

# 1.create an ec2 instance

The screenshot displays the AWS Management Console interface for the EC2 service. The top navigation bar includes the AWS logo, a search bar, and the current region (N. Virginia) and user (Pushpa). The left sidebar shows the navigation menu with categories like EC2 Dashboard, EC2 Global View, Events, Console-to-Code, and various EC2 services including Instances, Images, Elastic Block Store, and Network & Security.

The main content area is titled "Instances (1/1) Info". It features a search bar and a table of instances. A single instance is listed with the following details:

Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...
ec2-for-cost-o...	i-0deb270ddddd56735	Running	t2.micro	Initializing	View alarms +	us-east-1b	ec2-44-202-117-113.co...	44.202.117.113

Below the table, the details for the selected instance "i-0deb270ddddd56735 (ec2-for-cost-optimisation)" are shown in a card view. The details are organized into three columns:

- Left Column:**
  - IPv6 address: --
  - Hostname type: IP name: ip-172-31-80-108.ec2.internal
  - Answer private resource DNS name: IPv4 (A)
  - Auto-assigned IP address: 44.202.117.113 [Public IP]
  - IAM Role: --
- Middle Column:**
  - Instance state: Running
  - Private IP DNS name (IPv4 only): ip-172-31-80-108.ec2.internal
  - Instance type: t2.micro
  - VPC ID: vpc-0e8f330de03d24d45
  - Subnet ID: subnet-0586ea4fc6fa848fa
- Right Column:**
  - Public IPv4 DNS: ec2-44-202-117-113.compute-1.amazonaws.com | open address
  - Elastic IP addresses: --
  - AWS Compute Optimizer finding: Opt-in to AWS Compute Optimizer for recommendations. | Learn more
  - Auto Scaling Group name: --

## 2. No snapshots are there so, create one snapshot to that instance

The screenshot displays the AWS Management Console interface for the US East (N. Virginia) region. The left sidebar contains navigation links for various services, including EC2 Dashboard, EC2 Global View, Events, Console-to-Code, and a list of EC2-related services like Instances, Instance Types, Launch Templates, Spot Requests, Savings Plans, Reserved Instances, Dedicated Hosts, Capacity, Reservations, Images, AMIs, AMI Catalog, Elastic Block Store, Volumes, Snapshots, Lifecycle Manager, Network & Security, and Security Groups.

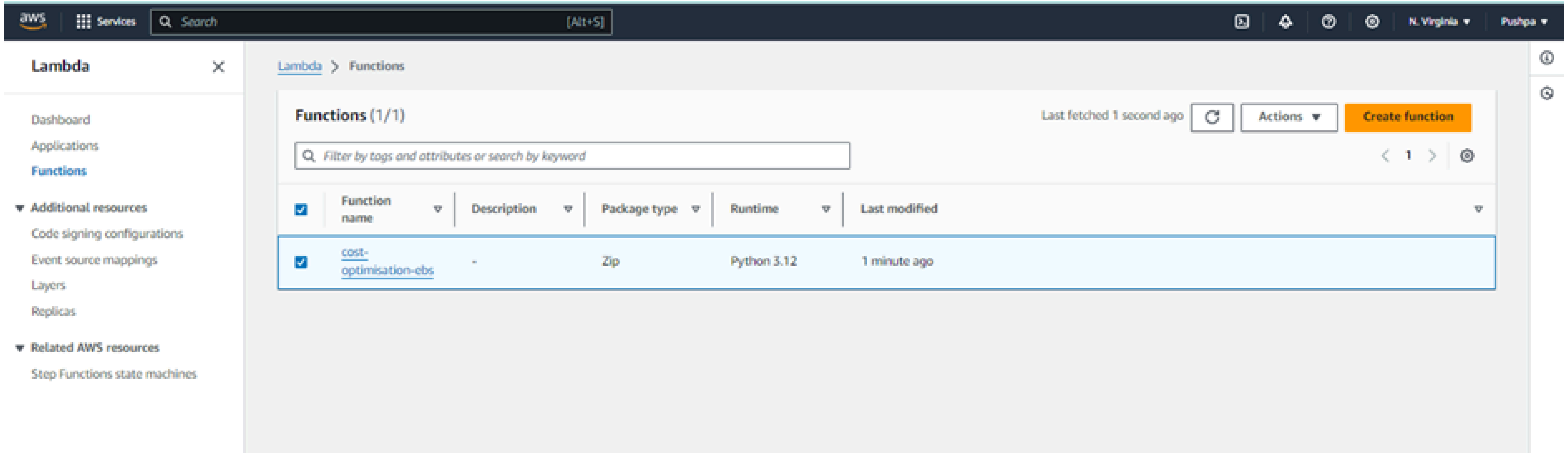
The main content area is divided into several sections:

- Resources:** A summary of EC2 resources in the US East (N. Virginia) Region. It shows 1 running instance, 0 auto scaling groups, 0 capacity reservations, 0 dedicated hosts, 2 elastic IPs, 1 instance, 0 key pairs, 0 load balancers, 0 placement groups, 0 security groups, 0 snapshots, and 1 volume.
- Launch instance:** A section for launching a new EC2 instance. It includes a "Launch instance" button and a "Migrate a server" button. A note states: "Note: Your instances will launch in the US East (N. Virginia) Region."
- Service health:** A section showing the status of AWS services. It indicates that the service is operating normally.
- Zones:** A table listing the available Availability Zones in the region.
- Instance alarms:** A section showing the status of alarms for EC2 instances. It indicates that there are 0 instances in alarm, 0 OK, and 0 insufficient data.
- EC2 Free Tier:** A section showing the usage of the EC2 Free Tier. It indicates that 3 EC2 free tier offers are in use. The offers are for Linux EC2 instances (144,000 hours remaining) and Windows EC2 instances (144,000 hours remaining). It also shows storage space on EBS (20 GB remaining).
- Account attributes:** A section showing account attributes, including the account ID (123456789012).

Zone name	Zone ID
us-east-1a	use1-az1
us-east-1b	use1-az2
us-east-1c	use1-az3

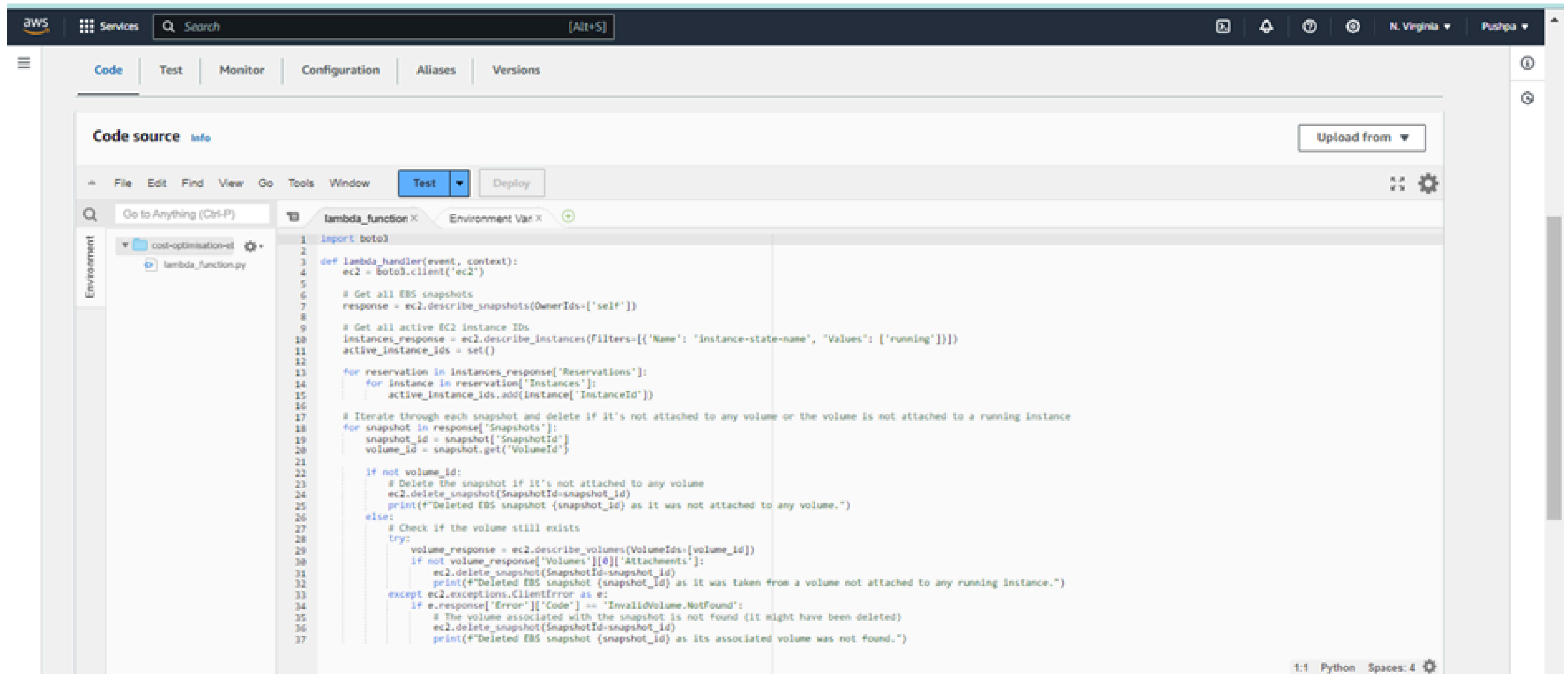


# 3. Create a lambda function using python script deploy it and test it



-Default execution time for lambda is “3 seconds “

-So it will fail asking describe snapshots



The screenshot displays the AWS Lambda console interface. At the top, there's a navigation bar with the AWS logo, 'Services' link, a search bar, and a '[Alt+S]' shortcut. Below this is a tabbed interface with 'Code', 'Test', 'Monitor', 'Configuration', 'Aliases', and 'Versions'. The 'Code source' tab is active, showing a code editor for a function named 'cost-optimisation-st'. The editor has a menu bar (File, Edit, Find, View, Go, Tools, Window) and buttons for 'Test' and 'Deploy'. The code is a Python script using boto3 to manage EC2 snapshots. It includes comments and print statements for logging. The code is as follows:

```
1 import boto3
2
3 def lambda_handler(event, context):
4     ec2 = boto3.client('ec2')
5
6     # Get all EBS snapshots
7     response = ec2.describe_snapshots(OwnerIds=['self'])
8
9     # Get all active EC2 instance IDs
10    instances_response = ec2.describe_instances(Filters=[{'Name': 'instance-state-name', 'Values': ['running']}])
11    active_instance_ids = set()
12
13    for reservation in instances_response['Reservations']:
14        for instance in reservation['Instances']:
15            active_instance_ids.add(instance['InstanceId'])
16
17    # Iterate through each snapshot and delete if it's not attached to any volume or the volume is not attached to a running instance
18    for snapshot in response['Snapshots']:
19        snapshot_id = snapshot['SnapshotId']
20        volume_id = snapshot.get('VolumeId')
21
22        if not volume_id:
23            # Delete the snapshot if it's not attached to any volume
24            ec2.delete_snapshot(SnapshotId=snapshot_id)
25            print(f"Deleted EBS snapshot {snapshot_id} as it was not attached to any volume.")
26        else:
27            # Check if the volume still exists
28            try:
29                volume_response = ec2.describe_volumes(VolumeIds=[volume_id])
30                if not volume_response['Volumes'][0]['Attachments']:
31                    ec2.delete_snapshot(SnapshotId=snapshot_id)
32                    print(f"Deleted EBS snapshot {snapshot_id} as it was taken from a volume not attached to any running instance.")
33            except ec2.exceptions.ClientError as e:
34                if e.response['Error']['Code'] == 'InvalidVolume.NotFound':
35                    # The volume associated with the snapshot is not found (it might have been deleted)
36                    ec2.delete_snapshot(SnapshotId=snapshot_id)
37                    print(f"Deleted EBS snapshot {snapshot_id} as its associated volume was not found.")
```

At the bottom right of the editor, it shows '1:1 Python Spaces: 4'.

# 4. go to configuration > edit > increase timeout = 10 sec > save

The screenshot shows the AWS Lambda console interface for editing the basic settings of a function named 'cost-optimisation-ebc'. The breadcrumb navigation at the top indicates the path: Lambda > Functions > cost-optimisation-ebc > Edit basic settings. The main heading is 'Edit basic settings'. The 'Basic settings' section is expanded, showing various configuration options. The 'Timeout' field is highlighted, showing '0 min' and '10 sec'. The 'Execution role' section shows 'Use an existing role' selected, with a dropdown menu displaying 'service-role/cost-optimisation-ebc-role-gvufhzh'. The 'Save' button is highlighted in orange.

**Basic settings** [info](#)

Description - optional

Memory [info](#)  
Your function is allocated CPU proportional to the memory configured.  
128 MB  
Set memory to between 128 MB and 10240 MB.

Ephemeral storage [info](#)  
You can configure up to 10 GB of ephemeral storage (/tmp) for your function. [View pricing](#) [info](#)  
512 MB  
Set ephemeral storage (/tmp) to between 512 MB and 10240 MB.

SnapStart [info](#)  
Reduce startup time by having Lambda cache a snapshot of your function after the function has initialized. To evaluate whether your function code is resilient to snapshot operations, review the [SnapStart compatibility considerations](#) [info](#)  
None  
Supported runtimes: Java 11, Java 17, Java 21.

Timeout  
0 min 10 sec

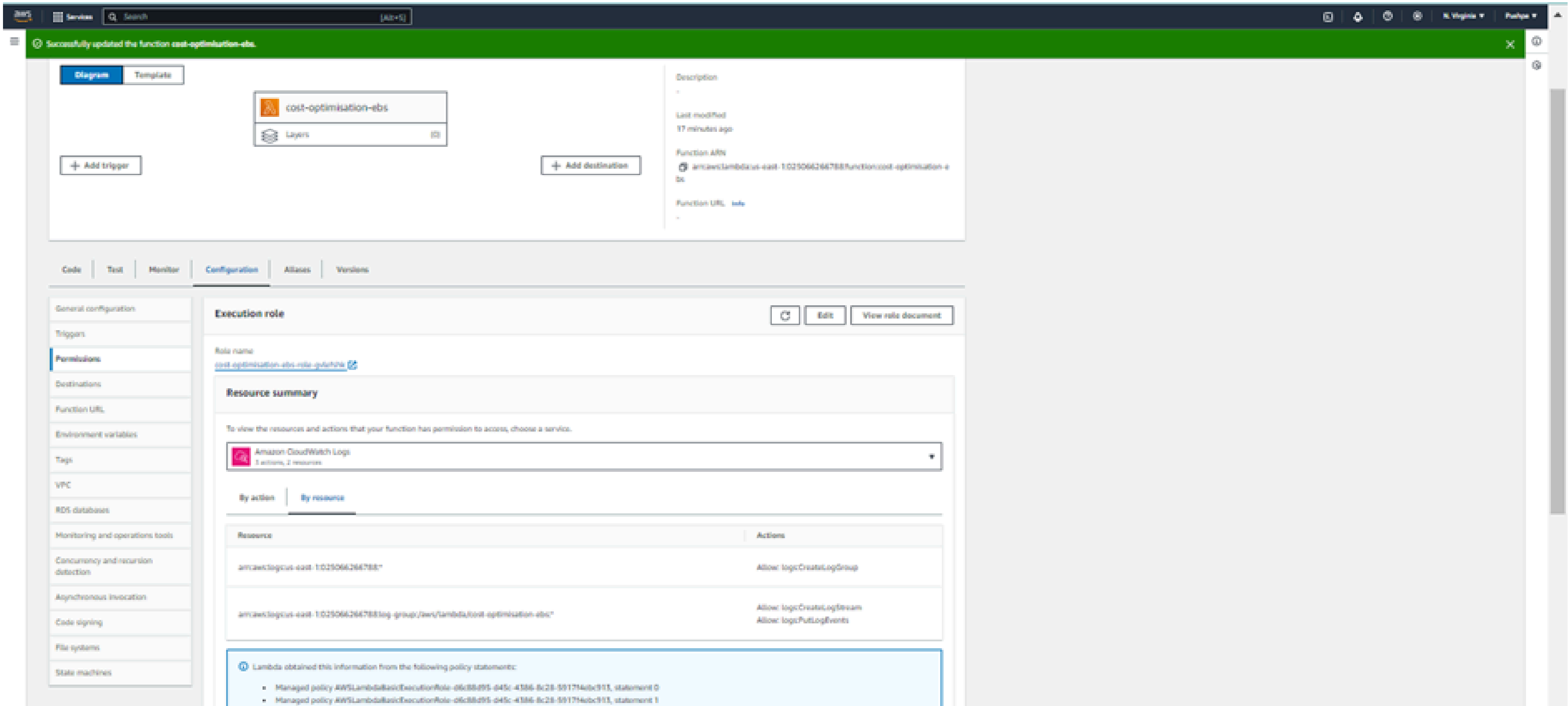
Execution role  
Choose a role that defines the permissions of your function. To create a custom role, go to the IAM console [info](#)  
☒ Use an existing role  
☐ Create a new role from AWS policy templates

Existing role  
Choose an existing role that you've created to be used with this Lambda function. The role must have permission to upload logs to Amazon CloudWatch Logs.  
service-role/cost-optimisation-ebc-role-gvufhzh [info](#)  
View the [cost-optimisation-ebc-role-gvufhzh](#) role [info](#) on the IAM console.

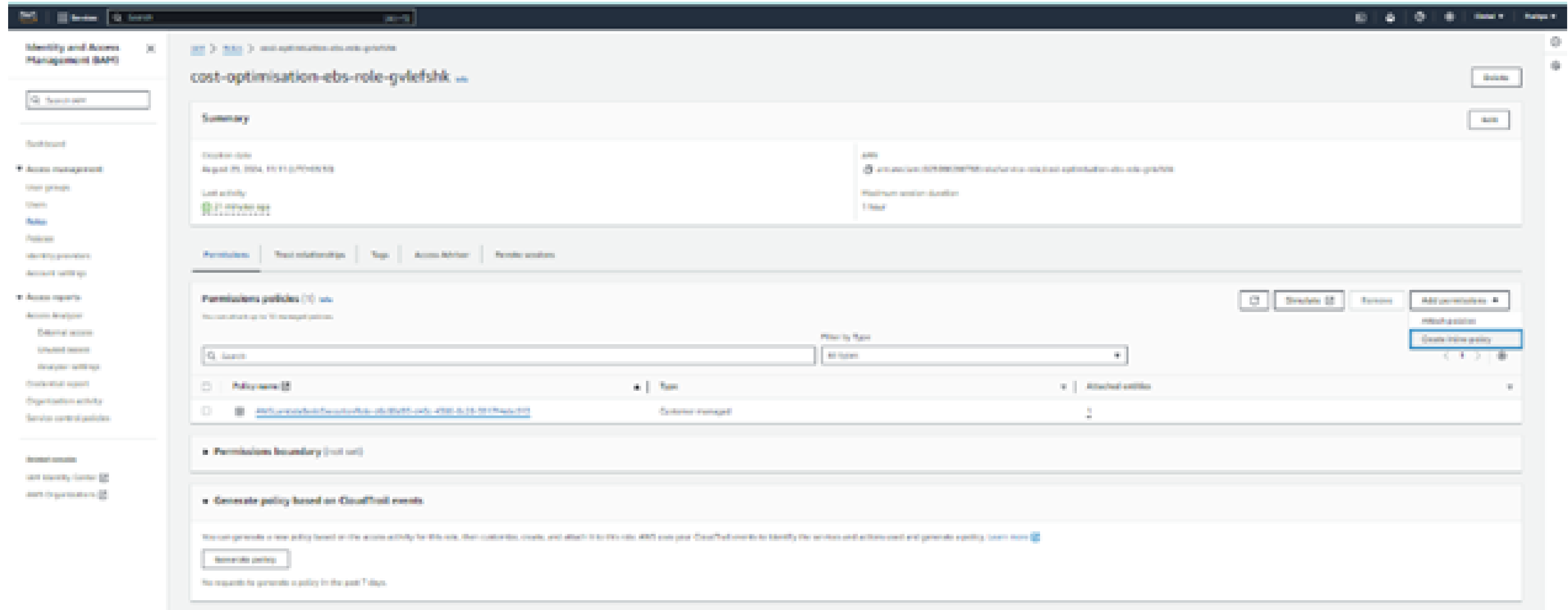
[Cancel](#) [Save](#)

# 5.Now we have to give permissions to it for that goto configuration

> permissions > role name > Now add permissions



# 6 In permissions > add permissions > create inline policy



-policies to be attached : Describe snapshots, Delete snapshots, Describe instances , Describe volumes ,we can also give “all ec2 actions”



iam

Services

Search

[Alt+S]

Global

Postage

iam > Policies > Create policy

Step 1  
Specify permissions

Step 2  
Review and create

Review and create

Review the permissions, specify details, and tags.

Policy details

Policy name

Enter a meaningful name to identify this policy.

my-policy

Maximum 128 characters. Use alphanumeric and '\*'\_@-.' characters.

Description - optional

Add a short explanation for this policy.

Maximum 1,000 characters. Use alphanumeric and '\*'\_@-.' characters.

Permissions defined in this policy

Permissions defined in this policy document specify which actions are allowed or denied. To define permissions for an IAM identity (user, user group, or role), attach a policy to it.

Search

Allow (1 of 421 services)

Show remaining 420 services

Service	Access level	Resource	Request condition
EC2	Limited List, Write	All resources	None

Add tags - optional

Tags are key-value pairs that you can add to AWS resources to help identify, organize, or search for resources.

No tags associated with the resource.

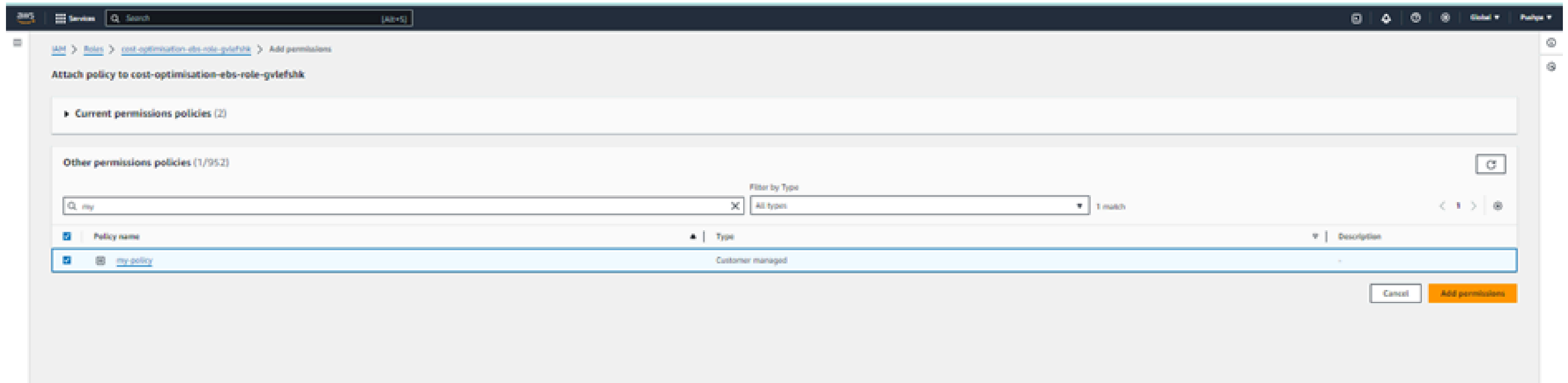
Add new tag

You can add up to 50 more tags.

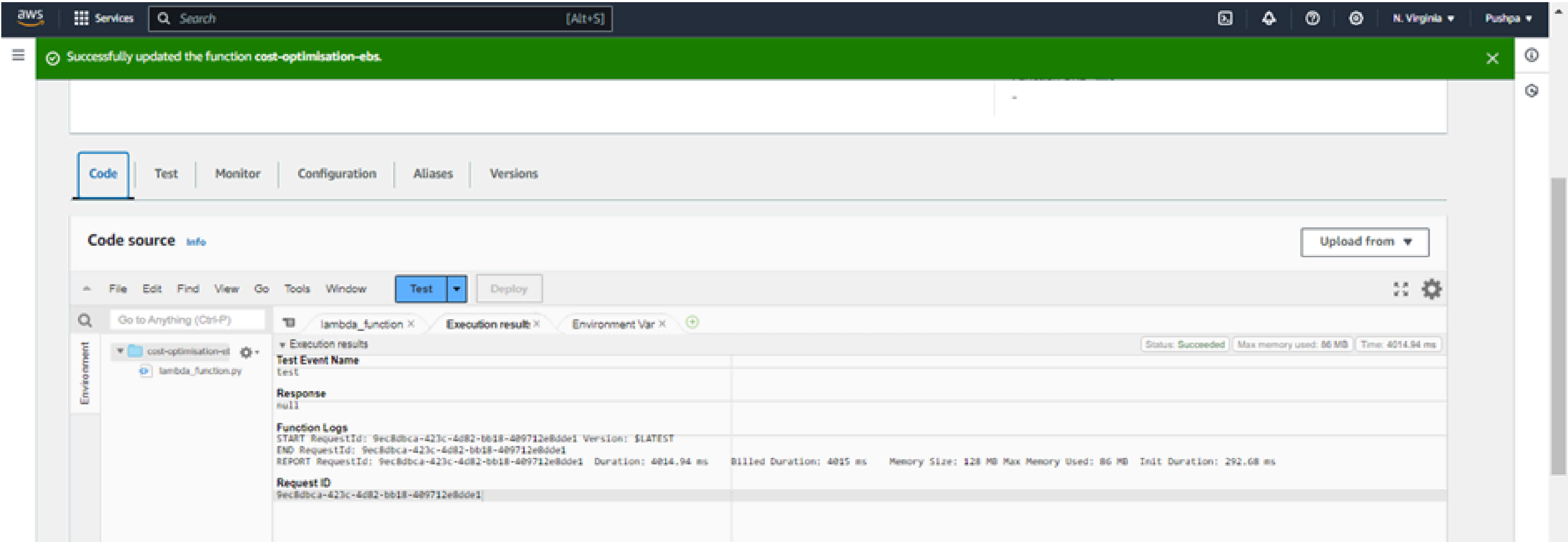
Cancel

Previous

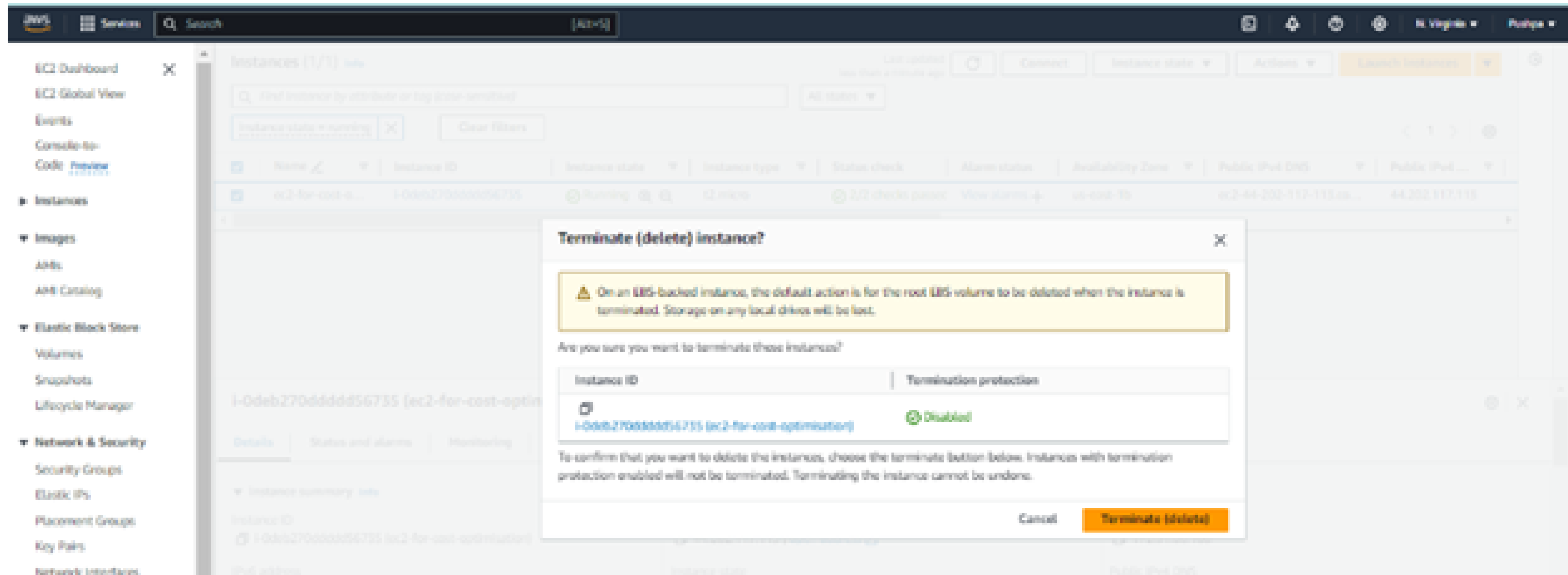
Create policy





# 8 Now attach this policy to the role,no go to lambda and run it again



## 9 Now delete ec2 instance which will also delete volume as well ,but snapshot is still available



## Resources



[EC2 Global View](#)



You are using the following Amazon EC2 resources in the **US East (N. Virginia) Region**:

Instances (running)	0	Auto Scaling Groups	0	Capacity Reservations	0
Dedicated Hosts	0	Elastic IPs	2	Instances	1
Key pairs	1	Load balancers	0	Placement groups	0
Security groups	8	<a href="#">Snapshots</a>	1	Volumes	0

**Launch instance**

To get started, launch an Amazon EC2 instance, which is a virtual server in the cloud.

[Launch instance](#)  [Migrate a server](#) 

**Note:** Your instances will launch in the US East (N. Virginia) Region

Instance alarms

View in CloudWatch

0 in alarm

0 OK

0 insufficient data

Instances in alarm

**Service health**

AWS Health Dashboard

Region

US East (N. Virginia)

Status

This service is operating normally.

**Zones**


Zone name	Zone ID
us-east-1a	use1-az1
us-east-1b	use1-az2
us-east-1c	use1-az4

## EC2 Free Tier [Info](#)


Offers for all AWS Regions.

### 3 EC2 free tier offers in use

End of month forecast

 0 offers forecasted to exceed free tier limit.


Exceeds free tier


 0 offers exceeded and is now pay-as-you-go pricing.

[View Global EC2 resources](#)

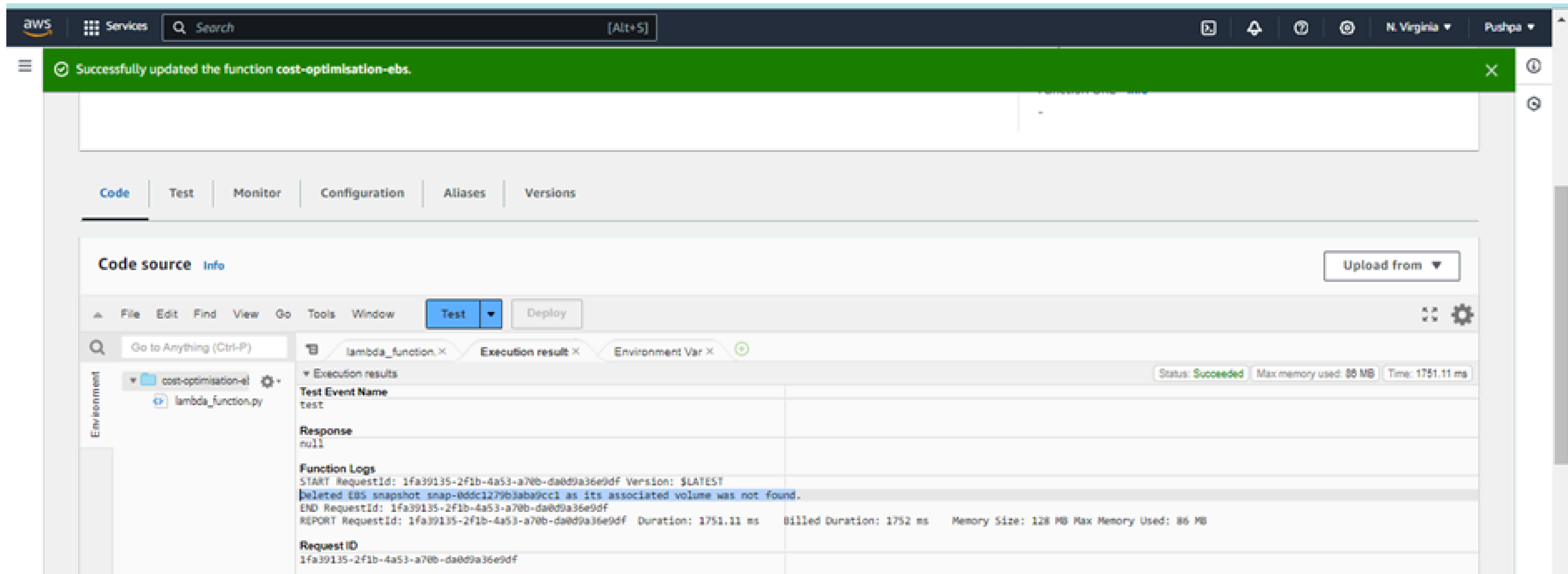
### Offer usage (monthly)

Linux EC2 Instances	<div> <div></div> <div></div> </div>	5%
714,371,664 hours remaining		
Windows EC2 Instances	<div> <div></div> <div></div> </div>	0%
746,466,389 hours remaining		
Storage space on EBS	<div> <div></div> <div></div> </div>	2%
29.46 GB remaining		

[View all AWS Free Tier offers](#) 

Account attributes 

# 10 now go to code and run again



-it says that the snapshot is deleted,as the associated snapshot is not found

aws

Services

Search

[Alt+S]

N. Virginia

Pushpa

EC2 Dashboard

EC2 Global View

Events

Console-to-Code

Preview

Instances

Images

AMIs

AMI Catalog

Elastic Block Store

Volumes

Snapshots

Lifecycle Manager

Network & Security

Security Groups

Elastic IPs

Placement Groups

Key Pairs

Network Interfaces

Load Balancing

Load Balancers

Amazon CloudWatch

Snapshots

Info

Owned by me

Search

< 1 >

Recycle Bin

Actions

Create snapshot

	Name	Snapshot ID	Volume size	Description	Storage tier	Snapshot status	Started	Progress
You currently have no snapshots in this Region.								

Select a snapshot above.

In this way we optimize the cost in aws