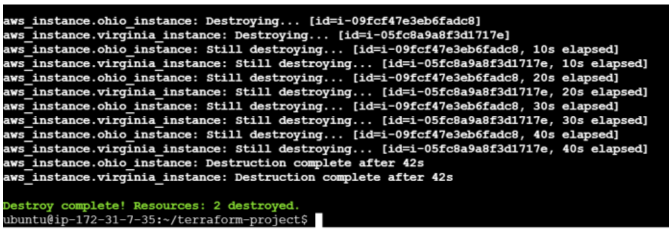
Terraform Assignment - 4

You have been asked to:

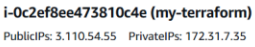
- Destroy the previous deployments
- Create a VPC with the required components using Terraform
- Deploy an EC2 instance inside the VPC

Solution:

1) Run Terraform Destroy:



```
aws_instance.ohio_instance: Destroying... [id=i-09fcf47e3eb6fadc8]
aws_instance.virginia_instance: Destroying... [id=i-05fc8a9a8f3d1717e]
aws_instance.ohio_instance: Still destroying... [id=i-09fcf47e3eb6fadc8, 10s elapsed]
aws_instance.virginia_instance: Still destroying... [id=i-05fc8a9a8f3d1717e, 10s elapsed]
aws_instance.ohio_instance: Still destroying... [id=i-09fcf47e3eb6fadc8, 20s elapsed]
aws_instance.virginia_instance: Still destroying... [id=i-05fc8a9a8f3d1717e, 20s elapsed]
aws_instance.ohio_instance: Still destroying... [id=i-09fcf47e3eb6fadc8, 30s elapsed]
aws_instance.virginia_instance: Still destroying... [id=i-05fc8a9a8f3d1717e, 30s elapsed]
aws_instance.ohio_instance: Still destroying... [id=i-09fcf47e3eb6fadc8, 40s elapsed]
aws_instance.virginia_instance: Still destroying... [id=i-05fc8a9a8f3d1717e, 40s elapsed]
aws_instance.ohio_instance: Destruction complete after 42s
aws_instance.virginia_instance: Destruction complete after 42s

Destroy complete! Resources: 2 destroyed.
ubuntu@ip-172-31-7-35:~/terraform-project$
```

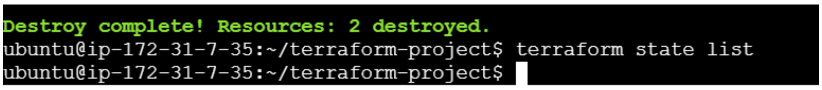


i-0c2ef8ee473810c4e (my-terraform)

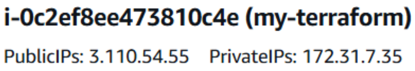
PublicIPs: 3.110.54.55   PrivateIPs: 172.31.7.35

2) Verify : terraform state list

The output should be empty if all resources have been destroyed.



```
Destroy complete! Resources: 2 destroyed.
ubuntu@ip-172-31-7-35:~/terraform-project$ terraform state list
ubuntu@ip-172-31-7-35:~/terraform-project$
```



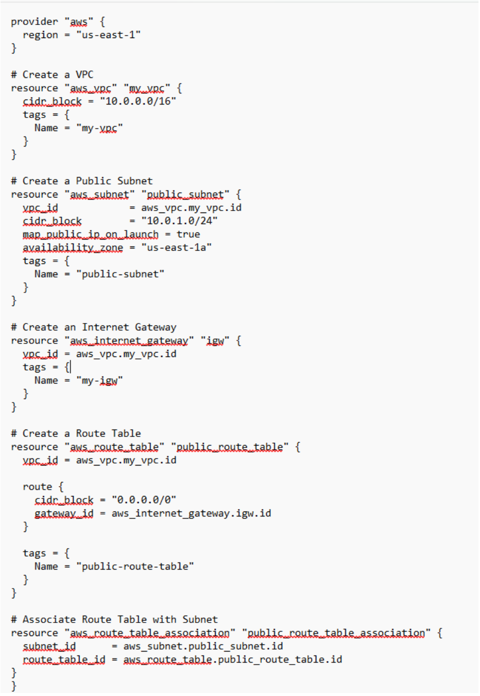
i-0c2ef8ee473810c4e (my-terraform)

PublicIPs: 3.110.54.55   PrivateIPs: 172.31.7.35

3) Terraform Configuration for the VPC:

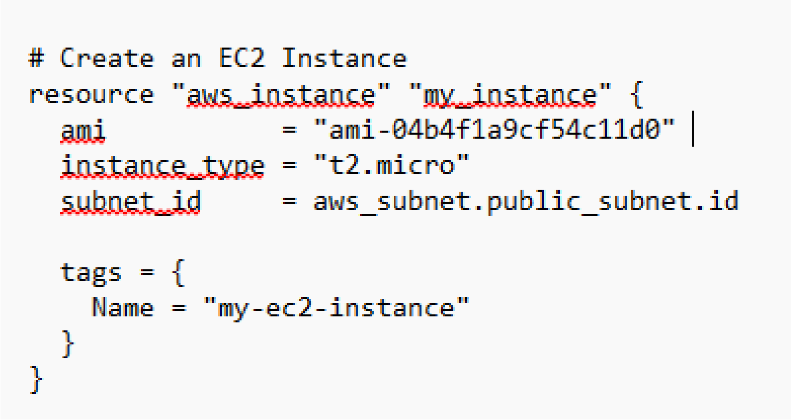
We will create the following components:

A custom VPC,Subnets,Internet Gateway,Route Tables and Routes.



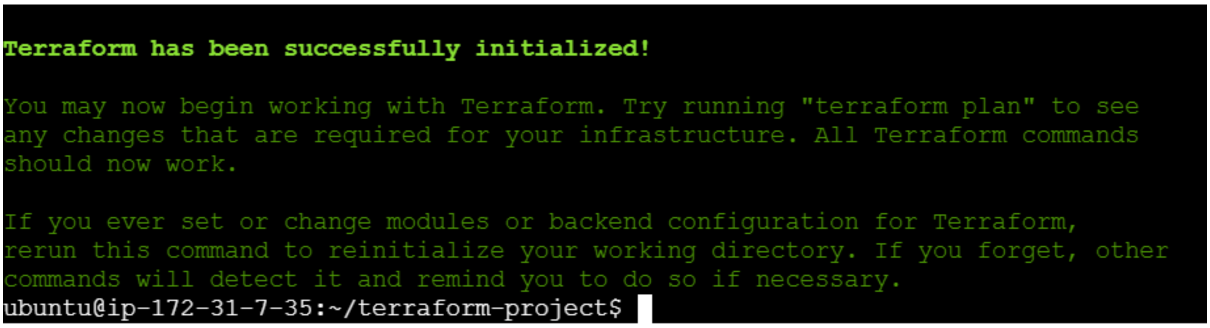
```
provider "aws" {
  region = "us-east-1"
}

# Create a VPC
resource "aws_vpc" "my_vpc" {
  cidr_block = "10.0.0.0/16"
  tags = {
    Name = "my-vpc"
  }
}

# Create a Public Subnet
resource "aws_subnet" "public_subnet" {
  vpc_id                  = aws_vpc.my_vpc.id
  cidr_block              = "10.0.1.0/24"
  map_public_ip_on_launch = true
  availability_zone = "us-east-1a"
  tags = {
    Name = "public-subnet"
  }
}

# Create an Internet Gateway
resource "aws_internet_gateway" "igw" {
  vpc_id = aws_vpc.my_vpc.id
  tags = {
    Name = "my-igw"
  }
}

# Create a Route Table
resource "aws_route_table" "public_route_table" {
  vpc_id = aws_vpc.my_vpc.id

  route {
    cidr_block = "0.0.0.0/0"
    gateway_id = aws_internet_gateway.igw.id
  }

  tags = {
    Name = "public-route-table"
  }
}

# Associate Route Table with Subnet
resource "aws_route_table_association" "public_route_table_association" {
  subnet_id      = aws_subnet.public_subnet.id
  route_table_id = aws_route_table.public_route_table.id
}
}
```

4) Deploy an EC2 Instance Inside the VPC: Add the following block to deploy an EC2 instance in the public subnet

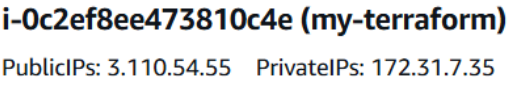


```
# Create an EC2 Instance
resource "aws_instance" "my_instance" {
  ami           = "ami-04b4f1a9cf54c11d0"
  instance_type = "t2.micro"
  subnet_id     = aws_subnet.public_subnet.id

  tags = {
    Name = "my-ec2-instance"
  }
}
```

5) Initialize Terraform:



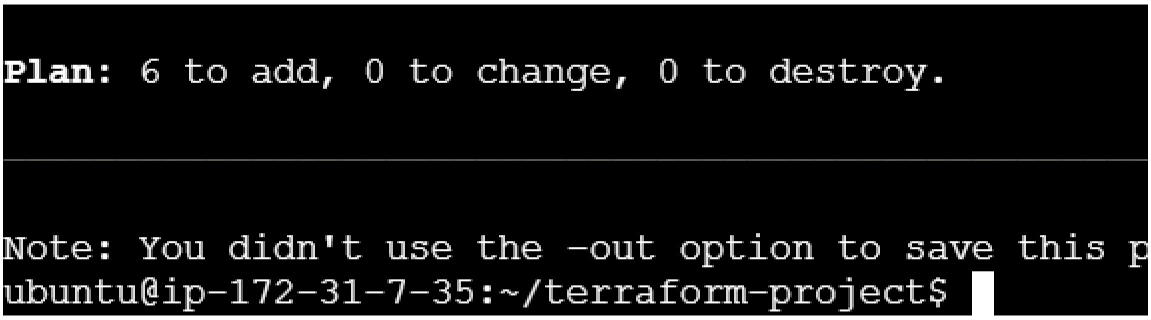
```
Terraform has been successfully initialized!

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@ip-172-31-7-35:~/terraform-project$
```



i-0c2ef8ee473810c4e (my-terraform)

PublicIPs: 3.110.54.55   PrivateIPs: 172.31.7.35

6) Plan:

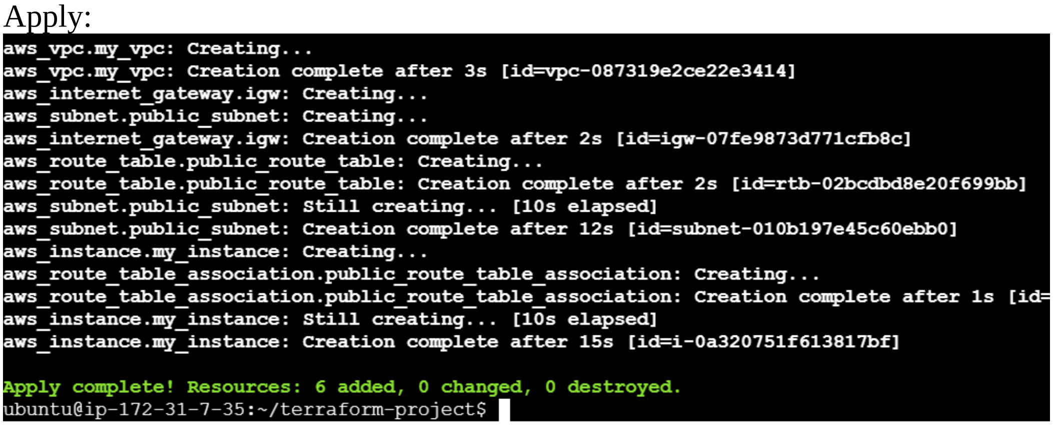


```
Plan: 6 to add, 0 to change, 0 to destroy.

Note: You didn't use the -out option to save this p
ubuntu@ip-172-31-7-35:~/terraform-project$
```

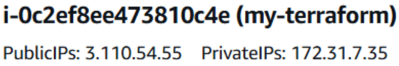
i-0c2ef8ee473810c4e (my-terraform)

PublicIPs: 3.110.54.55   PrivateIPs: 172.31.7.35

7) Apply:



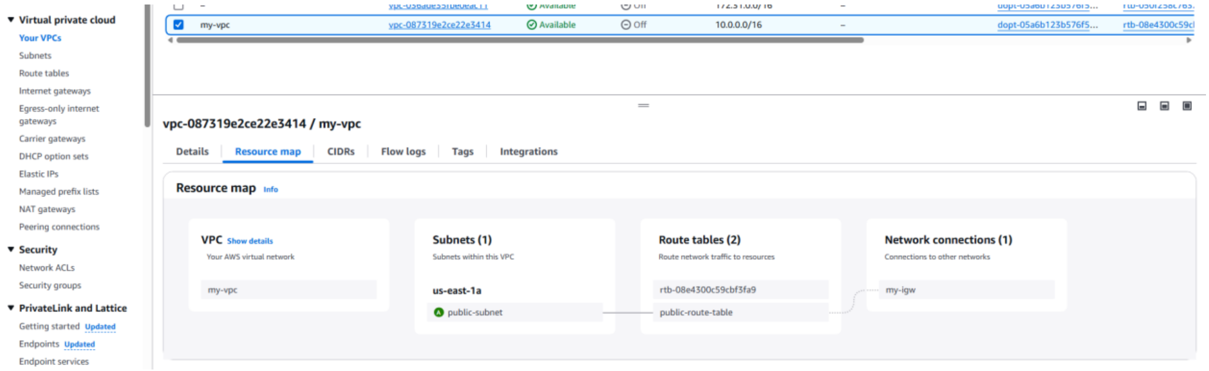
```
aws_vpc.my_vpc: Creating...
aws_vpc.my_vpc: Creation complete after 3s [id=vpc-087319e2ce22e3414]
aws_internet_gateway.igw: Creating...
aws_subnet.public_subnet: Creating...
aws_internet_gateway.igw: Creation complete after 2s [id=igw-07fe9873d771cfb8c]
aws_route_table.public_route_table: Creating...
aws_route_table.public_route_table: Creation complete after 2s [id=rtb-02bcdbd8e20f699bb]
aws_subnet.public_subnet: Still creating... [10s elapsed]
aws_subnet.public_subnet: Creation complete after 12s [id=subnet-010b197e45c60ebb0]
aws_instance.my_instance: Creating...
aws_route_table_association.public_route_table_association: Creating...
aws_route_table_association.public_route_table_association: Creation complete after 1s [id=
aws_instance.my_instance: Still creating... [10s elapsed]
aws_instance.my_instance: Creation complete after 15s [id=i-0a320751f613817bf]

Apply complete! Resources: 6 added, 0 changed, 0 destroyed.
ubuntu@ip-172-31-7-35:~/terraform-project$
```



i-0c2ef8ee473810c4e (my-terraform)

PublicIPs: 3.110.54.55   PrivateIPs: 172.31.7.35

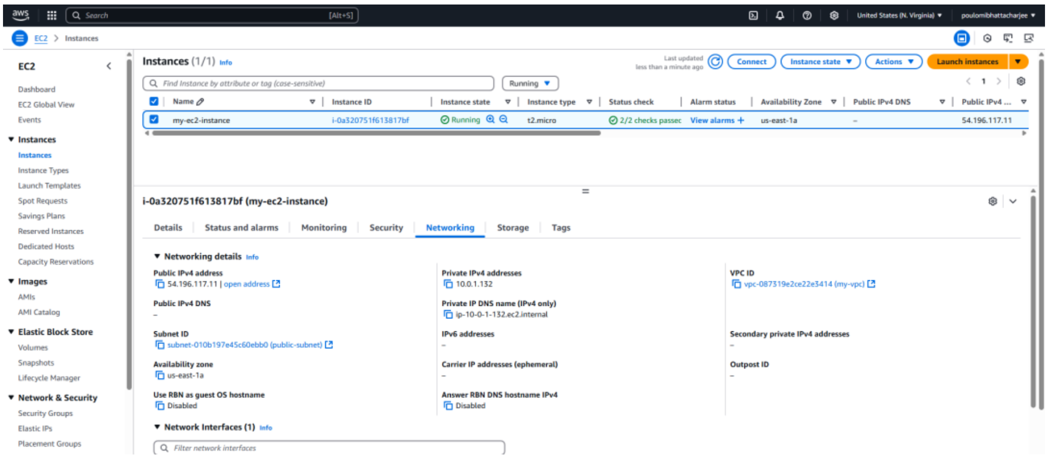
8) Verify : go to the VPC Dashboard, and ensure the VPC, subnet, Internet Gateway, and route table were created.



☑ my-vpc vpc-087319e2ce22e3414 Available Off 10.0.0.0/16 – dopt-05a6b123b576f5... rtb-08e4300c59c

vpc-087319e2ce22e3414 / my-vpc

In the EC2 Dashboard, ensure the instance is running and attached to the correct subnet.



Instances (1/1) Info

☑	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...
☑	my-ec2-instance	i-0a320751f613817bf	✓ Running	t2.micro	✓ 2/2 checks passec	View alarms +	us-east-1a	–	54.196.117.11

i-0a320751f613817bf (my-ec2-instance)

▼ Networking details Info

Public IPv4 address
54.196.117.11 | open address

Public IPv4 DNS
–

Subnet ID
subnet-010b197e45c60ebb0 (public-subnet)

Availability zone
us-east-1a

Use RBN as guest OS hostname
Disabled

Private IPv4 addresses
10.0.1.132

Private IP DNS name (IPv4 only)
ip-10-0-1-132.ec2.internal

IPv6 addresses
–

Carrier IP addresses (ephemeral)
–

Answer RBN DNS hostname IPv4
Disabled

VPC ID
vpc-087319e2ce22e3414 (my-vpc)

Secondary private IPv4 addresses
–

Outpost ID
–

▼ Network Interfaces (1) Info