

Snapshot ID: snap-0e629fd26986a15bb

Details

Snapshot settings

Storage tier

Tags

Snapshot ID

snap-0e629fd26986a15bb

Owner

137068240319

Description

test-snapshot

▼ Source volume

Volume ID

vol-08d9676c9deb6d16f

▼ Encryption

Encryption

Not encrypted

Full snapshot size

-

Started

Thu Apr 24 2025 04:30:08 GMT+0800 (Philippine Standard Time)

Progress

0%

Product codes

-

Snapshot status

Pending

Fast snapshot restore

-

Volume size

8 GiB

KMS key ID

-

KMS key alias

-

KMS key ARN

-

### 3. Create a Lambda function and copy the code from ebs\_stale\_snapshots.py


☰ [Lambda](#) > [Functions](#) > cost-optimization-ebs-snapshot


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## cost-optimization-ebs-snapshot

▼ **Function overview** [Info](#)

**Diagram** | **Template**

 **cost-optimization-ebs-snapshot**

 Layers (0)

+ Add trigger

+ Add destination

**Code source** [Info](#) Upload from ▼

EXPLORER

▼ COST-OPTIMIZATION-EBS-SNAPSHOT

lambda\_function.py

▼ DEPLOY

Deploy (Ctrl+Shift+U)

Test (Ctrl+Shift+T)

lambda\_function.py

```
1 import boto3
2
3
4 def lambda_handler(event, context):
5     ec2 = boto3.client('ec2')
6
7     # Get all EBS snapshots
8     response = ec2.describe_snapshots(OwnerIds=['self'])
9
10    # Get all active EC2 instance IDs
11    instances_response = ec2.describe_instances(Filters=[{'Name': 'instance-state-name', 'Values': ['running']}])
12    active_instance_ids = set()
13
14    for reservation in instances_response['Reservations']:
15        for instance in reservation['Instances']:
16            active_instance_ids.add(instance['InstanceId'])
17
18    # Iterate through each snapshot and delete if it's not attached to any volume or the volume is not attached to a running instance
19    for snapshot in response['Snapshots']:
20        ...
```

Set the permissions of the execution role of the lambda function to include the below policies:

"ec2:DescribeInstances",

"ec2:DeleteSnapshot",

"ec2:DescribeVolumes",

"ec2:DescribeSnapshots"

Diagram

Template



cost-optimization-ebs-snapshot



Layers

(0)

+ Add trigger

Code

Test

Monitor

Configuration

Aliases

Versions

General configuration

Triggers

Permissions

Destinations

## Execution role

Role name

[cost-optimization-ebs-snapshot-role-l21r2c80](#)

## Resource summary

[IAM](#) > [Roles](#) > [cost-optimization-ebs-snapshot-role-l21r2c80](#)

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### Permissions policies (2) [Info](#)

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<input type="checkbox"/>	Policy name <a href="#">Info</a>	Type	Attaches to
<input type="checkbox"/>	<a href="#">AWSLambdaBasicExecutionRole-cd58c8a2-0753-43ba-804c-29...</a>	Customer managed	1
<input type="checkbox"/>	<a href="#">cost-optimization-ebs-snapshot-role-policy</a>	Customer managed	1

#### cost-optimization-ebs-snapshot-role-policy

```
1 {
2   "Version": "2012-10-17",
3   "Statement": [
4     {
5       "Sid": "VisualEditor0",
6       "Effect": "Allow",
7       "Action": [
8         "ec2:DescribeInstances",
9         "ec2:DeleteSnapshot",
10        "ec2:DescribeVolumes",
11        "ec2:DescribeSnapshots"
12      ],
13       "Resource": "*"
14     }
15   ]
16 }
```

#### 4. Deploy the Lambda function and Test it

```
PROBLEMS OUTPUT CODE REFERENCE LOG TERMINAL
Status: Succeeded
Test Event Name: test-eks-snapshot

Response:
null

Function Logs:
START RequestId: 960ba5f0-c27e-464c-9582-727a5952f12e Version: $LATEST
END RequestId: 960ba5f0-c27e-464c-9582-727a5952f12e
REPORT RequestId: 960ba5f0-c27e-464c-9582-727a5952f12e Duration: 803.06 ms Billed Duration: 804 ms Memory Size: 128 MB Max Memory Used: 90 MB
```

\*code is now working

#### 5. Terminate the EC2 instance (which will automatically delete the root EBS volume)

**Instances (1/1)** Info

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Find Instance by attribute or tag (case-sensitive) [All states](#)

<input checked="" type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
<input checked="" type="checkbox"/>	test-instance	i-0842f0419193f1d24	Terminated	t2.micro	-	<a href="#">View alarms +</a>	us-east-1d	-

**Volumes** Info

Last updated less than a minute ago [Actions](#) [Create volume](#)

Saved filter sets Choose filter set Search

<input type="checkbox"/>	Name	Volume ID	Type	Size	IOPS	Throughput	Snapshot ID	Created	Availability Zone	Volume state	Alarm sta
You currently have no volumes in this region											

\*snapshot is retained

**Snapshots (1/1)** Info

Last updated less than a minute ago [Recycle Bin](#) [Actions](#) [Create snapshot](#)

Owned by me Search

<input checked="" type="checkbox"/>	Name	Snapshot ID	Full snapshot size	Volume size	Description	Storage tier	Snapshot status	Started	Progress
<input checked="" type="checkbox"/>	-	snap-0e629fd26986a15bb	1.5 GiB	8 GiB	test-snapshot	Standard	Completed	2025/04/24 04:30 GMT+8	100%

**Snapshot ID: snap-0e629fd26986a15bb**

[Details](#) [Snapshot settings](#) [Storage tier](#) [Tags](#)

<b>Snapshot ID</b> snap-0e629fd26986a15bb	<b>Full snapshot size</b> 1.5 GiB	<b>Progress</b> 100%	<b>Snapshot status</b> Completed
<b>Owner</b> 137068240319	<b>Started</b> Thu Apr 24 2025 04:30:08 GMT+0800 (Philippine Standard Time)	<b>Product codes</b> -	<b>Fast snapshot restore</b> -
<b>Description</b> test-snapshot			
<b>Source volume</b>			
<b>Volume ID</b> vol-08d9676c9deb6d16f	<b>Volume size</b> 8 GiB		
<b>Encryption</b>	<b>KMS key ID</b>	<b>KMS key alias</b>	<b>KMS key ARN</b>
Not encrypted	-	-	-

#### 6. Test the Lambda function again. \*Notice that the result below tells us that the snapshot associated with the root EBS volume has been deleted.

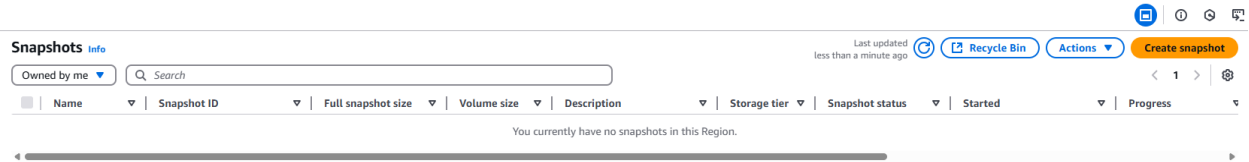
```
PROBLEMS OUTPUT CODE REFERENCE LOG TERMINAL
Status: Succeeded
Test Event Name: test-eks-snapshot

Response:
null

Function Logs:
START RequestId: c71a5294-86aa-439f-87ae-ca81f808d571 Version: $LATEST
Deleted EBS snapshot snap-0e629fd26986a15bb as its associated volume was not found.
END RequestId: c71a5294-86aa-439f-87ae-ca81f808d571
REPORT RequestId: c71a5294-86aa-439f-87ae-ca81f808d571 Duration: 4427.18 ms Billed Duration: 4428 ms Memory Size: 128 MB Max Memory Used: 90 MB
Init Duration: 305.97 ms

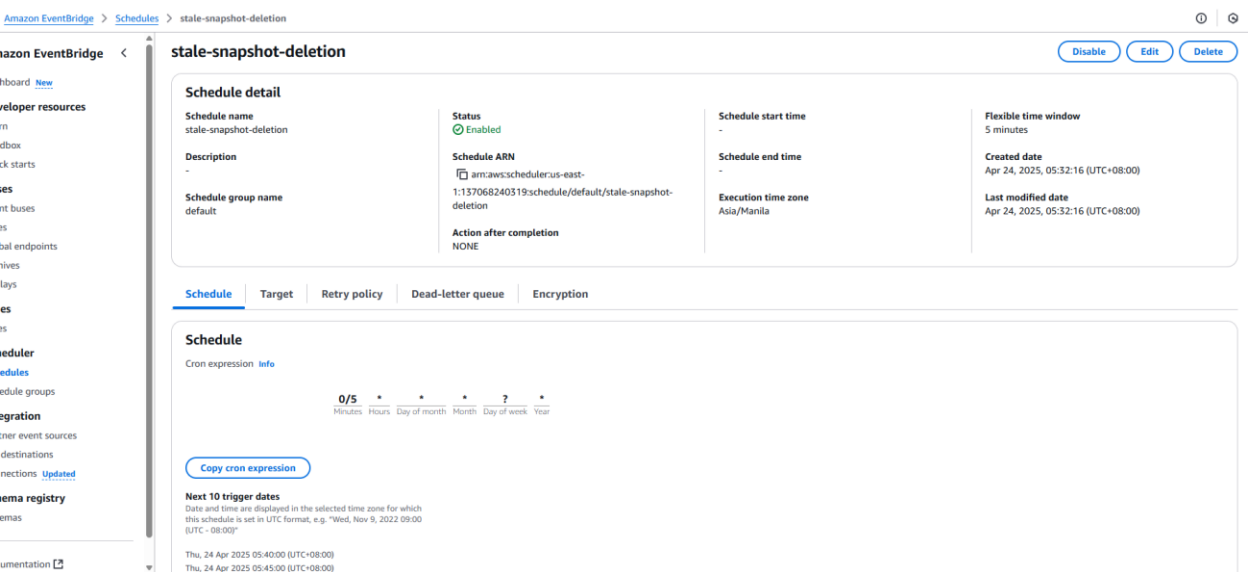
Request ID: c71a5294-86aa-439f-87ae-ca81f808d571
```

**\*confirmation that the snapshot has been deleted**

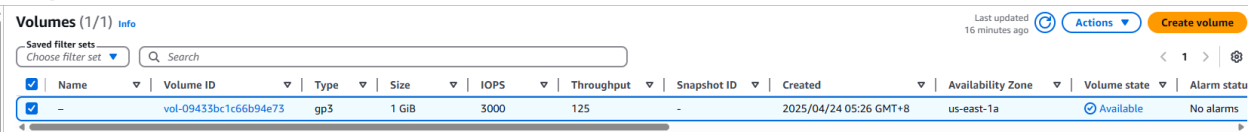


**Optional step:**  
Since we may want to run the Lambda function in recurrence, I created a schedule in Amazon EventBridge that executes the Lambda function every 5 minutes.

**a. Create the schedule in Amazon EventBridge.**



**b. Create an EBS volume (not attached to EC2 instance) and create a snapshot of it. The purpose is to test the code of the lambda function to confirm that it still deletes the snapshot even if the volume is not attached to an EC2 instance.**



**c. Check CloudWatch log groups to confirm that the Amazon EventBridge schedule triggered the Lambda function and the snapshot was deleted successfully.**

CloudWatch Log groups > /aws/lambda/cost-optimization-ebs-snapshot > 2025/04/23/[SLATEST]befd4f4b668d4e47a2d2aa0125ca71a4

CloudWatch

Log events

You can use the filter bar below to search for and match terms, phrases, or values in your log events. [Learn more about filter patterns](#)

Filter events - press enter to search

Clear 1m 30m 1h 12h Custom Local timezone Display

Timestamp	Message
No older events at this moment. <a href="#">Retry</a>	
2025-04-24T05:35:39.325+08:00	INIT_START Runtime Version: python3.12.v63 Runtime Version ARN: arn:aws:lambda:us-east-1:runtime:ehed87288e268d403b368b9ae240ea71ad429d836646f1b75871e93348dbae27
2025-04-24T05:35:39.629+08:00	START RequestId: 9c68895d-04a3-49d9-bb61-1b7a84efb325 Version: \$LATEST
2025-04-24T05:35:43.679+08:00	Deleted EBS snapshot snap-014ea301f42f12488 as it was taken from a volume not attached to any running instance.
2025-04-24T05:35:43.701+08:00	END RequestId: 9c68895d-04a3-49d9-bb61-1b7a84efb325
2025-04-24T05:35:43.701+08:00	REPORT RequestId: 9c68895d-04a3-49d9-bb61-1b7a84efb325 Duration: 4871.97 ms Billed Duration: 4872 ms Memory Size: 128 MB Max Memory Used: 90 MB Init Duration: 300.69 ms
No newer events at this moment. Auto retry paused. <a href="#">Resume</a>	

## \*Snapshot was deleted

Snapshots info

Owned by me Search

Last updated 7 minutes ago Recycle Bin Actions Create snapshot

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

**Possible code modification: You can update the python code to check the creation date of the snapshot also in cases wherein you want to delete a snapshot that are no longer used (more than one month from creation date.)**