

Project title: Data backup assistant

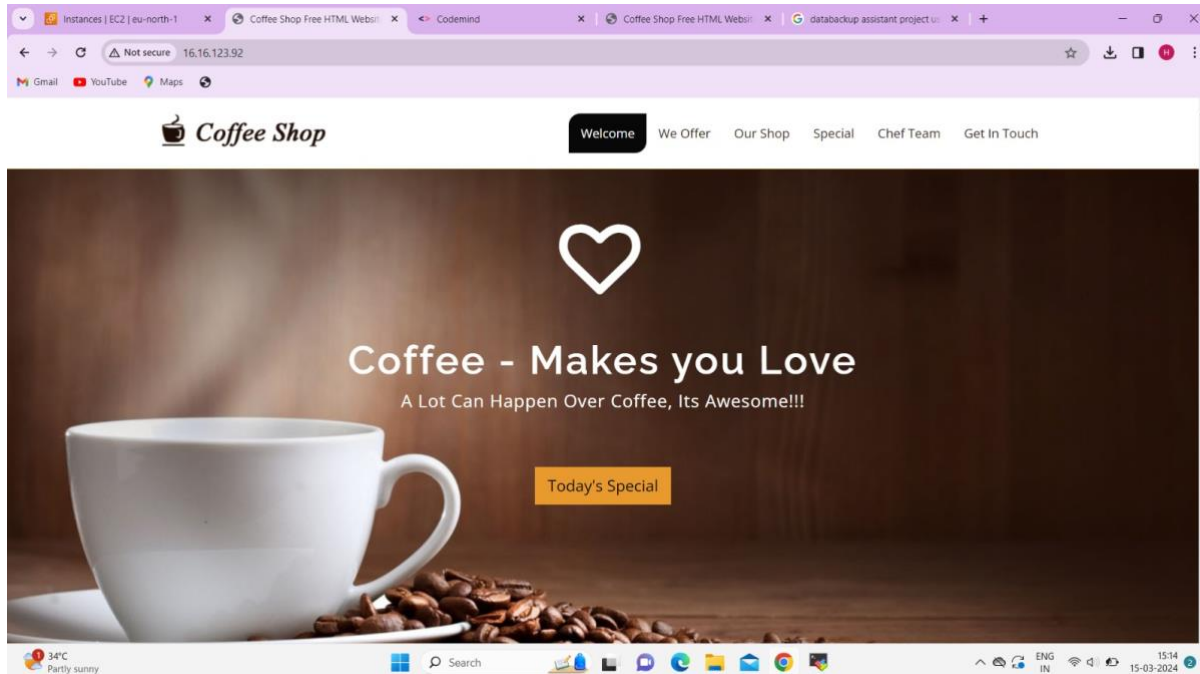
Step 1: Creating a snapshot of one server and retriving in another server

1.launch an ubuntu instance1

- Connect through mobaxterm by using ip address(public) of instance1
- Commands to launch a static website as follows:

```
Last login: Fri Mar 15 08:47:17 2024 from 157.48.142.165
ubuntu@ip-172-31-3-198:~$ sudo su
root@ip-172-31-3-198:/home/ubuntu# apt-get update -y
Hit:1 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Hit:3 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:4 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:5 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1462 kB]
Get:6 http://eu-north-1.ec2.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages [1057 kB]
Fetched 2748 kB in 1s (2904 kB/s)
Reading package lists... Done
root@ip-172-31-3-198:/home/ubuntu# apt-get install apache2 -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
apache2 is already the newest version (2.4.52-1ubuntu4.8).
0 upgraded, 0 newly installed, 0 to remove and 44 not upgraded.
root@ip-172-31-3-198:/home/ubuntu# systemctl start apache2
root@ip-172-31-3-198:/home/ubuntu#
```

2.launch a static website in instance1 using ip address

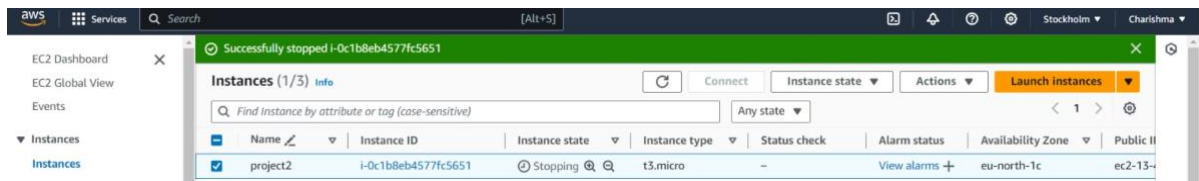


3.Create a snapshot for instance1

- Select instance1 volume for creation of snapshot.

4. launch another ubuntu instance2

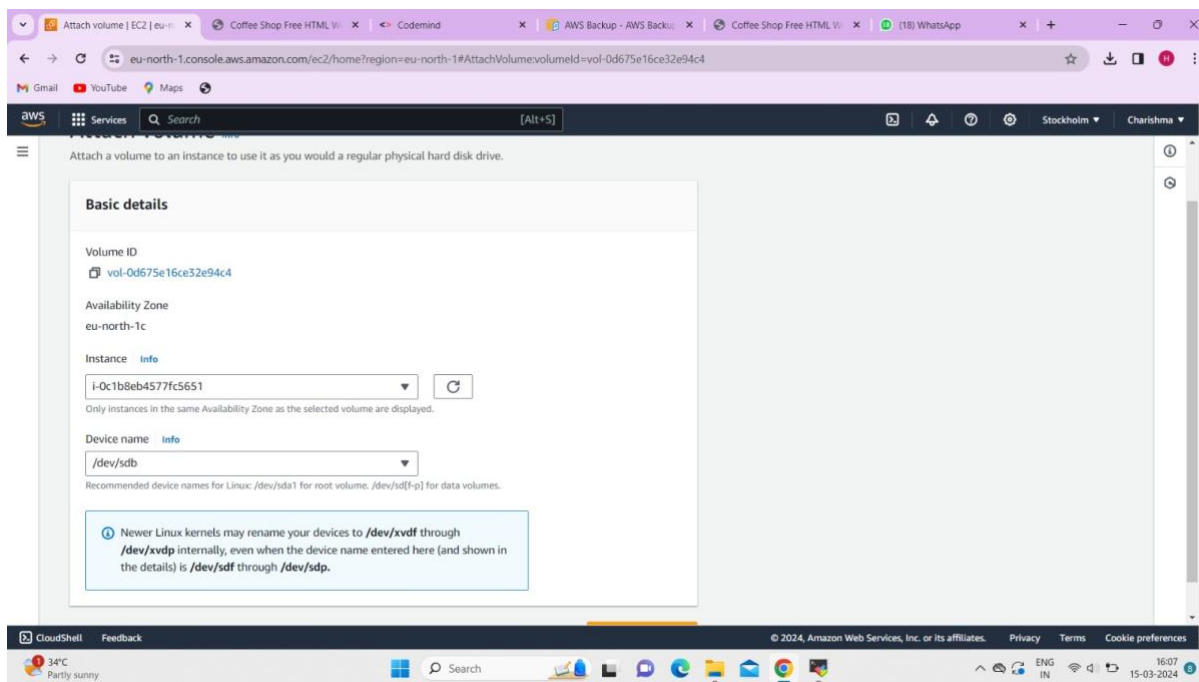
- detach the default volume of instance2
- stop the instance2 for a while to detach the volume.



5. Now make the snapshot as a volume to attach to instance2

- Note: make sure all are in same availability zone

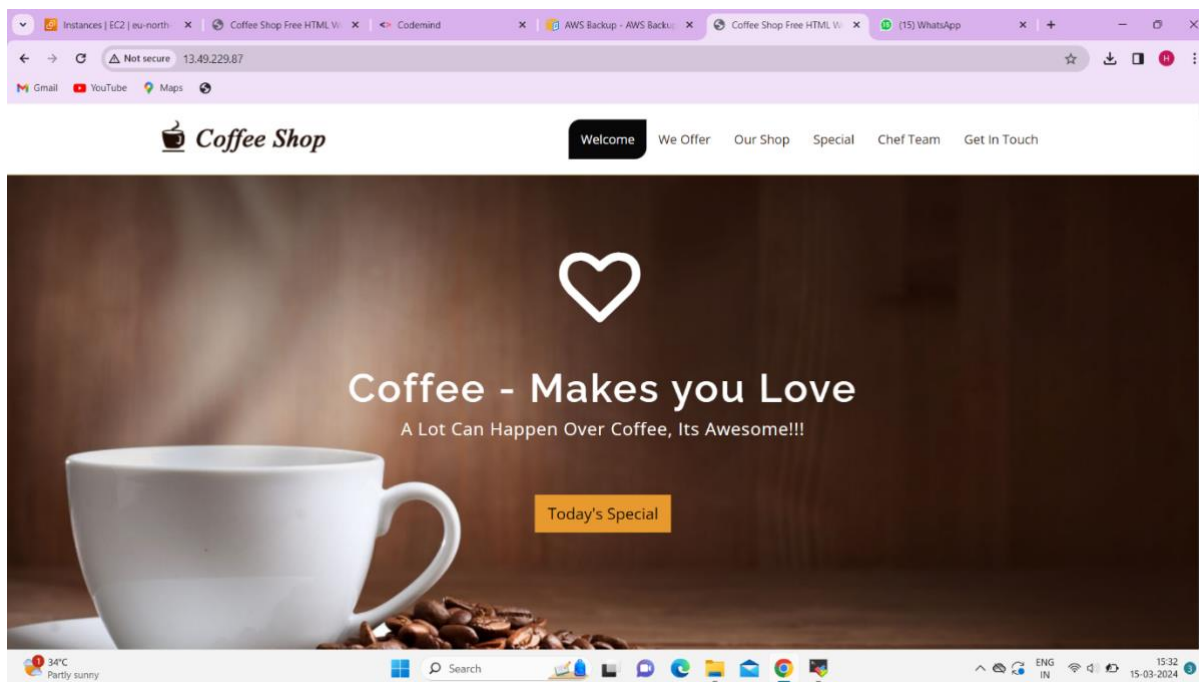
6. Attach the created volume from the instance1 to instance 2



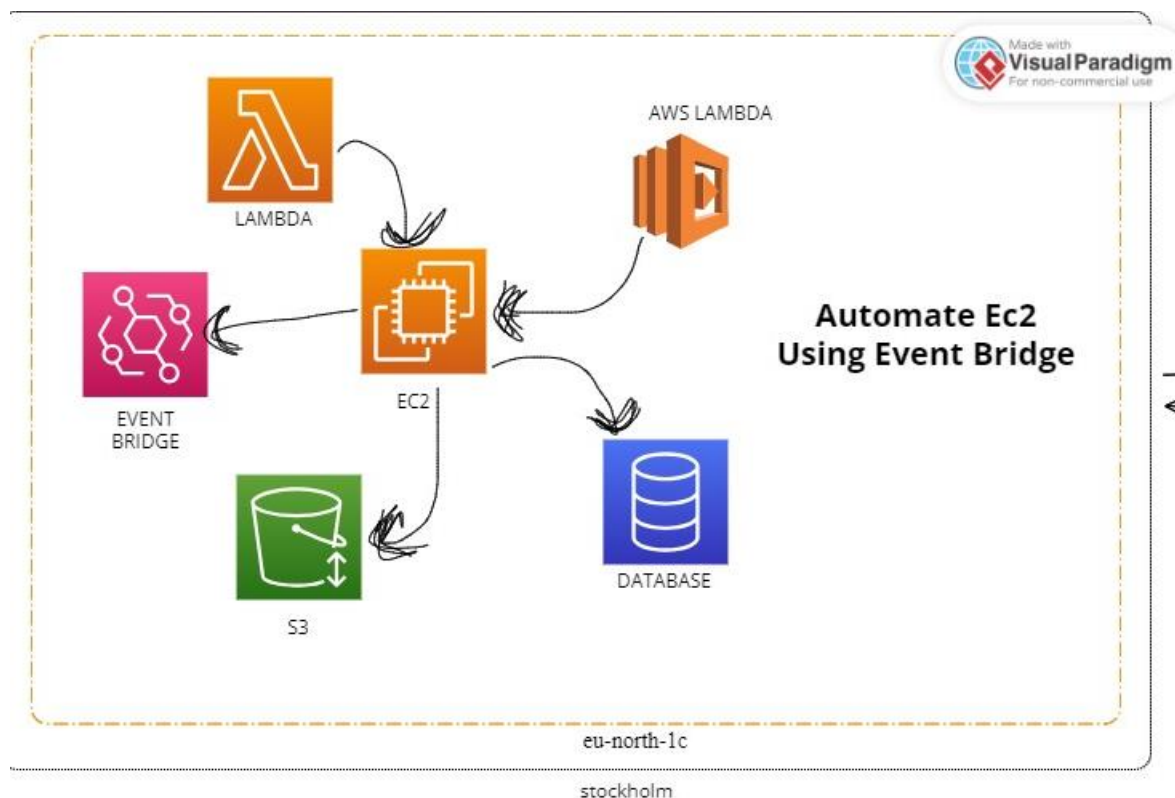
7. Start the instance2 (make it available)

- It gives an error to make a device name as it specified to attach a volume

8. Check the instance2 if it successfully launched the website or not.

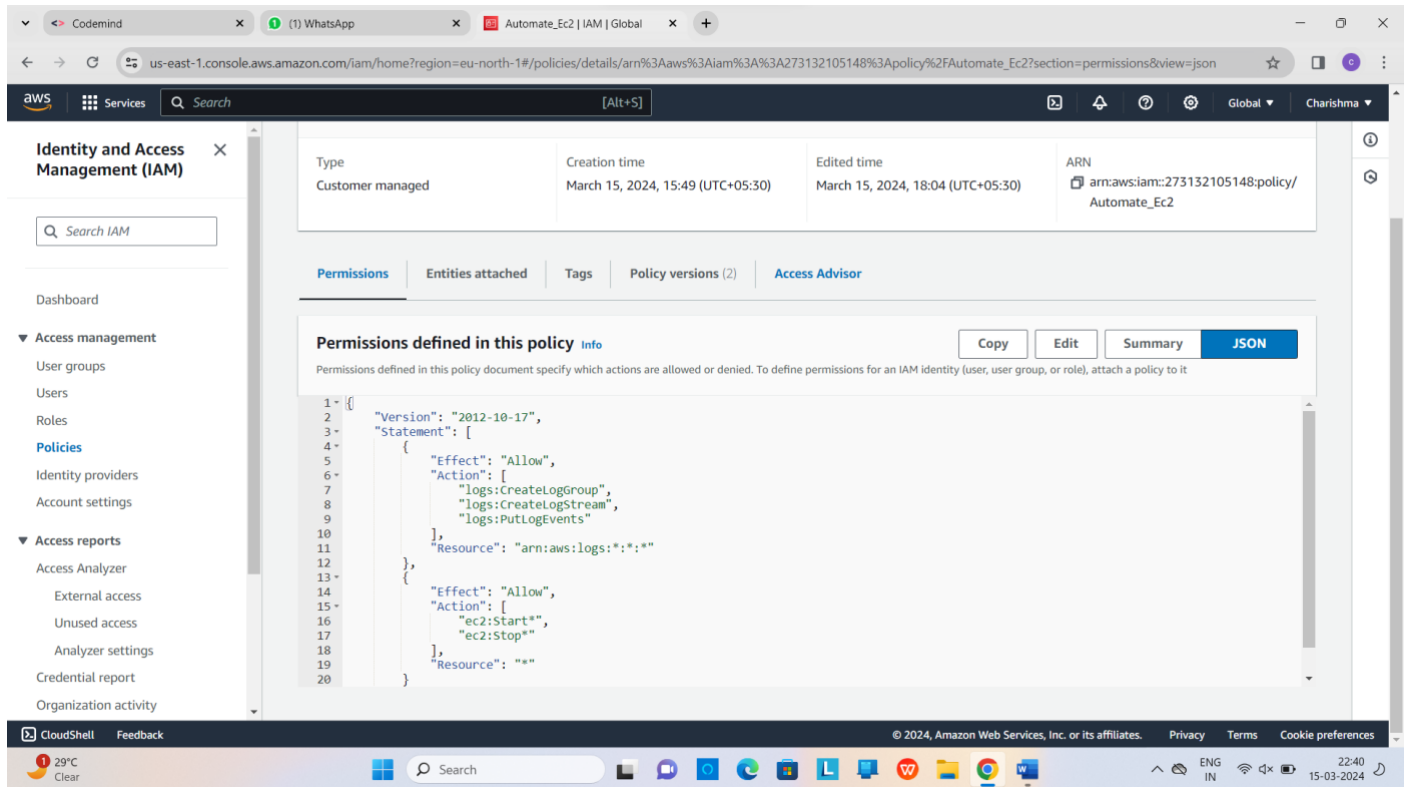


Step2: Automate the instances to start and stop at a particular time period



1.create a IAM policy

- json code as follows:



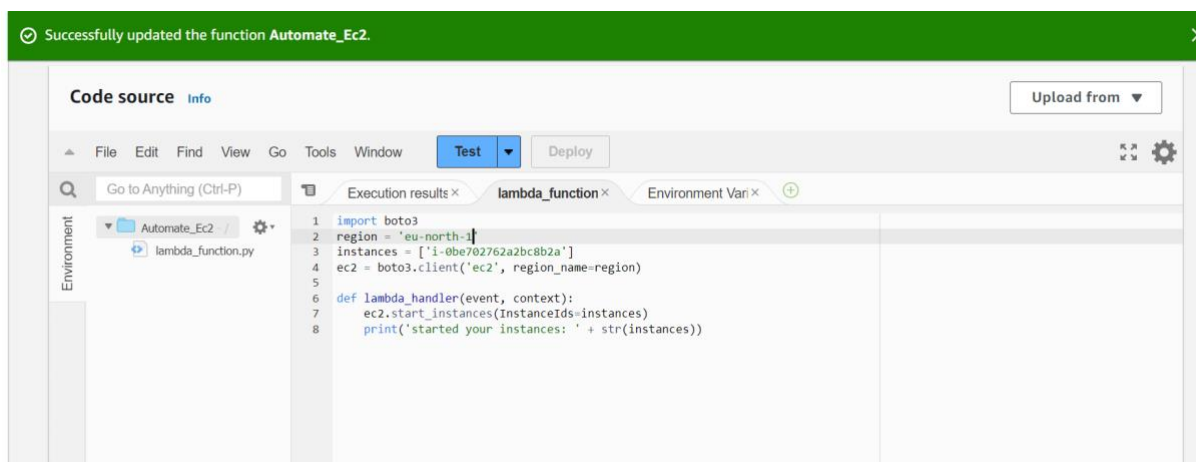
2.create role

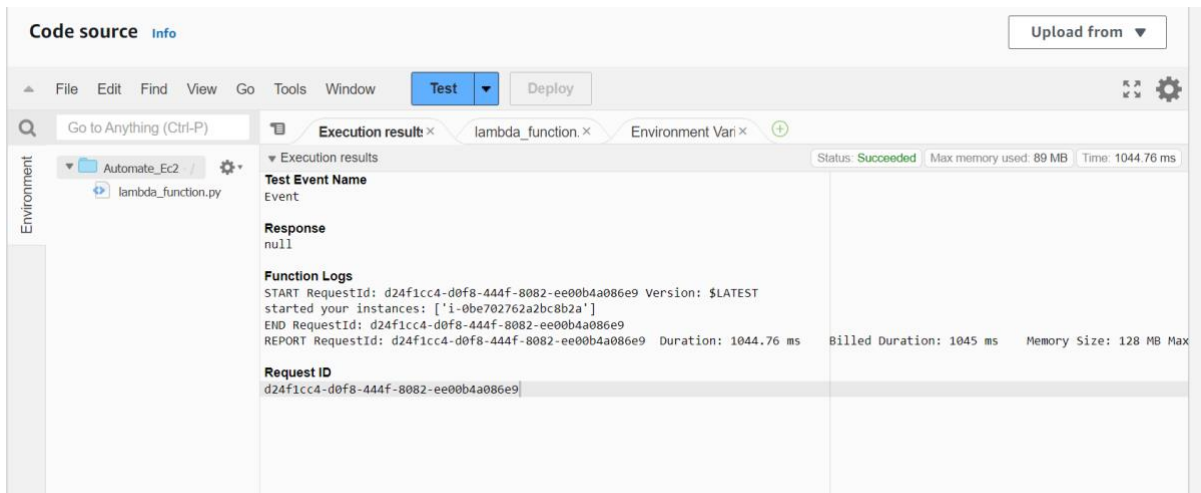
-policy attached to our created role

-role is created because we need permissions to access lambda functions

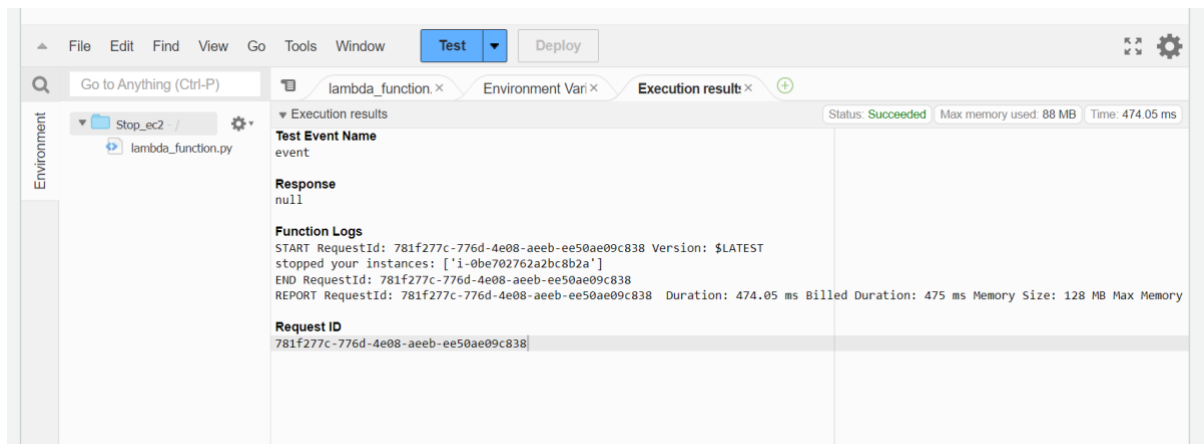
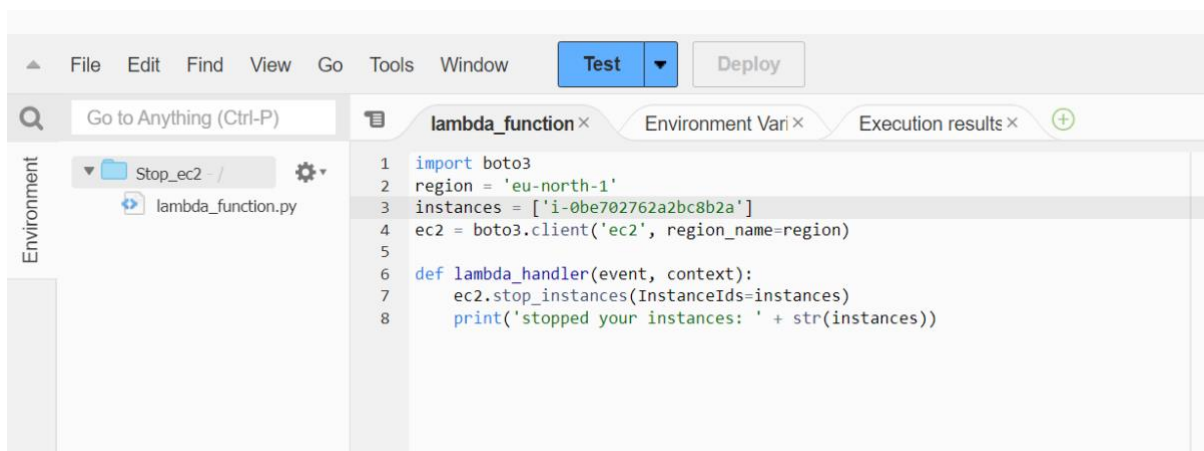
3.We use lambda to create functions as start and stop for the instances

1.start function





2.stop function



4.create schedules for the functions what we are created (Amazon event bridge)

Schedules (3)						
<div> <div> <input type="text" value="Search loaded schedules"/> </div> <div> <div>All states</div> <div>All groups</div> </div> <div> <div>< 1 ></div> <div>⚙</div> </div> </div>						
<input type="checkbox"/>	Schedule name	Schedule group	Status	Target	Target type	Last modified
<input type="checkbox"/>	Automate_Ec21	default	✔ Enabled	Stop_ec2	LAMBDA_Invoke	Mar 15, 2024, 15:34:00 (UTC+00:00)
<input type="checkbox"/>	Automate_Ec20	default	✔ Enabled	Auto_ec_lambda	LAMBDA_Invoke	Mar 15, 2024, 15:32:35 (UTC+00:00)

Schedule Automate_Ec21 has been saved successfully.

Schedule detail

Schedule name Automate_Ec21	Status Enabled	Schedule start time -	Flexible time window -
Description -	Schedule ARN arn:aws:scheduler:eu-north-1:273132105148:schedule/default/Automate_Ec21	Schedule end time -	Created date Mar 15, 2024, 18:51:41 (UTC+05:30)
Schedule group name default	Action after completion NONE	Execution time zone Asia/Calcutta	Last modified date Mar 15, 2024, 21:04:00 (UTC+05:30)

Schedule

Target

Retry policy

Dead-letter queue

Encryption

Schedule

Cron expression [Info](#)

05211503?2024

MinutesHoursDay of monthMonthDay of weekYear

Copy cron expression

5.The instance are automated as per the schedule

Successfully started i-0be702762a2bc8b2a

Instances (1/3) Info

Refresh

Connect

Instance state ▾

Actions ▾

Launch instances

▼

Find Instance by attribute or tag (case-sensitive)

Any state ▾

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1

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⚙️

	Name ▾	Instance ID	Instance state ▾	Instance type ▾	Status check	Alarm status
<input type="checkbox"/>	project2	i-0c1b8eb4577fc5651	⊖ Stopped	t3.micro	–	View alarms
<input checked="" type="checkbox"/>	automate_server	i-0be702762a2bc8b2a	✔ Running	t3.micro	–	View alarms
<input type="checkbox"/>	project	i-02b1c48f6a9c9cd96	✔ Running	t3.micro	✔ 2/2 checks passed	View alarms

Permissions

Entities attached

Tags

Policy versions (1)

Access Advisor

Permissions defined in this policy [Info](#)

Copy

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

```

1  {
2    "Version": "2012-10-17",
3    "Statement": [
4      {
5        "Effect": "Allow",
6        "Action": "logs:*",
7        "Resource": "*"
8      },
9      {
10       "Effect": "Allow",
11       "Action": "ec2:Describe*",
12       "Resource": "*"
13     },
14     {
15       "Effect": "Allow",
16       "Action": [
17         "ec2:CreateSnapshot",
18         "ec2:DeleteSnapshot",
19         "ec2:CreateTags",
20         "ec2:DeleteTags",

```

-role is created because we need permissions to access lambda function

Permissions Trust relationships Tags Access Advisor Revoke sessions

Permissions policies (1) Info

You can attach up to 10 managed policies.

Filter by Type

Search

All types

< 1 > ⚙

<input type="checkbox"/>	Policy name	Type	Attached entities
<input type="checkbox"/>	Snap_creation	Customer managed	1

► Permissions boundary (not set)

3. lambda function for snapshot creation

eu-north-1.console.aws.amazon.com/lambda/home?region=eu-north-1#/functions/Snapshot_creation_1?fullscreen=true&tab=code

aws Services Search [Alt+S]

File Edit Find View Go Tools Window Test Deploy

Go to Anything (Ctrl-P)

Environment

Snapshot_creation_1

lambda_function.py

```

1 import boto3
2 import collections
3 import datetime
4 from pprint import pprint
5
6 ec = boto3.client('ec2')
7
8 def lambda_handler(event, context):
9     reservations = ec.describe_instances(Filters=[{'Name': 'tag-key', 'Values': ['auto_snapshot', 'true']}]
10     instances = sum([i for i in r['Instances'] for r in reservations], [])
11     print("Found {} instances that need backing up".format(len(instances)))
12     to_tag = collections.defaultdict(list)
13
14     for instance in instances:
15         pprint(instance)
16         try:
17             retention_days = [int(t.get('Value')) for t in instance['Tags'] if t['Key'] == 'Retention'][0]
18         except IndexError:
19             retention_days = 0
20
21     for dev in instance['BlockDeviceMappings']:
22         if dev.get('Ebs', None) is None:
23             continue
24         vol_id = dev['Ebs']['VolumeId']
25         print("Found EBS volume (0) on instance (1)".format(vol_id, instance['InstanceId']))
26         snap = ec.create_snapshot(VolumeId=vol_id)
27         to_tag[retention_days].append(snap['SnapshotId'])
28
29     for tags in instance['Tags']:
30         if tags['Key'] == 'Name':
31             instance_name = tags['Value']
32             print("Retaining snapshot (0) of volume (1) from instance (2) for (3) days for (4)".format(snap['SnapshotId'], vol_id, instance['InstanceId'], retention_days, instance_name))
33             delete_date = datetime.date.today() + datetime.timedelta(days=retention_days)
34             delete_fmt = delete_date.strftime('%Y-%m-%d')
35             print("Will delete (0) snapshots on (1)".format(len(to_tag[retention_days]), delete_fmt))
36             print("Instance id now")
37             ec.create_tags(Resources=[snap['SnapshotId']], Tags=[{'Key': 'automatic-snapshot-delete-on', 'Value': delete_fmt}, {'Key': 'Name', 'Value': instance_name}, {'Key': 'Instance id now'}])
38
39 
```

18:27 Python Spaces: 4

CloudShell Feedback

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Search

ENG IN

12:33 16-03-2024

-give the instance tag in code

4. Schedule to create snapshot for instances (cron expression)

5. As per the schedule it creates snapshot for instances

Snapshots (5) Info

Owned by me Search

Recycle Bin Actions Create snapshot

< 1 > ⚙

<input type="checkbox"/>	Name	Snapshot ID	Volume size	Description	Storage tier	Snapshot status	Started
<input type="checkbox"/>	-	snap-0c2420d499e6f886b	8 GiB	-	Standard	Completed	2024/03/16 13:58 GMT
<input type="checkbox"/>	-	snap-0f73c96455bc211c9	8 GiB	Created by CreatelImage(i-...	Standard	Completed	2024/03/16 12:01 GMT
<input type="checkbox"/>	automate_server	snap-0729a413dab030e2f	8 GiB	-	Standard	Completed	2024/03/16 10:58 GMT
<input type="checkbox"/>	automate_server	snap-0baa4aab12c9ae2f8	8 GiB	-	Standard	Completed	2024/03/16 10:59 GMT
<input type="checkbox"/>	1	snap-0d79f23393efcd769	8 GiB	-	Standard	Completed	2024/03/16 10:46 GMT

