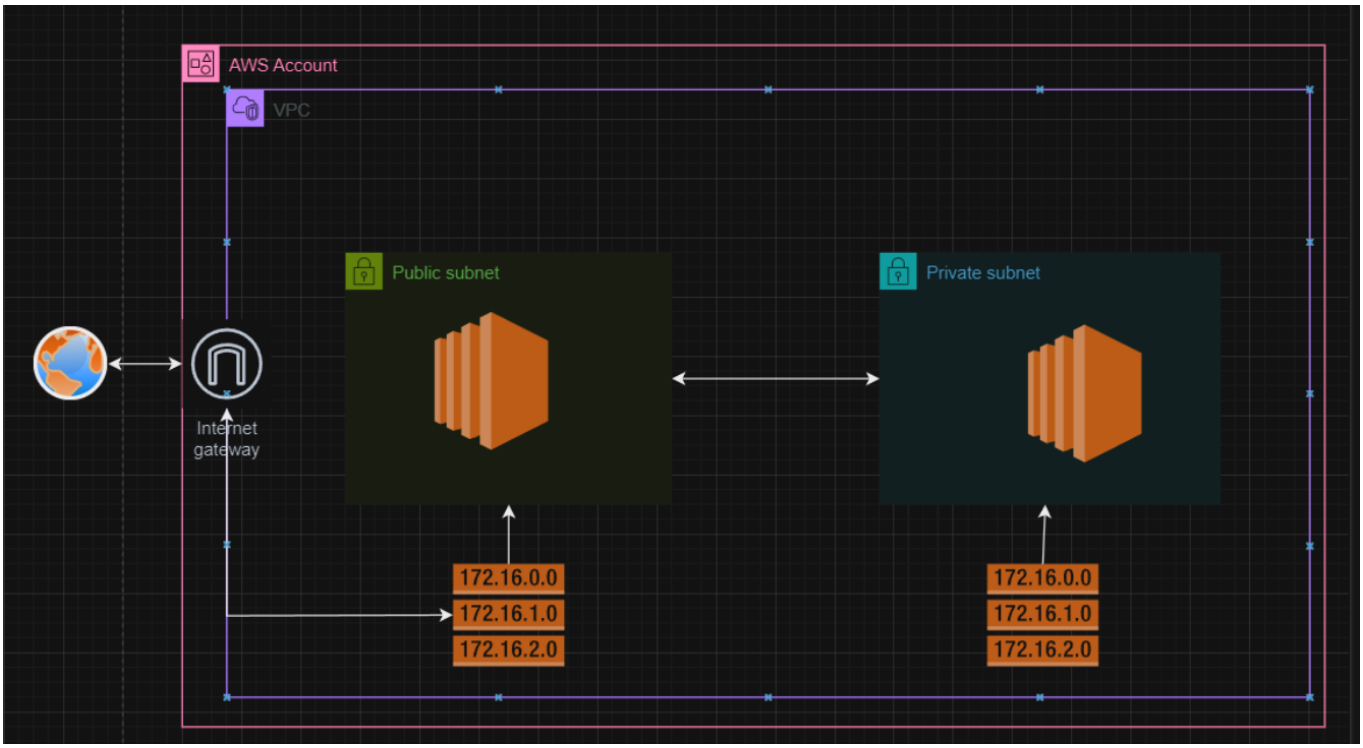
# VPC

Created AWS Account.

Putty and Mobxtream Install

Arch created.




VPC CREATING NOTES

# VPC

What is VPC?

- A Virtual Private Cloud (VPC) is a private network within a public cloud environment, providing isolated, secure cloud resources. It combines the flexibility and scalability of cloud computing with the security and control of a private network.

1.**Isolation**: VPCs provide logically isolated network environments within a public cloud, ensuring that resources within a VPC are protected from unauthorized access.

2.**Subnetting**: Users can divide a VPC into multiple subnets, each with its own range of IP addresses. This allows for efficient allocation of resources and management of traffic within the VPC.\

3.**Security**: VPCs support advanced security features, such as network ACLs (Access Control Lists) and security groups, to control inbound and outbound traffic at both the instance and subnet levels.

4.- **Customization**: Users can configure their VPC to suit their specific needs, including custom IP address ranges, route tables, and gateways.

5.**Connectivity**: VPCs can connect to on-premises data centres via VPN (Virtual Private Network) or dedicated connections, facilitating hybrid cloud setups.

## VPC Creation:

- In every AWS account there was a default vpc.

Go to VPC in AWS account -> create VPC -> select VPC only -> Name tag (enter the name for VPC) -> select the IPV4 CIDR manual input -> enter the Ip range based on requirement E.G(20.0.0.0/22) (1024)IP -> If we need we can create select the IPV6 also. -> we can create a multiple name Tag. -> select the Create VPC.

## Important Details.

CIDR

- it Contains details about IPV4

FLOW LOGS

- Flow log is used to contain the details about VPC communicating in coming and out going Tags
- tag contains multiple names of VPC

# Creating Subnet

What is Subnet?

- A subnet, or subnetwork, is a segmented portion of a larger network, designed to organize and optimize the network's performance, security, and manageability.
- now we have 1024 ip we go split into 2. so we need to create 2 subnet contain subnet 1(512 )ip and subnet 2 (512)ip.

### creating subnet 1

Go to subnet -> Create Subnet -> select the VPC which we created -> subnet name (split 1) -> enter the ip range inside a IPv4 subnet CIDR block (20.0.0.0/23) -> if you need create tags -> click create subnet.

### creating subnet 2

Go to subnet -> Create Subnet -> select the VPC which we created -> subnet name (split 2) -> enter the ip range inside a IPv4 subnet CIDR block (20.0.2.0/23) -> if you need create tags -> click create subnet.

- after creating the subnet we need to give permission for communicate outer world

### creating a public communication

select the public subnet -> select actions -> Edit subnet setting -> enable the auto-assign public IPV4 address -> save.

## Create a internet Gateway.

- internet Gateway it is used to communicate with outside world

go to Internet Gateway -> select Create Internet gateway -> Name tag (gateway) -> click create Internet Gateway.

### Connect with VPC

select internet gateway we created -> actions -> attach to VPC -> select the vpc we created -> attach internet gateway

## Create Route tables

- Route table is used to create a root for communicate each other.
- we need to create a 2 route table

### Route table 1

Go to Route table -> create route table -> Name of the route table (public) -> select the VPC -> if you need create tags -> Create Route Table.

### Route table 2

Go to Route table -> create route table -> Name of the route table (private) -> select the VPC -> if you need create tags -> Create Route Table.

### Attach subnet 1 to public Route table\

select the public route table -> go to subnet associations -> select Edit subnet associations -> select the splatted subnet like : split 1 -> save associations -> check in the subnet associations place.

### Attach subnet 2 to public Route table

select the private route table -> go to subnet associations -> select Edit subnet associations -> select the splatted subnet like : split 2 -> save associations -> check in the subnet associations place.

- we need to connect public route table into internet
  (0.0.0.0/0) <- used to communicate with internet

select the public route table -> routes -> edit routes -> select add route -> enter (0.0.0.0/0) -> select internet gateway -> select eh gateway we created -> save changes.

- now the public network can communicate with internet

## EC2 Creation

- EC2 is a instance to launch the virtual environment.

Go to EC2 -> select the launch instances -> Name and tags (public ec2) -> select the OS we needed based on system spec -> Select the instance type based on requirements -> key pair (it is used to communicate the ec2 in other machine)  enter a key name and create it will download the encrypted file -> network setting ->edit -> select the VPC we created  -> select the public subnet we created -> Launch instance

Create for private service

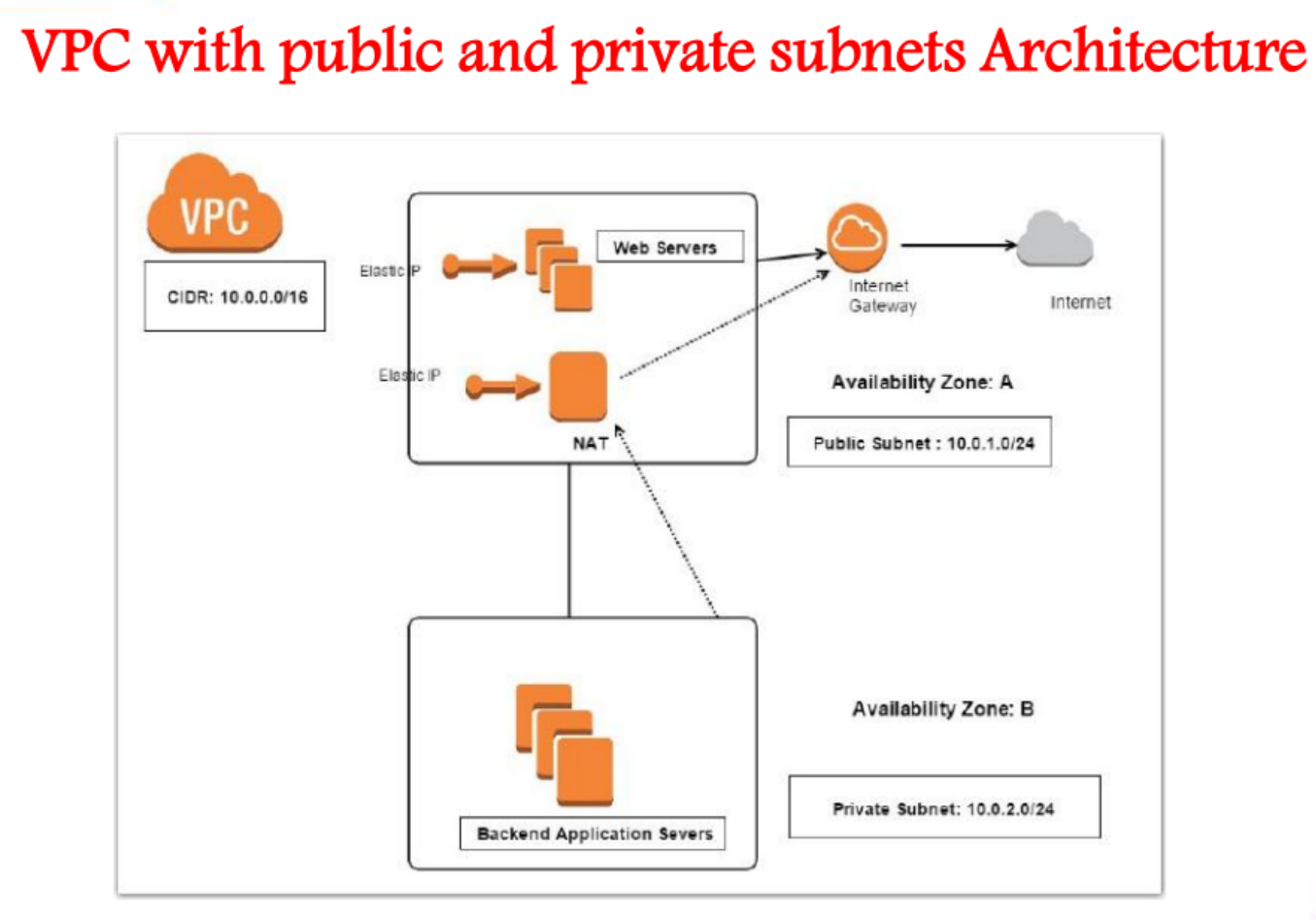
Go to EC2 -> select the launch instances -> Name and tags (public ec2) -> select the OS we needed based on system spec -> Select the instance type based on requirements -> key pair (it is used to communicate the ec2 in other machine)  enter a key name and create it will download the encrypted file -> network setting ->edit -> select the VPC we created  -> select the private subnet we created -> Launch instance

## Connecting the ec2 server from Command prompt

go to command prompt -> go to downloads -> enter this line to connect with ec2 public -> ssh -i keypath.pem ec2-user@34.229.95.111 -> it will connect with EC2 public linux
ssh -i keypath.pem(key name) ec2-user@(no change)34.229.95.111(ip address of server)

# VPC

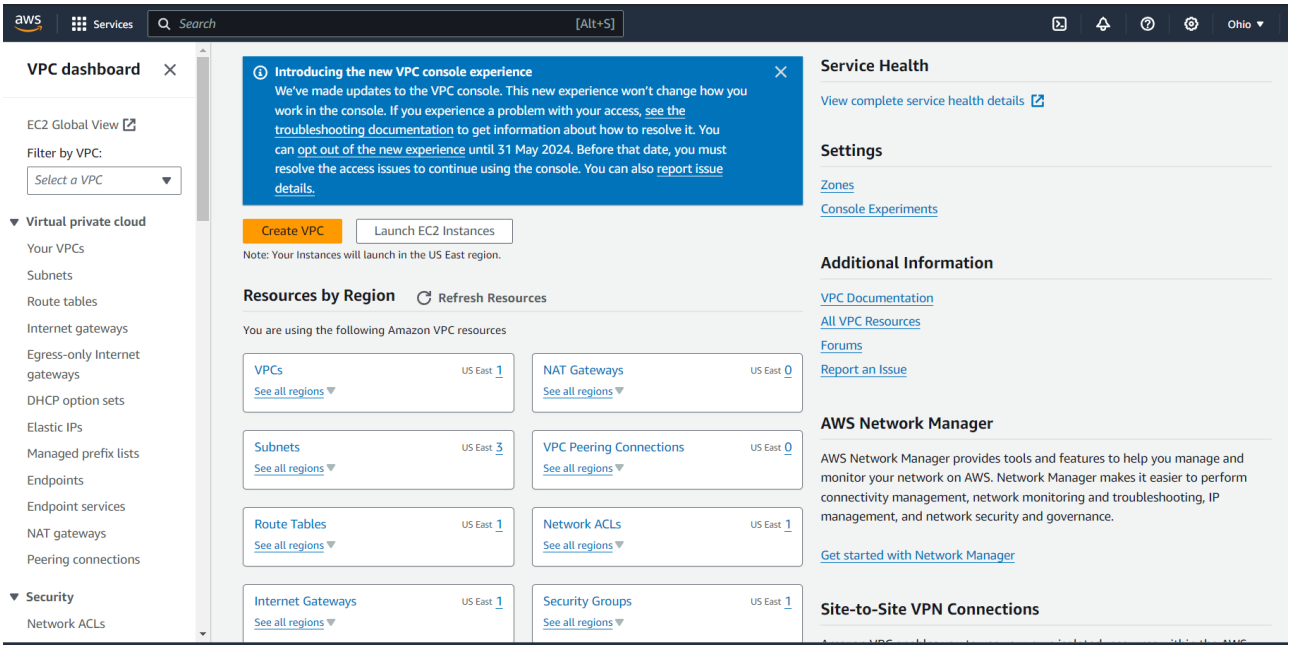
VPC -> Virtual private cloud




- EC2 ->
- RT ->

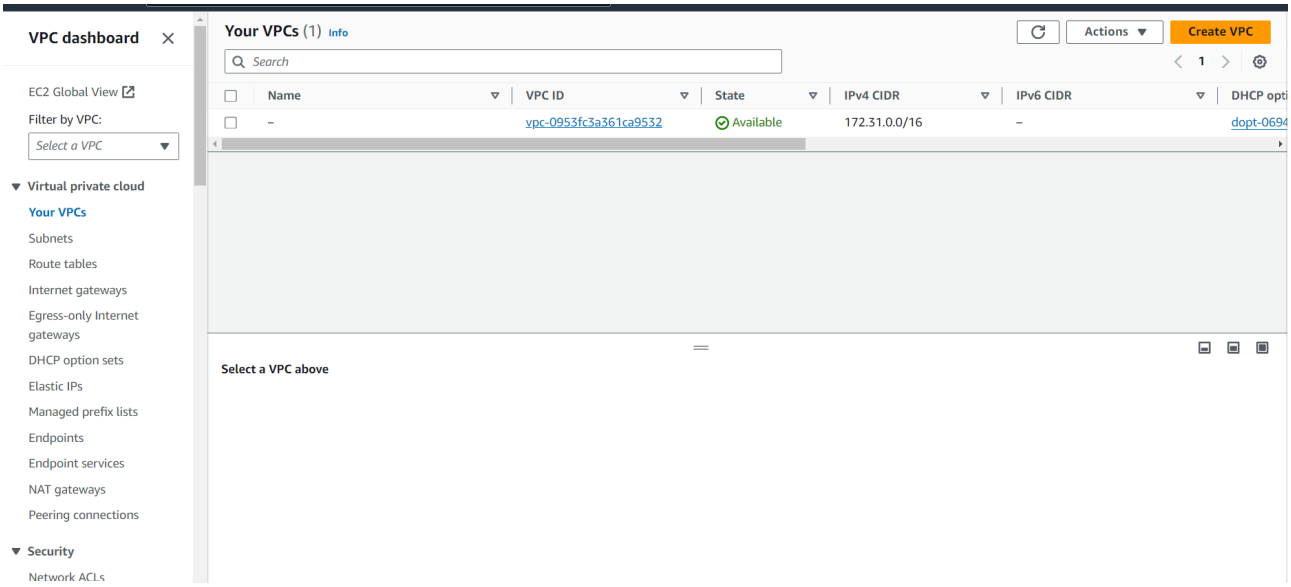
- NAT ->
- VPC ->
- IGW ->

step 1:




Go to your VPC

step 2:




Create VPC

step 3:

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.

**VPC settings**

Resources to create Info

Create only the VPC resource or the VPC and other networking resources.

- (•) VPC only
- ( ) VPC and more

Name tag - *optional*

Creates a tag with a key of 'Name' and a value that you specify.

vpc1

IPv4 CIDR block Info

- (•) IPv4 CIDR manual input
- ( ) IPAM-allocated IPv4 CIDR block

IPv4 CIDR

192.168.0.0/16

CIDR block size must be between /16 and /28.

IPv6 CIDR block Info

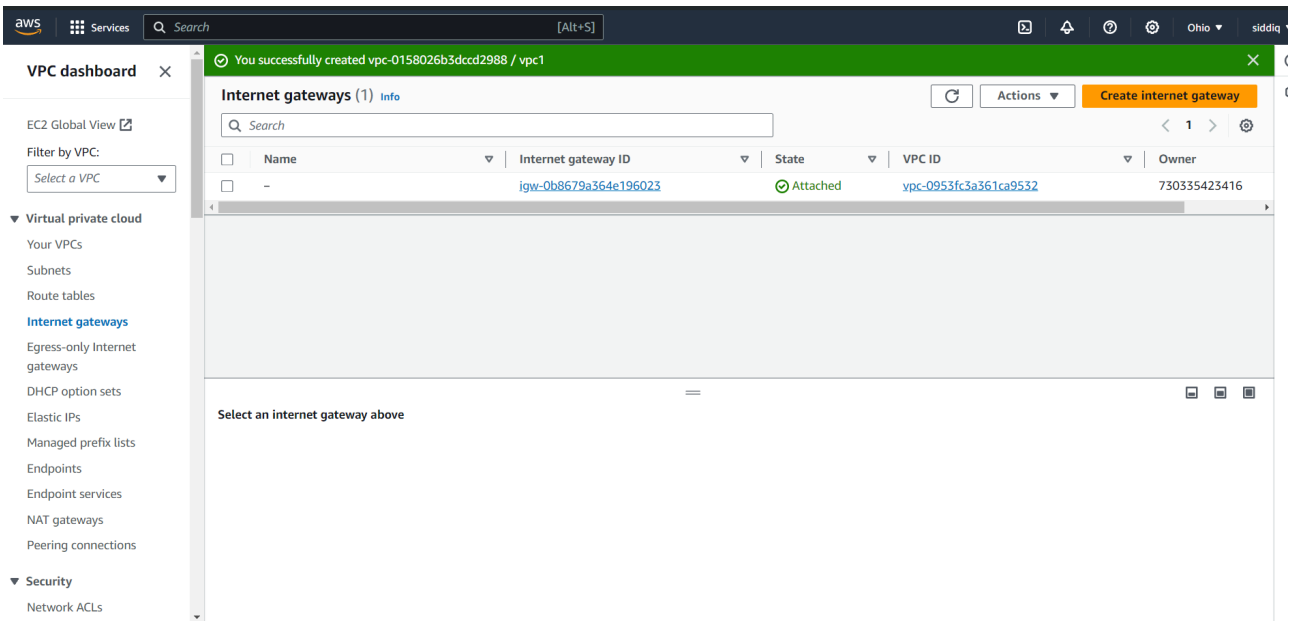
- (•) No IPv6 CIDR block
- ( ) IPAM-allocated IPv6 CIDR block
- ( ) Amazon-provided IPv6 CIDR block
- ( ) IPv6 CIDR owned by me

Tenancy Info

Default

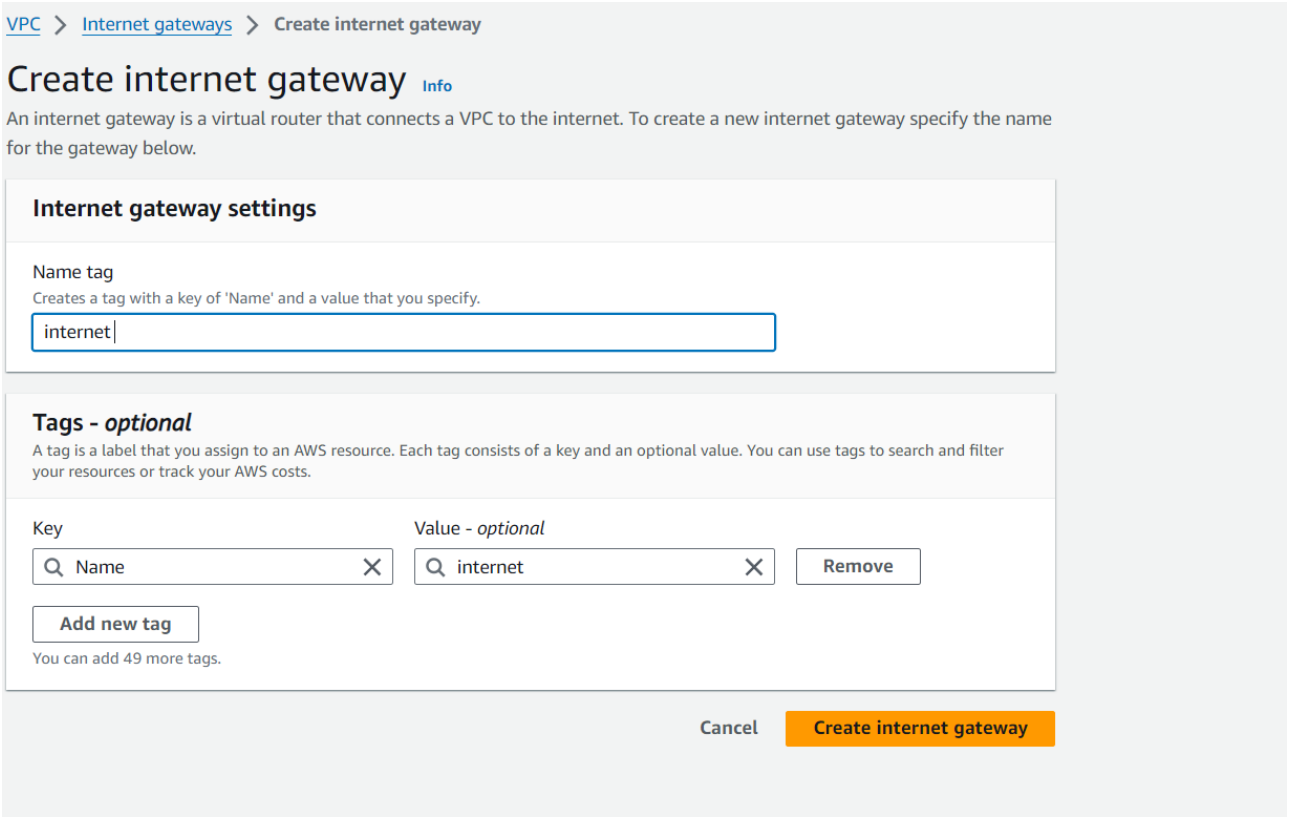
INTERNET GATEWAY

step 1:




Go to Internet gateway and create internet gateway.

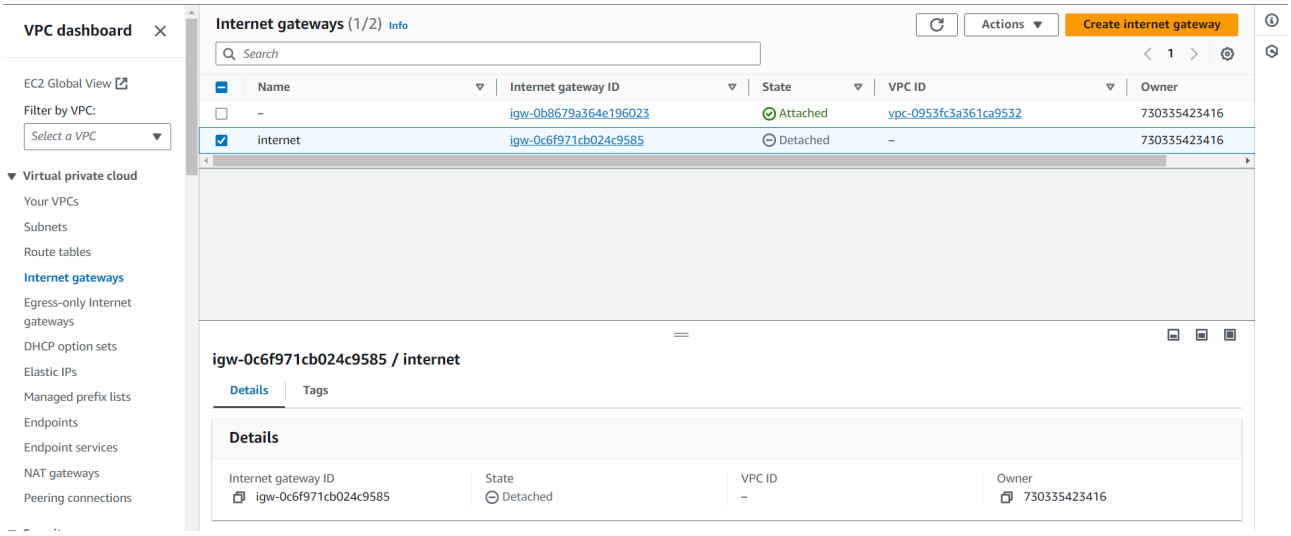
step 2:




Enter the name and create internet gateway

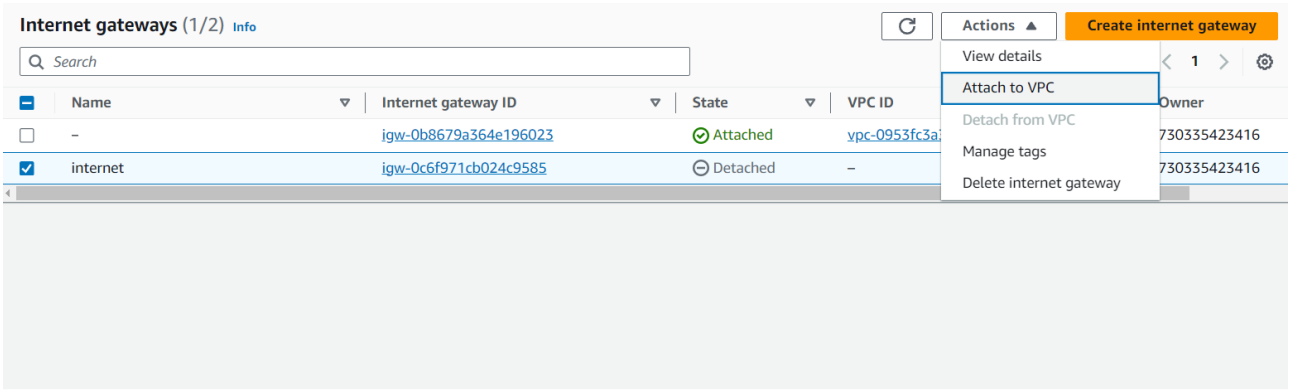
Attach internet gateway into VPC

step 1:



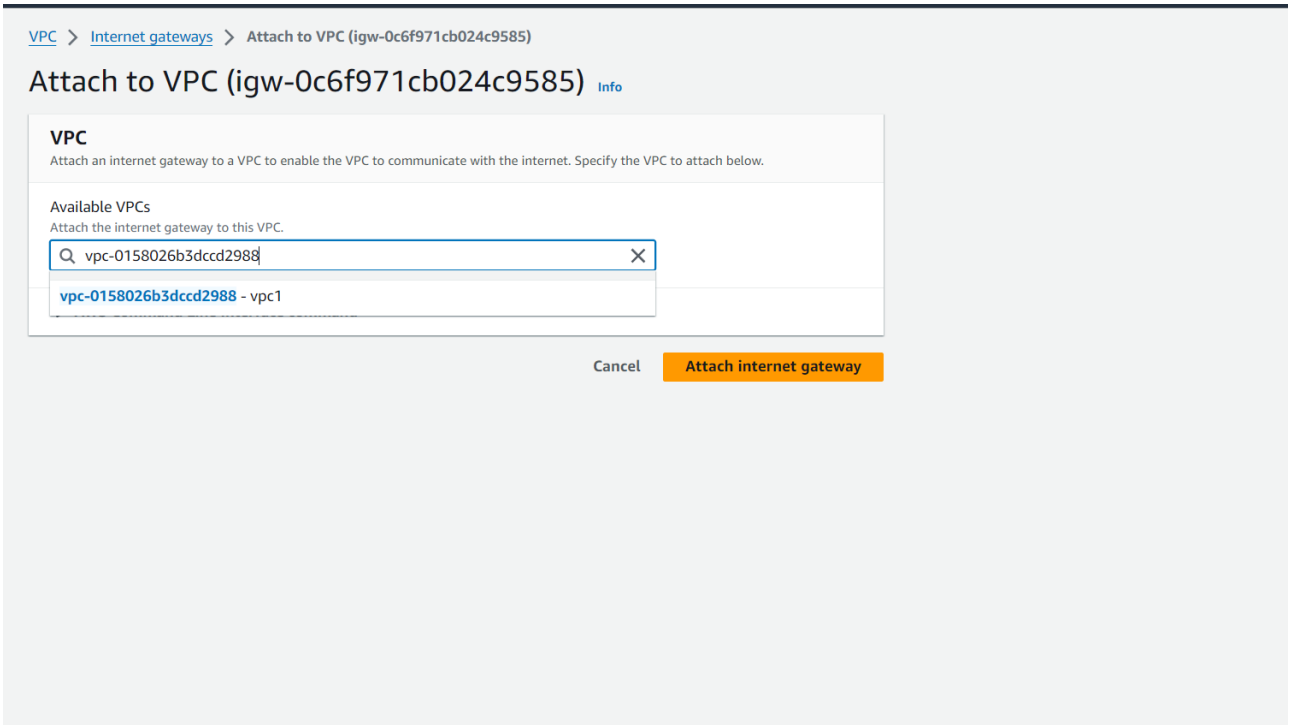

Select internet gateway and click action

step 2:



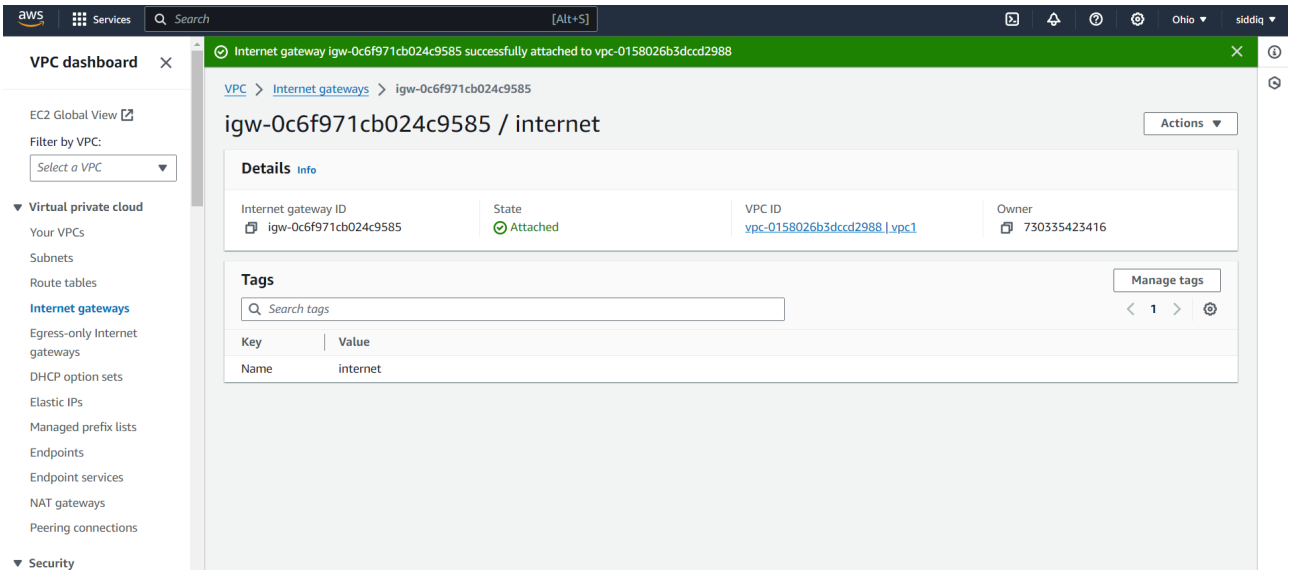

click the attach to VPC

step 3:




Select the VPC which you created and attach internet gateway

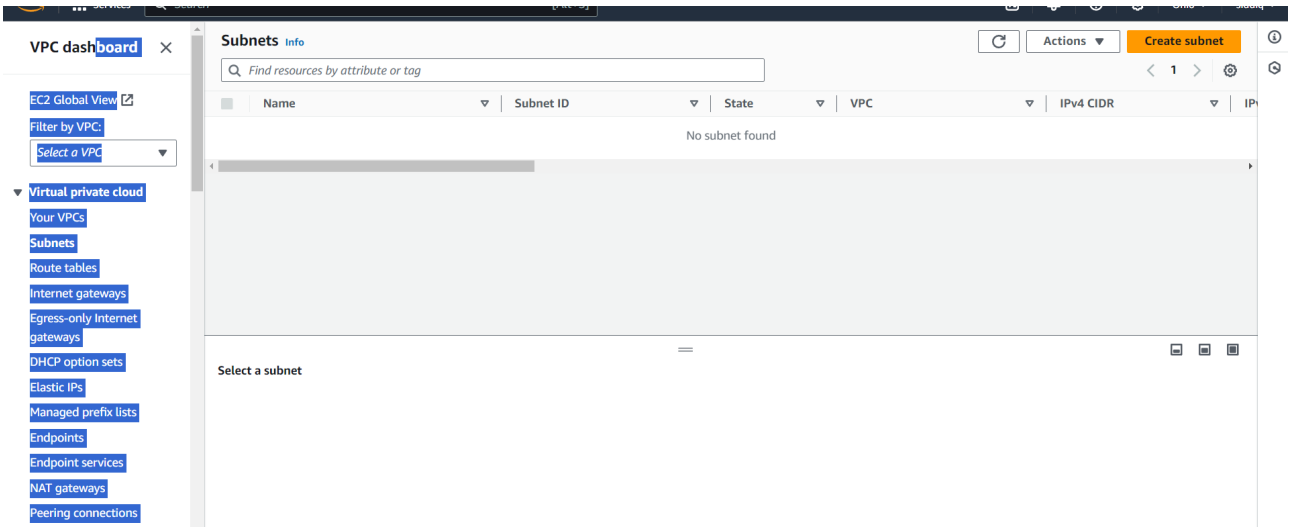
output:



Internet gateway and VPC are connected.

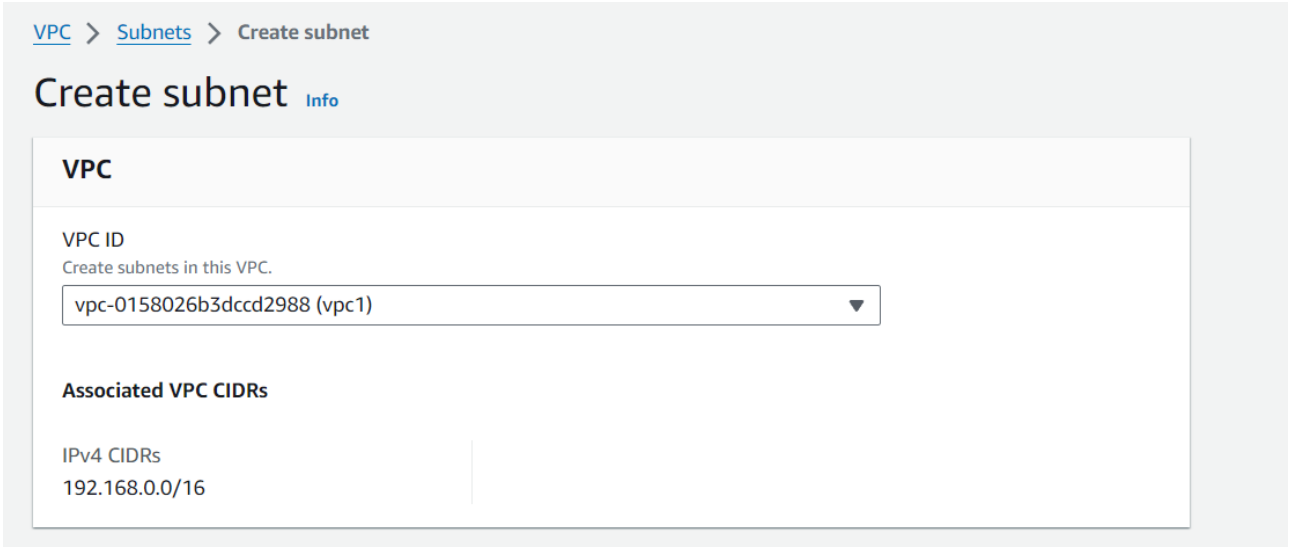
SUBNET :

Step 1:




Go to subnet and click create subnet.

step 2:




step 3:

**Subnet 1 of 1**

Subnet name

Create a tag with a key of 'Name' and a value that you specify.

public

The name can be up to 256 characters long.

Availability Zone Info

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

No preference

IPv4 VPC CIDR block Info

Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

192.168.0.0/16

IPv4 subnet CIDR block

192.168.1.0/24 256 IPs

▼ Tags - *optional*

| Key | Value - *optional* | |
|---|---|---|
| Name | public | Remove |

Add new tag

You can add 49 more tags.

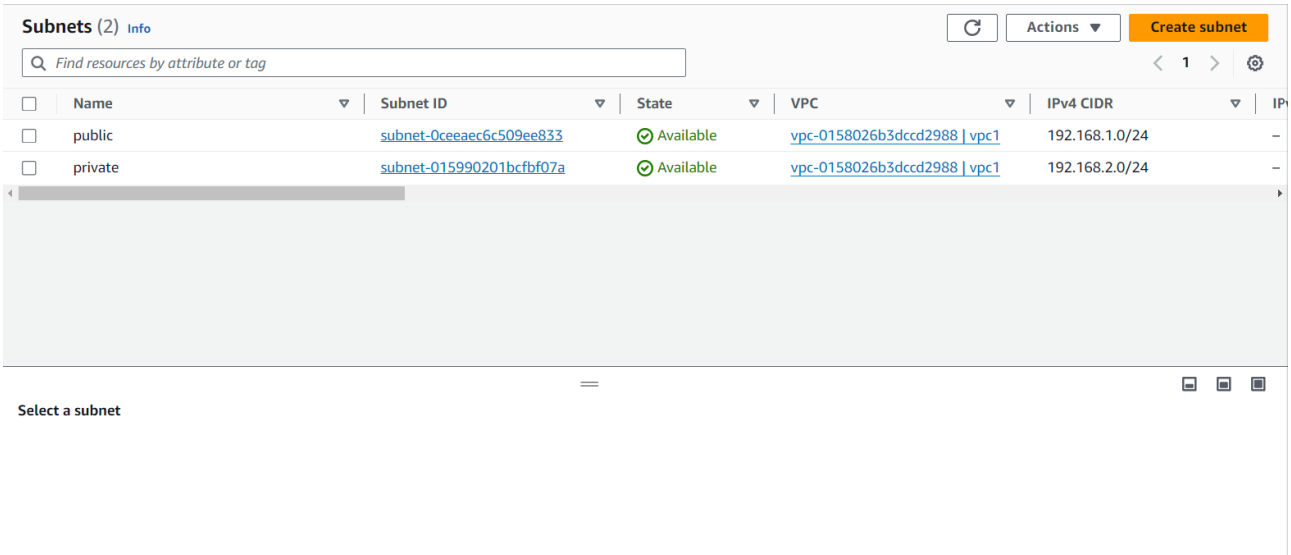
Remove

Add new subnet

give a Subnet name , availability Zone, ipv4 subnet and create subnet.

create a another subnet for private side with same steps

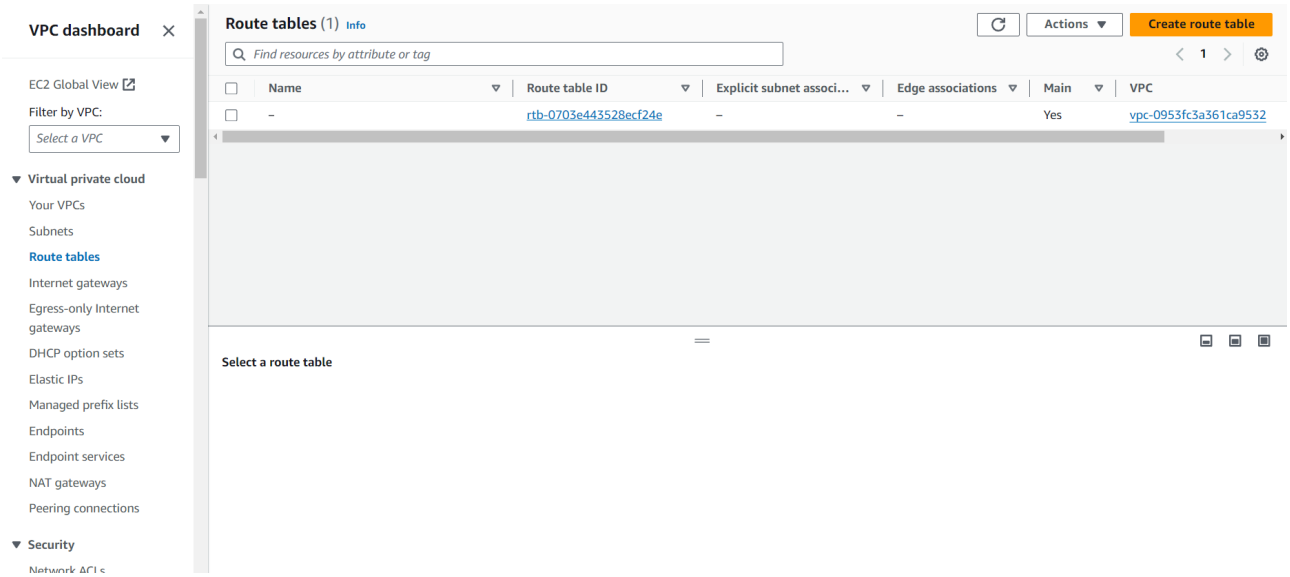
step 4:




check the two subnet

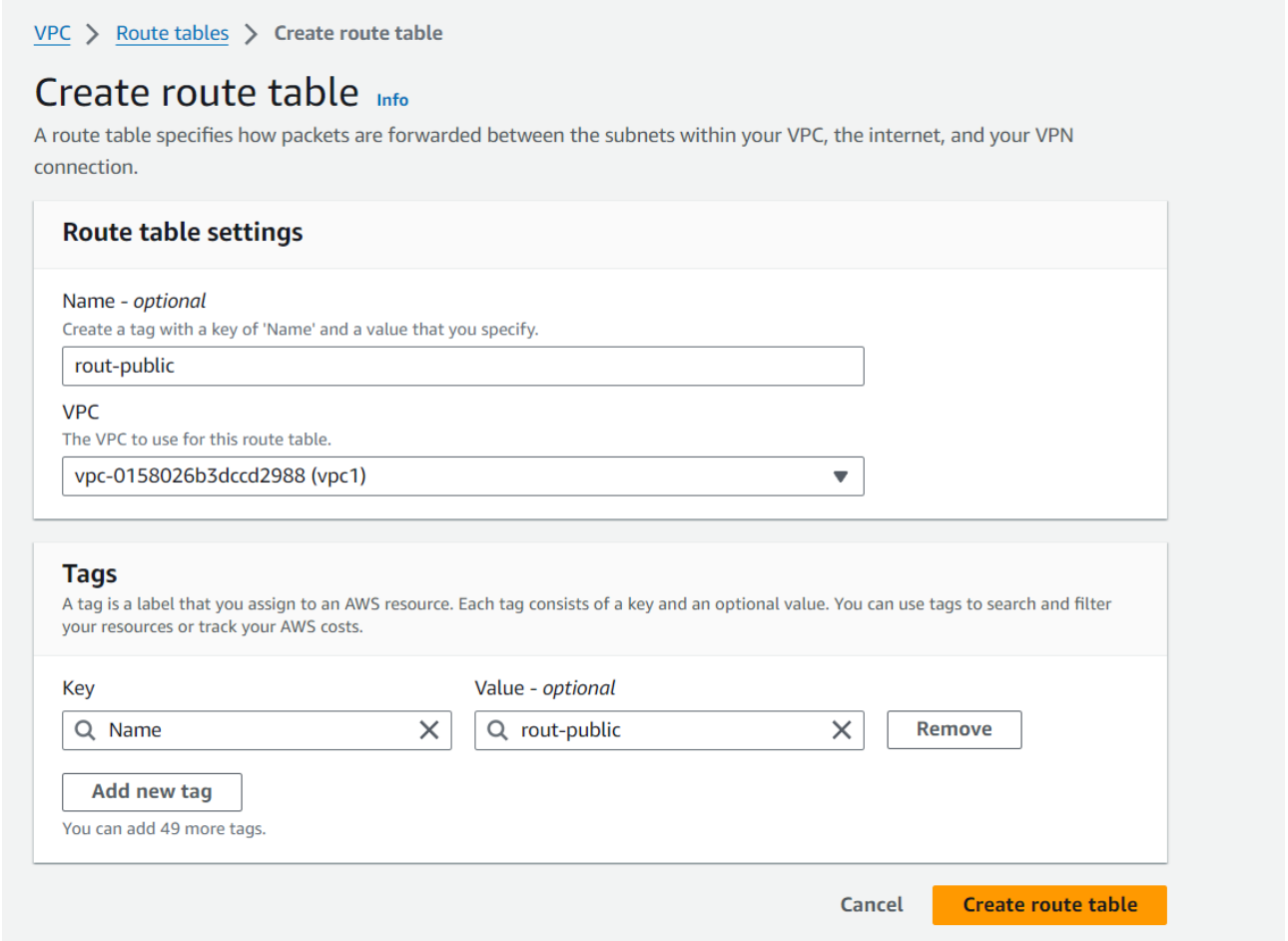
ROOT TABLE

step 1:




go to route table and click create route table.

step 2:

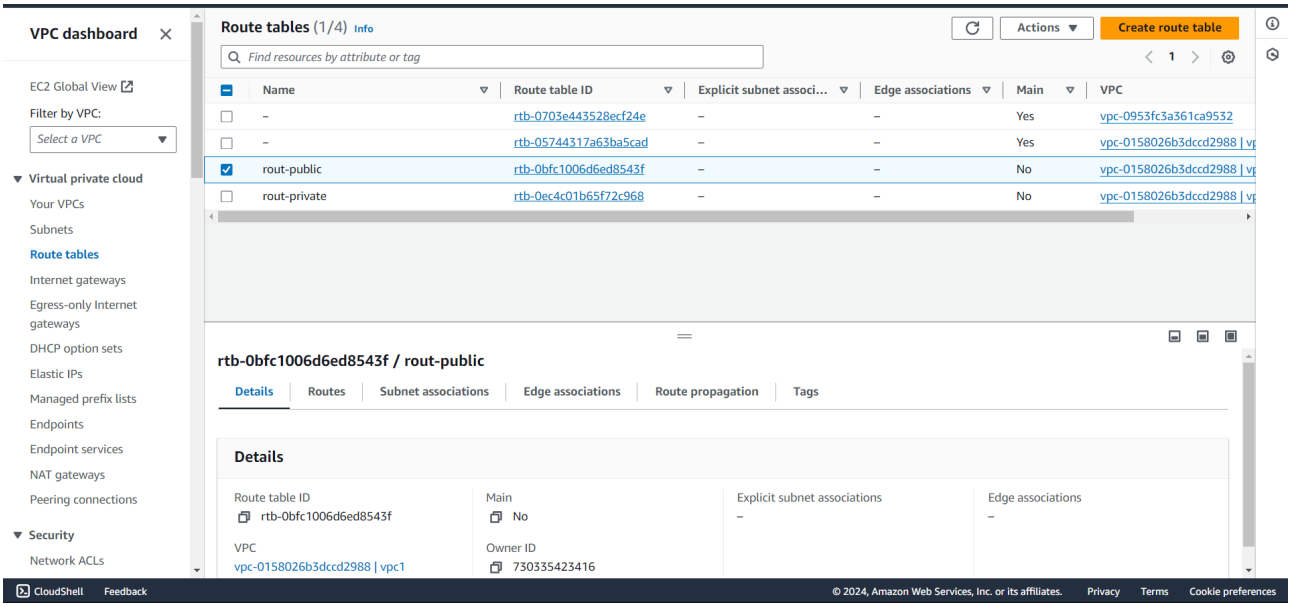



Enter the name and select VPC and create route table.

create another route table for private user.

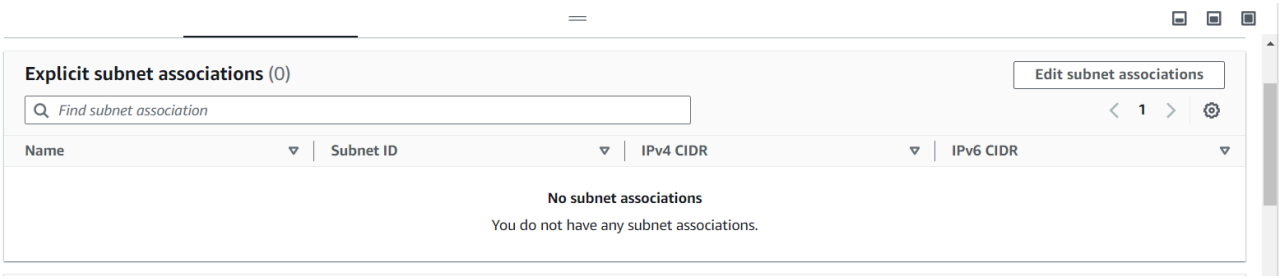
connect route table with subnet:

step1:



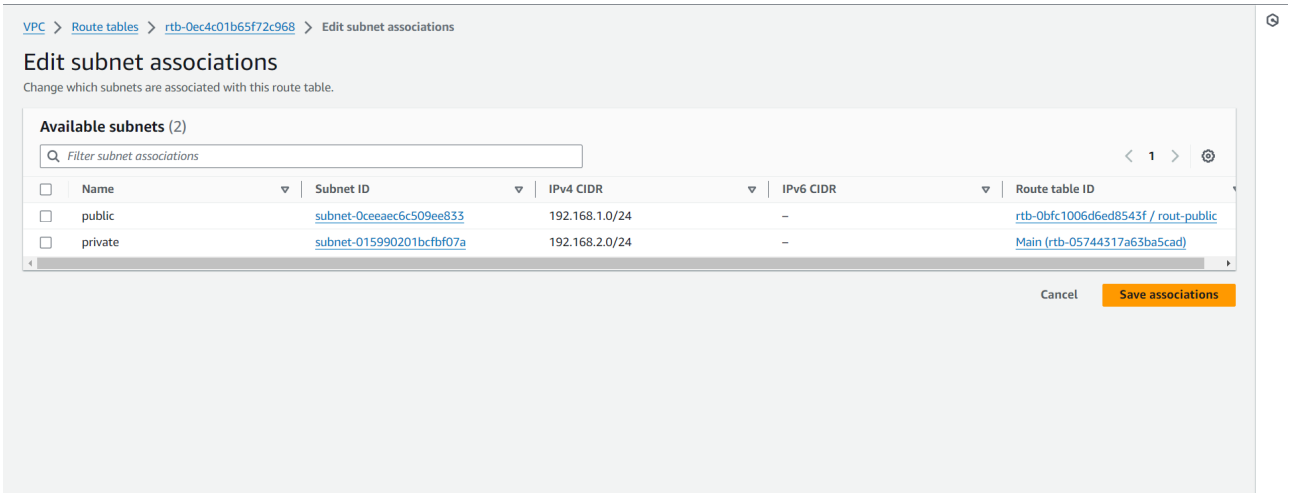

select the public subnet and go to subnet associations

step 2:



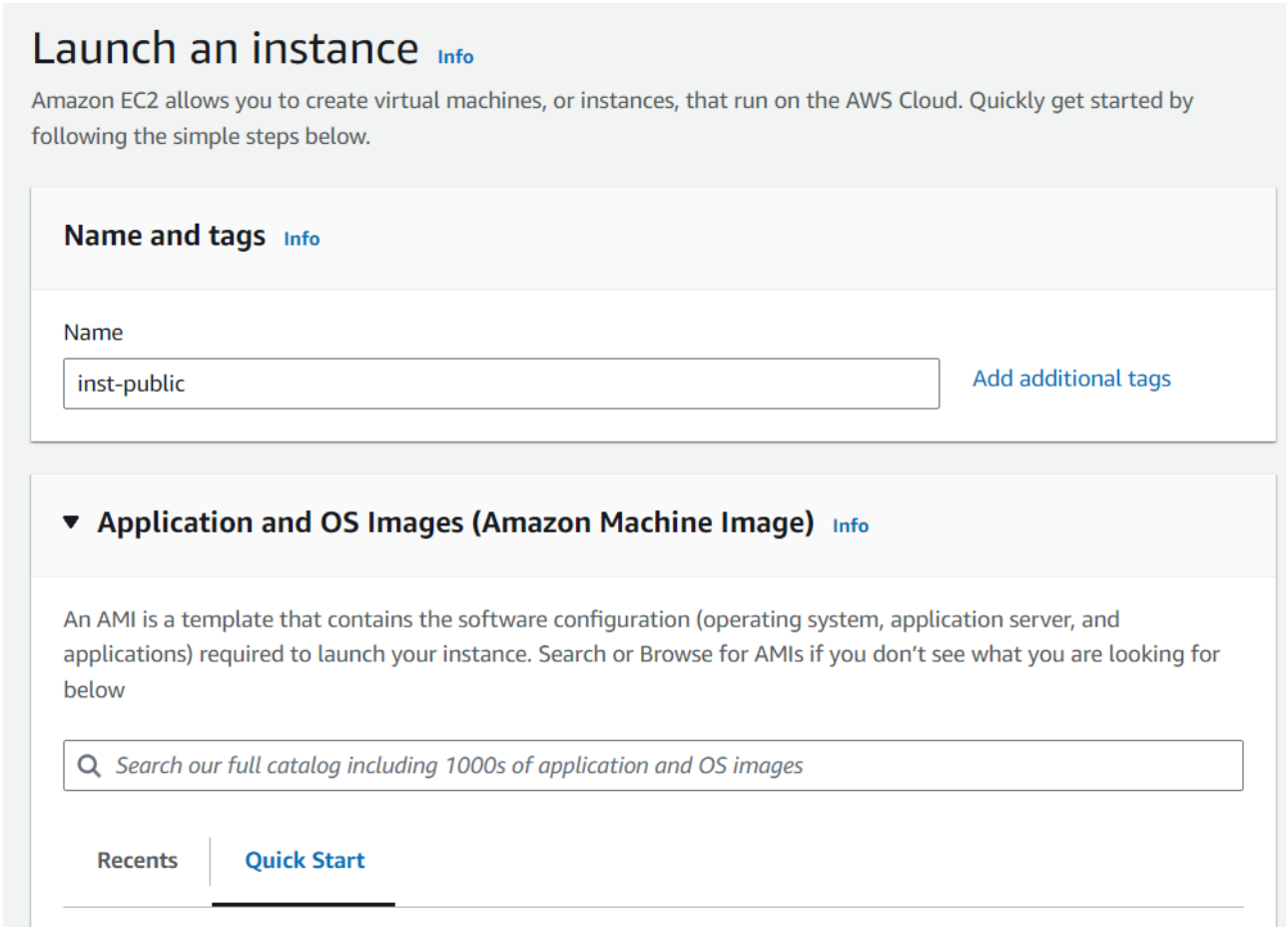

click edit.

step 3:

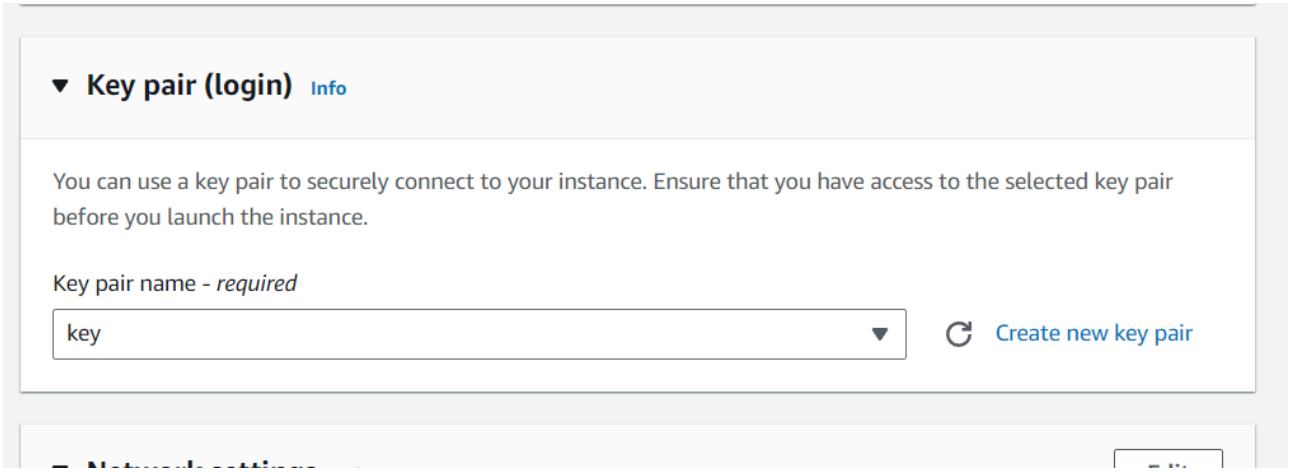



select the proper subnet to route and save associations.

Create EC2 :

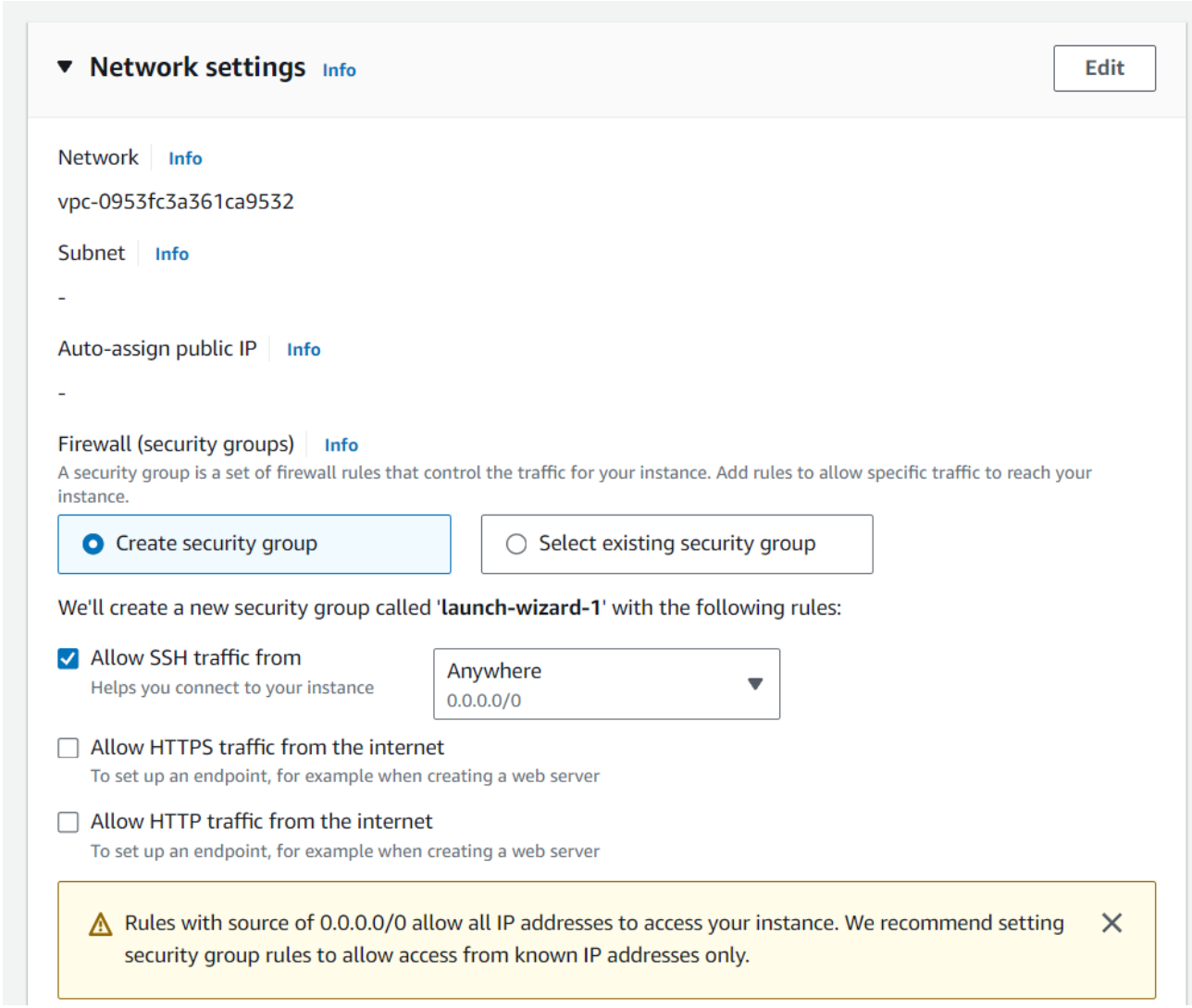



step 2:



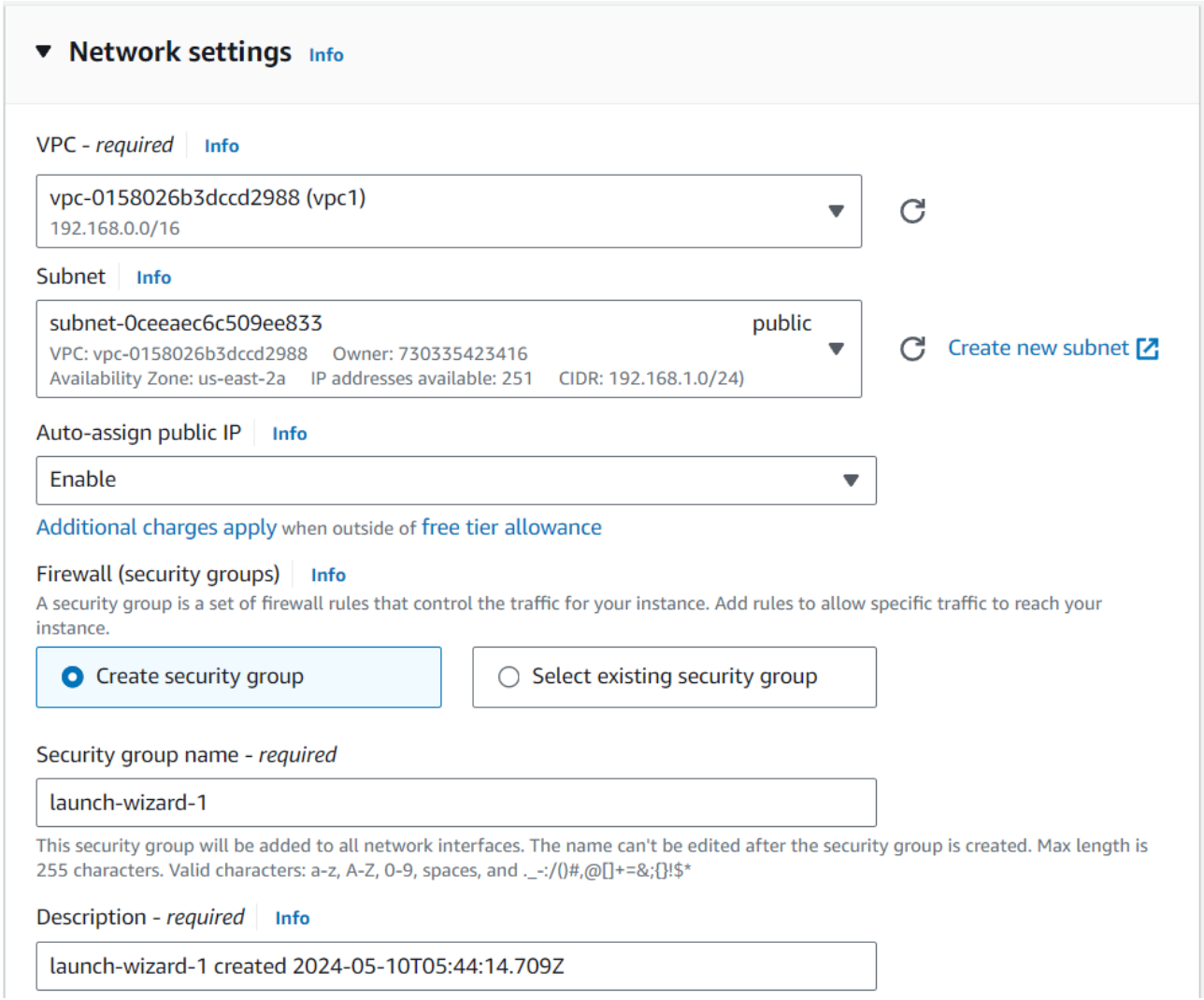

select the key pair to instance.

step 3:




click edit

step 4:




select the VPC and subnet (private) auto-assign public change to enable.
create another ec2 for private and add the private subnet.

## Connecting the ec2 server from Command prompt

go to command prompt -> go to downloads -> enter this line to connect with ec2 public -> ssh -i keypath.pem ec2-user@34.229.95.111 -> it will connect with EC2 public linux

ssh -i keypath.pem(key name) ec2-user@(no change)34.229.95.111(ip address of server)