

# AWS & Cloud Computing Project

# Project: 1

## Virtual Private Cloud

Create VPC with Public and Private Subnet and route table.

The screenshot displays the AWS Management Console interface for a Virtual Private Cloud (VPC). The breadcrumb navigation at the top shows the path: VPC > Your VPCs > vpc-0c4ae06a36fd8fc0e. A green notification banner at the top states: "You successfully created vpc-0c4ae06a36fd8fc0e / myvpc1".

The left-hand navigation pane includes the following sections:

- VPC dashboard**: Includes "AWS Global View" and a "Filter by VPC" dropdown.
- Virtual private cloud**: Includes "Your VPCs", "Subnets", "Route tables", "Internet gateways", "Egress-only internet gateways", "DHCP option sets", "Elastic IPs", "Managed prefix lists", "NAT gateways", "Peering connections", and "Route servers".
- Security**: Includes "Network ACLs" and "Security groups".

The main content area shows the details for the VPC **vpc-0c4ae06a36fd8fc0e / myvpc1**. The details are organized into a grid:

Details			
<b>VPC ID</b> vpc-0c4ae06a36fd8fc0e	<b>State</b> Available	<b>Block Public Access</b> Off	<b>DNS hostnames</b> Disabled
<b>DNS resolution</b> Enabled	<b>Tenancy</b> default	<b>DHCP option set</b> dopt-09ceed705fc93fe53	<b>Main route table</b> rtb-07f0f644f040f6a22
<b>Main network ACL</b> acl-0736279e80af84093	<b>Default VPC</b> No	<b>IPv4 CIDR</b> 16.0.0.0/16	<b>IPv6 pool</b> -
<b>IPv6 CIDR</b> -	<b>Network Address Usage metrics</b> Disabled	<b>Route 53 Resolver DNS Firewall rule groups</b> -	<b>Owner ID</b> 225578988181
<b>Encryption control ID</b> -	<b>Encryption control mode</b> -		

Below the details grid, there are tabs for **Resource map**, **CIDRs**, **Flow logs**, **Tags**, and **Integrations**. The **Resource map** tab is active, showing a visual representation of the VPC resources. It includes a "Show all details" toggle. The resource map displays three main components: **VPC**, **Subnets (0)**, and **Route tables (1)**.

Then, Create internet gateway for public subnet and NAT Gate for private subnet. Connect the route table.

VPC dashboard < AWS Global View [↗](#) Filter by VPC ▾

▼ Virtual private cloud

- Your VPCs
- Subnets
- Route tables
- Internet gateways
- Egress-only internet gateways
- DHCP option sets
- Elastic IPs
- Managed prefix lists
- NAT gateways**
- Peering connections
- Route servers

▼ Security

- Network ACLs
- Security groups

nat-188aabcb9089569ac / mynatghate Actions ▾

✔ NAT gateway nat-188aabcb9089569ac | mynatghate was created successfully. ✕

**Details**

<b>NAT gateway ID</b> <a href="#">nat-188aabcb9089569ac</a>	<b>Availability mode</b> Regional	<b>State</b> ⏸ Pending	<b>State message</b> <a href="#">Info</a> -
<b>NAT gateway ARN</b> <a href="#">arn:aws:ec2:us-east-2:225578988181:natgateway/nat-188aabcb9089569ac</a>	<b>Connectivity type</b> Public	<b>Created</b> <a href="#">Wednesday, December 17, 2025 at 18:58:55 GMT+5:30</a>	<b>Deleted</b> -
<b>VPC</b> <a href="#">vpc-0c4ae06a36fd8fc0e / myvpc1</a>	<b>Method of EIP allocation</b> Automatic		

**IP addresses** | Monitoring | Flow logs | Tags

**Associated IP addresses** [Edit IP address associations](#)

🔍 Search

IP address	Status	Availability Zone	Allocation ID
No associated IP addresses found. If this NAT gateway was recently created with the automatic allocation method, your IP addresses are still be being allocated. Click the refresh button to view them			

After create VPC create a public instance and connect the instance to RDP connect.

EC2 > Instances > i-0b4174595d52aaf13 > Connect to instance

Session Manager **RDP client** EC2 serial console

**Record RDP connections**  
You can now record RDP connections using AWS Systems Manager just-in-time node access. [Learn more](#) [Try for free](#) ×

**Instance ID**  
i-0b4174595d52aaf13 (pubinstance1)

**Connection Type**

☒ **Connect using RDP client**  
Download a file to use with your RDP client and retrieve your password.

☐ **Connect using Fleet Manager**  
To connect to the instance using Fleet Manager Remote Desktop, the SSM Agent must be installed and running on the instance. For more information, see [Working with SSM Agent](#)

You can connect to your Windows instance using a remote desktop client of your choice, and by downloading and running the RDP shortcut file below:

[Download remote desktop file](#)

When prompted, connect to your instance using the following username and password:

**Public DNS**  
ec2-18-222-147-39.us-east-2.compute.amazonaws.com

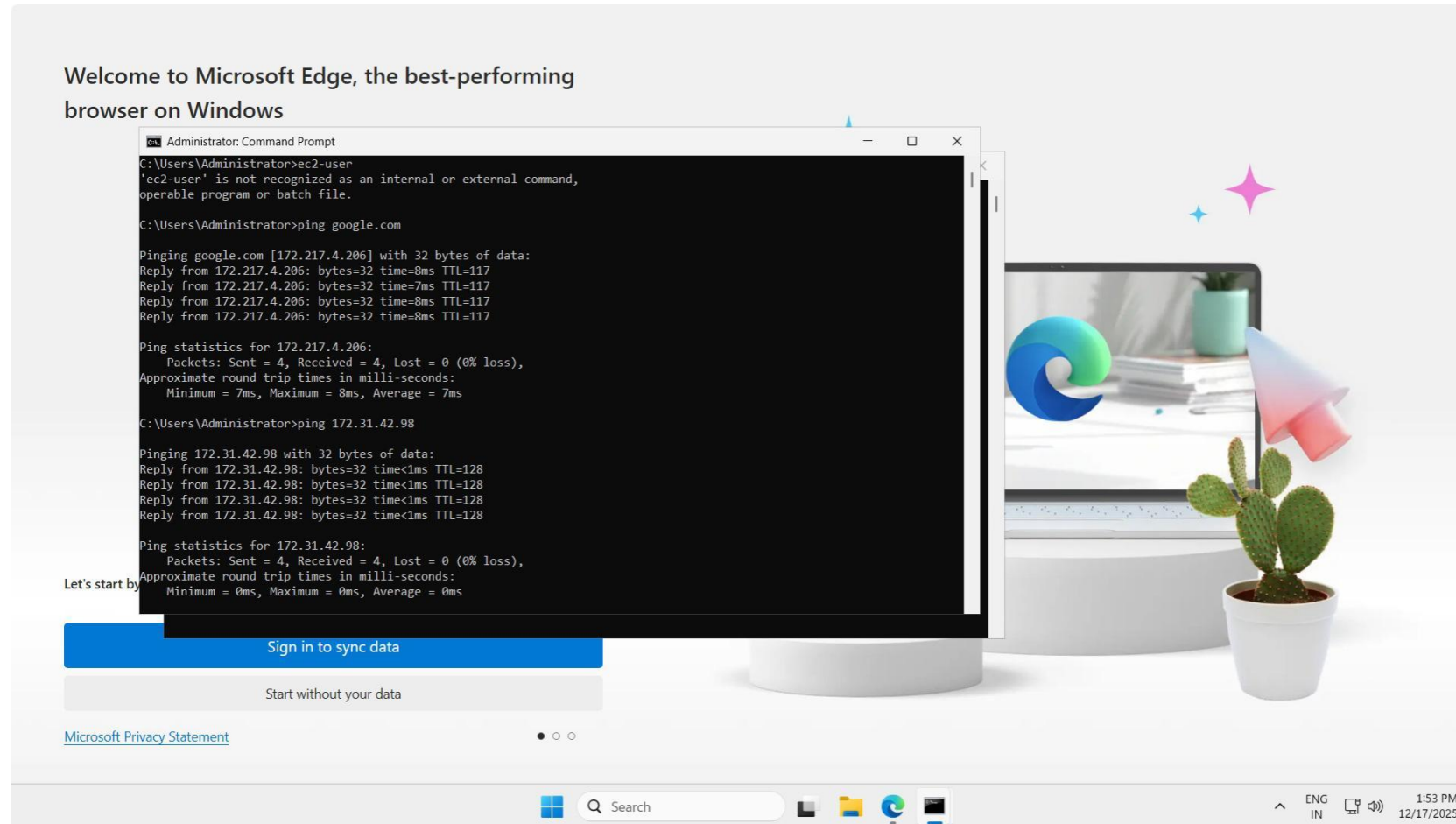
**Username** [Info](#)  
Administrator

**Password**  
1ppNsLkED@\*d@2tgo?U9&zBzt@b)?AX\*

✓ Password copied

**Directory**  
If you've joined your instance to a directory, you can use your directory credentials to connect to your instance.

After connected to RDP check the internet connection for public and private subnets. Once network is running our VPC done .  
Finall output both connections are running.



# Project : 2

- ▶ EC2 backup using snapshot and IAM

# First create Instance

The screenshot displays the AWS Management Console for the EC2 service, specifically the 'Instances' page. The left-hand navigation pane shows the 'EC2' section with various options like Dashboard, EC2 Global View, Events, and a list of instance types and launch templates. The main content area shows a list of instances, with one instance named 'myinsg' (ID: i-094a369ee3870b82f) in a 'Running' state. Below the instance list, the details for the selected instance are shown, including its instance type 't3.micro' and status checks. A table below the instance details shows the attached EBS volume 'vol-05b4afb6e204c8ebe' on the device '/dev/sda1', which is in an 'In-use' state. At the bottom, the 'Volume monitoring' section displays various metrics for the volume, including 'Stalled I/O Check', 'Average read latency (ms/op)', 'Average write latency (ms/op)', and 'Read throughput (KiB/s)'. The console interface includes standard AWS navigation elements like the top bar with the AWS logo and the bottom navigation pane.

EC2 > Instances

Instances (1/1) Info

Find Instance by attribute or tag (case-sensitive)

All states

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
myinsg	i-094a369ee3870b82f	Running	t3.micro	3/3 checks passed	View alarms +	us-east-2c	ec2-3-17-20

i-094a369ee3870b82f (myinsg)

Volume ID	Device	Size (GB)	State	Attachment ID	Attachment Time	Public IP
vol-05b4afb6e204c8ebe	/dev/sda1	30	In-use	att-05b4afb6e204c8ebe	2025/12/18 10:37 GMT+5:30	No

Volume monitoring (1)

Alarm recommendations

Investigate with AI - new

3h 1d 1w 1h

UTC timezone

Explore related

Metric	Value
Stalled I/O Check	No unit
Average read latency (ms/op)	No unit
Average write latency (ms/op)	No unit
Read throughput (KiB/s)	No unit



Then, create snapshot for instance and create column for snapshot. Then attach the column to instance. If the volume is deleted automatically backup volume.

The screenshot displays the AWS Management Console interface for the 'Volumes' section. On the left, a navigation sidebar lists various AWS services, including Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Capacity Manager, Images, Elastic Block Store, Network & Security, and Load Balancing. The main content area is titled 'Volumes (1/2)' and shows a table of two gp3 volumes. The first volume, 'vol-09f8eedc9dc874ff3', is selected. Below the table, the 'Details' tab for this volume is expanded, showing its configuration and status.

**Volumes (1/2)**

Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Source volume ID	Created
<input checked="" type="checkbox"/>	vol-09f8eedc9dc874ff3	gp3	30 GiB	3000	125	snap-0f22d0f...	-	2025/12/18 10:48:18 GMT+0530
<input type="checkbox"/>	vol-05b4afb6e204c8ebe	gp3	30 GiB	3000	125	snap-0c9c090...	-	2025/12/18 10:48:18 GMT+0530

**Volume ID: vol-09f8eedc9dc874ff3**

**Details**

<b>Volume ID</b> vol-09f8eedc9dc874ff3	<b>Size</b> 30 GiB	<b>Type</b> gp3	<b>Status check</b> Okay
<b>AWS Compute Optimizer finding</b> Opt-in to AWS Compute Optimizer for recommendations.   Learn more	<b>Volume state</b> Available	<b>IOPS</b> 3000	<b>Throughput</b> 125
<b>Fast snapshot restored</b> No	<b>Availability Zone</b> use2-az1 (us-east-2a)	<b>Created</b> Thu Dec 18 2025 10:48:18 GMT+0530 (India Standard Time)	<b>Multi-Attach enabled</b> No



- Next we create a backup for whole instance using IAM.  
Create IAM for instance backup. If the instance delete them automatically backup the whole instance.

The screenshot displays the AWS Management Console interface for EC2 instances. On the left, a navigation sidebar lists various services including Savings Plans, Reserved Instances, Dedicated Hosts, Capacity Reservations, Capacity Manager, Images, Elastic Block Store, Network & Security, and Load Balancing. The main content area is titled 'Instances (1/2)' and shows a table of two running instances. The instance 'myins18backup' with ID 'i-0626c3d41ac557589' is selected. Below the table, the 'Details' tab for this instance is active, showing its summary information: Instance ID, Public IPv4 address (52.14.235.121), Private IPv4 addresses (172.31.32.249), Instance state (Running), and Public DNS (ec2-52-14-235-121.us-east-2.compute.amazonaws.com).

**Instances (1/2)** Info

Last updated less than a minute ago

Find Instance by attribute or tag (case-sensitive)

All states

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4
<input type="checkbox"/>	myinsg	i-094a369ee3870b82f	Running	t3.micro	3/3 checks passed	View alarms +	us-east-2c	ec2-3-17-20
<input checked="" type="checkbox"/>	myins18backup	i-0626c3d41ac557589	Running	t3.micro	3/3 checks passed	View alarms +	us-east-2c	ec2-52-14-2

**i-0626c3d41ac557589 (myins18backup)**

Details | Status and alarms | Monitoring | Security | Networking | Storage | Tags

**Instance summary** Info

Instance ID  
i-0626c3d41ac557589

IPv6 address  
-

Public IPv4 address  
52.14.235.121 | open address

Instance state  
Running

Private IPv4 addresses  
172.31.32.249

Public DNS  
ec2-52-14-235-121.us-east-2.compute.amazonaws.com | open address

# Project 3: *Motoring Service*

- ▶ Set Alarm for S3 bucket using Cloudwatch

- First we create s3 bucket.  
Next create loggroup for putobject on s3 bucket using cloudwatch.  
Then create cloudtrail for that loggroup.

The screenshot displays the AWS CloudTrail console interface for a trail named 'mytrails3'. The breadcrumb navigation at the top shows 'CloudTrail > Trails > arn:aws:cloudtrail:us-east-2:225578988181:trail/mytrails3'. The trail's ARN is also visible in the top right corner. The console is divided into three main sections: 'General details', 'CloudWatch Logs', and 'Tags'.

**General details** (Edit button):

- Trail logging:** ☒ Logging
- Trail name:** mytrails3
- Multi-region trail:** Yes
- Apply trail to my organization:** Not enabled
- Trail log location:** [aws-cloudtrail-logs-225578988181-e7c10cda/AWSLogs/225578988181](#)
- Last log file delivered:** -
- Log file SSE-KMS encryption:** Not enabled
- Log file validation:** Disabled
- Last file validation delivered:** -
- SNS notification delivery:** Disabled
- Last SNS notification:** -

**CloudWatch Logs** (Edit button):

- Log group:** s3bucket
- IAM Role:** arn:aws:iam::225578988181:role/service-role/s3rule

**Tags** (Manage tags button):

Key	Value
-----	-------

- Next set Cloudwatch alarm for putobject on s3 bucket.  
Create topic and subscribe the notification Receive.

The screenshot displays the Amazon SNS console interface. The breadcrumb navigation at the top reads: Amazon SNS > Topics > mys3topic > Subscription: 06787463-1efe-48c6-8896-7bc9df4e97b1. The left-hand navigation menu includes 'Amazon SNS', 'Dashboard', 'Topics', 'Subscriptions', 'Mobile', 'Push notifications', and 'Text messaging (SMS)'. The main content area features a blue banner for a 'New Feature' announcement. Below this, the subscription title 'Subscription: 06787463-1efe-48c6-8896-7bc9df4e97b1' is shown with 'Edit' and 'Delete' buttons. The 'Details' section contains the following information: ARN (arn:aws:sns:us-east-2:225578988181:mys3topic:06787463-1efe-48c6-8896-7bc9df4e97b1), Endpoint (gayumachlm@gmail.com), Topic (mys3topic), and Subscription Principal (arn:aws:iam::225578988181:root). To the right, the 'Status' is 'Confirmed' with a green checkmark, and the 'Protocol' is 'EMAIL'. Below the details, there are tabs for 'Subscription filter policy' (selected) and 'Redrive policy (dead-letter queue)'. The 'Subscription filter policy' section includes an 'Info' link and a description: 'This policy filters the messages that a subscriber receives.'

Amazon SNS > Topics > mys3topic > Subscription: 06787463-1efe-48c6-8896-7bc9df4e97b1

**Amazon SNS**

- Dashboard
- Topics
- Subscriptions
- ▼ Mobile
  - Push notifications
  - Text messaging (SMS)

**Subscription: 06787463-1efe-48c6-8896-7bc9df4e97b1** [Edit](#) [Delete](#)

**Details**

**ARN**  
arn:aws:sns:us-east-2:225578988181:mys3topic:06787463-1efe-48c6-8896-7bc9df4e97b1

**Endpoint**  
gayumachlm@gmail.com

**Topic**  
[mys3topic](#)

**Subscription Principal**  
arn:aws:iam::225578988181:root

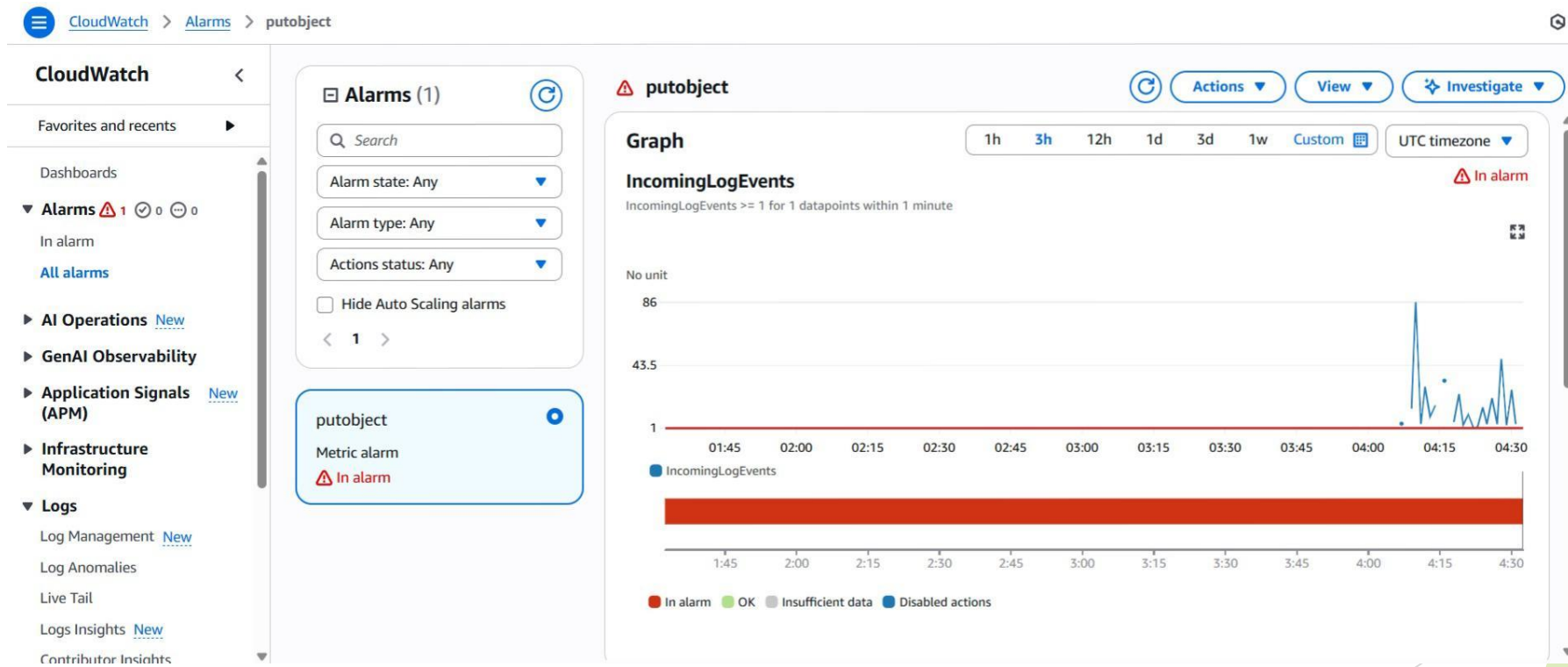
**Status**  
✔ Confirmed

**Protocol**  
EMAIL

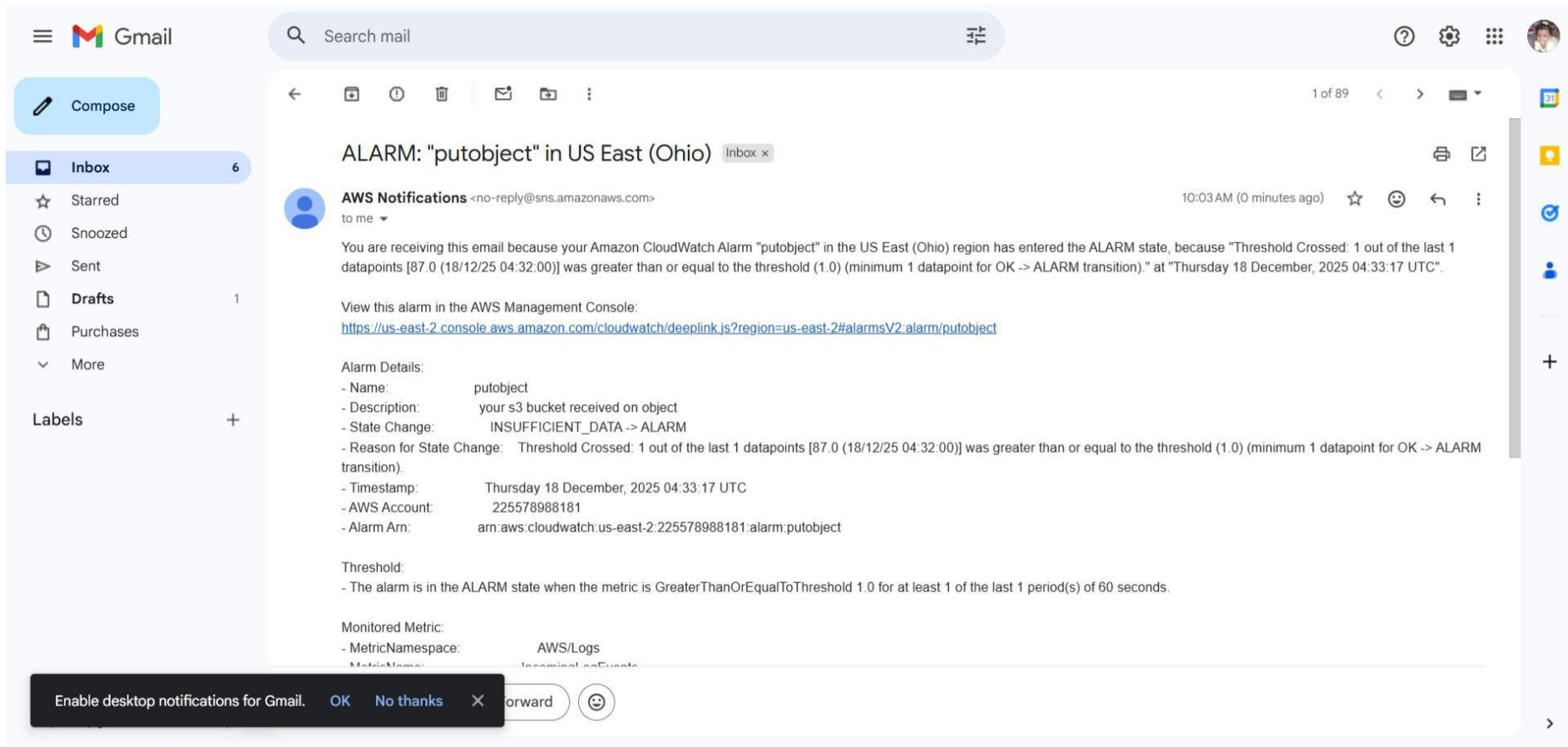
[Subscription filter policy](#) [Redrive policy \(dead-letter queue\)](#)

**Subscription filter policy** [Info](#)  
This policy filters the messages that a subscriber receives.

- Next select the metrics filter in Cloudwatch. Then put the object on s3 bucket. Once the Cloudwatch graph is cross the limit we received the notification mail.



- Finally the mail is received to our given mail id.



# Project 4: Notification Services

- ▶ Simple Notification Service(SNS)
- ▶ Set Notification for cpu utilisation alert



- Open SNS, then create topic for cpu utilisation.

The screenshot displays the Amazon SNS console interface. The left sidebar shows the navigation menu with 'Amazon SNS' selected, and 'Topics' and 'Subscriptions' visible. The main content area shows the details for a topic named 'cpualert'. At the top, there are two notification banners: a blue one for a new feature and a green one confirming the topic creation. Below these are buttons for 'Edit', 'Delete', and 'Publish message'. The 'Details' section shows the topic's name, ARN, display name, and type. The 'Subscriptions' section shows a list of subscriptions with a search bar and a 'Create subscription' button.

Amazon SNS > Topics > cpualert

**Amazon SNS**

- Dashboard
- Topics
- Subscriptions

▼ **Mobile**

- Push notifications
- Text messaging (SMS)

**cpualert** Edit Delete Publish message

**Details**

<b>Name</b> cpualert	<b>ARN</b> arn:aws:sns:us-east-2:225578988181:cpualert	<b>Display name</b> -	<b>Type</b> Standard
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**Topic owner**  
225578988181

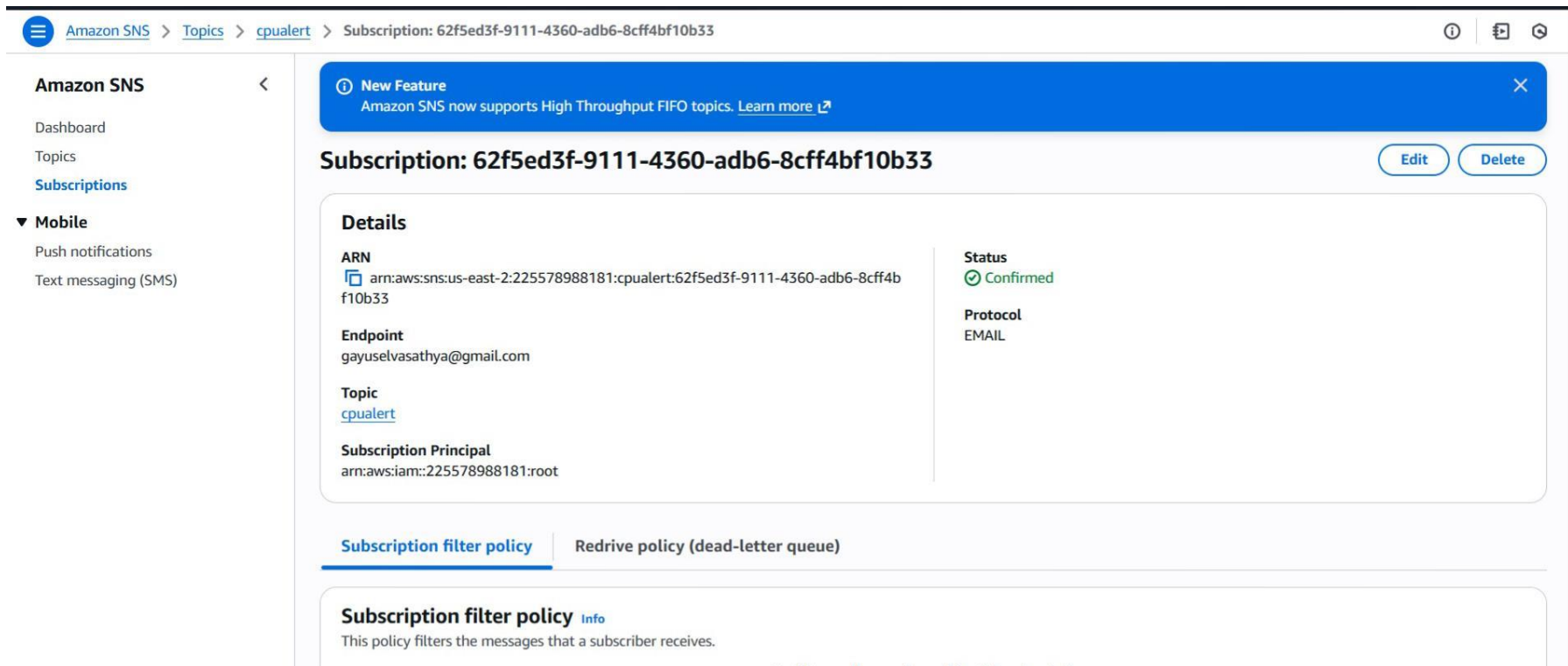
< **Subscriptions** Access policy Data protection policy Delivery policy (HTTP/S) Delivery status logging Encryption Tags >

**Subscriptions (0)** Edit Delete Request confirmation Confirm subscription Create subscription

Search

< 1 > ⚙

- Then create subscription for alert and confirm subscription.

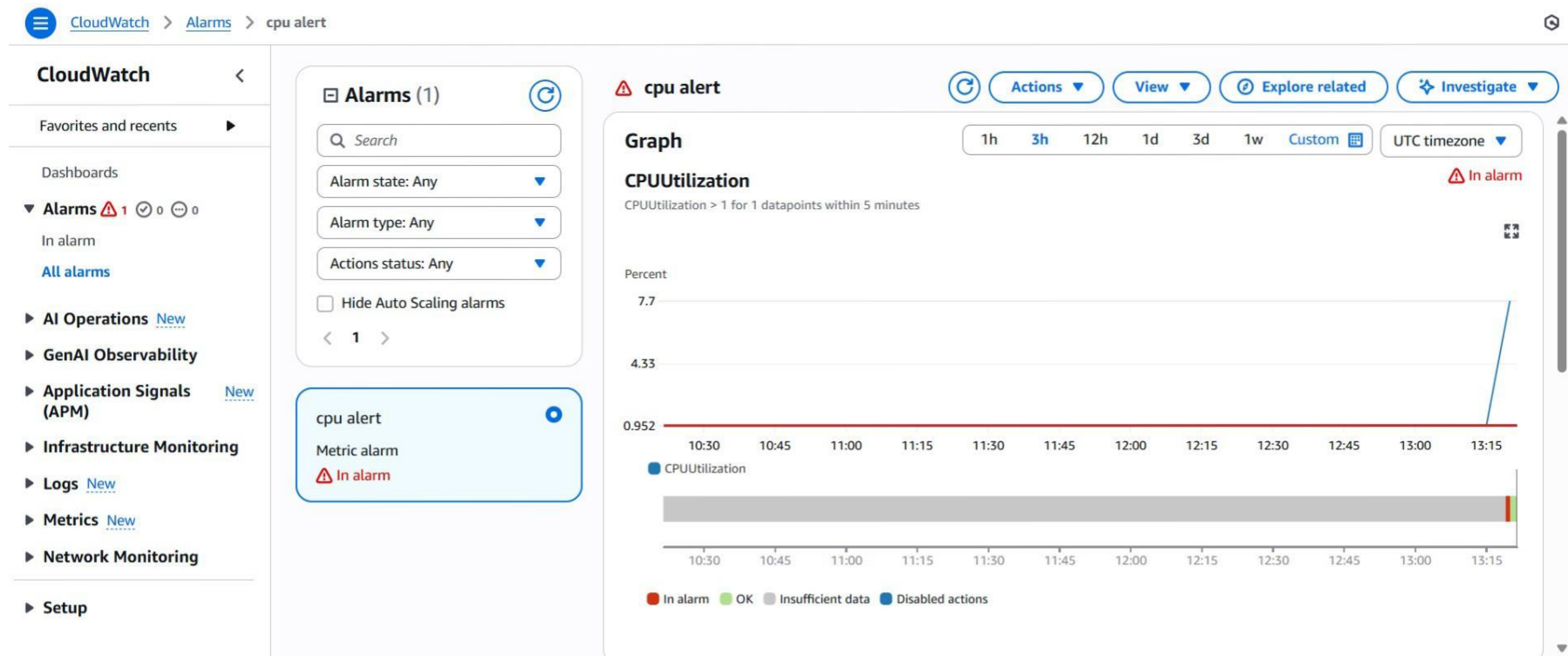


The screenshot displays the Amazon SNS console interface. The breadcrumb navigation at the top reads: Amazon SNS > Topics > cpualert > Subscription: 62f5ed3f-9111-4360-adb6-8cff4bf10b33. On the left sidebar, the 'Amazon SNS' section is expanded, showing 'Dashboard', 'Topics', 'Subscriptions', and a 'Mobile' section with 'Push notifications' and 'Text messaging (SMS)'. The main content area features a blue banner for a 'New Feature' announcement. Below this, the title 'Subscription: 62f5ed3f-9111-4360-adb6-8cff4bf10b33' is shown with 'Edit' and 'Delete' buttons. The 'Details' section contains the following information:

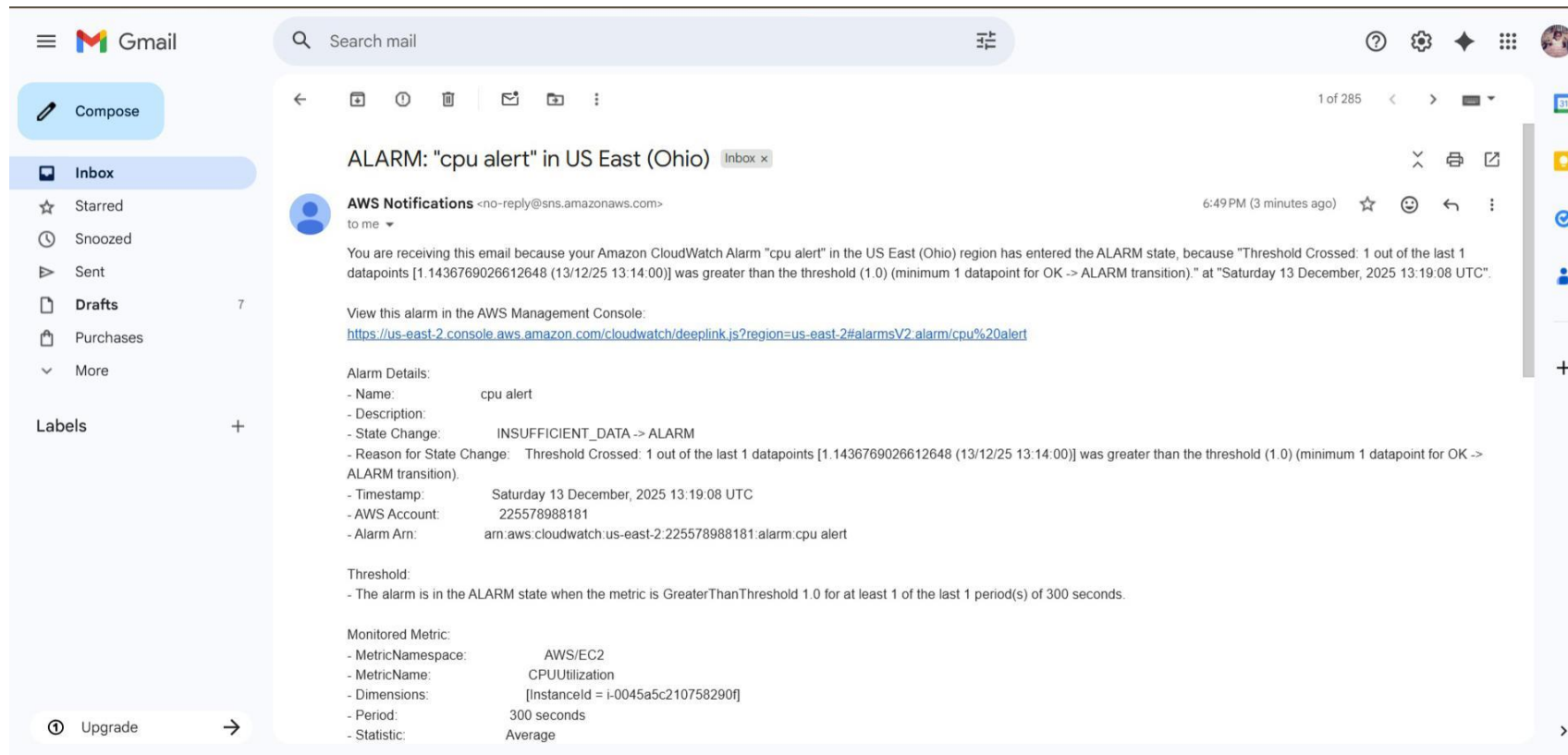
Details	Status
<b>ARN</b> arn:aws:sns:us-east-2:225578988181:cpualert:62f5ed3f-9111-4360-adb6-8cff4bf10b33	Confirmed
<b>Endpoint</b> gayuselvasathya@gmail.com	<b>Protocol</b> EMAIL
<b>Topic</b> <a href="#">cpualert</a>	
<b>Subscription Principal</b> arn:aws:iam::225578988181:root	

Below the details, there are tabs for 'Subscription filter policy' (selected) and 'Redrive policy (dead-letter queue)'. The 'Subscription filter policy' section includes an 'Info' link and a description: 'This policy filters the messages that a subscriber receives.'

- Once the CPU utilisation is cross the limit, the graph will cross the line and alarm status change to In-alarm.



- Then, we received the alert mail to our given mail id.



- Simple Queue Service(SQS)

- Create SQS for message. This message is received to customer, the customer view the message when we have time.

The screenshot displays the AWS Management Console interface for an Amazon SQS queue. The top navigation bar includes the AWS logo, a search bar, and account information (United States (Ohio), Account ID: 2255-7898-8181). The breadcrumb trail shows the path: Amazon SQS > Queues > myqueue. The main content area is titled 'Details Info' and contains a table with the following information:

<b>Name</b> myqueue	<b>Type</b> Standard	<b>ARN</b> arn:aws:sqs:us-east-2:225578988181:myqueue
<b>Encryption</b> Amazon SQS key (SSE-SQS)	<b>URL</b> <a href="https://sqs.us-east-2.amazonaws.com/225578988181/myqueue">https://sqs.us-east-2.amazonaws.com/225578988181/myqueue</a>	<b>Dead-letter queue</b> -

Below the table, there is a 'More' link. A horizontal tab bar is visible with the following tabs: Queue policies (selected), Monitoring, SNS subscriptions, Lambda triggers, EventBridge Pipes, Dead-letter queue, Tagging, Encryption, and Dead-letter queue redrive. The 'Access policy Info' section is expanded, showing the default policy JSON:

```
{
  "Version": "2012-10-17",
  "Id": "__default_policy_ID",
  "Statement": [
    {
      "Sid": "Amazon statement"
```

An 'Edit' button is located to the right of the policy JSON.

- Set message in send message column.  
Type the message what receive to client.

The screenshot shows the AWS Management Console interface for the 'Send message' action in Amazon SQS. The breadcrumb navigation at the top indicates the path: Amazon SQS > Queues > myqueue > Send and receive messages. A green success message at the top states: 'Your message has been sent and is ready to be received.' Below this, the 'Message body' section contains a text input field with the text 'your s3 bucket object storage is cross the limit.' The 'Message group ID' section is currently empty. The 'Delivery delay' is set to 0 seconds. At the bottom right, there are 'Clear content' and 'Send message' buttons.

aws Search [Alt+S] United States (Ohio) Account ID: 2255-7898-8181 gayathri%20s

Amazon SQS > Queues > myqueue > Send and receive messages

Use this page to send, retrieve and view messages, helping you experiment with various queue features.

### Send message [Info](#)

✓ Your message has been sent and is ready to be received. [View sent message details](#) ✕

**Message body**  
Enter the message to send to the queue.

your s3 bucket object storage is cross the limit.

**Message group ID - optional, new** [Info](#)  
A group identifier for the message to allow fair processing across message groups in a standard queue.

Message group ID must be 1 to 128 characters. Valid characters are a-z, A-Z, 0-9, and punctuation (!"#\$%&'()\*+,-./:;<=>?@[\\]^\_`{|}~).

**Delivery delay** [Info](#)  
The duration (in seconds) that SQS will postpone the initial delivery of the message. During this delay period, the message is not visible to consumers, allowing you to create a wait time before the message becomes available for processing.

0 Seconds ▼  
Should be between 0 seconds and 15 minutes.

► **Message attributes - optional** [Info](#)

[Clear content](#) [Send message](#)



- When we have time click the poll for messages , the message will be show for 30sec. The message will disappear after 30sec. Again we want to read again click the poll for messages.

The screenshot displays the AWS Management Console for Amazon SQS. The breadcrumb navigation shows 'Amazon SQS > Queues > myqueue > Send and receive messages'. The 'Delivery delay' section is set to 0 seconds. A modal window titled 'Received message: 87a06d3a-076d-439a-8cdf-03ba2e3395a5' is open, showing the message body: 'your s3 bucket object storage is cross the limit.' The modal has tabs for 'Body', 'Attributes', and 'Details', and a 'Done' button. In the background, the 'Receive messages' section shows 'Messages available: 1'. Below this, a table lists the message details:

ID	Sent	Size	Receive count
87a06d3a-076d-439a-8cdf-03ba2e3395a5	2025-12-13T18:30+05:30	49 bytes	1

# Project : 5

- ▶ Storage Service(S3 Bucket)

- Create an S3 bucket with Unique Name and ACL enable with public access.

The screenshot displays the AWS Management Console interface for the 'Amazon S3' service, specifically the 'Buckets' section. At the top, a dark navigation bar includes the AWS logo, a search bar, and account information for 'United States (Ohio)' with Account ID '2255-7898-8181'. Below this, a green success banner confirms the creation of the bucket 'gayulithu' and provides a 'View details' link. The main content area is divided into 'General purpose buckets' and 'Directory buckets'. Under 'General purpose buckets', there is a search bar and a table listing the newly created bucket. The table has columns for Name, AWS Region, and Creation date. The bucket 'gayulithu' is listed in the 'US East (Ohio) us-east-2' region, created on 'December 13, 2025, 19:30:47 (UTC+05:30)'. To the right of the table are buttons for 'Copy ARN', 'Empty', 'Delete', and 'Create bucket'. Further right, there are two informational panels: 'Account snapshot' and 'External access summary - new', both with 'View dashboard' links.

aws [Search] [Alt+S] United States (Ohio) Account ID: 2255-7898-8181

Amazon S3 > Buckets

✓ Successfully created bucket "gayulithu"  
To upload files and folders, or to configure additional bucket settings, choose [View details](#).

General purpose buckets All AWS Regions Directory buckets

General purpose buckets (1/1) Info

Buckets are containers for data stored in S3.

Find buckets by name

Name	AWS Region	Creation date
gayulithu	US East (Ohio) us-east-2	December 13, 2025, 19:30:47 (UTC+05:30)

Copy ARN Empty Delete Create bucket

► Account snapshot Info  
Updated daily  
Storage Lens provides visibility into storage usage and activity trends.  
[View dashboard](#)

► External access summary - new Info  
Updated daily  
External access findings help you identify bucket permissions that allow public access or access from other AWS accounts.

- Then, Upload any object in bucket (like images,songs,videos etc..) I upload the resume document. Give grand permission for object. For use of we access anywhere.

aws

[Alt+S]

Search

United States (Ohio)

Account ID: 2255-7898-8181

gayathri%20s

Upload succeeded

For more information, see the [Files and folders](#) table.

After you navigate away from this page, the following information is no longer available.

Summary

Destination

s3://gayulithu

Succeeded

1 file, 35.6 KB (100.00%)

Failed

0 files, 0 B (0%)

Files and folders

Configuration

Files and folders (1 total, 35.6 KB)

Find by name

< 1 >

Name	Folder	Type	Size	Status	Error
<a href="#">Amazon_S3_Seminar_PPT.pptx</a>	-	application/vnd.openxmlform...	35.6 KB	Succeeded	-

- Then open the upload page copy the URL for the object. Paste in new browser the file will be download to our device.

