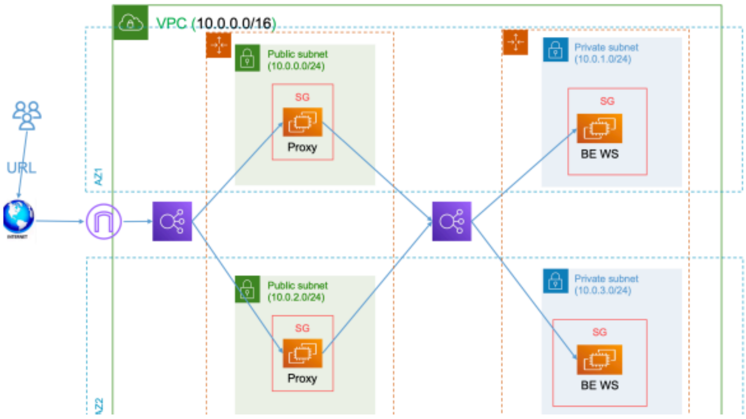
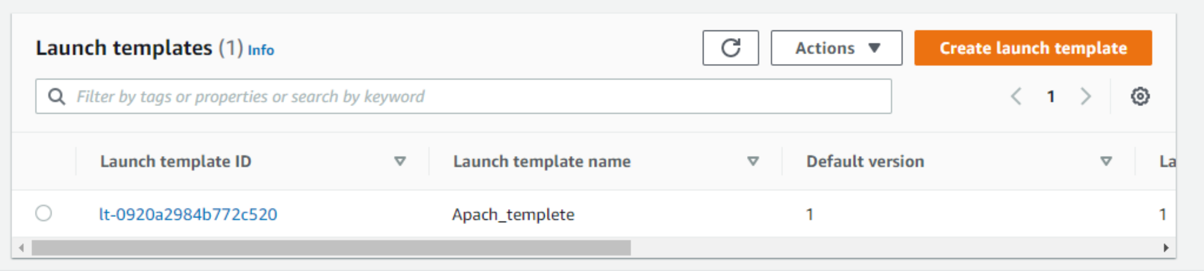
Lab_4

Lab4
Question1:

Implement a vpc with cidr 10.0.0.0/16 with 2 public subnets with cidrs 10.0.0.0/24 and 10.0.0.2.0/24 with a load balancer to Distribute the traffic between 2 machines with nginx installed in them as a proxy and 2 private subnets with the below cidrs 10.0.1.0/24 and 10.0.0.3.0/24 then a 2 instances attached in autoscaling in the private subnets with apache installed without SSH and load balancer to install between them


VPC (10.0.0.0/16)
Public subnet (10.0.0.0/24)
SG
Proxy
Private subnet (10.0.1.0/24)
SG
BE WS
URL
AZ1
Public subnet (10.0.2.0/24)
SG
Proxy
Private subnet (10.0.3.0/24)
SG
BE WS
AZ2

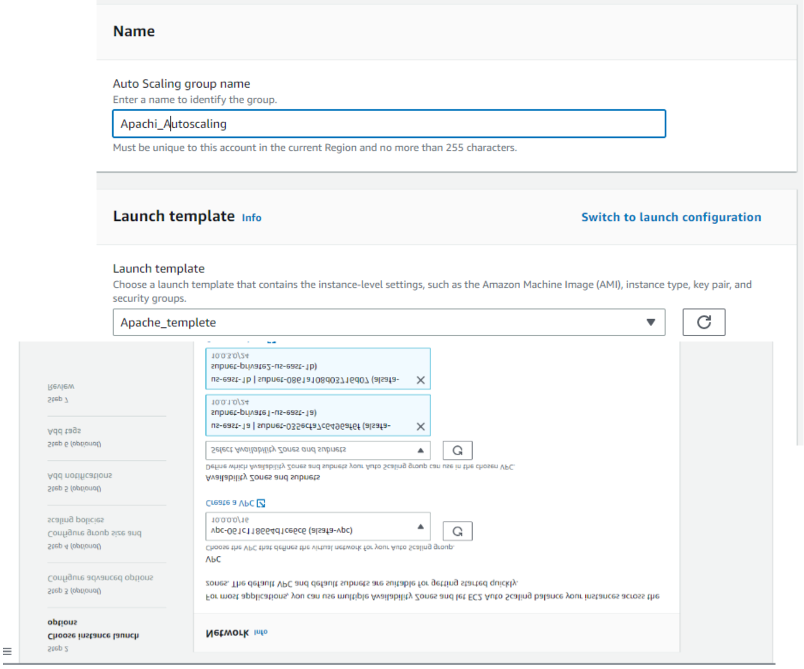
1)create Apache template:



Launch templates (1) Info

	Launch template ID	Launch template name	Default version	La
○	lt-0920a2984b772c520	Apach_templete	1	1

2)create autoscaling group:



Name

Auto Scaling group name
Enter a name to identify the group.
Apachi_Autoscaling
Must be unique to this account in the current Region and no more than 255 characters.

Launch template Info

Launch template
Choose a launch template that contains the instance-level settings, such as the Amazon Machine Image (AMI), instance type, key pair, and security groups.
Apache_templete ▼

Network Info

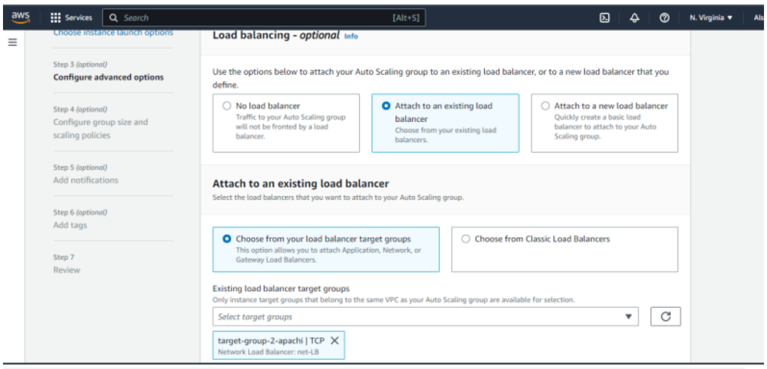
For most applications, you can use multiple Availability Zones and let EC2 Auto Scaling balance your instances across the zones. The default VPC and default subnets are suitable for getting started quickly.

VPC
Choose the VPC that defines the virtual network for your Auto Scaling group.
vpc-061c118664d1ce6c6 (alsafa-vpc)
10.0.0.0/16

Availability Zones and subnets
Define which Availability Zones and subnets your Auto Scaling group can use in the chosen VPC.
Select Availability Zones and subnets ▼

us-east-1a | subnet-035ecfa7c6496af6f (alsafa-subnet-private1-us-east-1a)
10.0.1.0/24

us-east-1b | subnet-086fa1108d03716d07 (alsafa-subnet-private2-us-east-1b)
10.0.3.0/24



Load balancing - *optional* Info

Use the options below to attach your Auto Scaling group to an existing load balancer, or to a new load balancer that you define.

○ No load balancer
Traffic to your Auto Scaling group will not be fronted by a load balancer.

● Attach to an existing load balancer
Choose from your existing load balancers.

○ Attach to a new load balancer
Quickly create a basic load balancer to attach to your Auto Scaling group.

Attach to an existing load balancer

Select the load balancers that you want to attach to your Auto Scaling group.

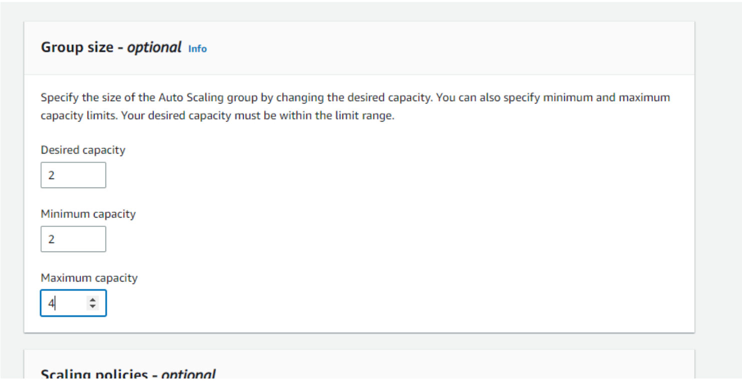
● Choose from your load balancer target groups
This option allows you to attach Application, Network, or Gateway Load Balancers.

○ Choose from Classic Load Balancers

Existing load balancer target groups
Only instance target groups that belong to the same VPC as your Auto Scaling group are available for selection.

Select target groups ▾

target-group-2-apachi | TCP ✕
Network Load Balancer: net-LB



Group size - *optional* Info

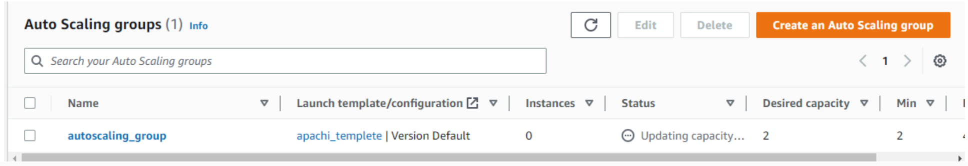
Specify the size of the Auto Scaling group by changing the desired capacity. You can also specify minimum and maximum capacity limits. Your desired capacity must be within the limit range.

Desired capacity
2

Minimum capacity
2

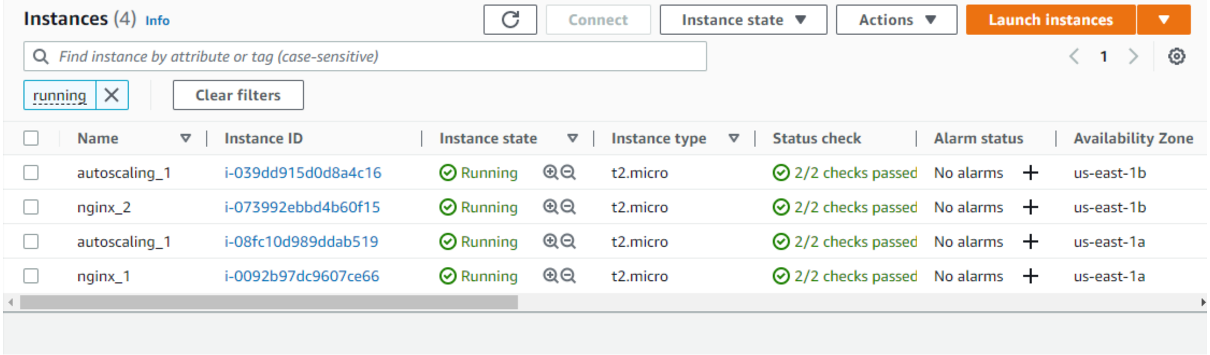
Maximum capacity
4

Scaling policies - *optional*



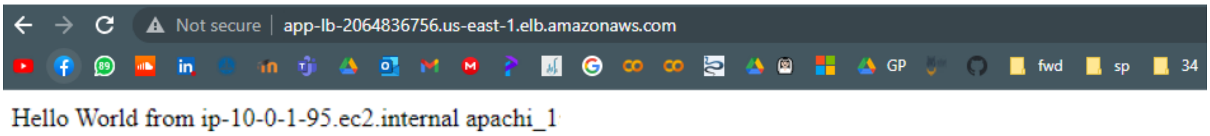
Auto Scaling groups (1) Info

□	Name	Launch template/configuration	Instances	Status	Desired capacity	Min
□	autoscaling_group	apachi_templete | Version Default	0	Updating capacity...	2	2



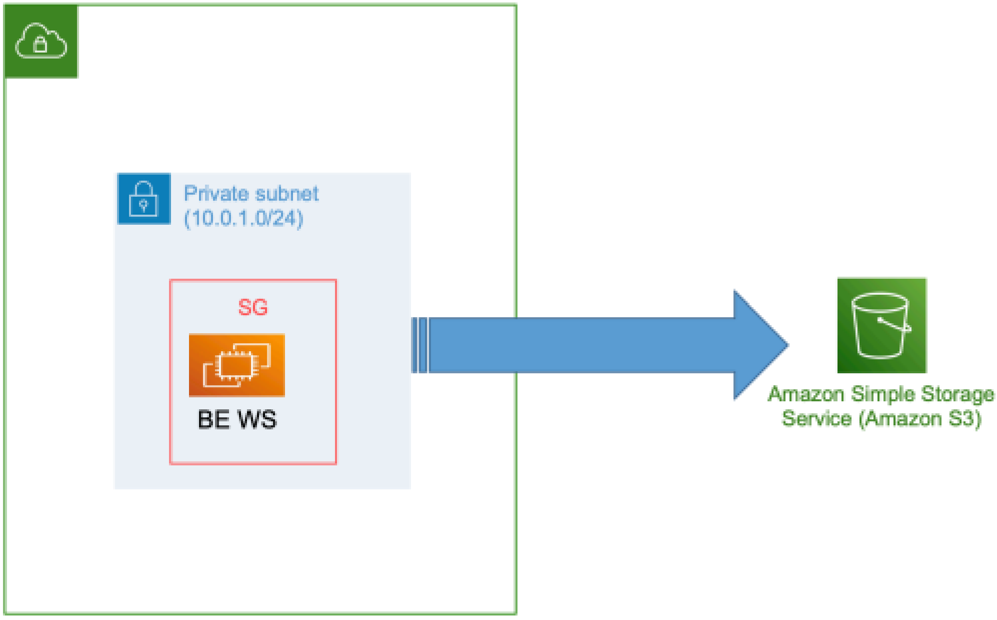
Instances (4) Info

□	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone
□	autoscaling_1	i-039dd915d0d8a4c16	✓ Running	t2.micro	✓ 2/2 checks passed	No alarms +	us-east-1b
□	nginx_2	i-073992ebbd4b60f15	✓ Running	t2.micro	✓ 2/2 checks passed	No alarms +	us-east-1b
□	autoscaling_1	i-08fc10d989ddab519	✓ Running	t2.micro	✓ 2/2 checks passed	No alarms +	us-east-1a
□	nginx_1	i-0092b97dc9607ce66	✓ Running	t2.micro	✓ 2/2 checks passed	No alarms +	us-east-1a



app-lb-2064836756.us-east-1.elb.amazonaws.com

Hello World from ip-10-0-1-95.ec2.internal apachi_1



Question2:

Create a vpc with cidr 10.0.0.0/16 with private subnet and a machine in it with apache instal without ssh ,also we need to serve an application from S3 bucket .

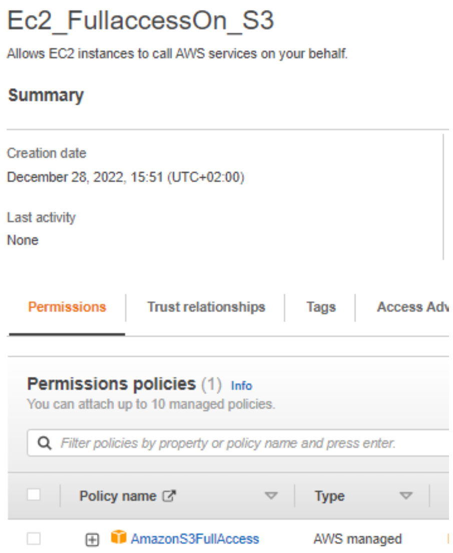
Needed:

Screenshot from the userdata

Screenshot from the logs of the instance

Screenshot indicate the machine is private

1)create s3, upload index.html file and create role



Ec2_FullaccessOn_S3

Allows EC2 instances to call AWS services on your behalf.

Summary

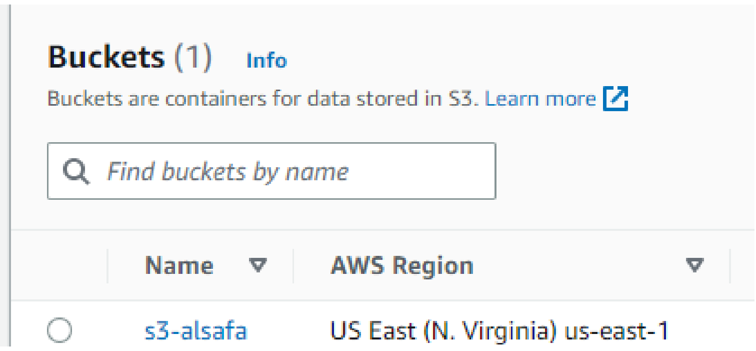
Creation date
December 28, 2022, 15:51 (UTC+02:00)

Last activity
None

Permissions policies (1) Info

You can attach up to 10 managed policies.

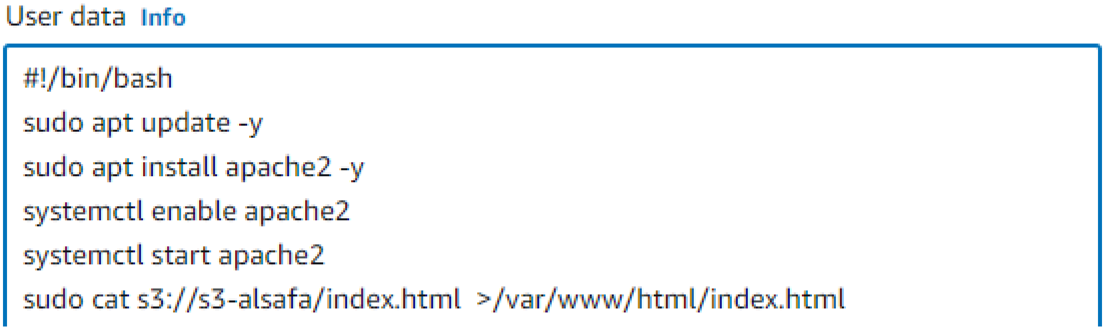
	Policy name	Type
□	⊞ AmazonS3FullAccess	AWS managed



Buckets (1) Info

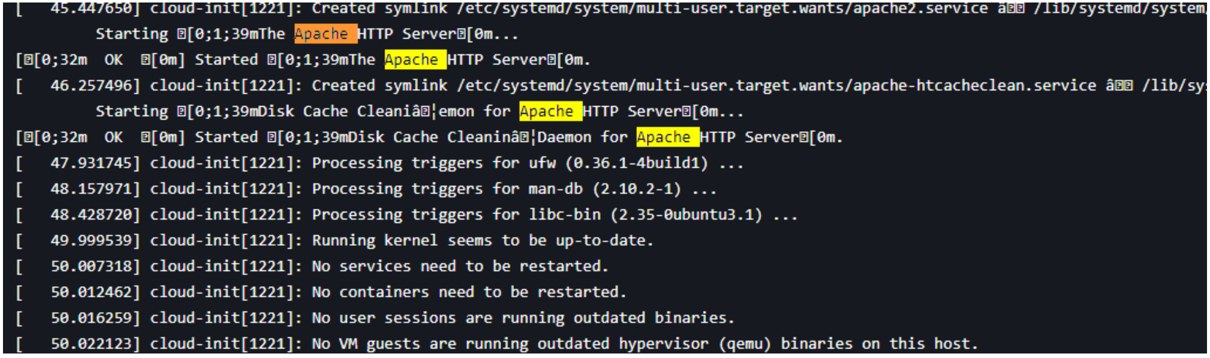
Buckets are containers for data stored in S3. Learn more

	Name	AWS Region
○	s3-alsafa	US East (N. Virginia) us-east-1

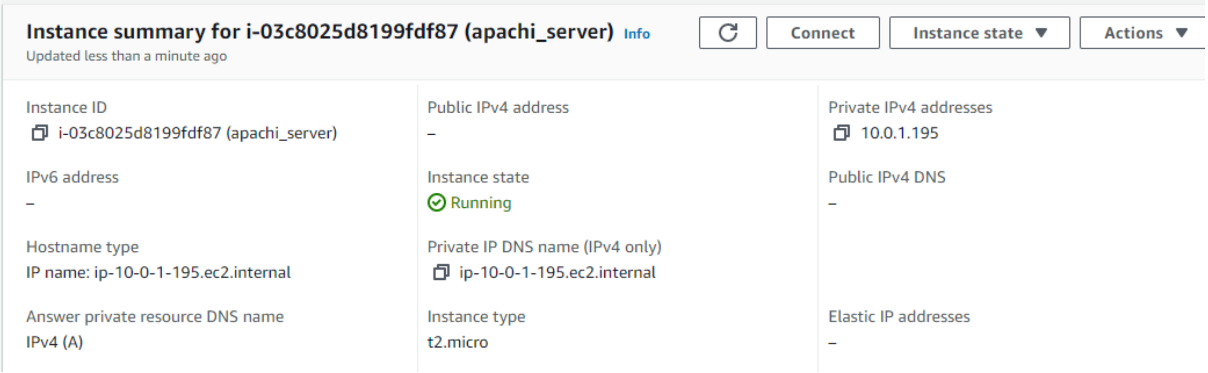


User data

```
#!/bin/bash
sudo apt update -y
sudo apt install apache2 -y
systemctl enable apache2
systemctl start apache2
sudo cat s3://s3-alsafa/index.html  >/var/www/html/index.html
```



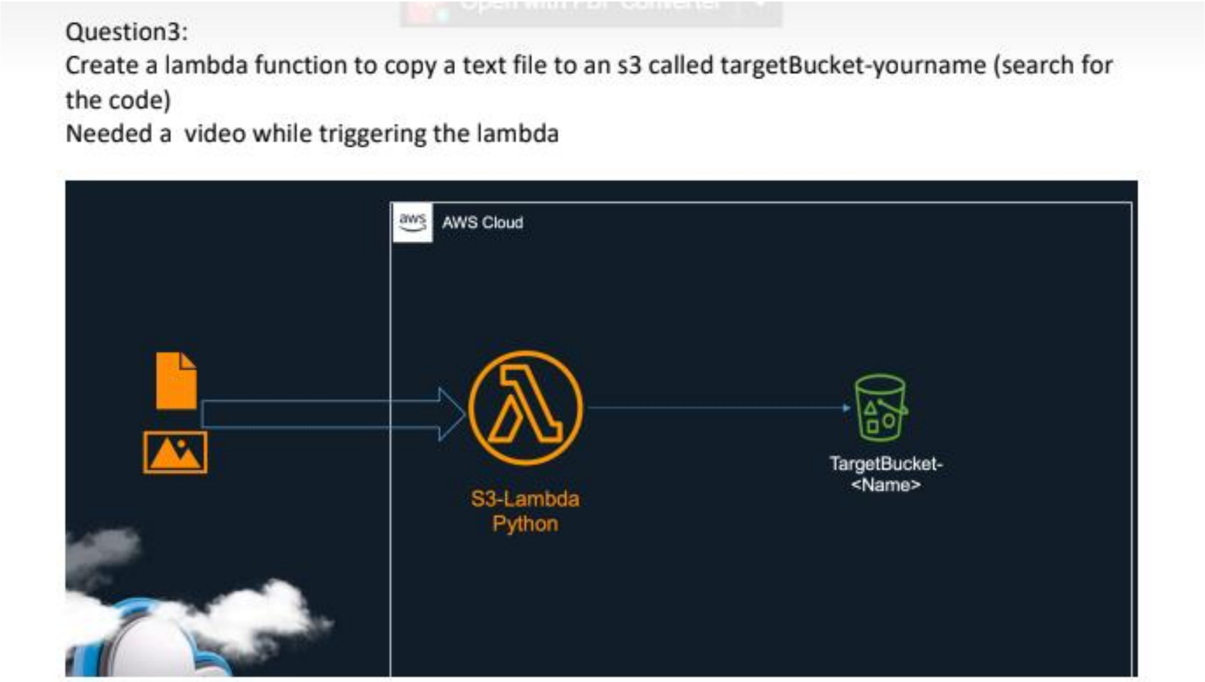
```
[   45.447650] cloud-init[1221]: Created symlink /etc/systemd/system/multi-user.target.wants/apache2.service â⍰⍰ /lib/systemd/system
         Starting ⍰[0;1;39mThe Apache HTTP Server⍰[0m...
[⍰[0;32m  OK  ⍰[0m] Started ⍰[0;1;39mThe Apache HTTP Server⍰[0m.
[   46.257496] cloud-init[1221]: Created symlink /etc/systemd/system/multi-user.target.wants/apache-htcacheclean.service â⍰⍰ /lib/sy
         Starting ⍰[0;1;39mDisk Cache Cleaniâ⍰¦emon for Apache HTTP Server⍰[0m...
[⍰[0;32m  OK  ⍰[0m] Started ⍰[0;1;39mDisk Cache Cleaninâ⍰¦Daemon for Apache HTTP Server⍰[0m.
[   47.931745] cloud-init[1221]: Processing triggers for ufw (0.36.1-4build1) ...
[   48.157971] cloud-init[1221]: Processing triggers for man-db (2.10.2-1) ...
[   48.428720] cloud-init[1221]: Processing triggers for libc-bin (2.35-0ubuntu3.1) ...
[   49.999539] cloud-init[1221]: Running kernel seems to be up-to-date.
[   50.007318] cloud-init[1221]: No services need to be restarted.
[   50.012462] cloud-init[1221]: No containers need to be restarted.
[   50.016259] cloud-init[1221]: No user sessions are running outdated binaries.
[   50.022123] cloud-init[1221]: No VM guests are running outdated hypervisor (qemu) binaries on this host.
```



Instance summary for i-03c8025d8199fdf87 (apachi_server)

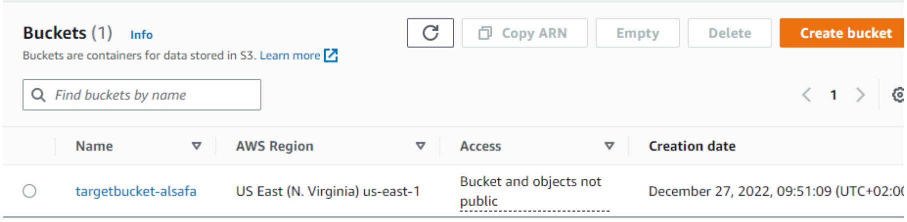
Updated less than a minute ago

Instance ID i-03c8025d8199fdf87 (apachi_server)	Public IPv4 address –	Private IPv4 addresses 10.0.1.195
IPv6 address –	Instance state Running	Public IPv4 DNS –
Hostname type IP name: ip-10-0-1-195.ec2.internal	Private IP DNS name (IPv4 only) ip-10-0-1-195.ec2.internal	
Answer private resource DNS name IPv4 (A)	Instance type t2.micro	Elastic IP addresses –



Question3:
Create a lambda function to copy a text file to an s3 called targetBucket-yourname (search for the code)
Needed a video while triggering the lambda

1)create s3:

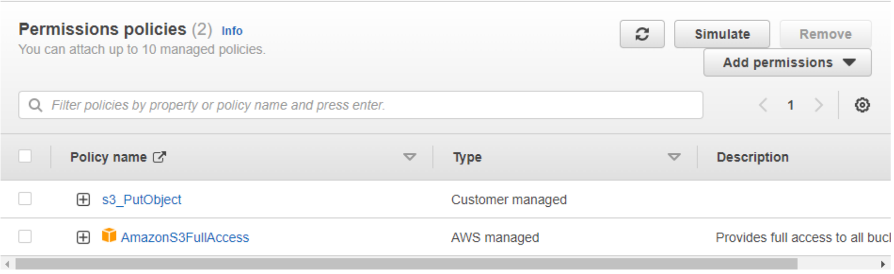


Buckets (1) Info

Buckets are containers for data stored in S3. Learn more

Find buckets by name

	Name	AWS Region	Access	Creation date
○	targetbucket-alsafa	US East (N. Virginia) us-east-1	Bucket and objects not public	December 27, 2022, 09:51:09 (UTC+02:0(



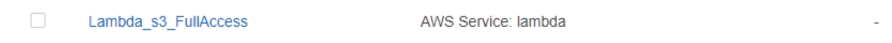
Permissions policies (2) Info

You can attach up to 10 managed policies.

Filter policies by property or policy name and press enter.

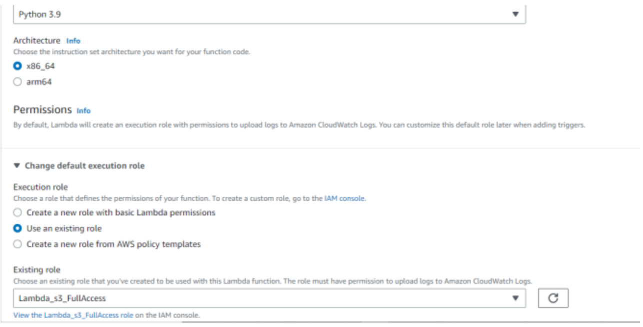
□	Policy name	Type	Description
□	s3_PutObject	Customer managed	
□	AmazonS3FullAccess	AWS managed	Provides full access to all buc

2)create role that give lambda full access on s3



□	Lambda_s3_FullAccess	AWS Service: lambda	-

3)create lambda and give it the role



Python 3.9

Architecture Info
Choose the instruction set architecture you want for your function code.
● x86_64
○ arm64

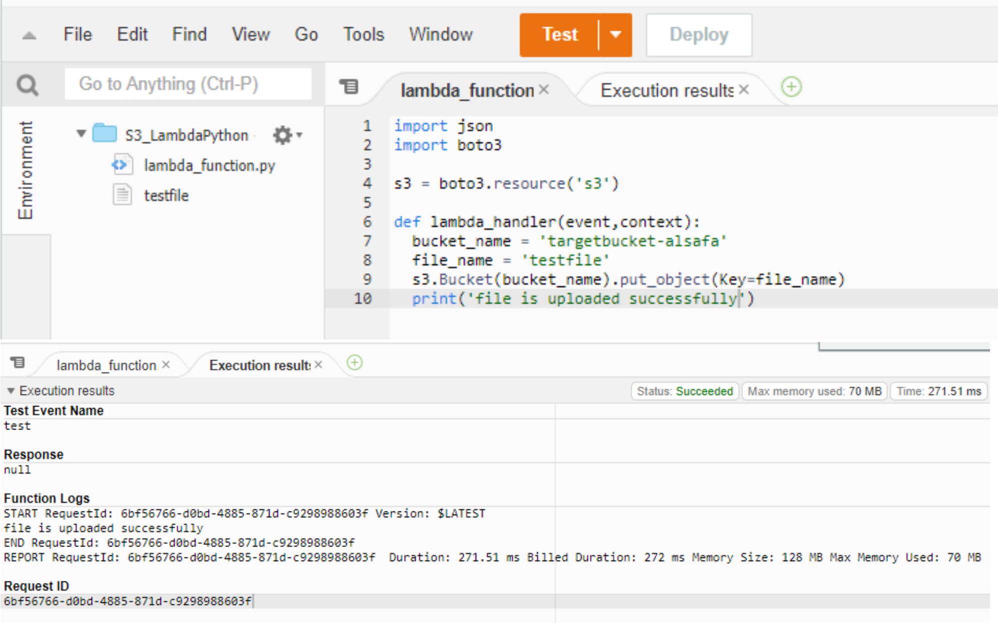
Permissions Info
By default, Lambda will create an execution role with permissions to upload logs to Amazon CloudWatch Logs. You can customize this default role later when adding triggers.

▼ Change default execution role

Execution role
Choose a role that defines the permissions of your function. To create a custom role, go to the IAM console.
○ Create a new role with basic Lambda permissions
● 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.
Lambda_s3_FullAccess
View the Lambda_s3_FullAccess role on the IAM console.

4) make testfile & write python code to upload it



```python
import json
import boto3

s3 = boto3.resource('s3')

def lambda_handler(event,context):
  bucket_name = 'targetbucket-alsafa'
  file_name = 'testfile'
  s3.Bucket(bucket_name).put_object(Key=file_name)
  print('file is uploaded successfully')
```

Status: Succeeded | Max memory used: 70 MB | Time: 271.51 ms

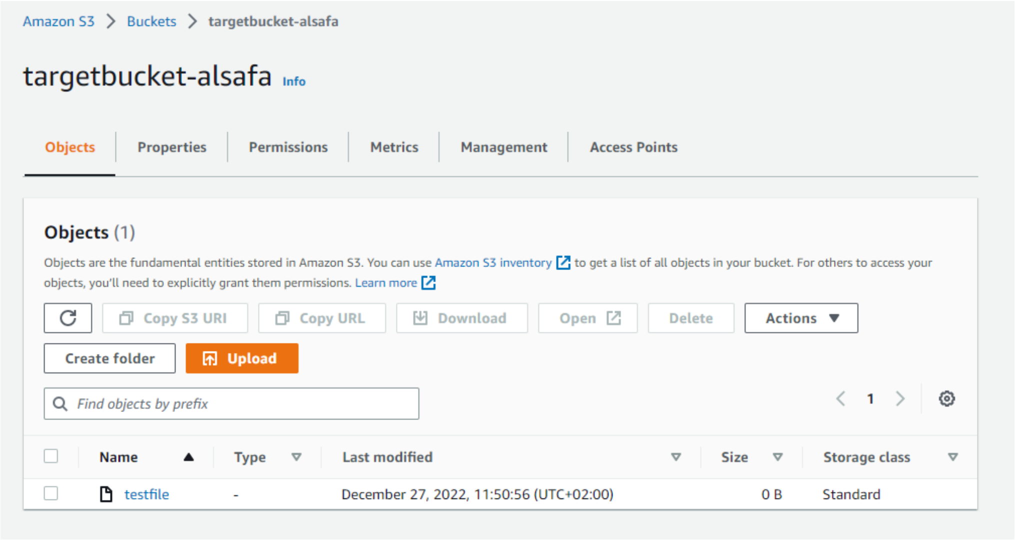
Test Event Name
```
test
```

Response
```
null
```

Function Logs
```
START RequestId: 6bf56766-d0bd-4885-871d-c9298988603f Version: $LATEST
file is uploaded successfully
END RequestId: 6bf56766-d0bd-4885-871d-c9298988603f
REPORT RequestId: 6bf56766-d0bd-4885-871d-c9298988603f  Duration: 271.51 ms Billed Duration: 272 ms Memory Size: 128 MB Max Memory Used: 70 MB
```

Request ID
```
6bf56766-d0bd-4885-871d-c9298988603f
```

5) file is uploaded successfully



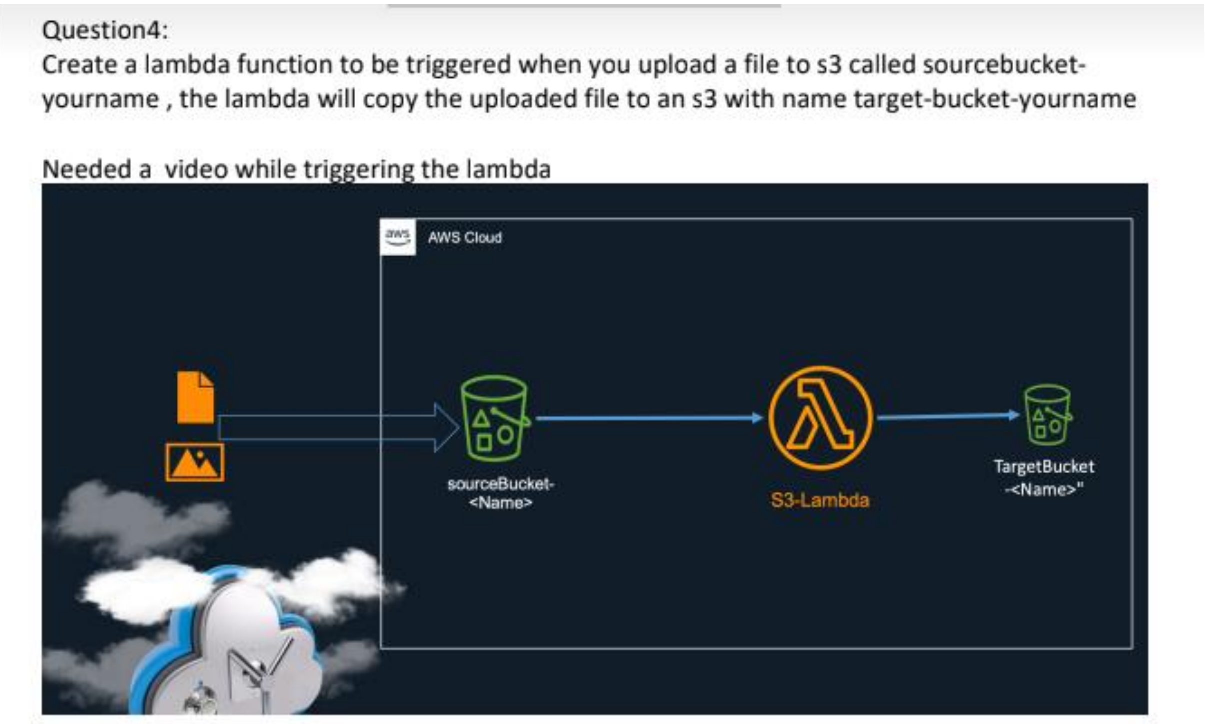
targetbucket-alsafa Info

Objects (1)

Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more

□	Name ▲	Type	Last modified	Size	Storage class
□	testfile	-	December 27, 2022, 11:50:56 (UTC+02:00)	0 B	Standard

video Url:
https://github.com/Alsafawagdy/Sprints_Devops_tasks/blob/main/6_AWS/Lab_4/Question_3.mp4

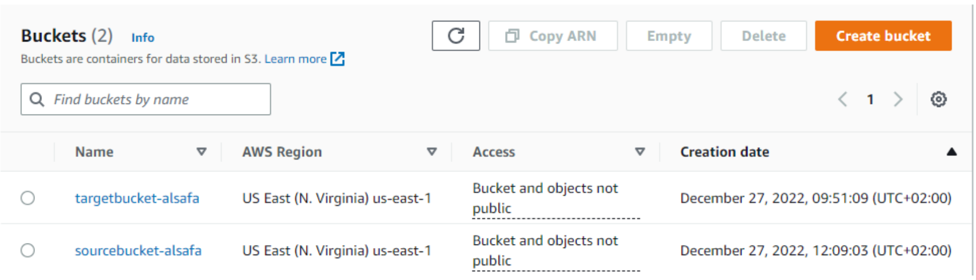


Question4:

Create a lambda function to be triggered when you upload a file to s3 called sourcebucket-yourname , the lambda will copy the uploaded file to an s3 with name target-bucket-yourname

Needed a video while triggering the lambda

1)create 2 buckets:

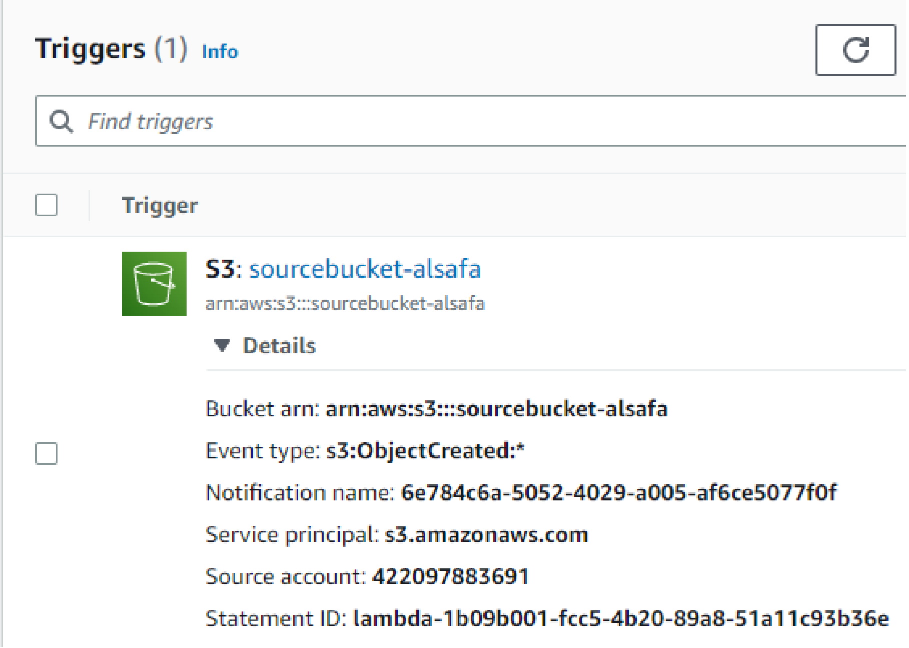


Buckets (2) Info

Buckets are containers for data stored in S3. Learn more

	Name	AWS Region	Access	Creation date
○	targetbucket-alsafa	US East (N. Virginia) us-east-1	Bucket and objects not public	December 27, 2022, 09:51:09 (UTC+02:00)
○	sourcebucket-alsafa	US East (N. Virginia) us-east-1	Bucket and objects not public	December 27, 2022, 12:09:03 (UTC+02:00)

2)create lambda and add trigger



Triggers (1) Info

□ Trigger

□ **S3**: sourcebucket-alsafa

arn:aws:s3:::sourcebucket-alsafa

▼ Details

Bucket arn: **arn:aws:s3:::sourcebucket-alsafa**

Event type: **s3:ObjectCreated:***

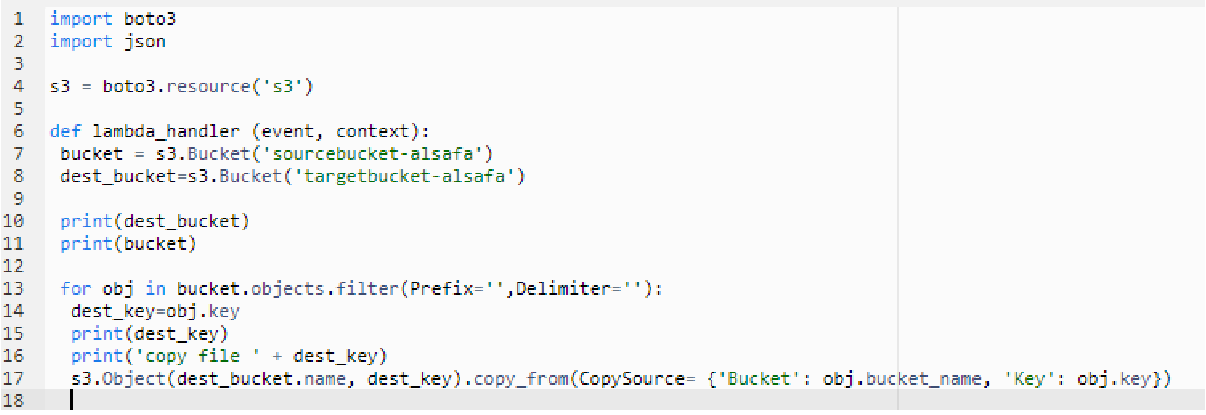
Notification name: **6e784c6a-5052-4029-a005-af6ce5077f0f**

Service principal: **s3.amazonaws.com**

Source account: **422097883691**

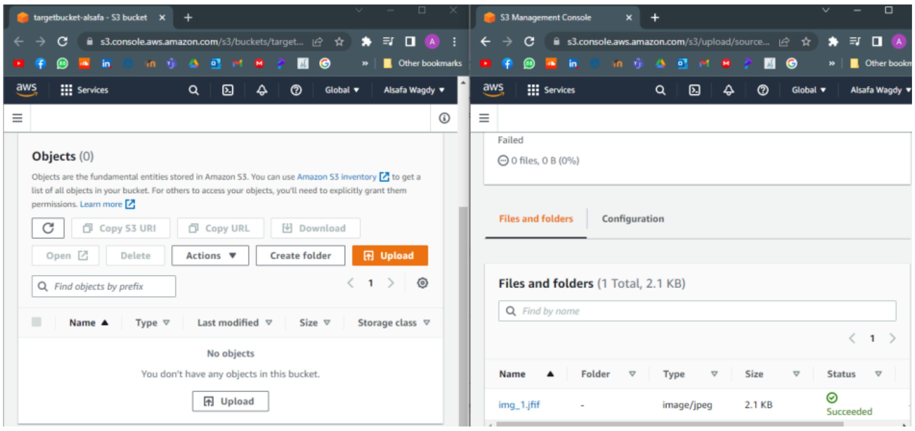
Statement ID: **lambda-1b09b001-fcc5-4b20-89a8-51a11c93b36e**

3) write code



```
import boto3
import json

s3 = boto3.resource('s3')

def lambda_handler (event, context):
 bucket = s3.Bucket('sourcebucket-alsafa')
 dest_bucket=s3.Bucket('targetbucket-alsafa')

 print(dest_bucket)
 print(bucket)

 for obj in bucket.objects.filter(Prefix='',Delimiter=''):
  dest_key=obj.key
  print(dest_key)
  print('copy file ' + dest_key)
  s3.Object(dest_bucket.name, dest_key).copy_from(CopySource= {'Bucket': obj.bucket_name, 'Key': obj.key})

```

4) upload img in source s3



targetbucket-alsafa - S3 bucket
s3.console.aws.amazon.com/s3/buckets/target...
S3 Management Console
s3.console.aws.amazon.com/s3/upload/source...
Other bookmarks
aws
Services
Global
Alsafa Wagdy

Objects (0)

Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more

No objects

You don't have any objects in this bucket.

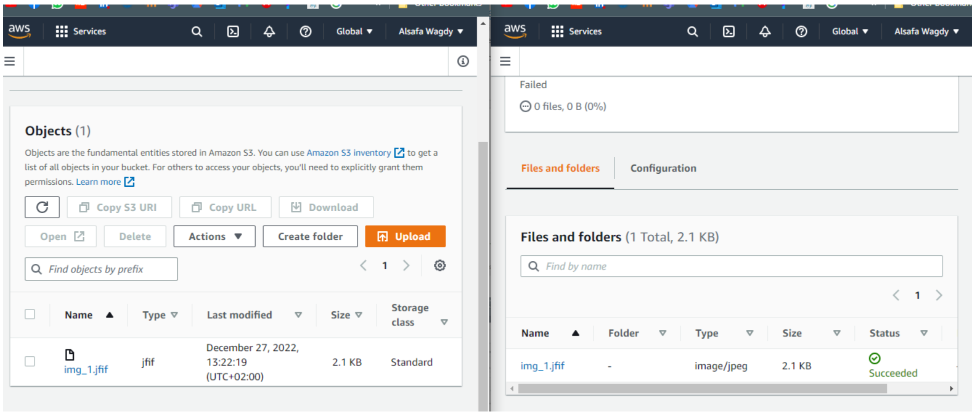
Failed

0 files, 0 B (0%)

Files and folders (1 Total, 2.1 KB)

Name	Folder	Type	Size	Status
img_1.jfif	-	image/jpeg	2.1 KB	Succeeded

5)refresh target s3



Objects (1)

Objects are the fundamental entities stored in Amazon S3. You can use Amazon S3 inventory to get a list of all objects in your bucket. For others to access your objects, you'll need to explicitly grant them permissions. Learn more

Name	Type	Last modified	Size	Storage class
img_1.jfif	jfif	December 27, 2022, 13:22:19 (UTC+02:00)	2.1 KB	Standard

Failed

0 files, 0 B (0%)

Files and folders (1 Total, 2.1 KB)

Name	Folder	Type	Size	Status
img_1.jfif	-	image/jpeg	2.1 KB	Succeeded

video while triggering the lambda Url:
https://github.com/Alsafawagdy/Sprints_Devops_tasks/blob/main/6_AWS/Lab_4/Question_4.mp4