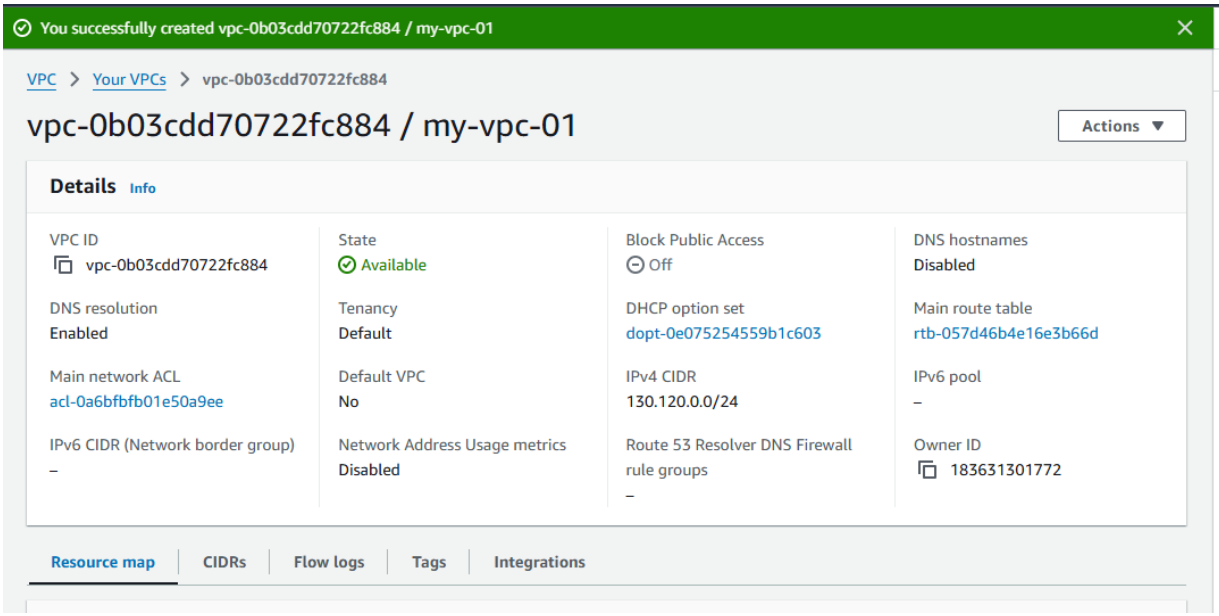
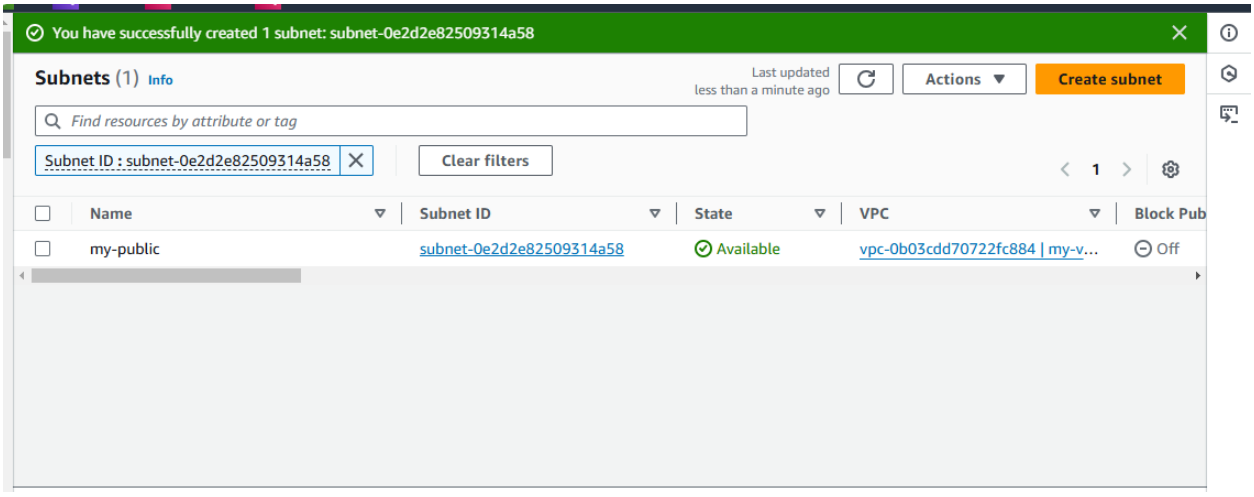
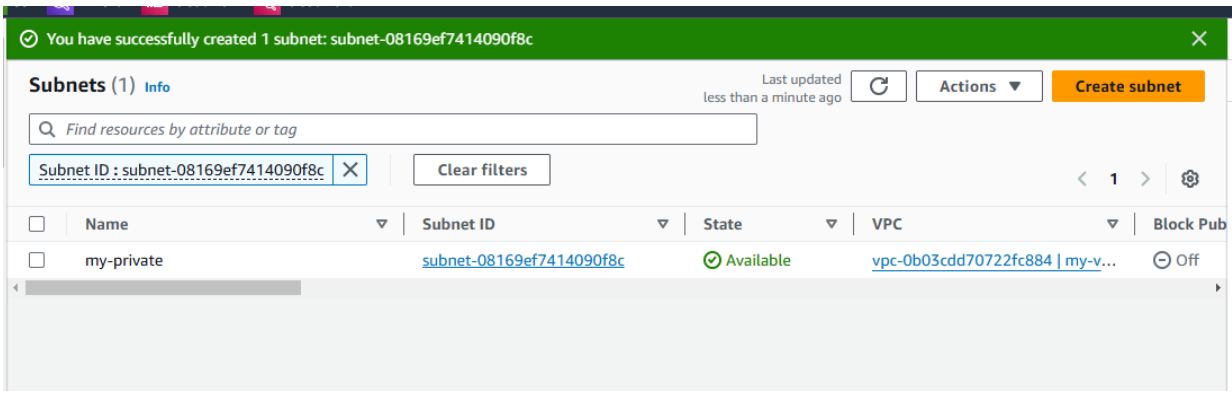
1) Create one vpc in N.virginia region.



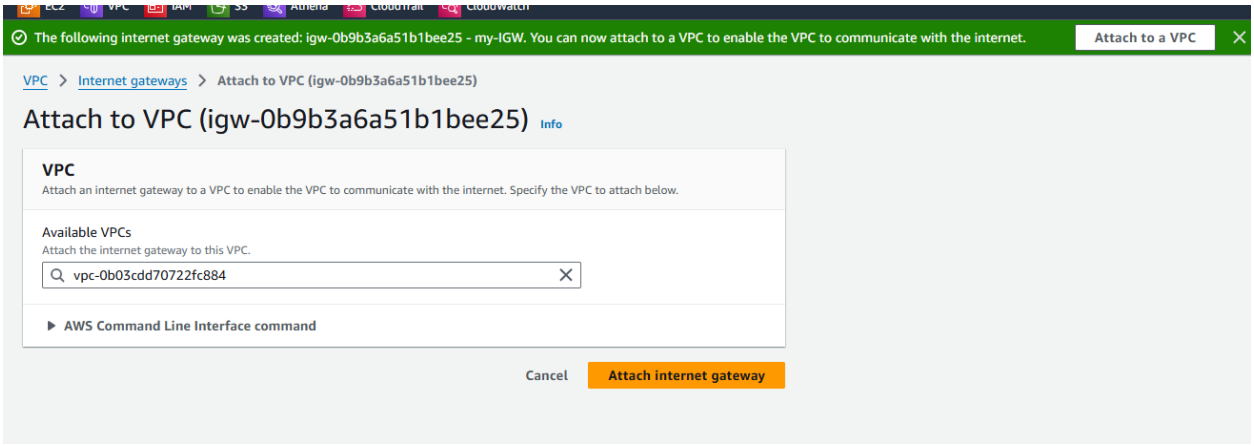
2) Create two subnets.

One Public subnet and one private subnet.

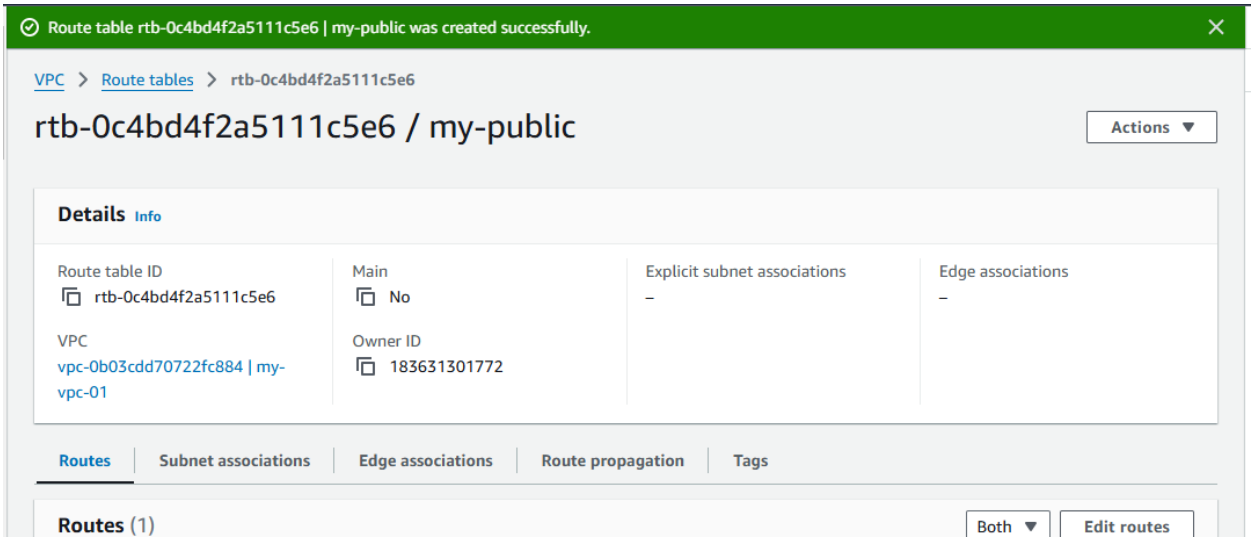


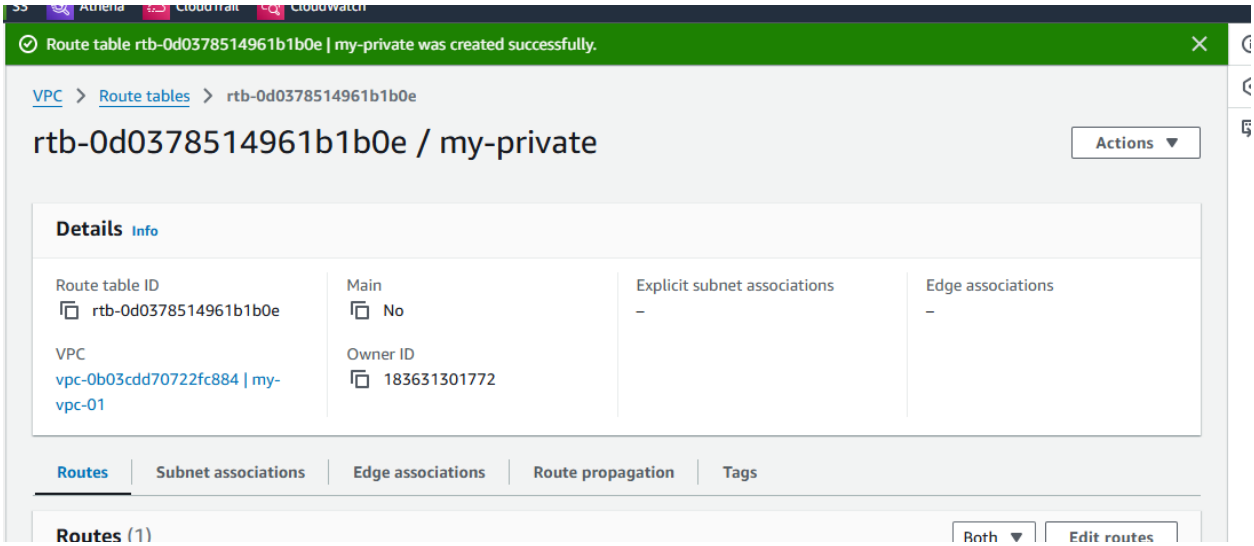


3) Provide the IGW to the vpc.

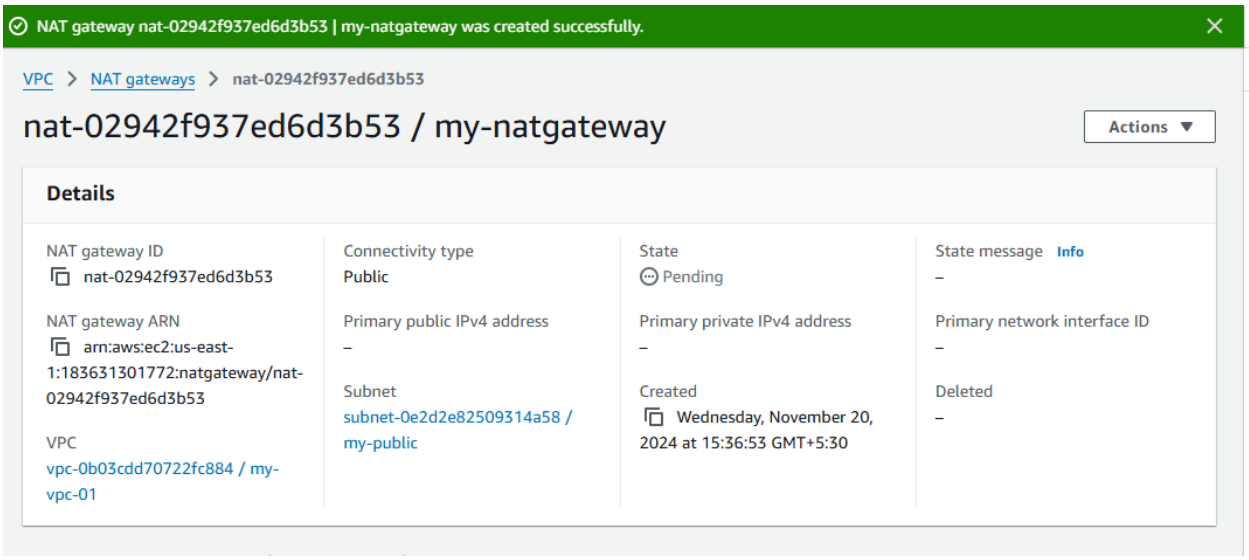


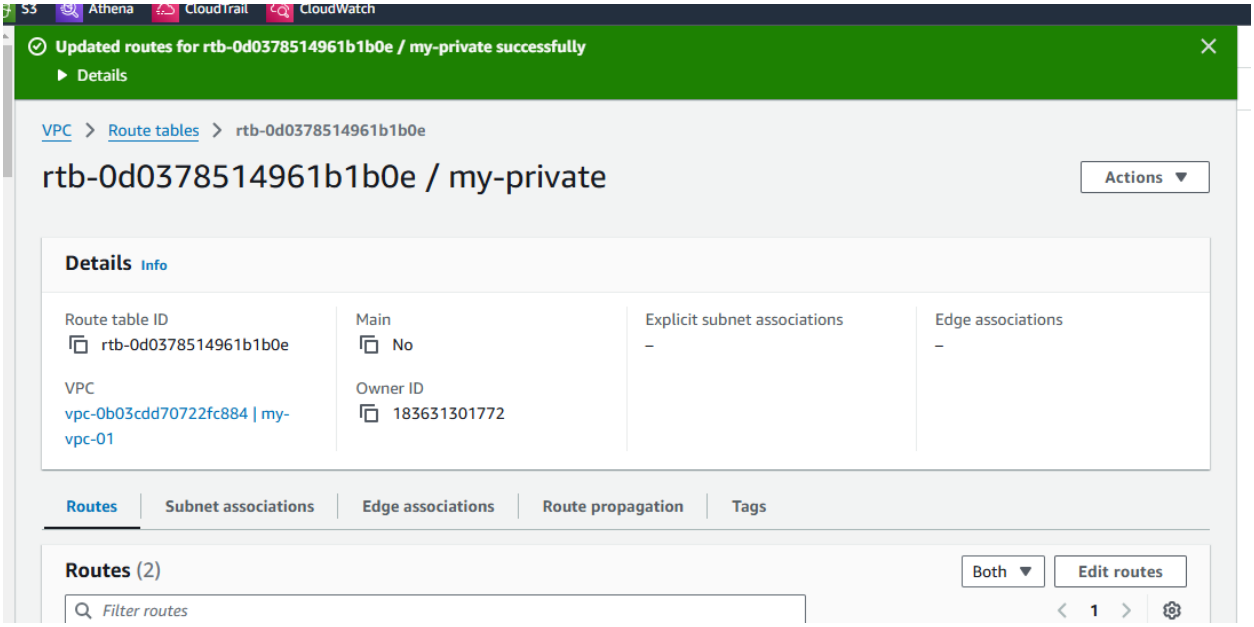
4) Create One public RT and one private RT.



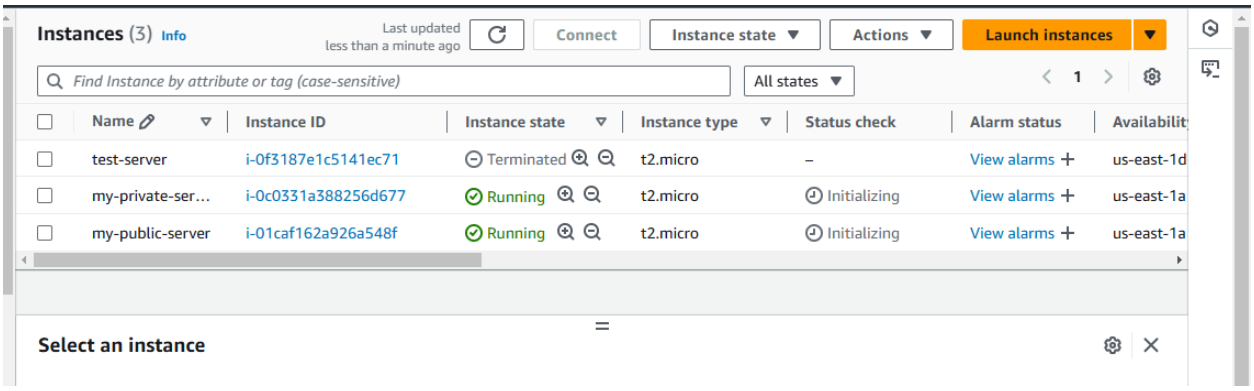


5) Deploy NAT gateway on public subnet and attach the NAT gatewat to private subnet.





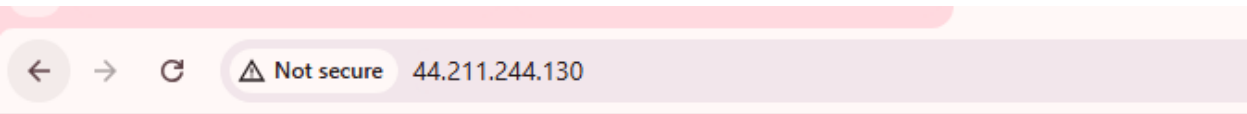
6) Create Two instances,one in public subnet and one in private subnet.



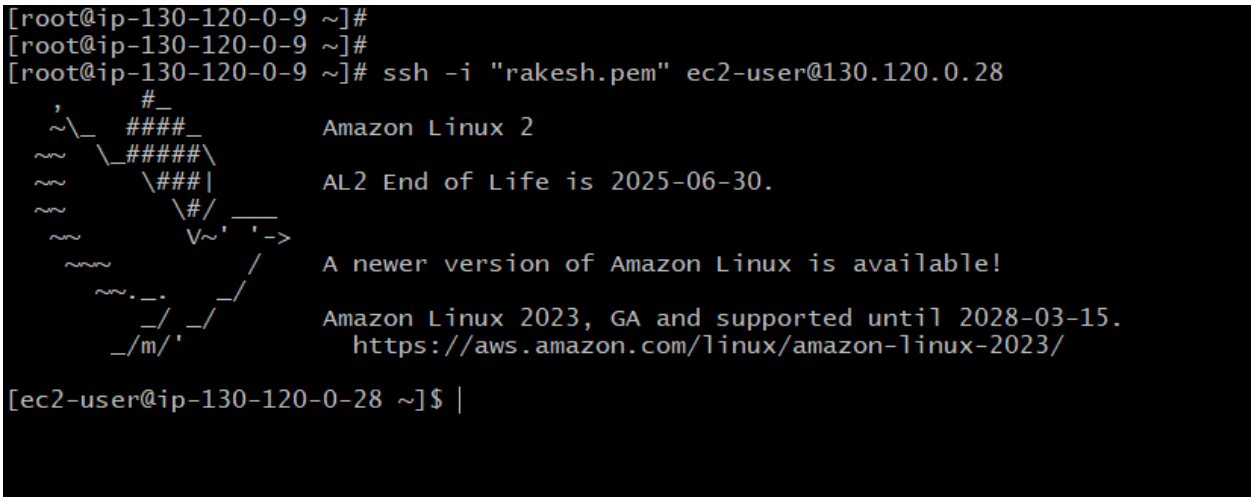
7) Deploy Apache server on both the ec2 instances with sample index.html file.

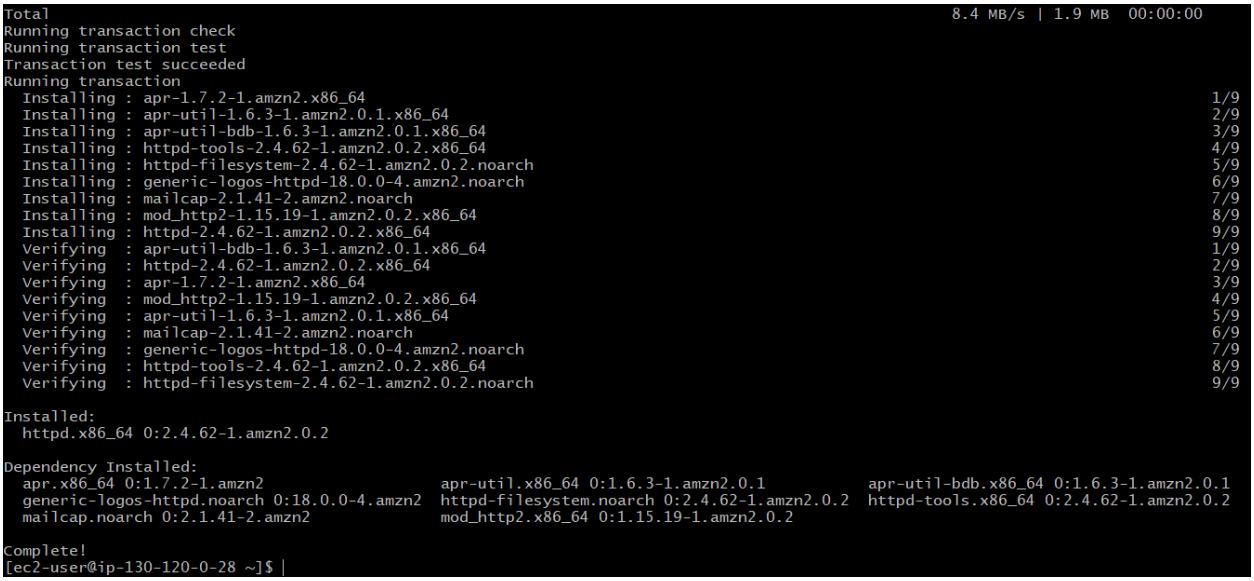
\

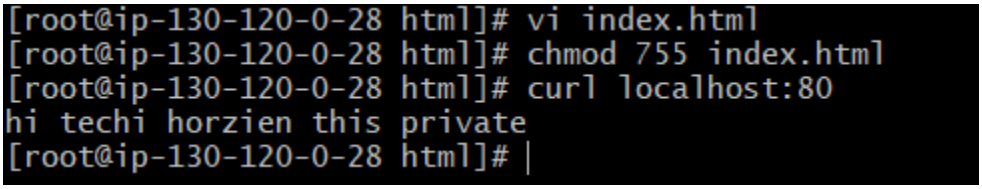
```
[root@ip-130-120-0-9 html]# ls
[root@ip-130-120-0-9 html]# vi index.html
[root@ip-130-120-0-9 html]# chmod 755 index.html
[root@ip-130-120-0-9 html]# ls
index.html
[root@ip-130-120-0-9 html]# systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; vendor preset: disabled)
   Active: inactive (dead)
     Docs: man:httpd.service(8)
[root@ip-130-120-0-9 html]# systemctl start httpd
[root@ip-130-120-0-9 html]# systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; vendor preset: disabled)
   Active: active (running) since Wed 2024-11-20 10:48:52 UTC; 8s ago
     Docs: man:httpd.service(8)
 Main PID: 3534 (httpd)
   Status: "Processing requests..."
   CGroup: /system.slice/httpd.service
           ├─3534 /usr/sbin/httpd -DFOREGROUND
           ├─3535 /usr/sbin/httpd -DFOREGROUND
           ├─3536 /usr/sbin/httpd -DFOREGROUND
           ├─3537 /usr/sbin/httpd -DFOREGROUND
           ├─3538 /usr/sbin/httpd -DFOREGROUND
           └─3539 /usr/sbin/httpd -DFOREGROUND

Nov 20 10:48:52 ip-130-120-0-9.ec2.internal systemd[1]: Starting The Apache HTTP Server...
Nov 20 10:48:52 ip-130-120-0-9.ec2.internal systemd[1]: Started The Apache HTTP Server.
[root@ip-130-120-0-9 html]#
```



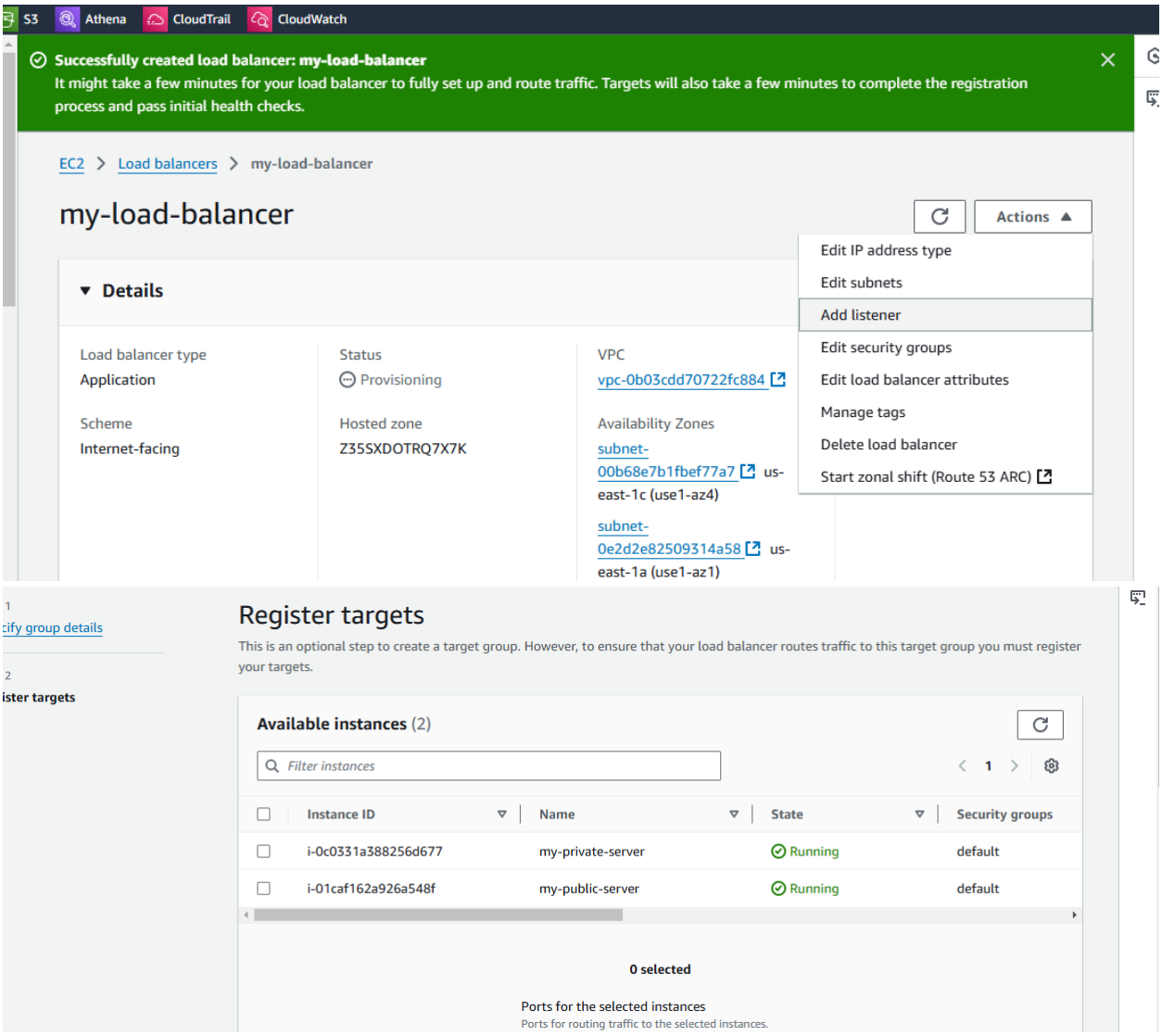
hello world techihorize



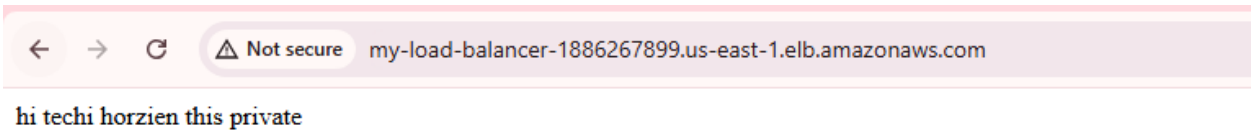


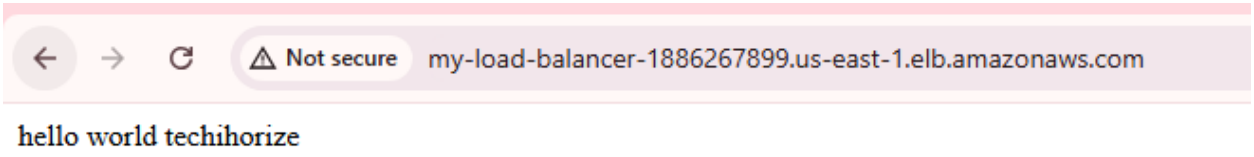


8) Create one application load balancer and attach the load balancer to both the ec2 instances.

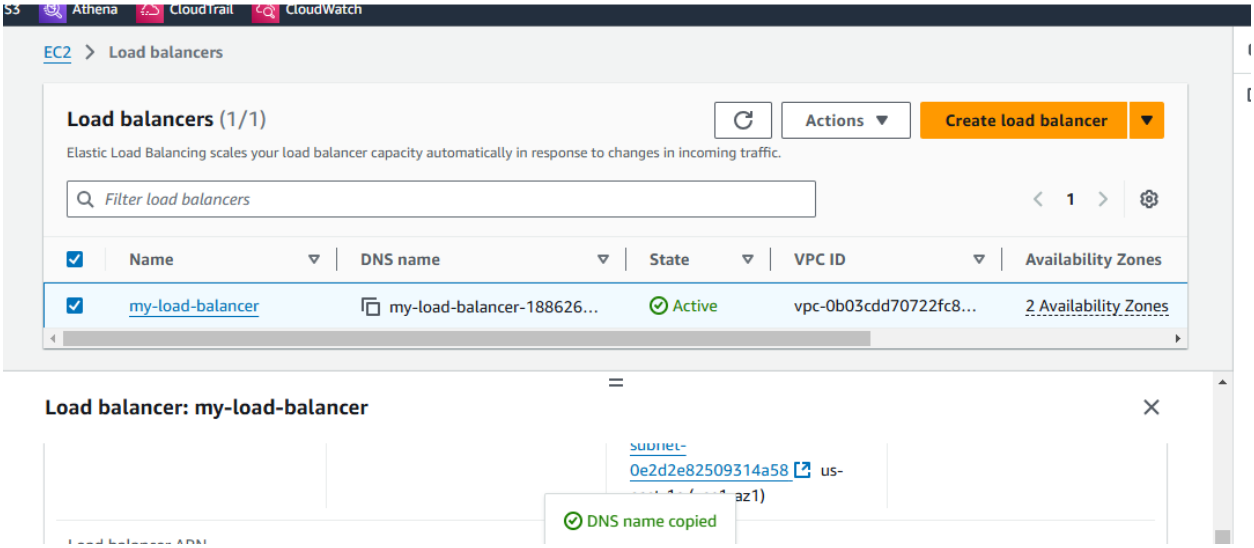

S3
Athena
CloudTrail
CloudWatch
Successfully created load balancer: my-load-balancer
It might take a few minutes for your load balancer to fully set up and route traffic. Targets will also take a few minutes to complete the registration process and pass initial health checks.
EC2 > Load balancers > my-load-balancer
my-load-balancer
Actions
Edit IP address type
Edit subnets
Add listener
Edit security groups
Edit load balancer attributes
Manage tags
Delete load balancer
Start zonal shift (Route 53 ARC)
Details
Load balancer type
Application
Status
Provisioning
VPC
vpc-0b03cdd70722fc884
Scheme
Internet-facing
Hosted zone
Z35SXDOTRQ7X7K
Availability Zones
subnet-00b68e7b1fbef77a7 us-east-1c (use1-az4)
subnet-0e2d2e82509314a58 us-east-1a (use1-az1)

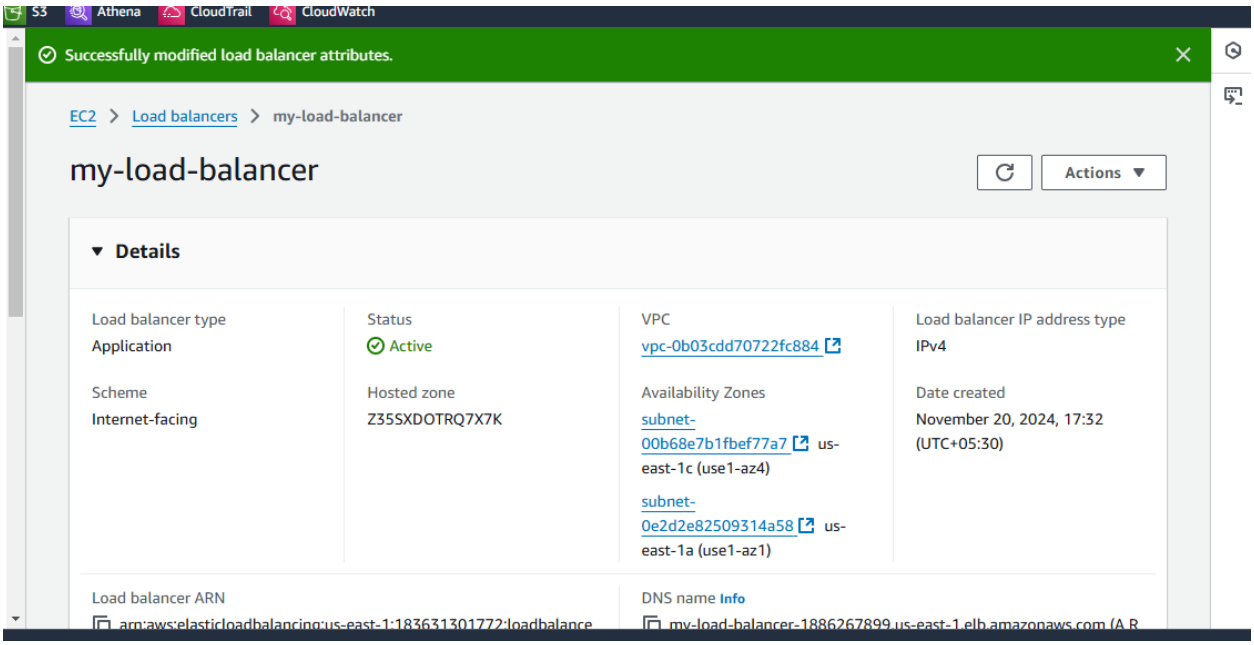
1
cify group details
2
ister targets
Register targets
This is an optional step to create a target group. However, to ensure that your load balancer routes traffic to this target group you must register your targets.
Available instances (2)
Filter instances
1
Instance ID
Name
State
Security groups
i-0c0331a388256d677
my-private-server
Running
default
i-01caf162a926a548f
my-public-server
Running
default
0 selected
Ports for the selected instances
Ports for routing traffic to the selected instances.





9) Store Application load balancer logs to s3.





Off

Monitoring

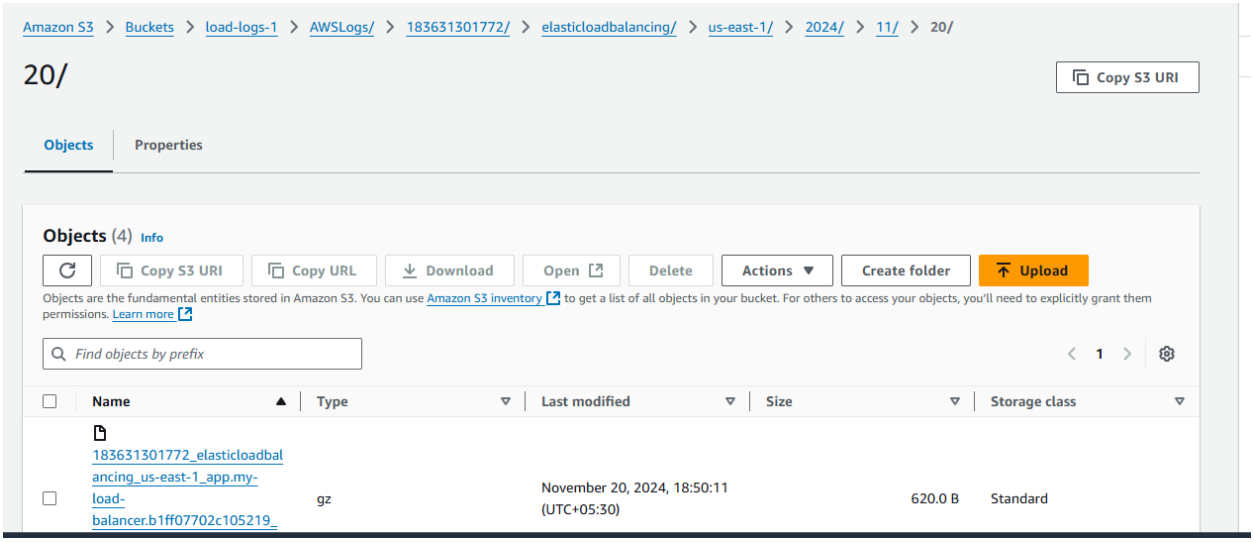
Access logs

S3 location: load-logs-1

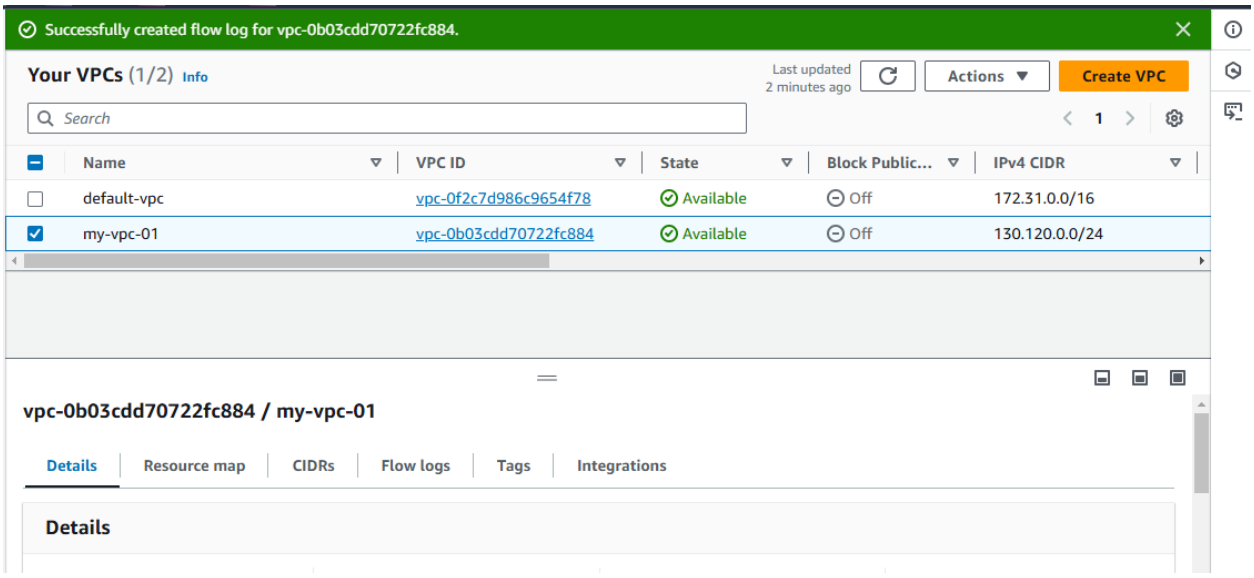
Connection logs

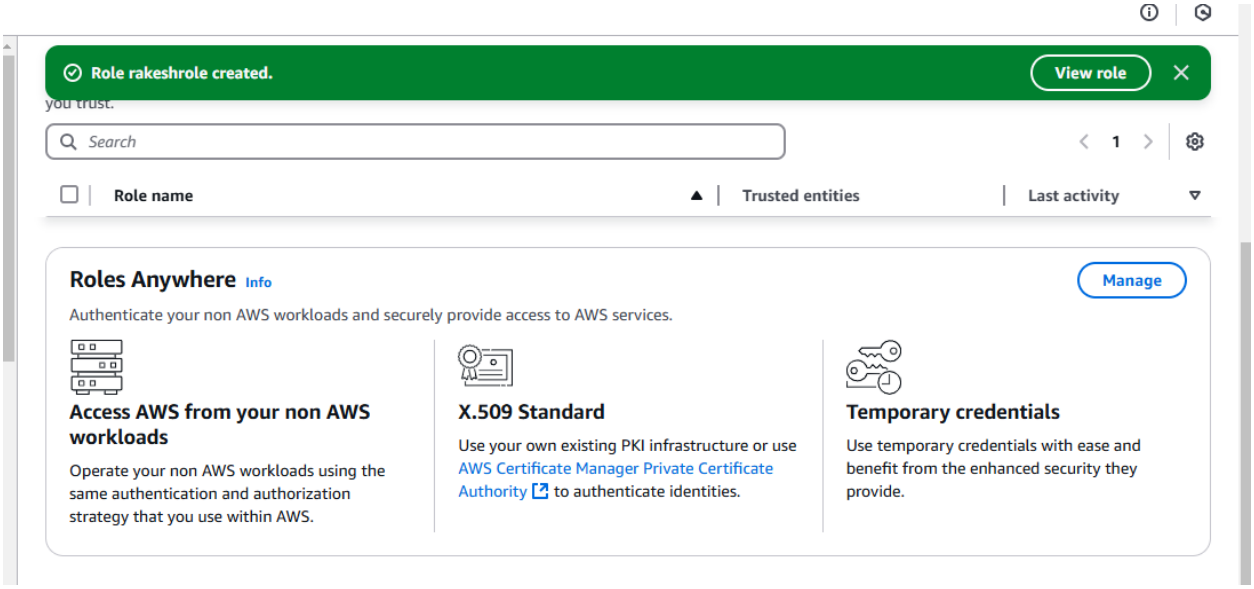
Off

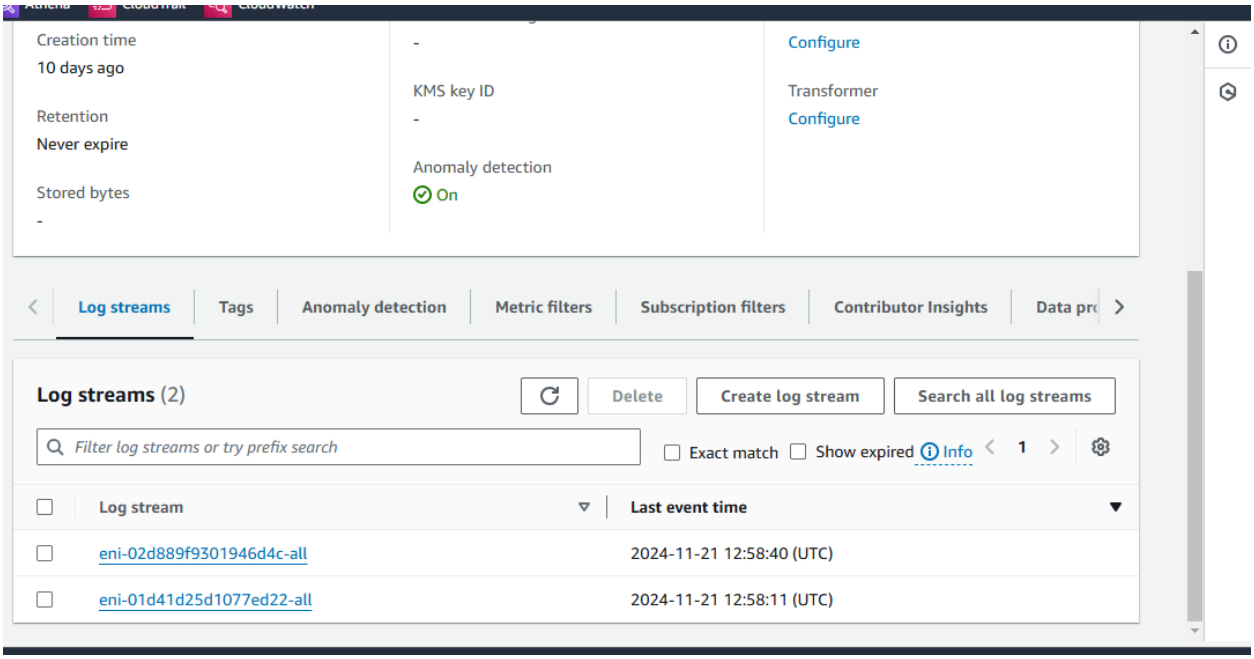
```
{
  "Version": "2012-10-17",
  "Statement": [
    {
      "Effect": "Allow",
      "Principal": {
        "AWS": "arn:aws:iam::127311923021:root"
      },
      "Action": "s3:PutObject",
      "Resource": "arn:aws:s3:::load-logs-1/AWSLogs/183631301772/*"
    }
  ]
}
```

10) Store the vpc flow logs to cloudwtach group.

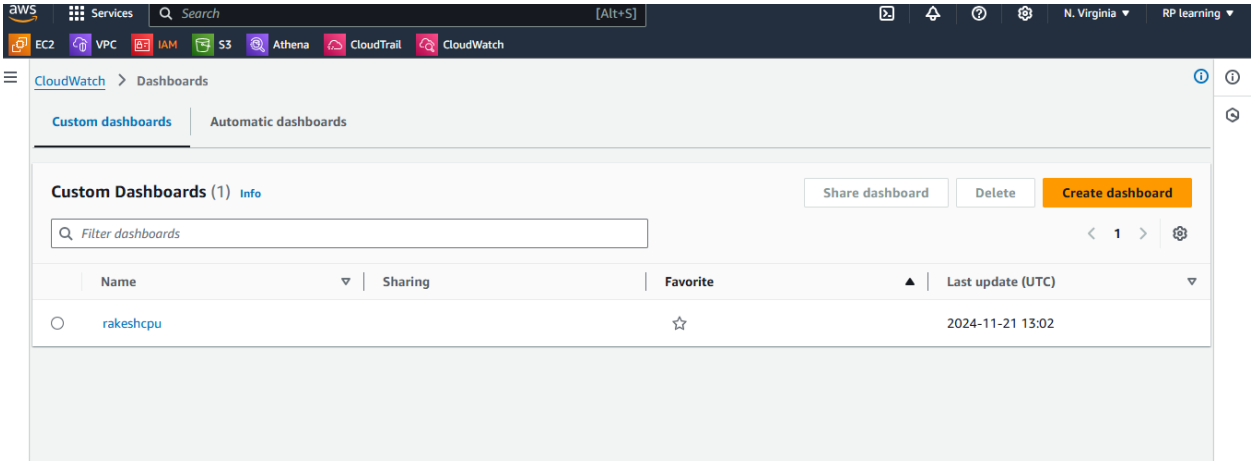

Successfully created flow log for vpc-0b03cdd70722fc884.
Your VPCs (1/2) Info
Last updated 2 minutes ago
Actions
Create VPC
Search
1
Name
VPC ID
State
Block Public...
IPv4 CIDR
default-vpc
vpc-0f2c7d986c9654f78
Available
Off
172.31.0.0/16
my-vpc-01
vpc-0b03cdd70722fc884
Available
Off
130.120.0.0/24
vpc-0b03cdd70722fc884 / my-vpc-01
Details
Resource map
CIDRs
Flow logs
Tags
Integrations
Details

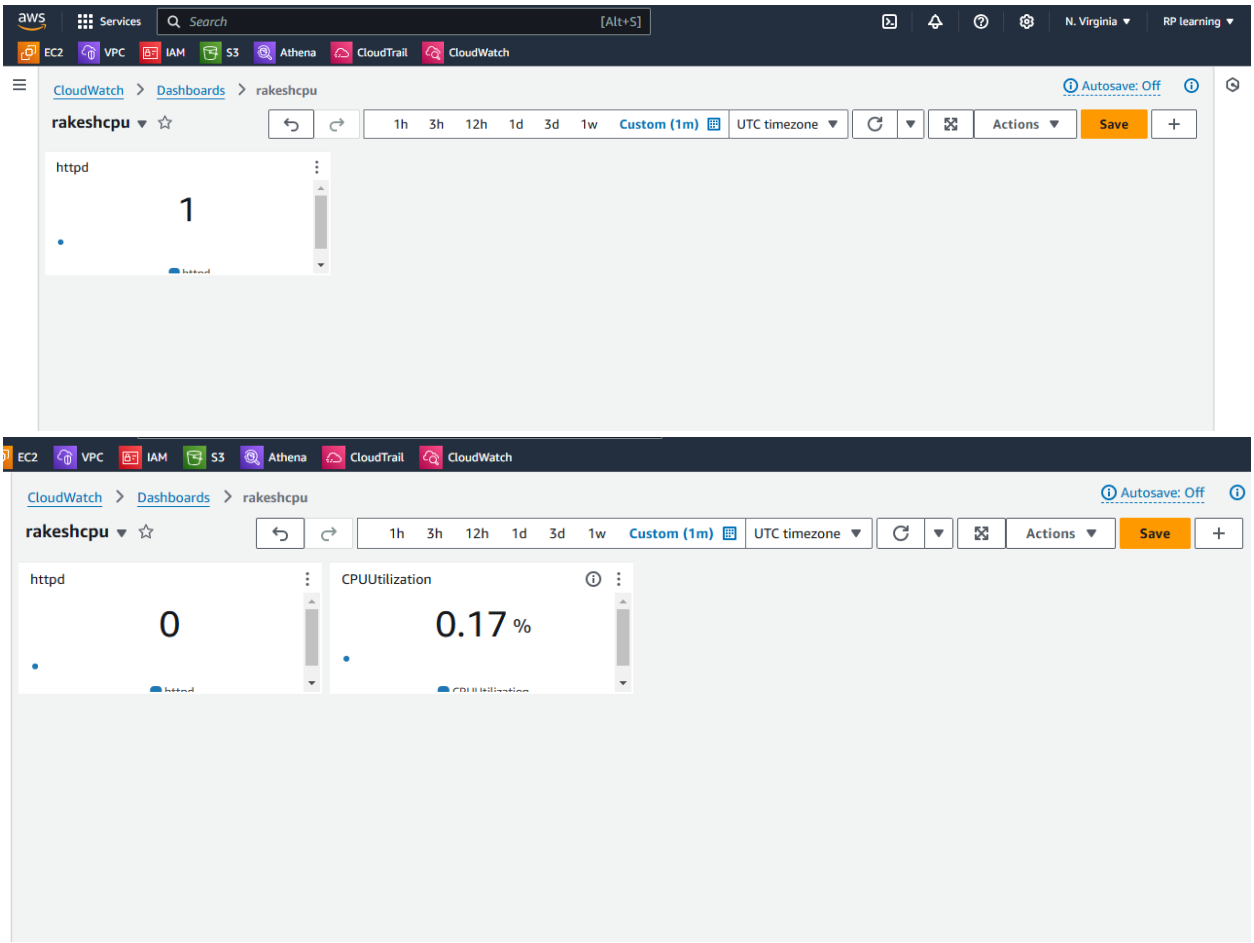

Role rakeshrole created.
View role
you trust.
Search
1
Role name
Trusted entities
Last activity
Roles Anywhere Info
Manage
Authenticate your non AWS workloads and securely provide access to AWS services.
Access AWS from your non AWS workloads
Operate your non AWS workloads using the same authentication and authorization strategy that you use within AWS.
X.509 Standard
Use your own existing PKI infrastructure or use AWS Certificate Manager Private Certificate Authority to authenticate identities.
Temporary credentials
Use temporary credentials with ease and benefit from the enhanced security they provide.



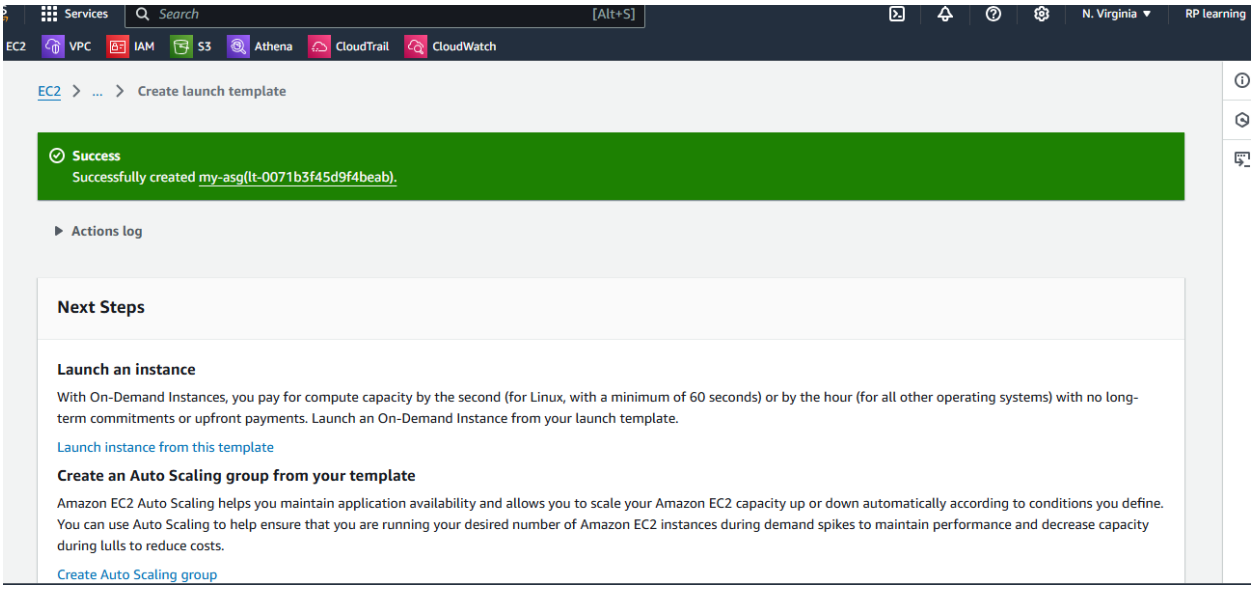
11) Create Monitoring Dashboards to monitor cpu utilization and to monitor apache service.

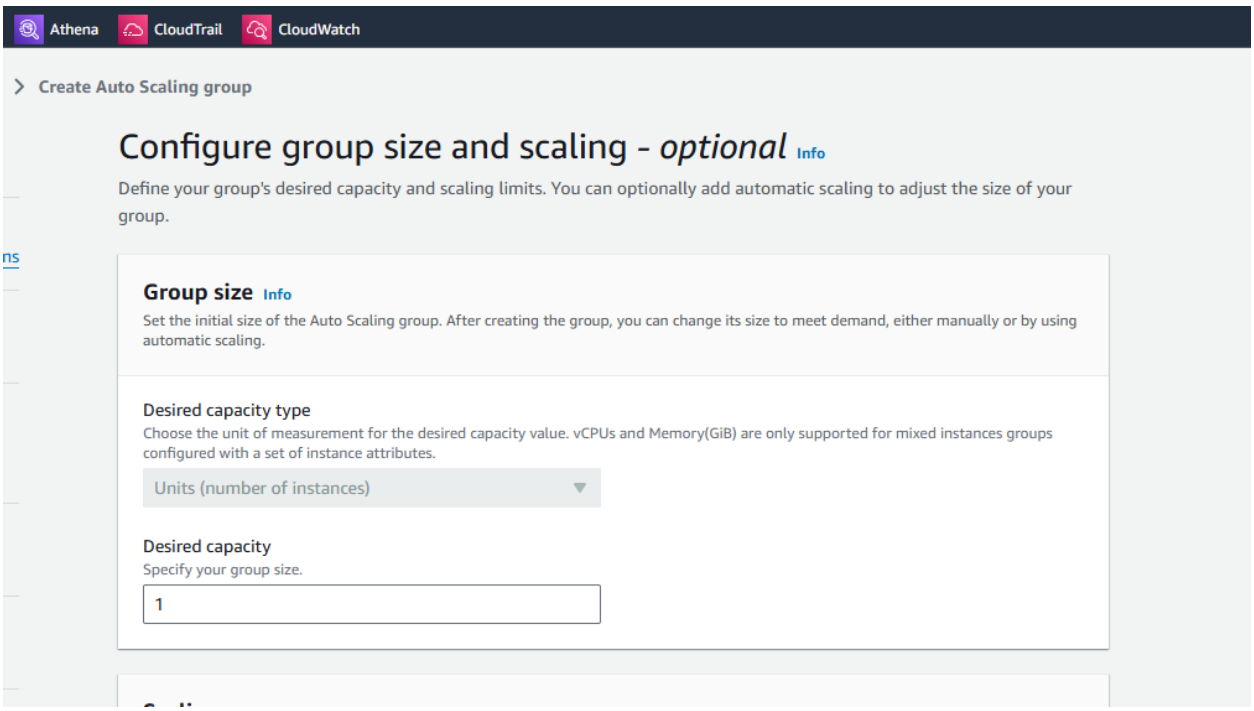
```
[root@ip-130-120-0-9 bin]#
[root@ip-130-120-0-9 bin]#
[root@ip-130-120-0-9 bin]#
[root@ip-130-120-0-9 bin]#
[root@ip-130-120-0-9 bin]# cd ~
[root@ip-130-120-0-9 ~]# vi metadata.bash
[root@ip-130-120-0-9 ~]# chmod 755 metadata.bash
[root@ip-130-120-0-9 ~]# bash meta.bash
bash: meta.bash: No such file or directory
[root@ip-130-120-0-9 ~]# ./metadata.bash
Unable to locate credentials. You can configure credentials by running "aws configure".
./metadata.bash: line 14: /root: Is a directory
[root@ip-130-120-0-9 ~]# aws configure
AWS Access Key ID [None]: AKIASVQKHJSGBOWNATLW
AWS Secret Access Key [None]: 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
Default region name [None]: us-east-1
Default output format [None]: json
[root@ip-130-120-0-9 ~]# ./metadata.bash
./metadata.bash: line 14: /root: Is a directory
[root@ip-130-120-0-9 ~]# crontab -e
no crontab for root - using an empty one
crontab: installing new crontab
"/tmp/crontab.4HdkgX":1: bad day-of-week
errors in crontab file, can't install.
Do you want to retry the same edit? y
crontab: installing new crontab
[root@ip-130-120-0-9 ~]# crontab -l
* * * * * /root/metadata.bash
[root@ip-130-120-0-9 ~]# systemctl stop httpd
You have new mail in /var/spool/mail/root
[root@ip-130-120-0-9 ~]# sudo systemctl stop httpd
[root@ip-130-120-0-9 ~]#
```





12) CPU utilizationis more than 70% then it should triggere Autoscaling and launch new instance.


Services
Search
[Alt+S]
N. Virginia
RP learning
EC2
VPC
IAM
S3
Athena
CloudTrail
CloudWatch
EC2 > ... > Create launch template
Success
Successfully created my-asg(lt-0071b3f45d9f4beab).
Actions log
Next Steps
Launch an instance
With On-Demand Instances, you pay for compute capacity by the second (for Linux, with a minimum of 60 seconds) or by the hour (for all other operating systems) with no long-term commitments or upfront payments. Launch an On-Demand Instance from your launch template.
Launch instance from this template
Create an Auto Scaling group from your template
Amazon EC2 Auto Scaling helps you maintain application availability and allows you to scale your Amazon EC2 capacity up or down automatically according to conditions you define. You can use Auto Scaling to help ensure that you are running your desired number of Amazon EC2 instances during demand spikes to maintain performance and decrease capacity during lulls to reduce costs.
Create Auto Scaling group


Athena
CloudTrail
CloudWatch
Create Auto Scaling group
Configure group size and scaling - optional Info
Define your group's desired capacity and scaling limits. You can optionally add automatic scaling to adjust the size of your group.
Group size Info
Set the initial size of the Auto Scaling group. After creating the group, you can change its size to meet demand, either manually or by using automatic scaling.
Desired capacity type
Choose the unit of measurement for the desired capacity value. vCPUs and Memory(GiB) are only supported for mixed instances groups configured with a set of instance attributes.
Units (number of instances)
Desired capacity
Specify your group size.
1

Review Info

Step 1: Choose launch template

Edit

Group details

Auto Scaling group name
auto-scaling

Launch template

Launch template	Version	Description
my-asg	Default	v1
lt-0071b3f45d9f4beab		

Step 2: Choose instance launch options

Edit

Network