

AWS Cloud Cost Optimization - Identifying Stale Resources

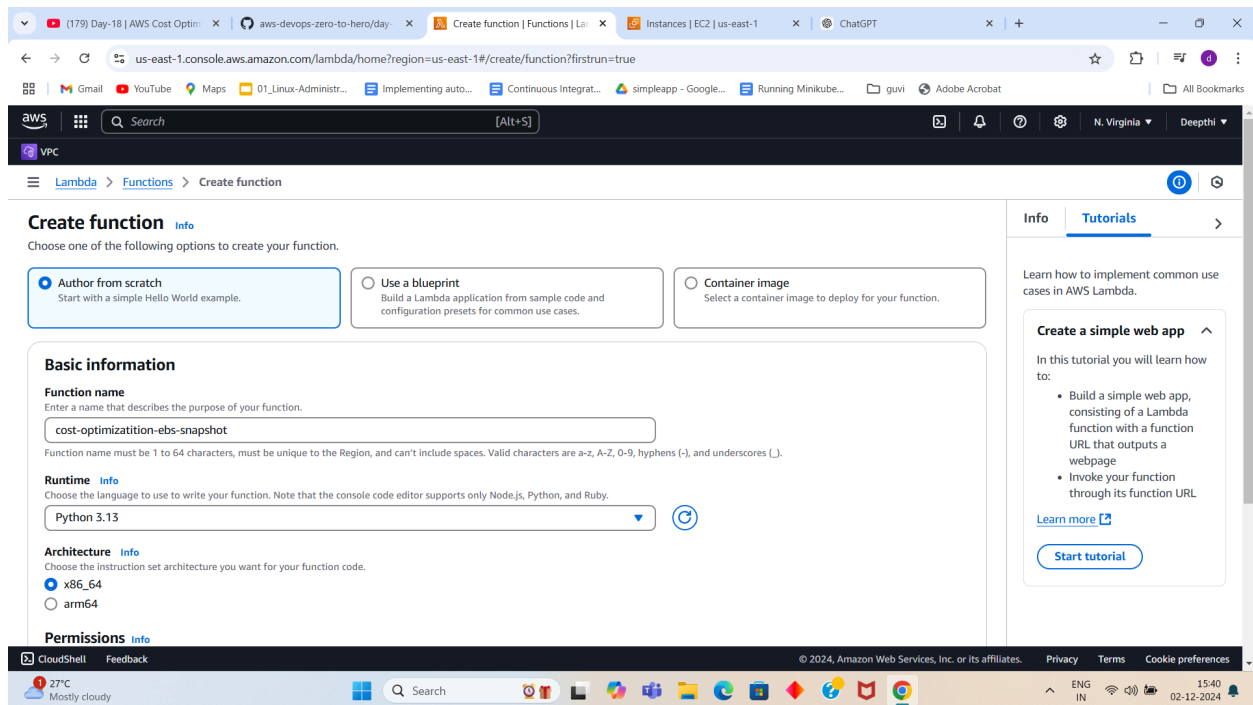
Identifying Stale EBS Snapshots

In this example, we'll create a Lambda function that identifies EBS snapshots that are no longer associated with any active EC2 instance and deletes them to save on storage costs.

Description:

The Lambda function fetches all EBS snapshots owned by the same account ('self') and also retrieves a list of active EC2 instances (running and stopped). For each snapshot, it checks if the associated volume (if exists) is not associated with any active instance. If it finds a stale snapshot, it deletes it, effectively optimizing storage costs.

Creating a lambda function



us-east-1.console.aws.amazon.com/lambda/home?region=us-east-1#/functions/cost-optimization-eb-s-snapshot?subtab=general&tab=code

aws Search [Alt+S]

VPC

Lambda > Functions > cost-optimization-eb-s-snapshot

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Go to Anything (Ctrl-P)

Environment

cost-optimization-eb-s-snapshot

lambda_function.py

```
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']:
```

Info Tutorials

Learn how to implement common use cases in AWS Lambda.

Create a simple web app

In this tutorial you will learn how to:

- Build a simple web app, consisting of a Lambda function with a function URL that outputs a webpage
- Invoke your function through its function URL

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Environment

cost-optimization-eb-s-snapshot

lambda_function.py

Execution results

Status: Succeeded Max memory used: 89 MB Time: 1269.40 ms

Test Event Name

test

Response

null

Function Logs

START RequestId: d443c5b6-a600-4c4d-9cb8-7ed804e9aac3 Version: \$LATEST

END RequestId: d443c5b6-a600-4c4d-9cb8-7ed804e9aac3

REPORT RequestId: d443c5b6-a600-4c4d-9cb8-7ed804e9aac3 Duration: 1269.40 ms Billed Duration: 1270 ms Memory Size: 128 MB Max Memory Used: 89 MB

Request ID

d443c5b6-a600-4c4d-9cb8-7ed804e9aac3

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Attached IAM policies

The screenshot shows the AWS IAM console interface. The left sidebar contains the 'Identity and Access Management (IAM)' menu with options like Dashboard, Access management, Access reports, and CloudShell. The main content area displays the 'cost-optimization-ebs' policy details. The 'Permissions' tab is active, showing a search bar and a list of actions in EC2 (2 of 653). The 'Write (1 of 433)' section lists the 'DeleteSnapshot' action with the resource 'All resources' and 'Request condition' 'None'. The 'List (1 of 179)' section lists the 'DescribeSnapshots' action with the resource 'All resources' and 'Request condition' 'None'. The top navigation bar shows the path 'IAM > Policies > cost-optimization-ebs'.

us-east-1.console.aws.amazon.com/iam/home#/policies/details/arn%3Aaws%3Aiam%3A%3A992382699929%3Aapolicy%2Fcost-optimization-ebs?section=permissions

Identity and Access Management (IAM)

Search IAM

Dashboard

▼ Access management

- User groups
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- Account settings
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cost-optimization-ebs

Permissions Entities attached Tags Policy versions (1) Last Accessed

Permissions defined in this policy [Info](#) [Edit](#) [Summary](#) [JSON](#)

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

< Services Actions in EC2 (2 of 653) [Show remaining 651 actions](#)

Write (1 of 433)

Action	Resource	Request condition
DeleteSnapshot	All resources	None

List (1 of 179)

Action	Resource	Request condition
DescribeSnapshots	All resources	None

The screenshot shows the AWS IAM console interface. The left sidebar contains the 'Identity and Access Management (IAM)' menu with options like Dashboard, Access management, Access reports, and CloudShell. The main content area displays the 'ec2-permission' policy details. The 'Permissions' tab is active, showing a search bar and a list of actions in EC2 (2 of 653). The 'List (2 of 179)' section lists the 'DescribeInstances' and 'DescribeVolumes' actions with the resource 'All resources' and 'Request condition' 'None'. The top navigation bar shows the path 'IAM > Policies > ec2-permission'.

us-east-1.console.aws.amazon.com/iam/home#/policies/details/arn%3Aaws%3Aiam%3A%3A992382699929%3Aapolicy%2Fec2-permission?section=permissions

Identity and Access Management (IAM)

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ec2-permission

Type: Customer managed

Creation time: December 02, 2024, 16:06 (UTC+05:30)

Edited time: December 02, 2024, 16:06 (UTC+05:30)

ARN: [arn:aws:iam::992382699929:policy/ec2-permission](#)

Permissions Entities attached Tags Policy versions (1) Last Accessed

Permissions defined in this policy [Info](#) [Edit](#) [Summary](#) [JSON](#)

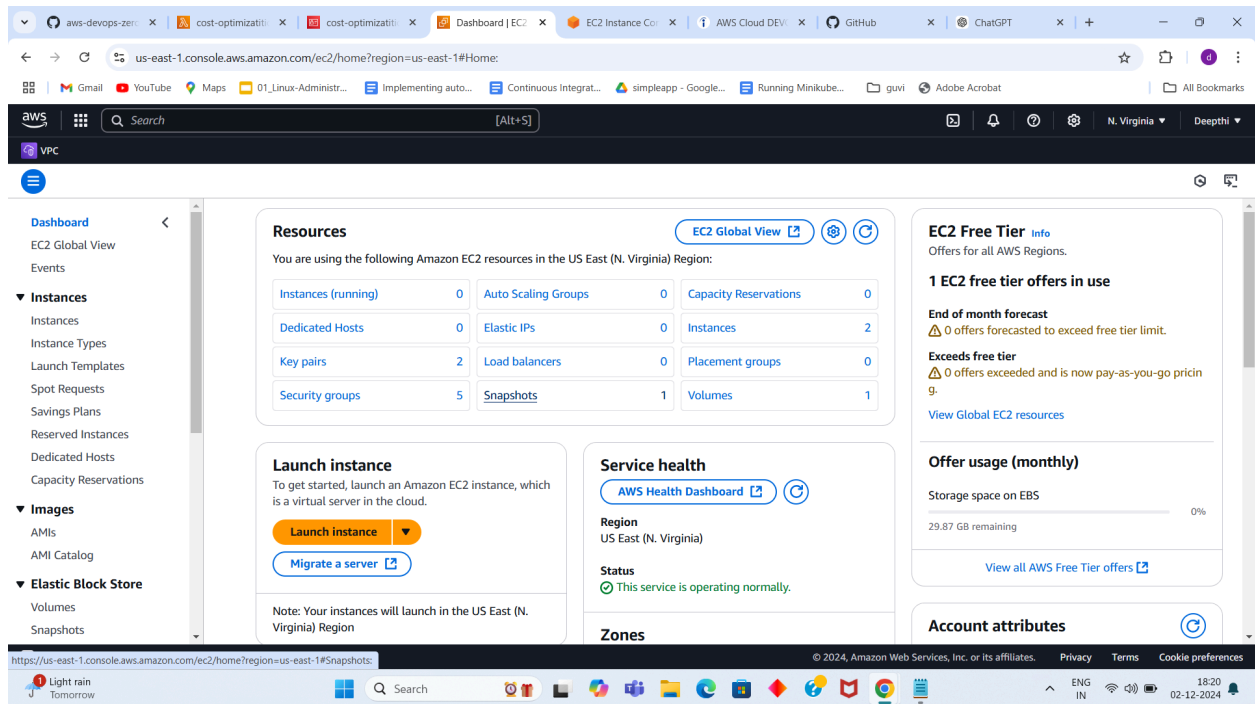
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Search

< Services Actions in EC2 (2 of 653) [Show remaining 651 actions](#)

List (2 of 179)

Action	Resource	Request condition
DescribeInstances	All resources	None
DescribeVolumes	All resources	None



After execution the snapshot was deleted

Environment

lambda_function.py

Test Event Name

test

Response

null

Function Logs

START RequestId: b290818f-e0e3-4f92-b75c-26d823b786a3 Version: \$LATEST
 Deleted EBS snapshot snap-01d78a2c2981183ae as it was taken from a volume not attached to any running instance.
 END RequestId: b290818f-e0e3-4f92-b75c-26d823b786a3
 REPORT RequestId: b290818f-e0e3-4f92-b75c-26d823b786a3 Duration: 1173.63 ms Billed Duration: 1174 ms Memory Size: 128 MB Max Memory Used: 128 MB

Request ID

b290818f-e0e3-4f92-b75c-26d823b786a3

consisting of a Lambda function with a function URL that outputs a webpage

- Invoke your function through its function URL

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cost-opi

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cost-opi

ec2-peri

Dashboard

EC2 Inst

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Cost_opi

us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Home:

GmailYouTubeMaps01_Linux-Administ...Implementing auto...Continuous Integrat...simpleleapp - Google...Running Minikube...guviAdobe AcrobatAll Bookmarks

aws

Search

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VPC

Dashboard

EC2 Global View

Events

Instances

Images

Elastic Block Store

Network & Security

Load Balancing

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	0	Instances	2
Key pairs	2	Load balancers	0	Placement groups	0
Security groups	5	Snapshots	0	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

Service health

AWS Health Dashboard

Region

US East (N. Virginia)

Status

This service is operating normally.

Zones

EC2 Free Tier

Offers for all AWS Regions.

1 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)

Storage space on EBS

29.87 GB remaining

View all AWS Free Tier offers

Account attributes

https://us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Snapshots:

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