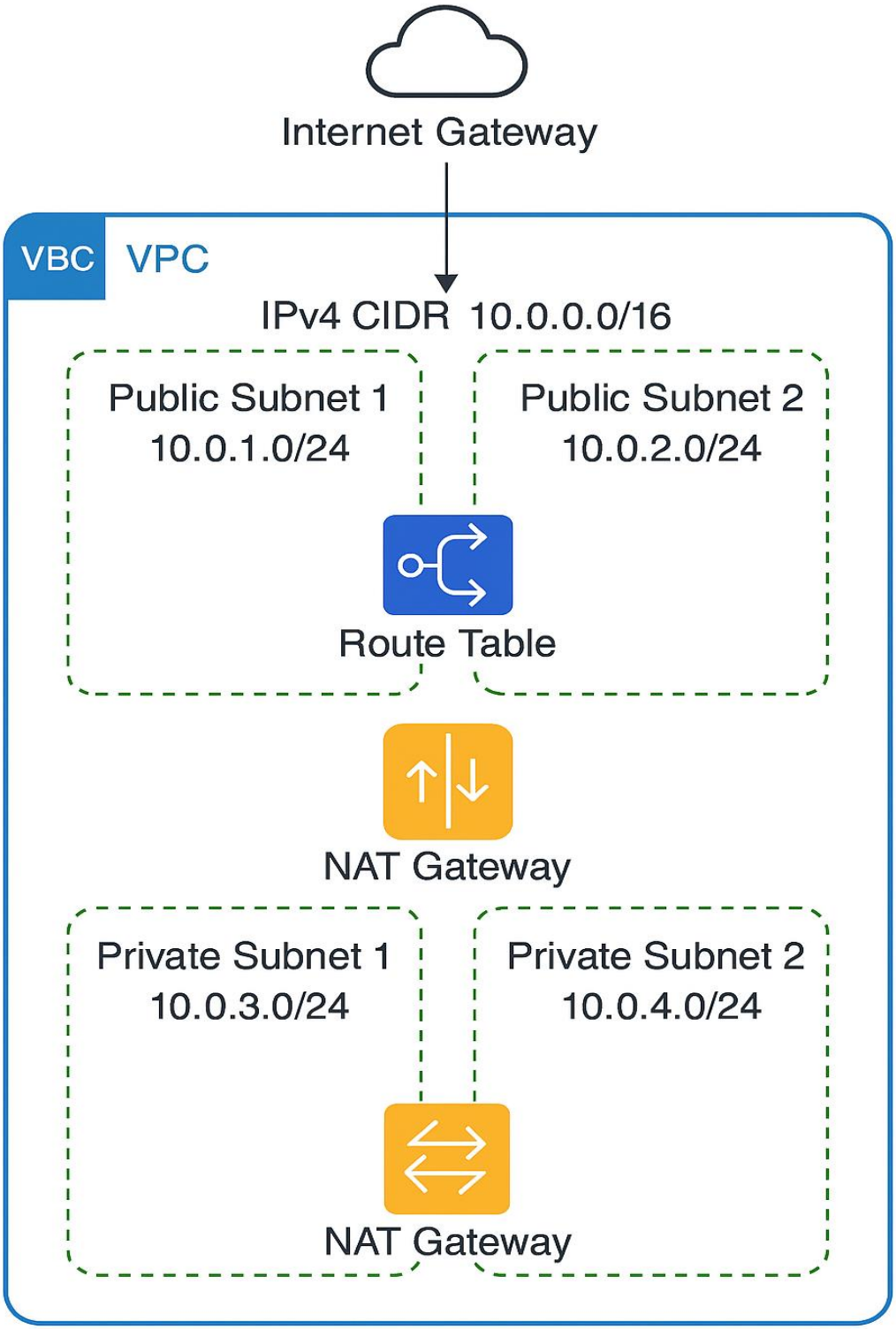
VIRTUAL PRIVATE CLOUD

For DevOps Engineers and Cloud Engineers

VPC architecture diagram



Creating a VPC in AWS

This guide helps you manually create a custom VPC in AWS with public and private subnets using the AWS Console.

Step 1: Navigate to VPC Dashboard

- Sign in to AWS Console.
- Go to VPC service → click "Create VPC".

Step 2: Create the VPC

- Name: my-custom-vpc
- IPv4 CIDR block: 10.0.0.0/16
- IPv6 block: None or auto-assigned
- Tenancy: Default
- Click Create VPC.

Step 3: Create Subnets

Create 2 public and 2 private subnets in different AZs.

Public Subnets:
1. Name: public-subnet-1 | AZ: us-east-1a | CIDR: 10.0.1.0/24
2. Name: public-subnet-2 | AZ: us-east-1b | CIDR: 10.0.2.0/24

Private Subnets:
1. Name: private-subnet-1 | AZ: us-east-1a | CIDR: 10.0.3.0/24
2. Name: private-subnet-2 | AZ: us-east-1b | CIDR: 10.0.4.0/24

Go to Subnets → Create subnet, choose your VPC and add them one by one.

Step 4: Create and Attach Internet Gateway

- Go to Internet Gateways → Create internet gateway
- Name: my-IGW
- Click Attach to VPC and choose my-custom-VPC

Step 5: Route Table for Public Subnets

- Go to Route Tables → Create route table
- Name: public-rt, select your VPC
- Edit routes: Add 0.0.0.0/0 → Target: Internet Gateway (my-IGW)
- Edit subnet associations: Attach public-subnet-1 and public-subnet-2

Step 6: NAT Gateway (for Private Subnets)

- Allocate a new Elastic IP
- Go to NAT Gateways → Create NAT Gateway

- Subnet: public-subnet-1
- Elastic IP: select the one you created
- Name: NAT-gateway

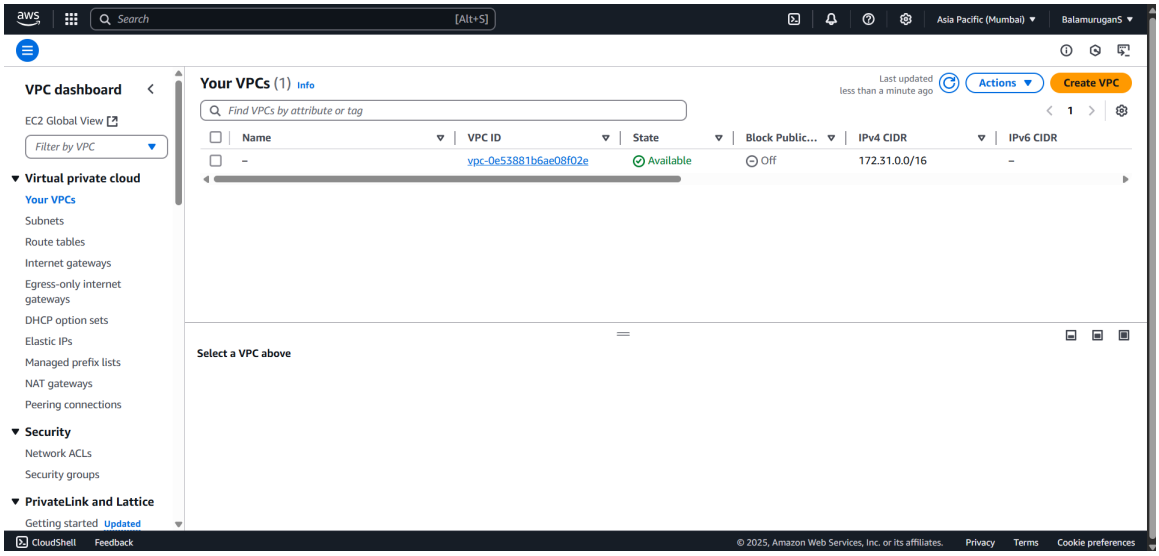
Step 7: Route Table for Private Subnets

- Create new Route Table
- Name: private-rt, select your VPC
- Add route: 0.0.0.0/0 → Target: NAT Gateway
- Subnet association: Attach private-subnet-1 and private-subnet-2

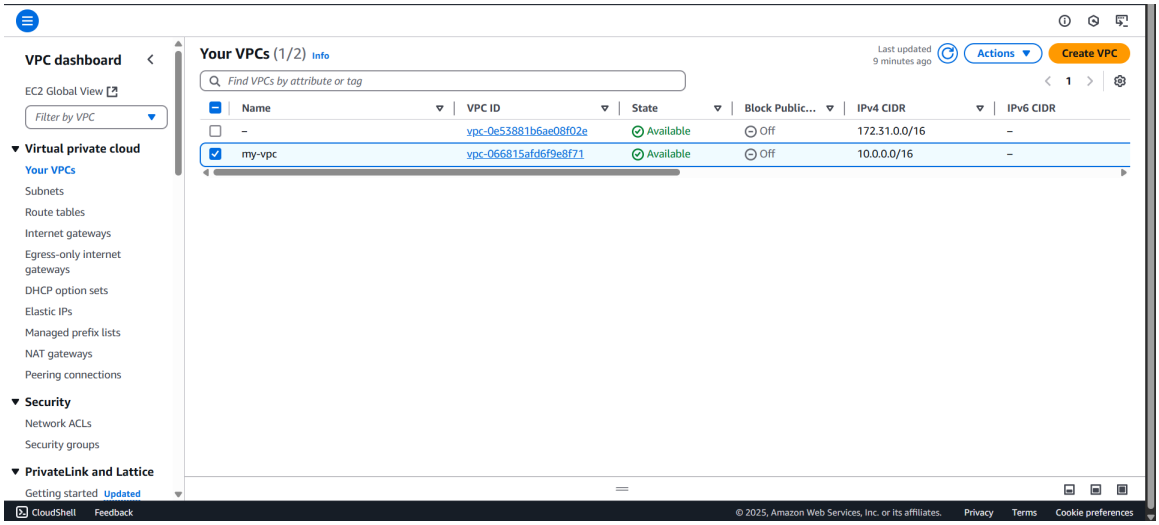
Summary

VPC setup includes:
- Custom VPC: 10.0.0.0/16
- 2 Public Subnets + IGW + Route Table
- 2 Private Subnets + NAT Gateway + Route Table

Default VPC



Creating Private New VPC

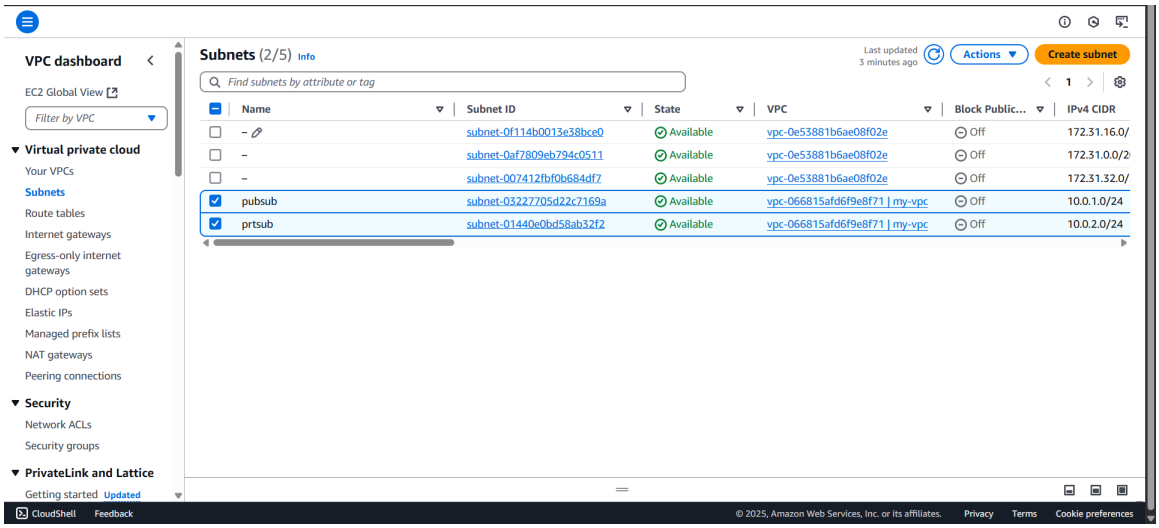


And we will create SUBNETS

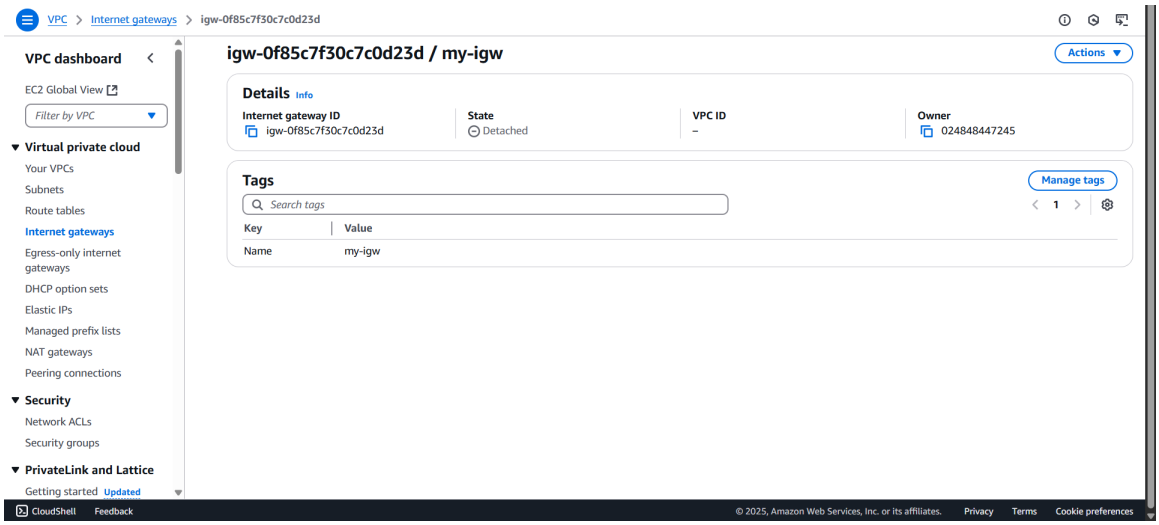
- Private subnets
- Public subnets

-go to subnets

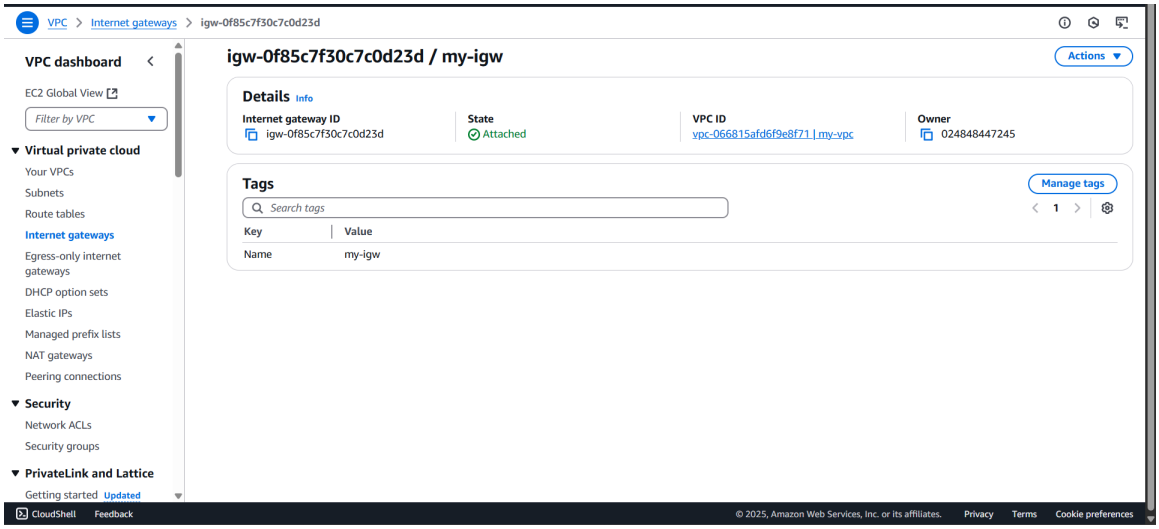
We can create public subnet and private subnet individually



We will create INTERNET GATEWAY



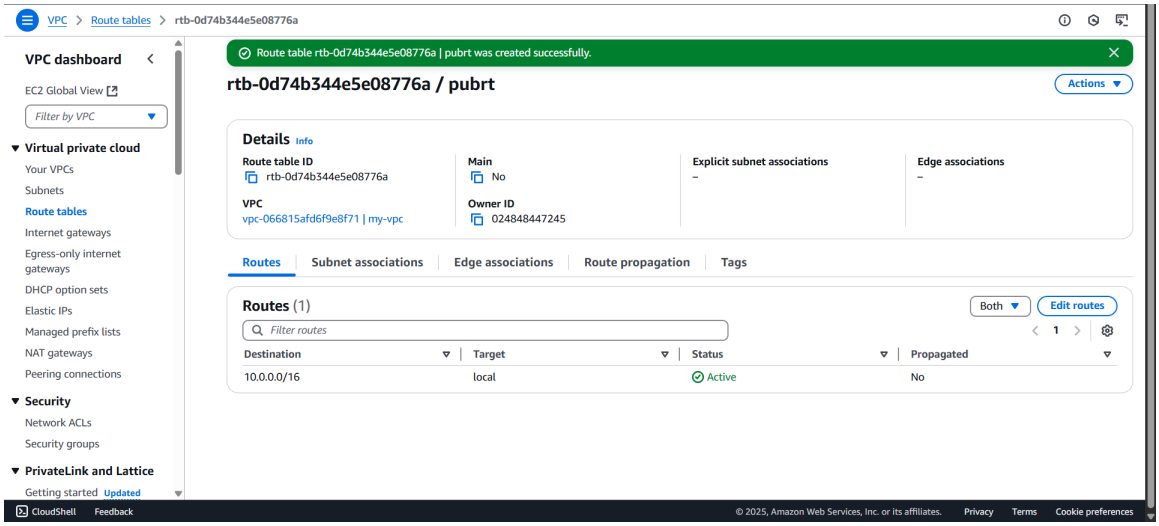
And -go to action, select our VPC after to get attached our VPC



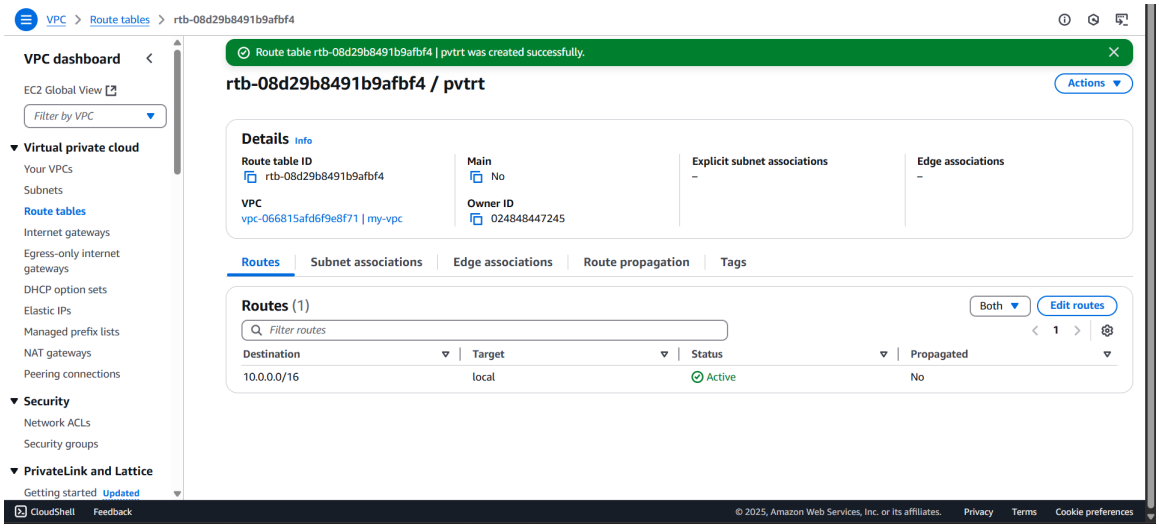
We create ROUNDTABLES

We will create round table for public and private and select our VPC while we creating

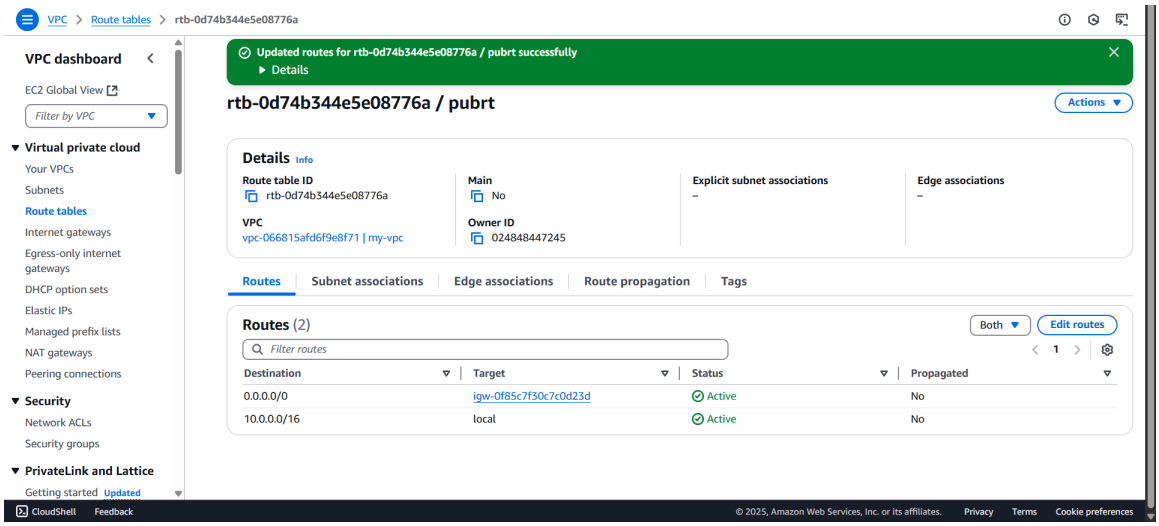
PUBLIC



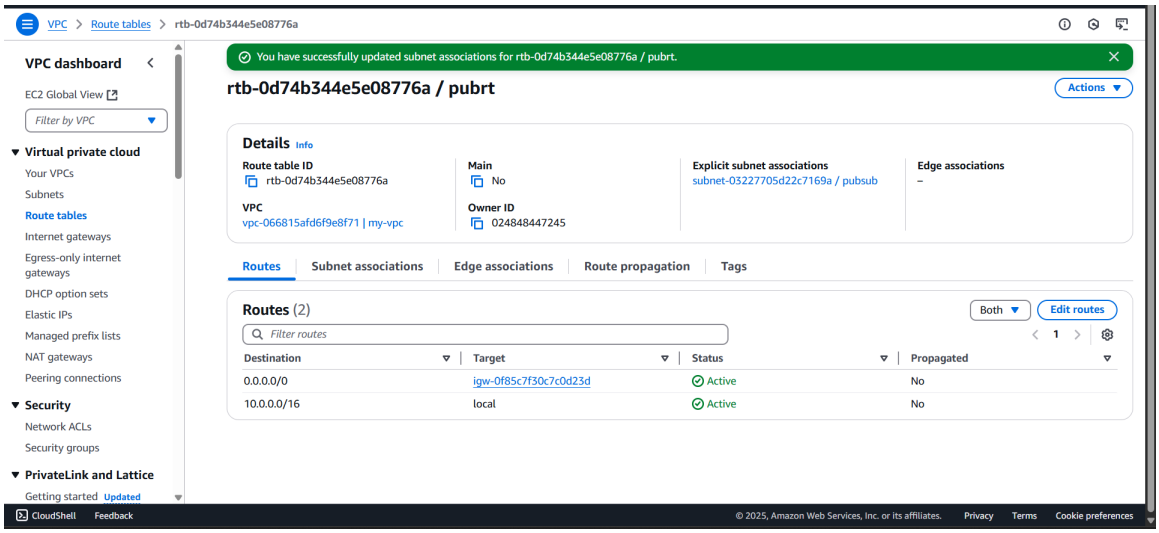
PRIVATE



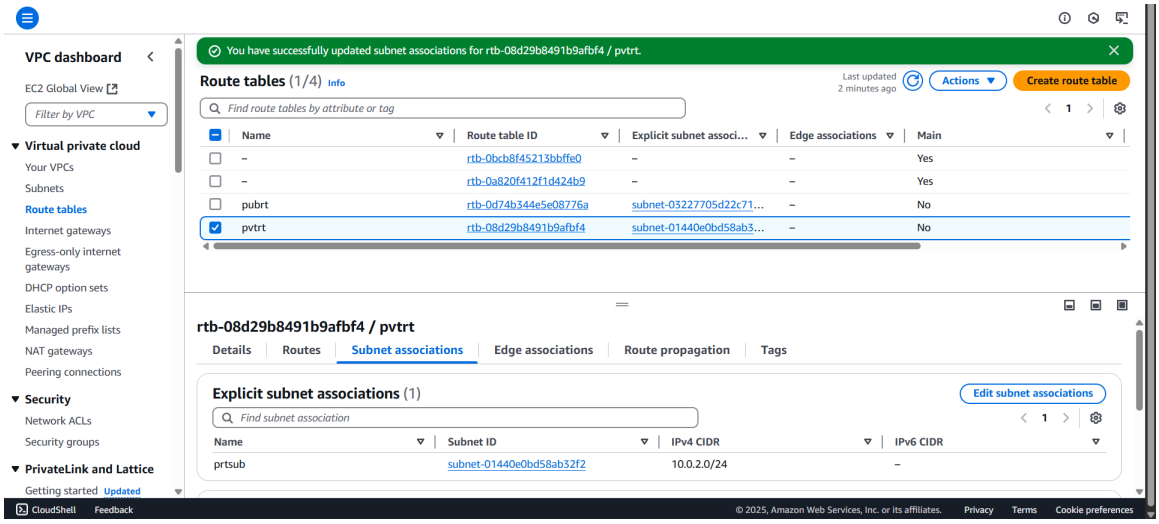
Click the public route tables – go to routes – edit routes – add routes – and select the Internet gateway – select the Internet gateway ID – and set the public IP 0.0.0.0/0



And – go to subnet association – edit subnet association – select public subnets



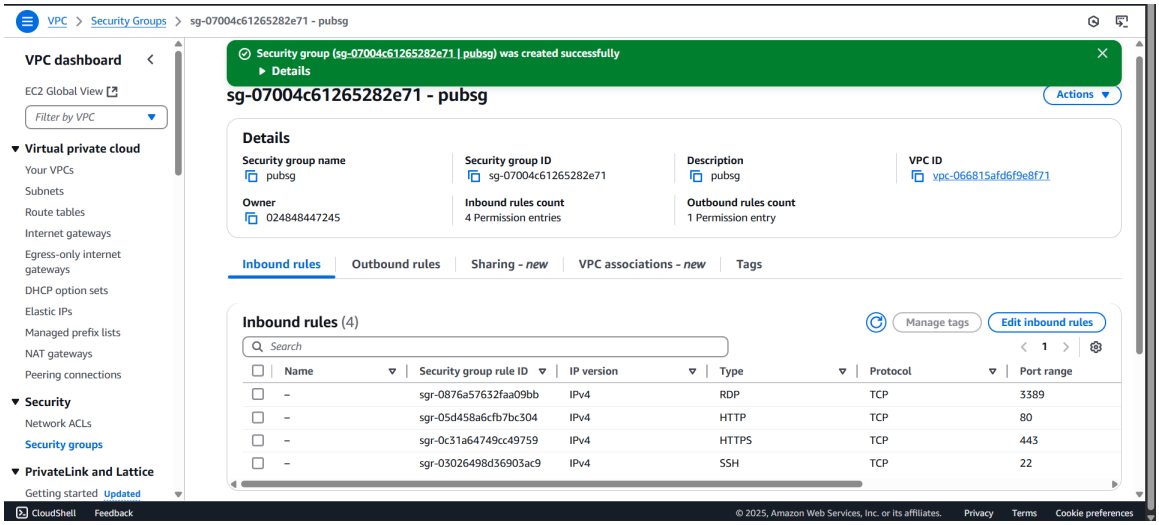
We go to Private round tables - go to subnet association – add private subnets



We will create SECURITY GROUPS

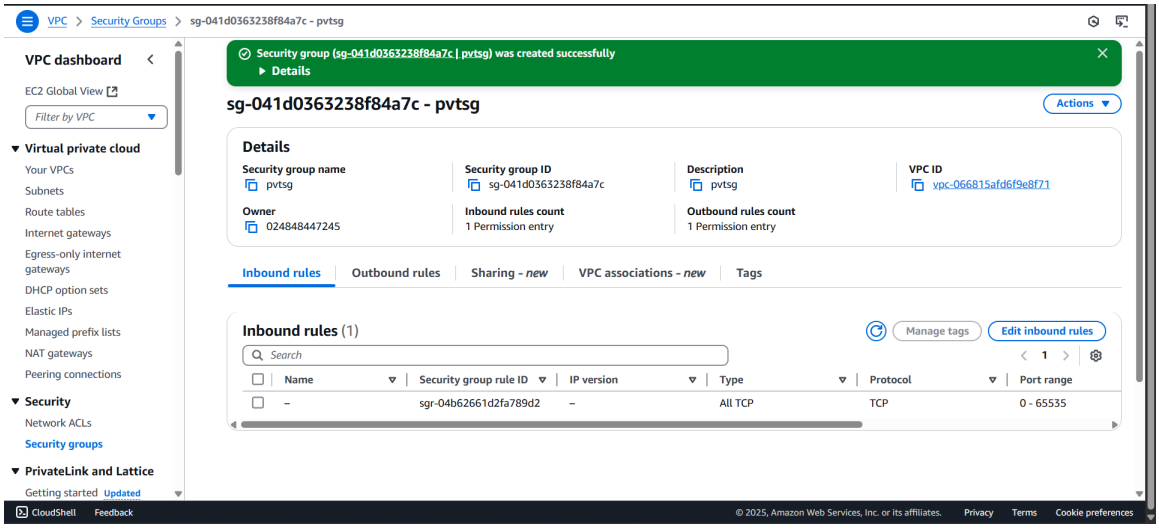
We create security groups for Public and private

Customize your inbound rules for public SG ex; HTTP, HTTPS, RDP, SSH



And we create private SG

Go to – inbound rules – click the source – select the PUBLIC SG – select the ALL TCP and click create SG



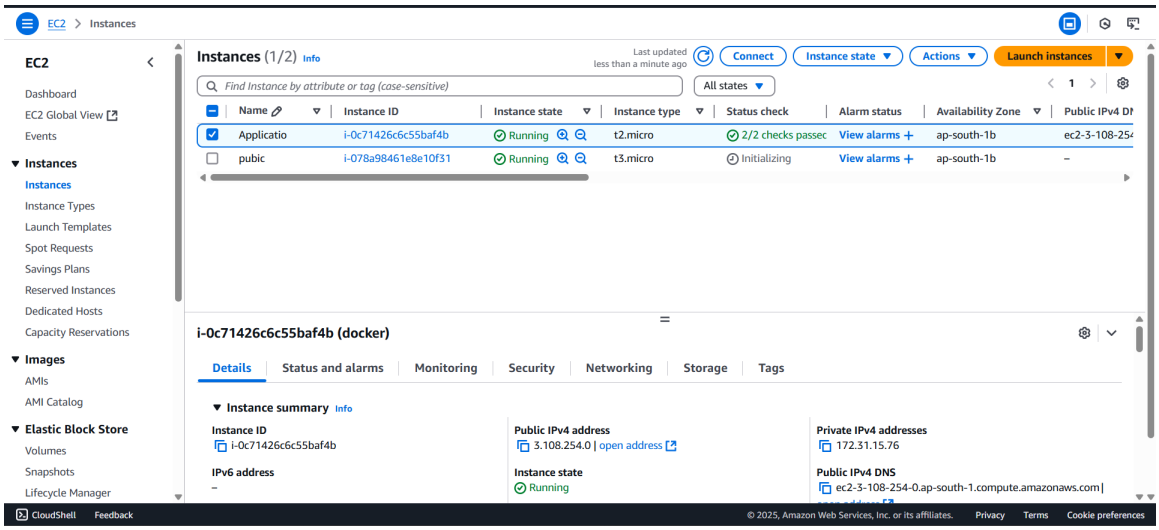
We will create EC2 INSTANES

Create ec2 for public and private

Inside of public instance

Select your key pair – edit networking – select your VPC – select your public subnet – enable auto assign IP – edit your fire wall – select your public SG – Launch instance

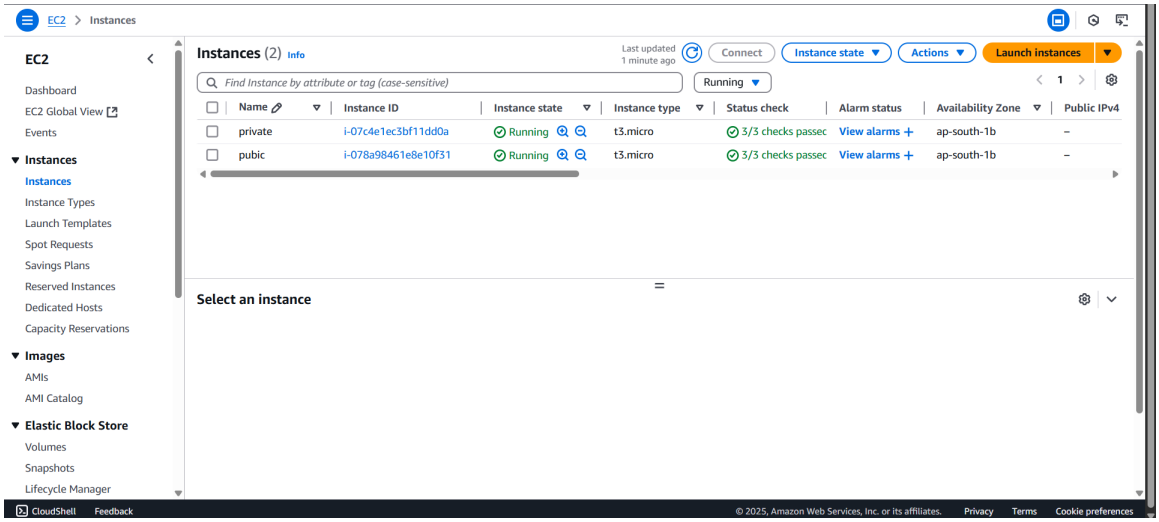
PUBLIC INSTANCE



Create private instance – as same as creating public instance

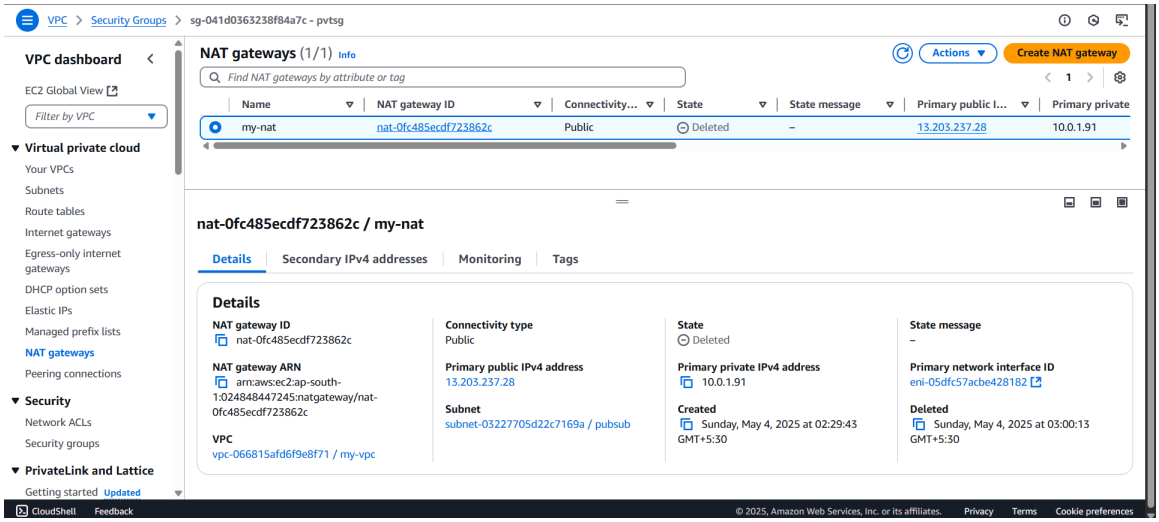
But select your private subnets – disable auto assign IP – select your private SG – Launch instance

PRIVATE INSTANCE



Creating NAT GATEWAY

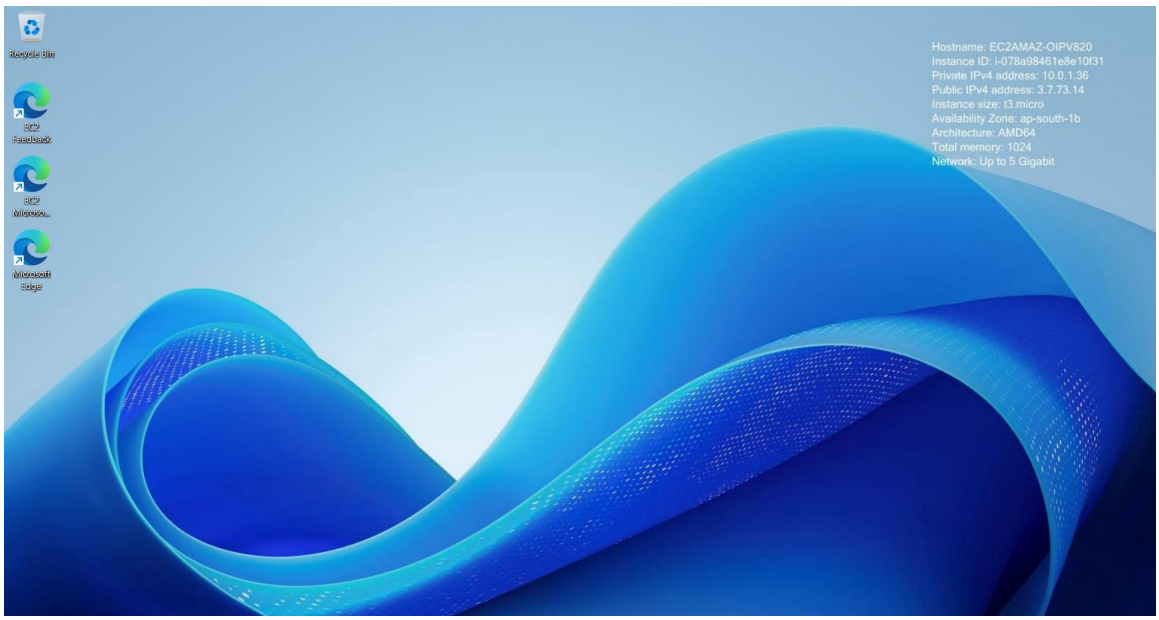
Go to create – name your NAT gateway – select your public subnets – click you Elastic allocate IP – create Nat gateway



Connect you PUBLIC INSTACE

Through SSH

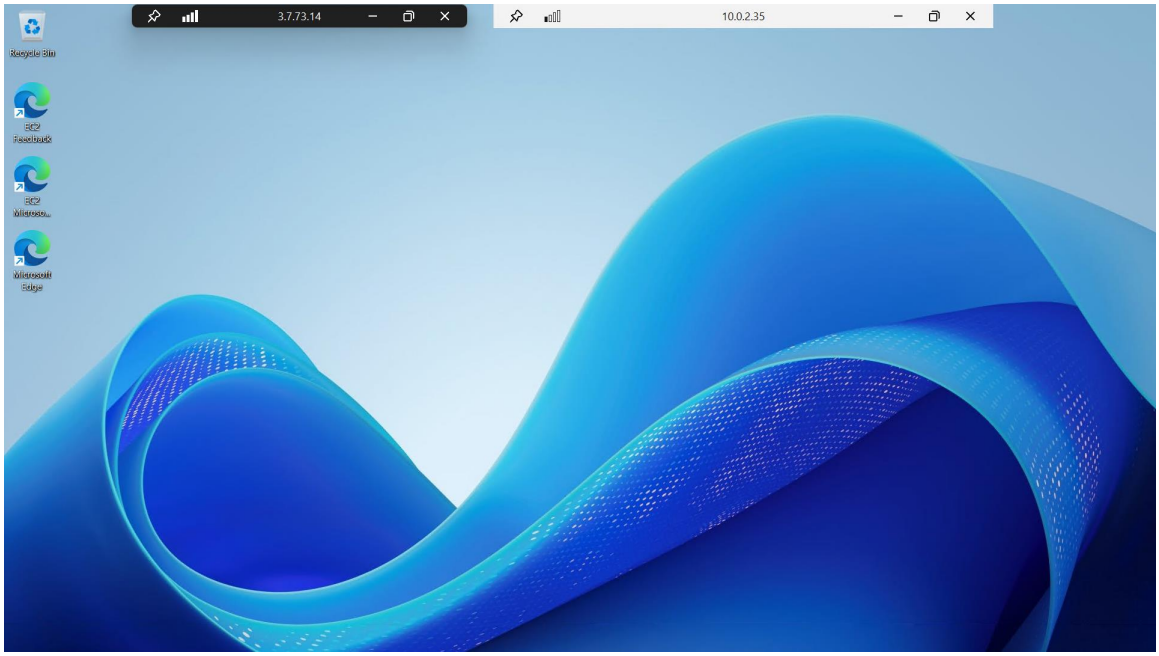
Successfully launched PUBLIC EC2



After that connect your PRIVATE INSTANCE

Generated password – copy your Private IP address – Go to your PUBLIC EC2 machine –

Select Remote desktop – paste your IP address inside of your public machine and user name and password



Successfully launched private ec2 inside of public ec2 with internet connecting for using NAT gateway

THANK YOU