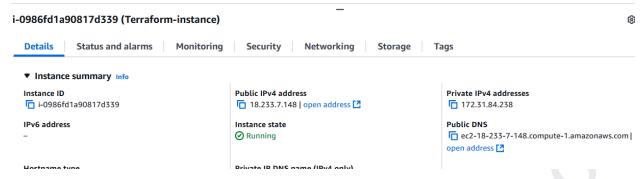
Creating an instance and installing Terraform in it



Creating a directory named folder1 and the creating a file install.sh

```
ubuntu@terraform-instance:~$ ls

folder1

ubuntu@terraform-instance:~$ cd folder1/

ubuntu@terraform-instance:~/folder1$ sudo install.sh

sudo: install.sh: command not found

ubuntu@terraform-instance:~/folder1$ sudo nano install.sh

ubuntu@terraform-instance:~/folder1$ bash install.sh
```

Content in install.sh

PublicIPs: 18.233.7.148 PrivateIPs: 172.31.84.238

https://developer.hashicorp.com/terraform/install#linux

Commands to install terraform was copied from above link

```
wbuntu@terraform-instance:-$ cd folder1/
ubuntu@terraform-instance:-$ cd folder1/
ubuntu@terraform-instance:-$ folder1$ cat install.sh
wget -0 - https://apt.releases.hashicorp.com/gpg | sudo gpg --dearmor -o /usr/share/keyrings/hashicorp-archive-keyring.gpg
echo "deb [arch=$ (dpkg --print-architecture) signed-by=/usr/share/keyrings/hashicorp-archive-keyring.gpg] https://apt.releases.hashicorp.com $ (grep -oP '(?<=UB
UNTU_CODENAMS=).*' /etc/os-release || lsb_release -cs) main" | sudo tee /etc/apt/sources.list.d/hashicorp.list
sudo apt update && sudo apt install terraform
ubuntu@terraform-instance:-/folder1$

i-0986fd1a90817d339 (Terraform-instance)
```

Installing terraform in instance

i-0986fd1a90817d339 (Terraform-instance)

PublicIPs: 18.233.7.148 PrivateIPs: 172.31.84.238

Confirming terraform installation

```
No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.

ubuntu@terraform-instance:~/folder1$ terraform --version

Terraform v1.12.1

on linux amd64
```

Creating main.tf file to write code

```
ubuntu@terraform-instance:~/folder1$ sudo nano main.tf
ubuntu@terraform-instance:~/folder1$ pwd
/home/ubuntu/folder1
ubuntu@terraform-instance:~/folder1$ sudo nano main.tf
ubuntu@terraform-instance:~/folder1$ sudo nano script.sh
ubuntu@terraform-instance:~/folder1$ terraform init
```

Content in main.tf (entire code is attached in github repo)

```
ubuntu@terraform-instance:~/folder1$ cat main.tf
provider "aws" {
 region = "us-east-1"
 access key = "AKIAQ3EGVQL5BV34MMZZ"
 secret key = "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"
# Create VPC
resource "aws vpc" "my vpc" {
 cidr block = "10.0.0.0/16"
 enab\overline{l}e dns support = true
 enable dns hostnames = true
# Create Subnet
resource "aws_subnet" "my_subnet" {
 map \overline{p}ublic ip on launch = true
 availability zone = "us-east-1b" # Set your desired availability zone
# Create Internet Gateway
resource "aws internet gateway" "my igw" {
vpc id = aws vpc.my vpc.id
```

i-0986fd1a90817d339 (Terraform-instance)

PublicIPs: 18.233.7.148 PrivateIPs: 172.31.84.238

Code in script.sh

```
ubuntu@terraform-instance:~/folder1$ cat script.sh
#!/bin/bash

sudo apt-get update -y
sudo apt-get install apache2 -y
sudo systemctl start apache2
sudo systemctl enable apache2
ubuntu@terraform-instance:~/folder1$
```

i-0986fd1a90817d339 (Terraform-instance)

PublicIPs: 18.233.7.148 PrivateIPs: 172.31.84.238

Initiated terraform, then terraform plan and apply gives following result

```
ubuntueterraform-instance:~/rolder1$ sudo nano script.sn
ubuntueterraform-instance:~/folder1$ terraform init
Initializing the backend...
Initializing provider plugins...
- Finding latest version of hashicorp/aws...
- Installing hashicorp/aws v5.98.0...
- Installed hashicorp/aws v5.98.0 (signed by HashiCorp)
Terraform has created a lock file .terraform.lock.hcl to record the provider selections it made above. Include this file in your version control repository so that Terraform can guarantee to make the same selections by default when you run "terraform init" in the future.

Terraform has been successfully initialized!

You may now begin working with Terraform. Try running "terraform plan" to see any changes that are required for your infrastructure. All Terraform commands should now work.
```

If you ever set or change modules or backend configuration for Terraform, rerun this command to reinitialize your working directory. If you forget, other commands will detect it and remind you to do so if necessary.

```
ubuntu@terraform-instance:~/folder1$ terraform plan
Terraform used the selected providers to generate the following execution plan. Resource actions are
  + create
Terraform will perform the following actions:
 # aws instance.my instance will be created
    resource "aws_instance" "my_instance" {
     + ami
                                              = "ami-084568db4383264d4"
      + arn
                                              = (known after apply)
     + associate public ip address
                                              = (known after apply)
                                              = (known after apply)
      + availability zone
      + cpu core count
                                              = (known after apply)
     + cpu threads per core
                                              = (known after apply)
     + disable_api_stop
+ disable_api_termination
+ ebs_optimized
                                             = (known after apply)
                                              = (known after apply)
                                             = (known after apply)
      + enable primary ipv6
                                             = (known after apply)
      + get password data
                                              = false
      + host id
                                             = (known after apply)
      + host resource group arn
                                             = (known after apply)
      + iam instance profile
                                             = (known after apply)
```

i-0986fd1a90817d339 (Terraform-instance)

PublicIPs: 18.233.7.148 PrivateIPs: 172.31.84.238

```
ubuntu@terraform-instance:~/folder1$ terraform apply
Terraform used the selected providers to generate the following execution plan. Resource actions are in
Terraform will perform the following actions:
 # aws instance.my instance will be created
   resource "aws_instance" "my_instance" {
      + ami
                                                = "ami-084568db4383264d4"
      + arn
                                                = (known after apply)
      + associate_public_ip_address
+ availability_zone
                                                = (known after apply)
                                                = (known after apply)
      + cpu core count
                                                = (known after apply)
      + cpu_threads_per_core
+ disable_api_stop
+ disable_api_termination
                                                = (known after apply)
                                                = (known after apply)
                                                = (known after apply)
                                                = (known after apply)
      + ebs optimized
      + enable_primary_ipv6
                                                = (known after apply)
      + get password data
                                                = false
                                                = (known after apply)
        host_id
        host resource group arn
                                                = (known after apply)
```

i-0986fd1a90817d339 (Terraform-instance)

PublicIPs: 18.233.7.148 PrivateIPs: 172.31.84.238

```
aws_vpc.my_vpc: Creating...
aws_vpc.my_vpc: Still creating... [00ml0s elapsed]
aws_vpc.my_vpc: Creation complete after 11s [id=vpc-06fdf0e603b44884c]
aws_subnet.my_subnet: Creating...
aws_internet_gateway.my_igw: Creating...
aws_internet_gateway.my_igw: Creating...
aws_internet_gateway.my_igw: Creation complete after 1s [id=igw-0707a80f404eff134]
aws_route_table.my_route_table: Creating...
aws_route_table.my_route_table: Creation complete after 1s [id=rtb-05d90b24b4a444f7a]
aws_route_table.my_route_table: Creation complete after 3s [id=sg-03c2a19eld3f74f86]
aws_subnet.my_subnet: Still creating... [00ml0s elapsed]
aws_subnet.my_subnet: Creation complete after 11s [id=subnet-088a5211c642fd86c]
aws_subnet.my_subnet: Creation...
aws_route_table_association.my_subnet_association: Creating...
aws_route_table_association.my_subnet_association: Creation complete after 1s [id=rtbassoc-0a5ed3d1279789cc7]
aws_instance.my_instance: Still creating... [00ml0s_elapsed]
aws_instance.my_instance: Creation complete after 13s [id=i-0faa7cf6fcc6c5d20]

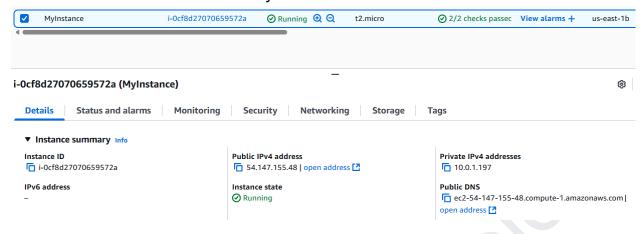
Apply_complete! Resources: 7 added, 0 changed, 0 destroyed.

Outputs:
instance_ip = "107.20.23.218"
ubuntu@terraform_instance:-/folder1$
```

i-0986fd1a90817d339 (Terraform-instance)

PublicIPs: 18.233.7.148 PrivateIPs: 172.31.84.238

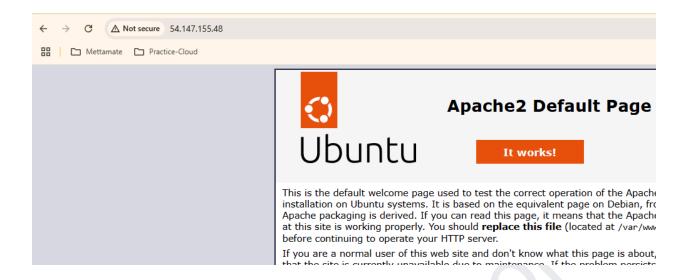
New instance launched named MyInstance



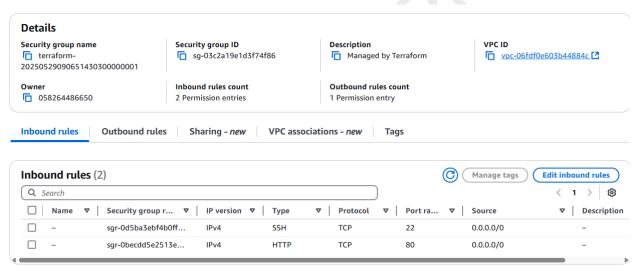
Checking apache2 server at new instance ip

i-0cf8d27070659572a (MyInstance)

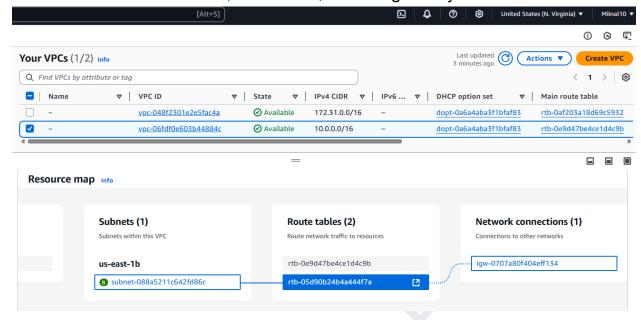
PublicIPs: 54.147.155.48 PrivateIPs: 10.0.1.197



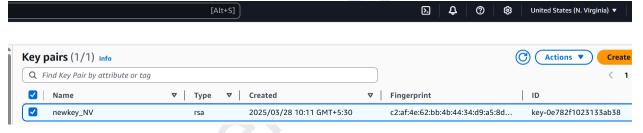
Security group got created



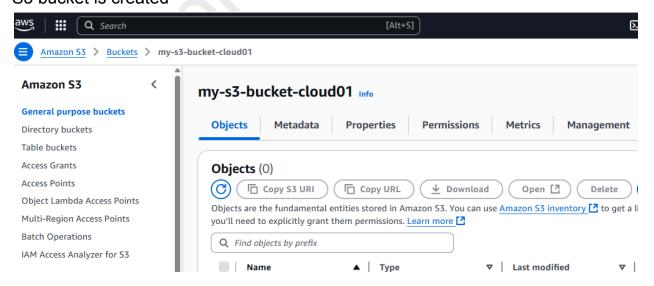
VPC is created with subnets, route table, Internet gateway



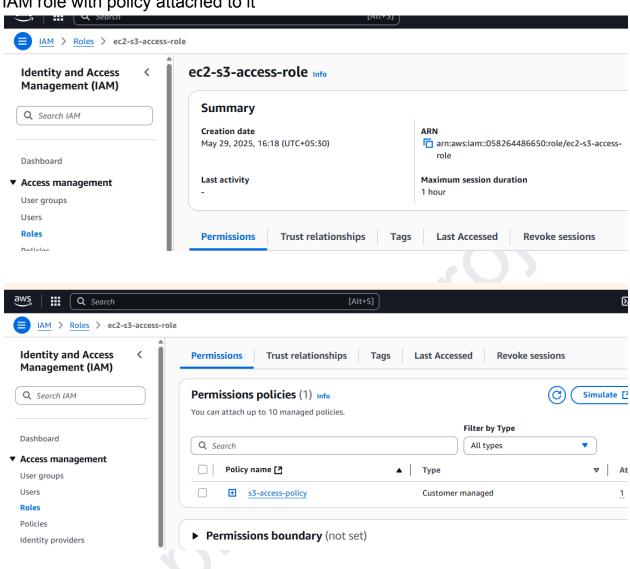
Keypair



S3 bucket is created



IAM role with policy attached to it



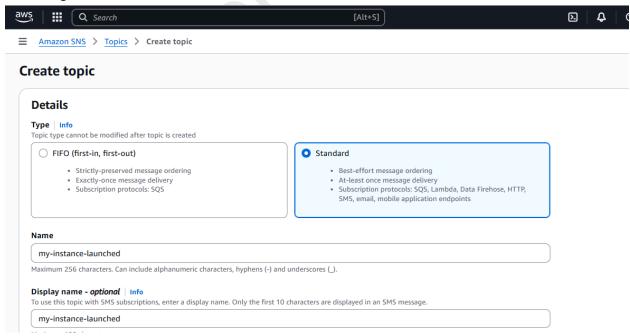
Commands used as follows:

```
ubuntu@terraform-instance:~$ history
   1 sudo hostnamectl set-hostname terraform-instance
   2
      sudo apt-get update
   3
      clear
      mkdir folder1
      ls
      cd folder1/
      sudo install.sh
      sudo nano install.sh
   9 bash install.sh
  10 terraform --version
  11 sudo nano main.tf
  12 pwd
  13 sudo nano main.tf
  14 sudo nano script.sh
  15
      terraform init
  16
      terraform plan
  17
      terraform apply --syntax-check
  18
      terraform apply
  19
      clear
  20 history
ubuntu@terraform-instance:~$
```

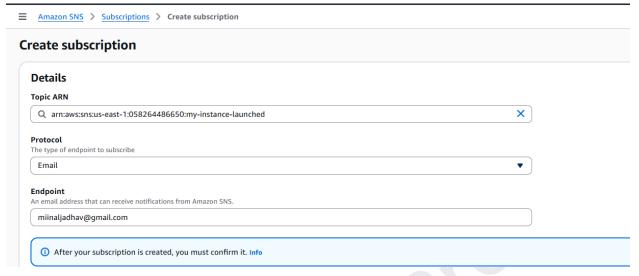
i-0986fd1a90817d339 (Terraform-instance)

PublicIPs: 18.233.7.148 PrivateIPs: 172.31.84.238

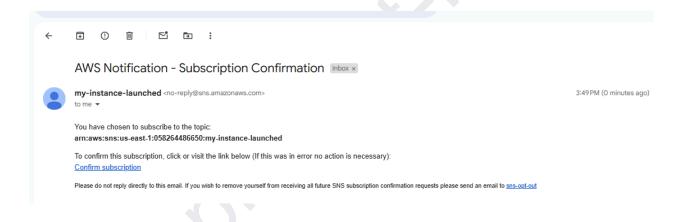
Creating SNS notification



Creating subscription to get notification on email



Received an email







Simple Notification Service

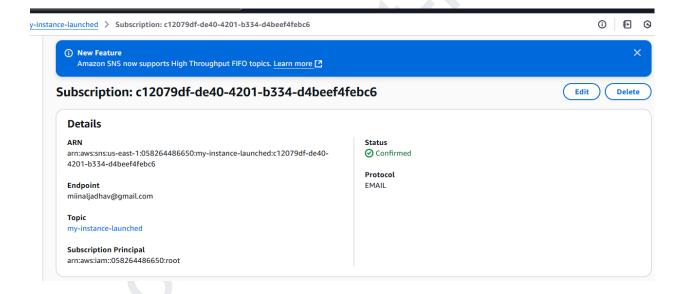
Subscription confirmed!

You have successfully subscribed.

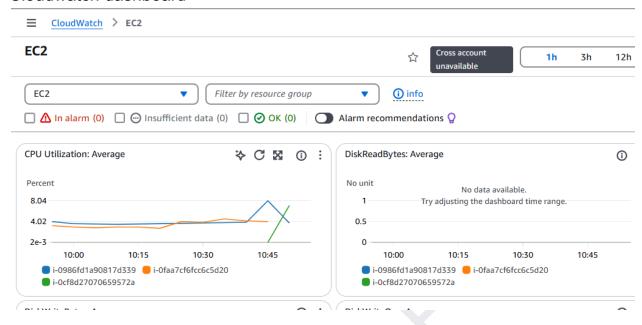
Your subscription's id is:

arn:aws:sns:us-east-1:058264486650:my-instance-launched:c12079df-de40-4201-b334-d4beef4febc6

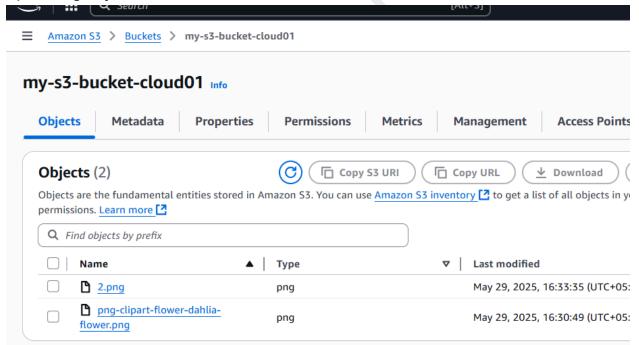
If it was not your intention to subscribe, click here to unsubscribe.



Cloudwatch dashboard



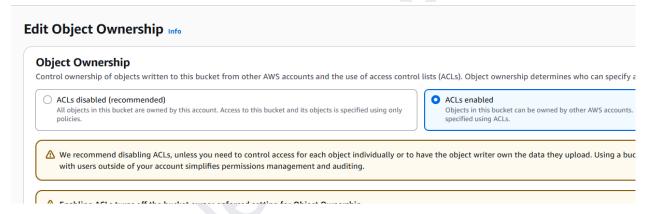
Uploading objects in s3 bucket



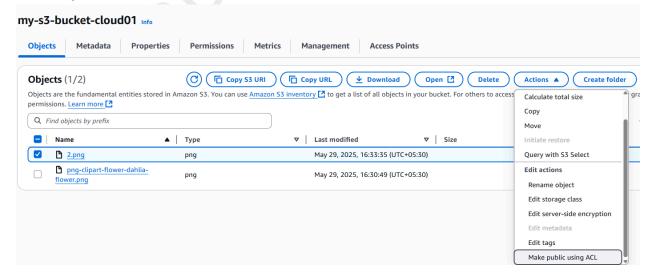
Objects are not public hence not visible through URL

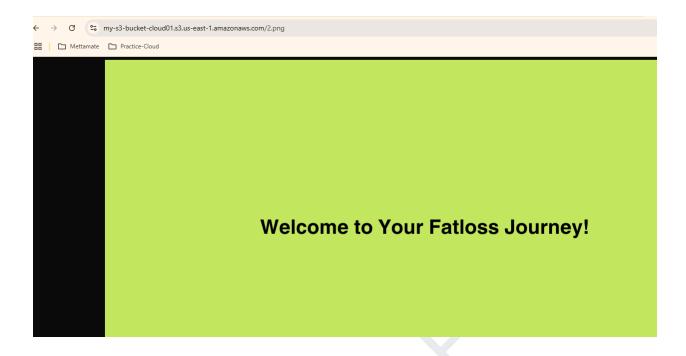


Removing block access and enabling ACLs to make objects public

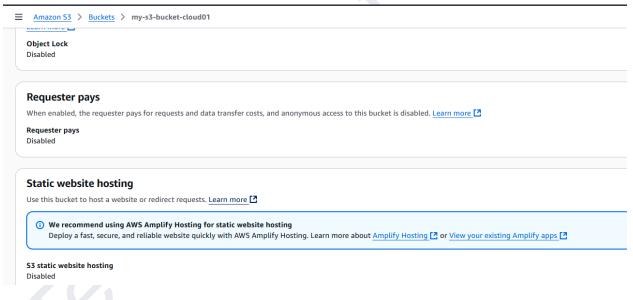


Now objects are public

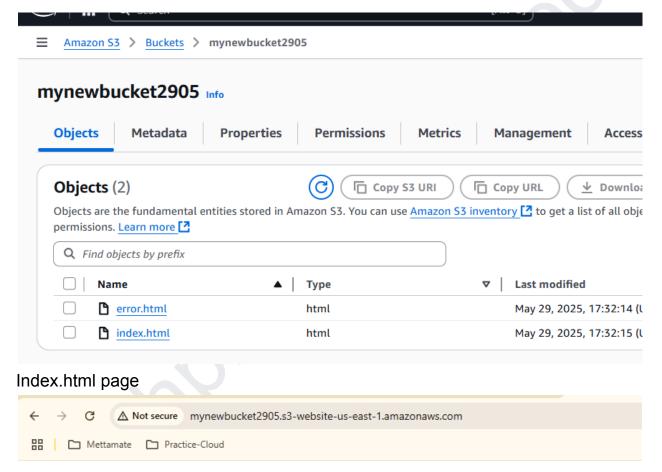




Creating a static website







Welcome to Techplement Internship Program

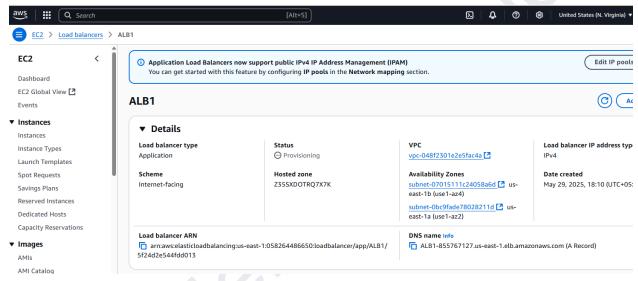
This is 1 month program for AWS Cloud Engineer

Error page

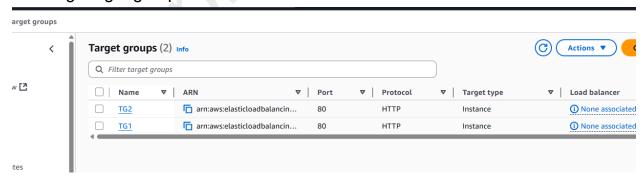


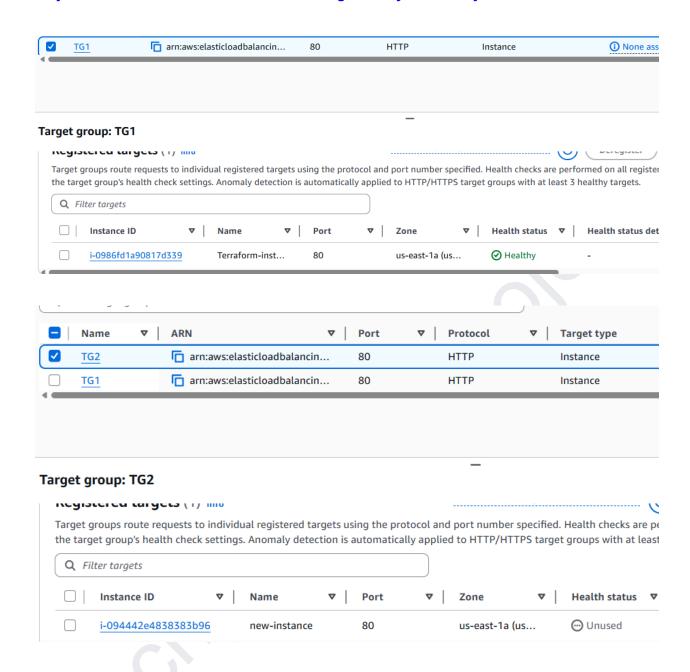
No display. ERROR

Creating Application load balancer

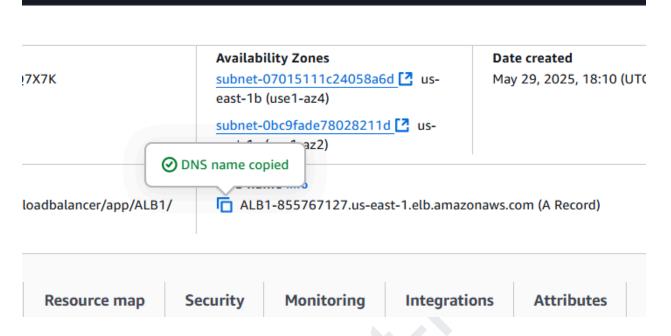


Creating Target group TG1 & TG2

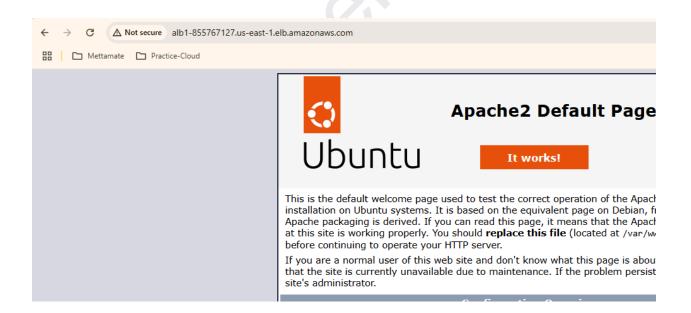




Copied DNS of ALB



Server1: 70% traffic



Content in index.html of server2

```
ubuntu@ip-172-31-87-29:~$ cd /var/www/html
ubuntu@ip-172-31-87-29:/var/www/html$ ls
index.html
ubuntu@ip-172-31-87-29:/var/www/html$ cat index.html
<h1>This is server2<h1>
This instance is created for demostrating Load balancer
ubuntu@ip-172-31-87-29:/var/www/html$
```

i-094442e4838383b96 (new-instance)

PublicIPs: 44.204.171.215 PrivateIPs: 172.31.87.29

Server2: 30% traffic



This is server2

This instance is created for demostrating Load balancer