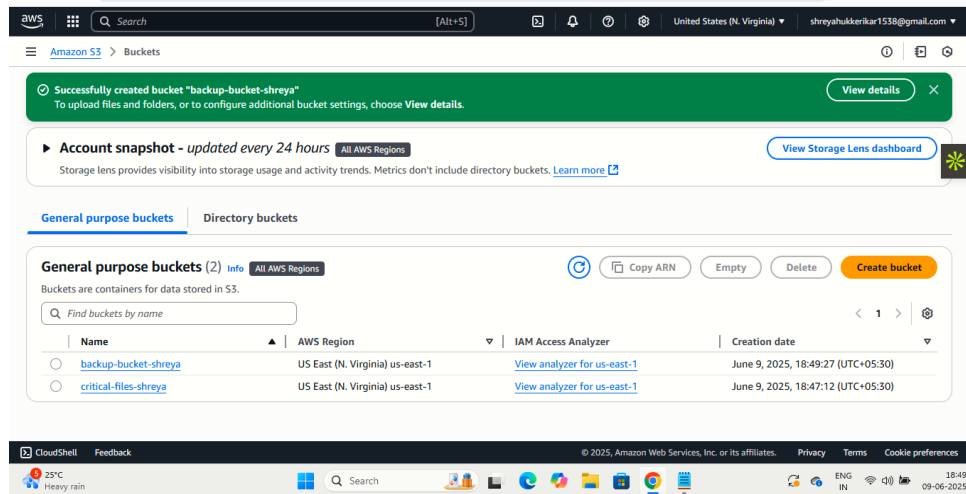


AWS Services Used

- S3 - Store source & backup files
- Lambda - Automate backup logic
- SNS- Send email notifications
- IAM -Control secure permissions
- CloudWatch - Monitor and debug lambda logs

Step-by-Step Implementation

- Create 2 S3 Buckets:
- critical-files-shreya
- backup-bucket-shreya



Create SNS Topic:

- file-backup-alerts
- Subscribe with your email (Confirm it!)

✓ Subscription to file-backup-alerts created successfully.

The ARN of the subscription is arn:aws:sns:us-east-1:538827147631:file-backup-alerts:7c31755a-afe5-4b13-938d-5482e515b4d9.

Subscription: 7c31755a-afe5-4b13-938d-5482e515b4d9

Edit

Delete

Details

ARN

arn:aws:sns:us-east-1:538827147631:file-backup-alerts:7c31755a-afe5-4b13-938d-5482e515b4d9

Endpoint

shreyahukkerikar1538@gmail.com

Topic

[file-backup-alerts](#)

Subscription Principal

arn:aws:iam::538827147631:root

Status

⌚ Pending confirmation

Protocol

EMAIL



5 of

AWS Notification - Subscription Confirmation Inbox x



AWS Notifications <no-reply@sns.amazonaws.com>

to me ▾

6:59 PM (3 hours ago)



You have chosen to subscribe to the topic:

arn:aws:sns:us-east-1:538827147631:file-backup-alerts

To confirm this subscription, click or visit the link below (If this was in error no action is necessary):

[Confirm subscription](#)

Please do not reply directly to this email. If you wish to remove yourself from receiving all future SNS subscription confirmation requests please send an email to [sns-opt-out](#)

↩ Reply

➦ Forward



Create IAM Role: lambda-backup-role

- Permissions: S3 Read/Write, SNS Publish

Policy was successfully attached to role.

Permissions Trust relationships Tags Last Accessed Revoke sessions

Permissions policies (3) Info

You can attach up to 10 managed policies.

Filter by Type

Search

All types

Policy name	Type	Attached entities
<input type="checkbox"/> AmazonS3FullAccess	AWS managed	1
<input type="checkbox"/> AmazonSNSFullAccess	AWS managed	1
<input type="checkbox"/> AWSLambdaBasicExecutionRole	AWS managed	1

Topic file-backup-alerts created successfully.
You can create subscriptions and send messages to them from this topic.

Publish message

file-backup-alerts

Edit Delete Publish message

Details

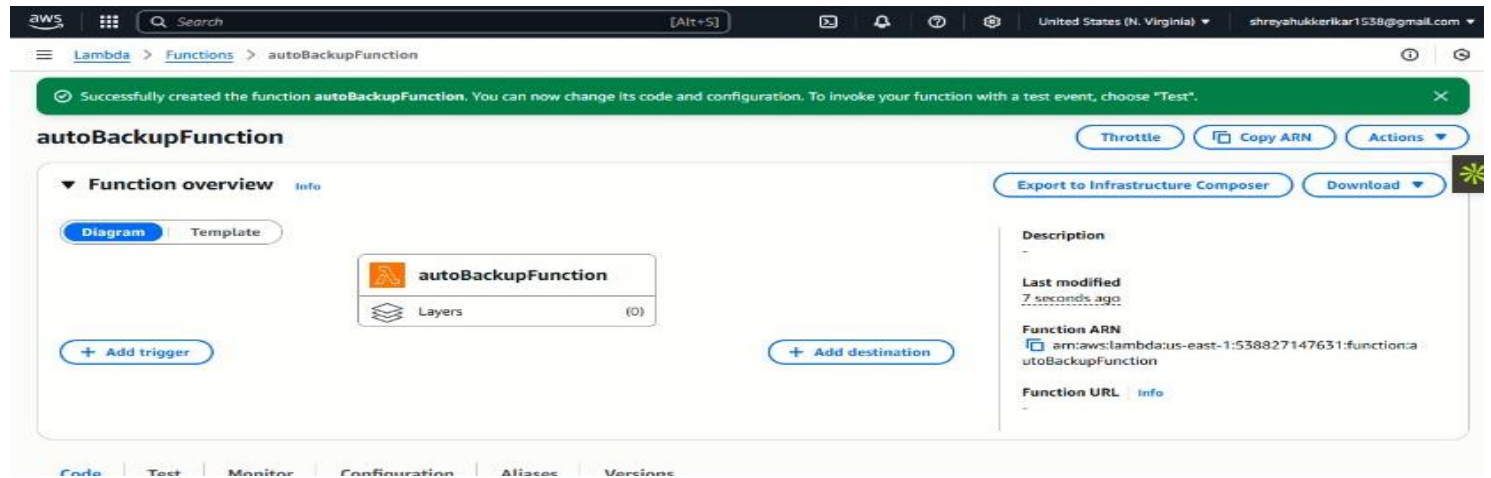
Name	file-backup-alerts	Display name	-
ARN	arn:aws:sns:us-east-1:538827147631:file-backup-alerts	Topic owner	538827147631
Type	Standard		

Slide 6: IAM Policy Used

```
{  
  "Effect": "Allow",  
  "Action": [  
    "s3:GetObject",  
    "s3:PutObject",  
    "sns:Publish"  
  ],  
  "Resource": "*"   
}
```

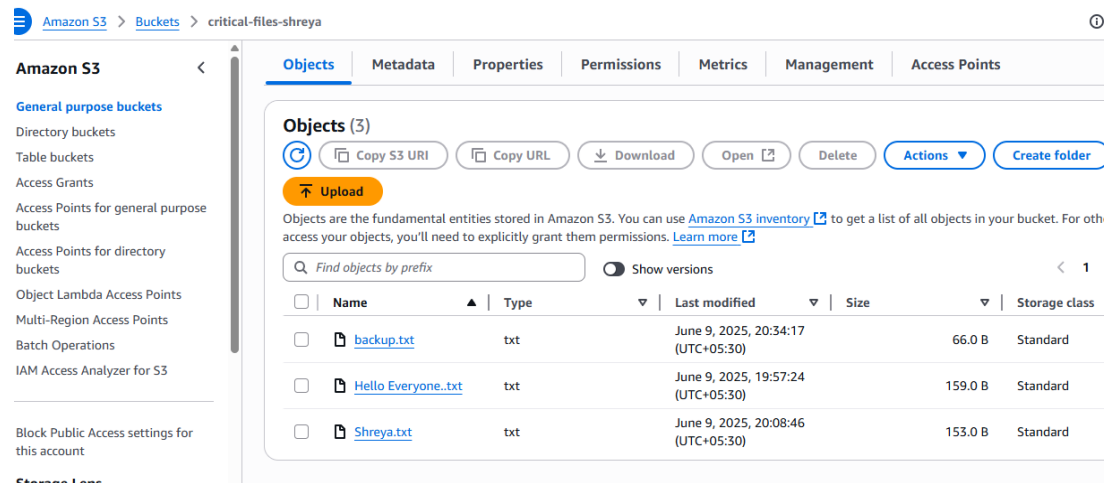

Create Lambda Function:

- Name: autoBackupFunction
- Runtime: Python 3.12
- Trigger: S3 → PutObject on critical-files-shreya
- Handler Code (given)



Slide 7: Testing the Setup

- Uploaded test.txt to source bucket
- File appeared in backup bucket
- Email received with file info
- Verified via CloudWatch Logs



Amazon S3 > Buckets > critical-files-shreya

Amazon S3

General purpose buckets

Directory buckets

Table buckets

Access Grants

Access Points for general purpose buckets

Access Points for directory buckets

Object Lambda Access Points

Multi-Region Access Points

Batch Operations

IAM Access Analyzer for S3

Block Public Access settings for this account

Storage Lens

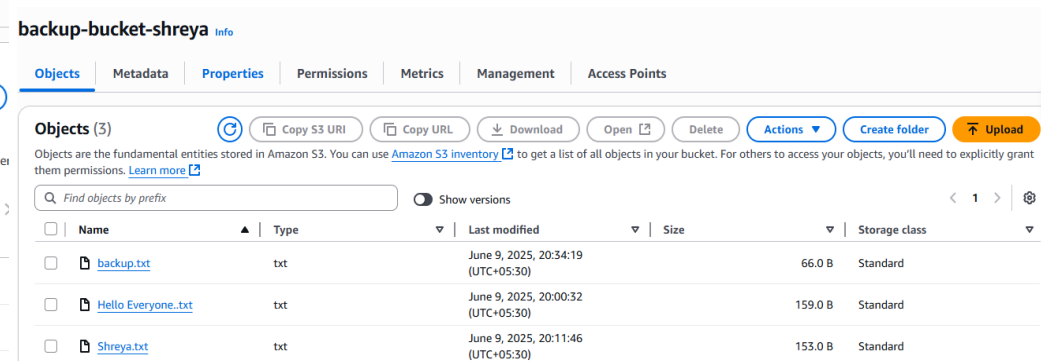
Objects (3)

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

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 other access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Find objects by prefix Show versions

Name	Type	Last modified	Size	Storage class
backup.txt	txt	June 9, 2025, 20:34:17 (UTC+05:30)	66.0 B	Standard
Hello Everyone..txt	txt	June 9, 2025, 19:57:24 (UTC+05:30)	159.0 B	Standard
Shreya.txt	txt	June 9, 2025, 20:08:46 (UTC+05:30)	153.0 B	Standard



backup-bucket-shreya

Objects (3)

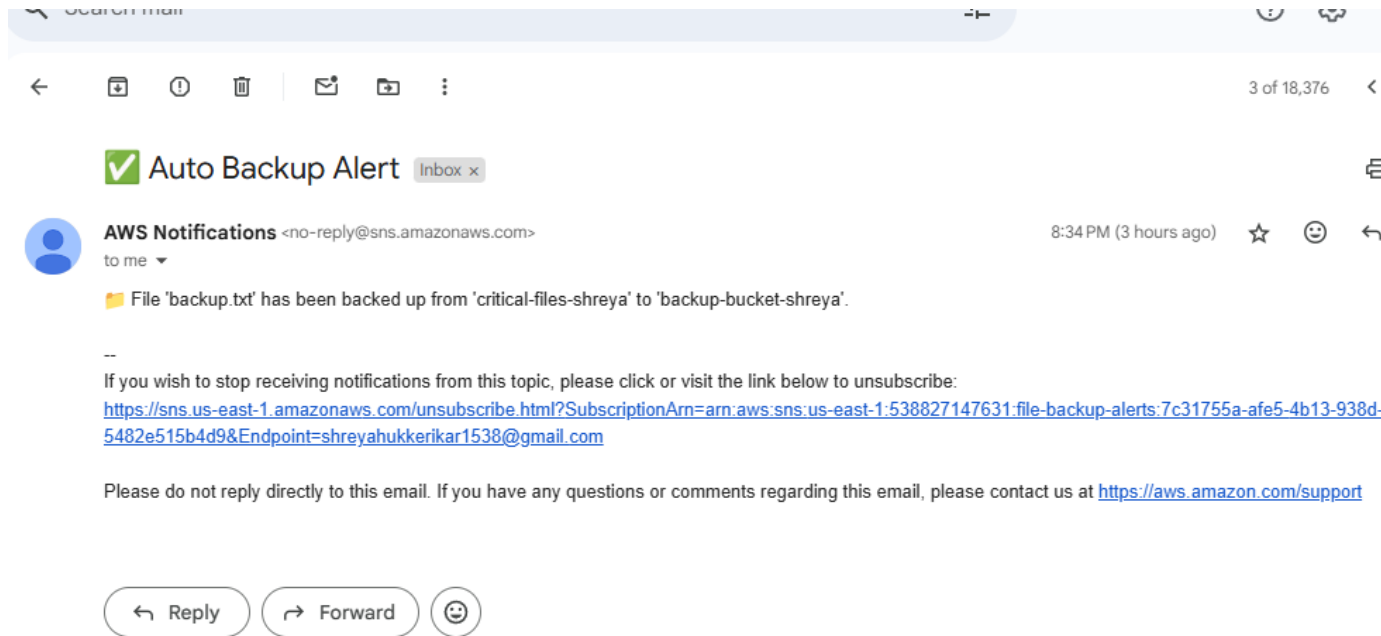
Copy S3 URI Copy URL Download Open Delete Actions Create folder Upload

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'll need to explicitly grant them permissions. [Learn more](#)

Find objects by prefix Show versions

Name	Type	Last modified	Size	Storage class
backup.txt	txt	June 9, 2025, 20:34:19 (UTC+05:30)	66.0 B	Standard
Hello Everyone..txt	txt	June 9, 2025, 20:00:32 (UTC+05:30)	159.0 B	Standard
Shreya.txt	txt	June 9, 2025, 20:11:46 (UTC+05:30)	153.0 B	Standard

Email received with file info






Slide 8: Success Rate

- 100% reliability in event-based backup
- Works on Free Tier
- Serverless = no maintenance required
- Fully secure and scalable

Slide 10: Conclusion

- AWS S3 (Storage)
- AWS Lambda (Compute)
- AWS SNS (Notification)
- IAM (Security)
- CloudWatch (Monitoring)
- *Successfully implemented a practical serverless cloud automation system.*



Thank you