Placement Empowerment Program

Cloud Computing and DevOps Centre

Set Up a Private Network in the Cloud Create a Virtual Private Cloud (VPC) with subnets for your instances. Configure routing for internal communication between subnets.

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INTRODUCTION:

In modern cloud computing, securing network infrastructure is crucial for businesses and organizations. AWS Virtual Private Cloud (VPC) allows users to create a logically isolated network within the AWS cloud, enabling them to define and control their network environment. This document outlines a step-by-step approach to setting up a private network in AWS using a VPC with subnets and internal routing.

OVERVIEW:

A Virtual Private Cloud (VPC) is a dedicated cloud network that allows users to launch AWS resources in an isolated and controlled environment. This setup includes:

- Creating a VPC with a specific CIDR block.
- Configuring public and private subnets.
- Setting up route tables to enable internal communication.
- Implementing security groups to restrict traffic.
- Deploying EC2 instances to test connectivity.

OBJECTIVE:

The primary objective of this task is to establish a private network in AWS that allows secure internal communication between instances while restricting internet access to certain subnets. The key goals include:

- Creating a VPC with subnets.
- Configuring routing and network access controls.
- Deploying and verifying EC2 instance connectivity.

IMPORTANCE OF AWS CLI IN CLOUD NETWORKING:

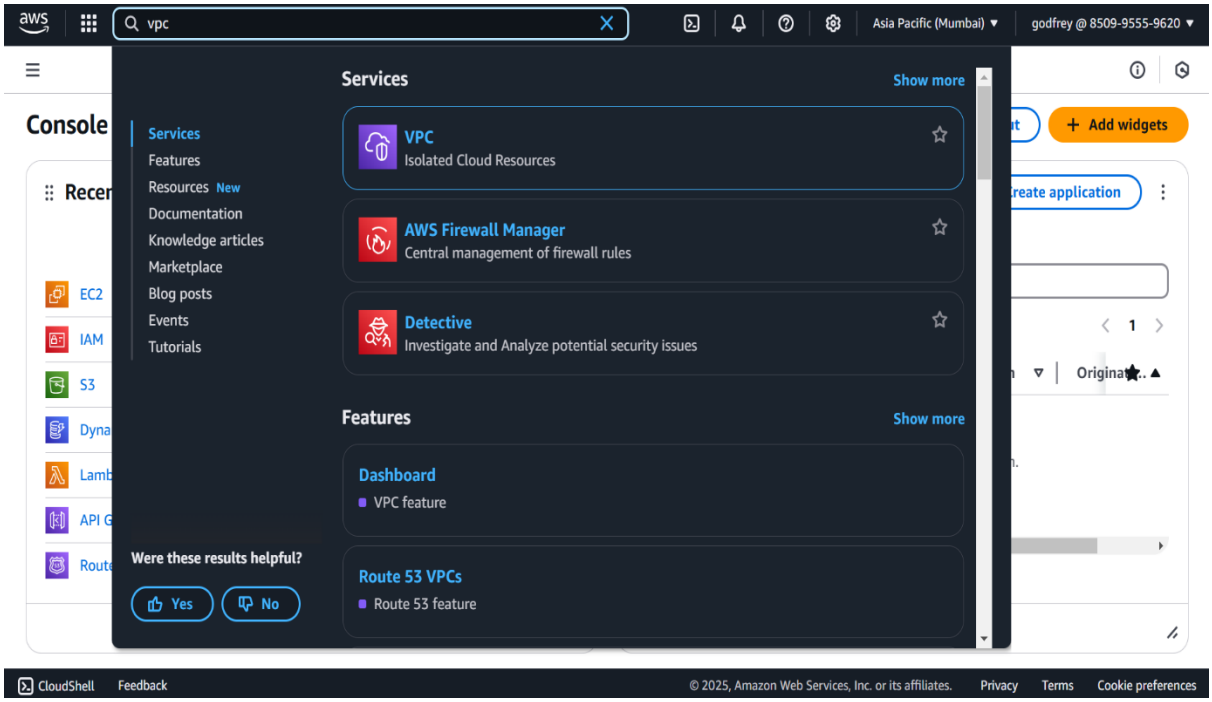
AWS CLI (Command Line Interface) plays a crucial role in automating and managing cloud resources efficiently. Some benefits include:

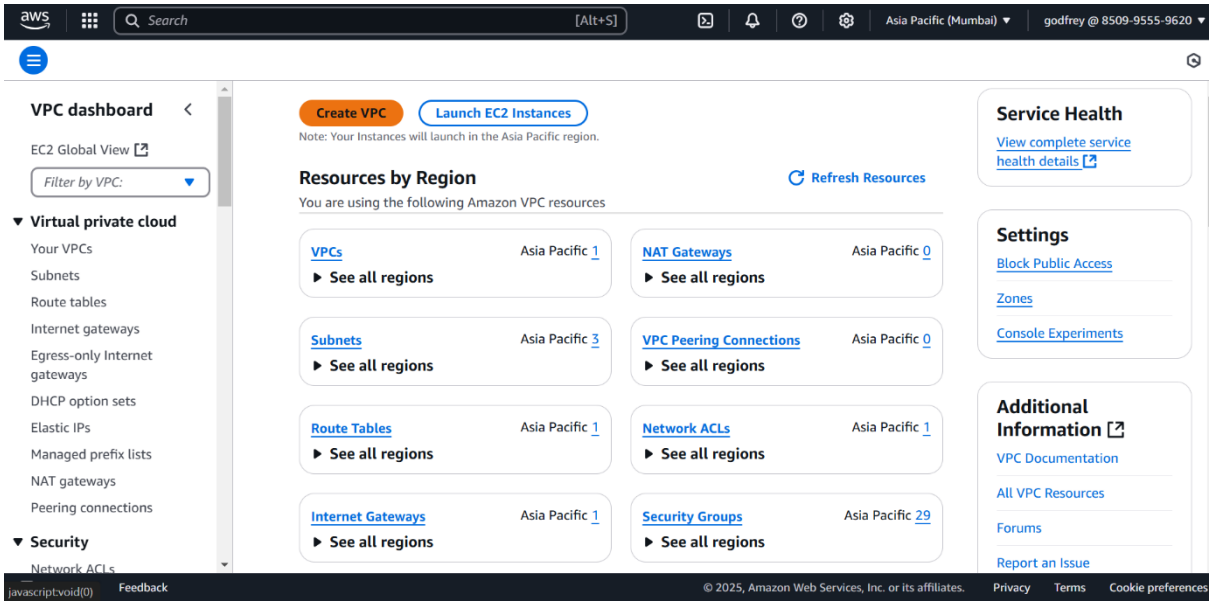
- **Speed and Automation:** Enables quick setup of VPCs, subnets, and other resources.
- **Scripting Capabilities:** Allows the execution of scripts to create and configure networks.
- **Remote Management:** Helps manage cloud resources without needing a graphical interface.

- **Cost Efficiency:** Reduces human errors and improves operational efficiency

STEP-BY-STEP PROCEDURE:

Step 1: Login to AWS console and create a virtual private cloud.




Search [Alt+S]
Asia Pacific (Mumbai)
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VPC dashboard
EC2 Global View
Filter by VPC:
Virtual private cloud
Your VPCs
Subnets
Route tables
Internet gateways
Egress-only Internet gateways
DHCP option sets
Elastic IPs
Managed prefix lists
NAT gateways
Peering connections
Security
Network ACLs
Create VPC
Launch EC2 Instances
Note: Your Instances will launch in the Asia Pacific region.
Resources by Region
Refresh Resources
You are using the following Amazon VPC resources
VPCs Asia Pacific 1
See all regions
NAT Gateways Asia Pacific 0
See all regions
Subnets Asia Pacific 3
See all regions
VPC Peering Connections Asia Pacific 0
See all regions
Route Tables Asia Pacific 1
See all regions
Network ACLs Asia Pacific 1
See all regions
Internet Gateways Asia Pacific 1
See all regions
Security Groups Asia Pacific 29
See all regions
Service Health
View complete service health details
Settings
Block Public Access
Zones
Console Experiments
Additional Information
VPC Documentation
All VPC Resources
Forums
Report an Issue
javascript:void(0)
Feedback
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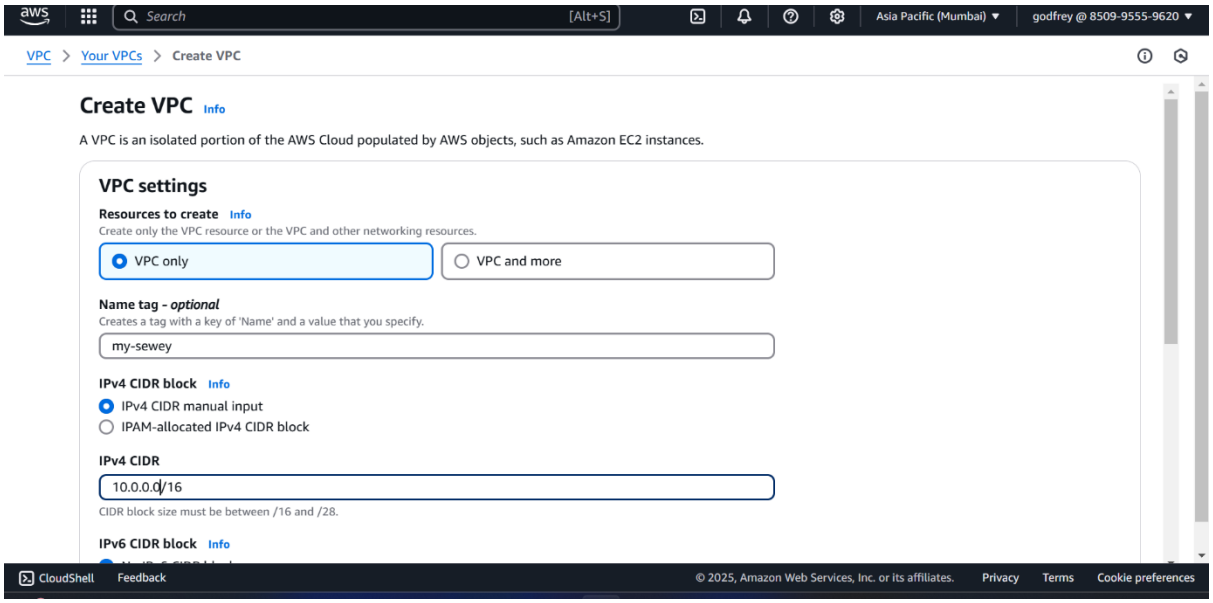
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VPC > Your VPCs > Create VPC
Create VPC Info
A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.
VPC settings
Resources to create Info
Create only the VPC resource or the VPC and other networking resources.
VPC only
VPC and more
Name tag - optional
Creates a tag with a key of 'Name' and a value that you specify.
my-sewey
IPv4 CIDR block Info
IPv4 CIDR manual input
IPAM-allocated IPv4 CIDR block
IPv4 CIDR
10.0.0.0/16
CIDR block size must be between /16 and /28.
IPv6 CIDR block Info
CloudShell
Feedback
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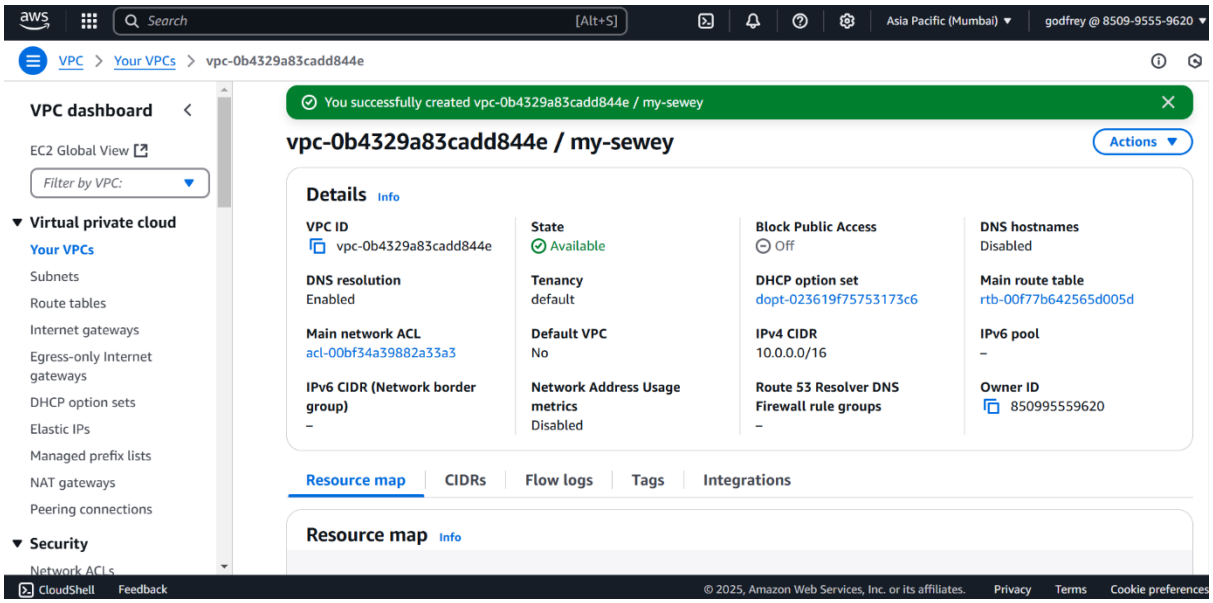
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VPC > Your VPCs > vpc-0b4329a83cadd844e
VPC dashboard
EC2 Global View
Filter by VPC:
Virtual private cloud
Your VPCs
Subnets
Route tables
Internet gateways
Egress-only Internet gateways
DHCP option sets
Elastic IPs
Managed prefix lists
NAT gateways
Peering connections
Security
Network ACLs
You successfully created vpc-0b4329a83cadd844e / my-sewey
vpc-0b4329a83cadd844e / my-sewey
Actions
Details Info
VPC ID
vpc-0b4329a83cadd844e
State
Available
Block Public Access
Off
DNS hostnames
Disabled
DNS resolution
Enabled
Tenancy
default
DHCP option set
dopt-023619f75753173c6
Main route table
rtb-00f77b642565d005d
Main network ACL
acl-00bf34a39882a33a3
Default VPC
No
IPv4 CIDR
10.0.0.0/16
IPv6 pool
–
IPv6 CIDR (Network border group)
–
Network Address Usage metrics
Disabled
Route 53 Resolver DNS Firewall rule groups
–
Owner ID
850995559620
Resource map
CIDRs
Flow logs
Tags
Integrations
Resource map Info
CloudShell
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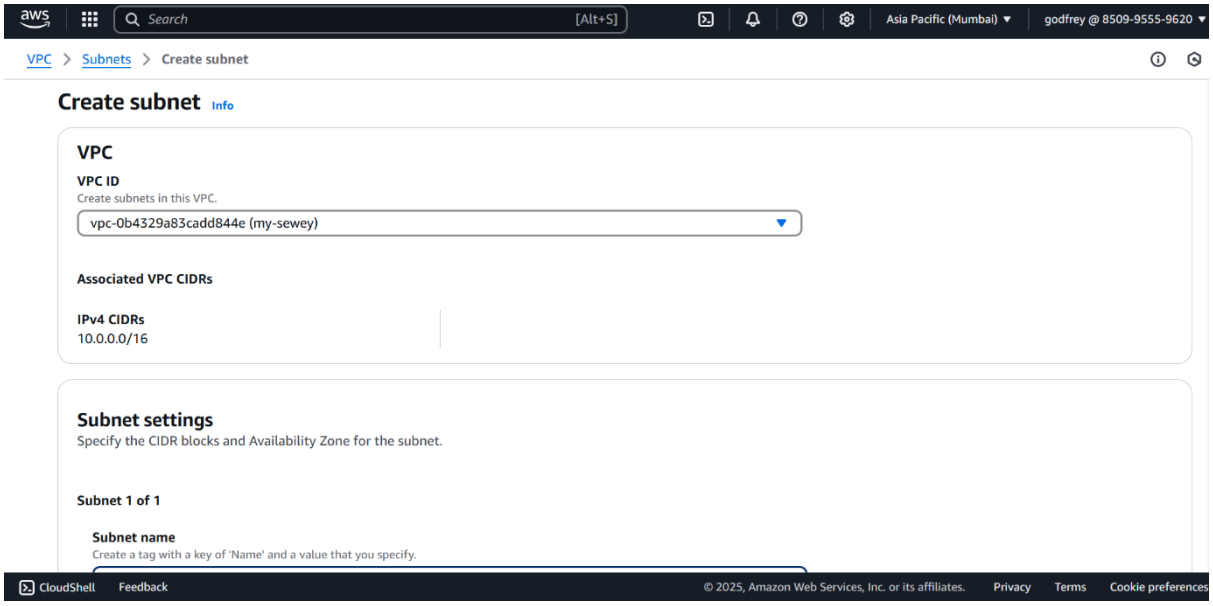
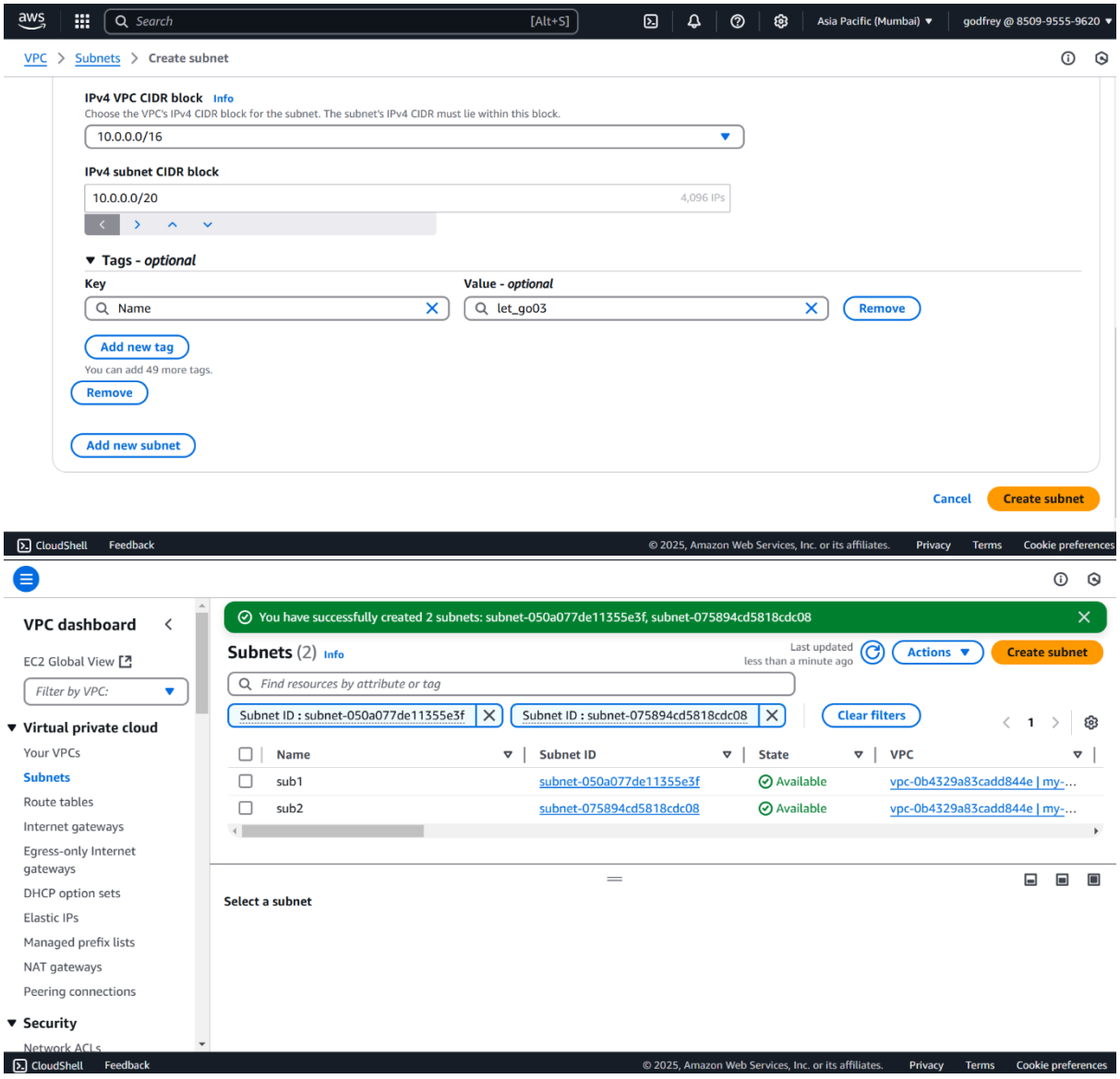
Step 2: Create public and private subnet.

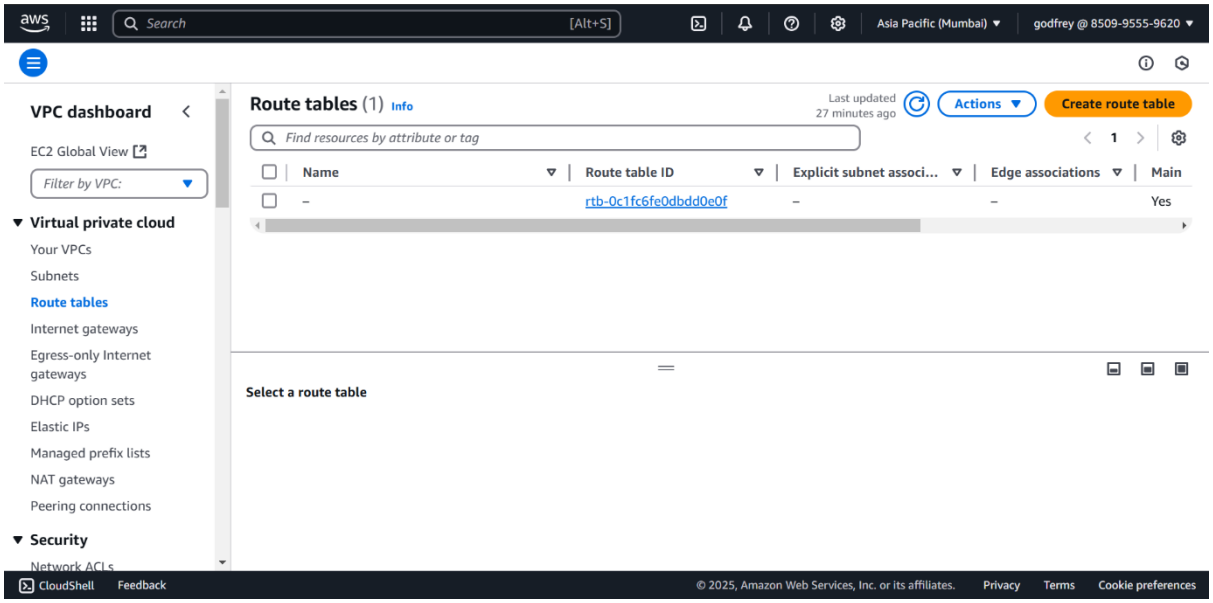
Go to **subnet** and click **create subnet**.

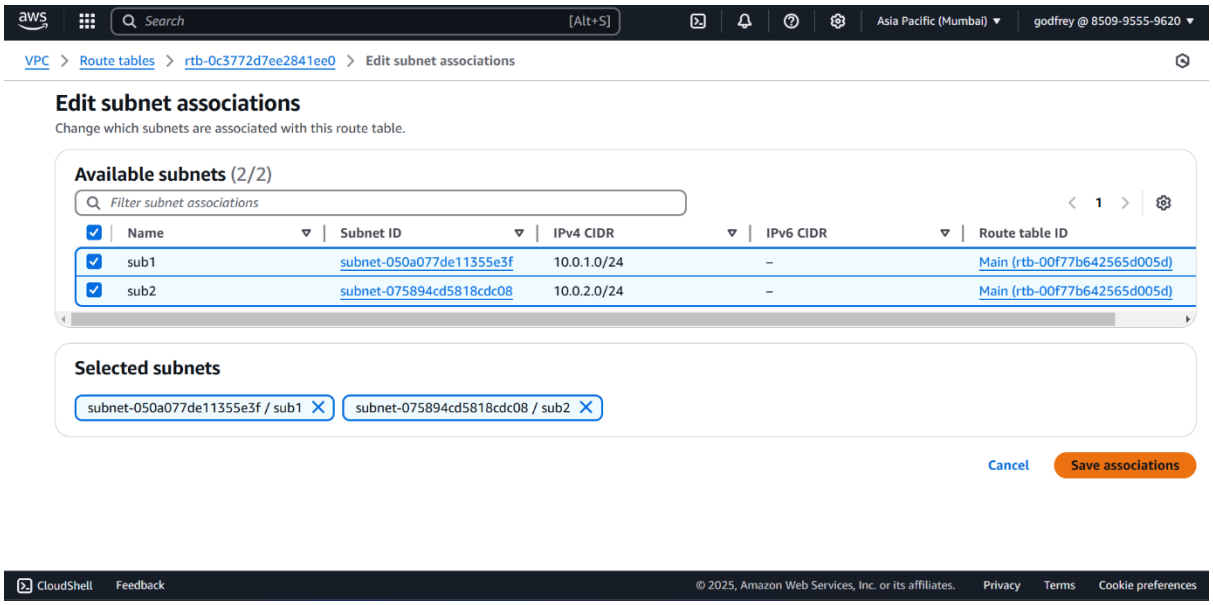




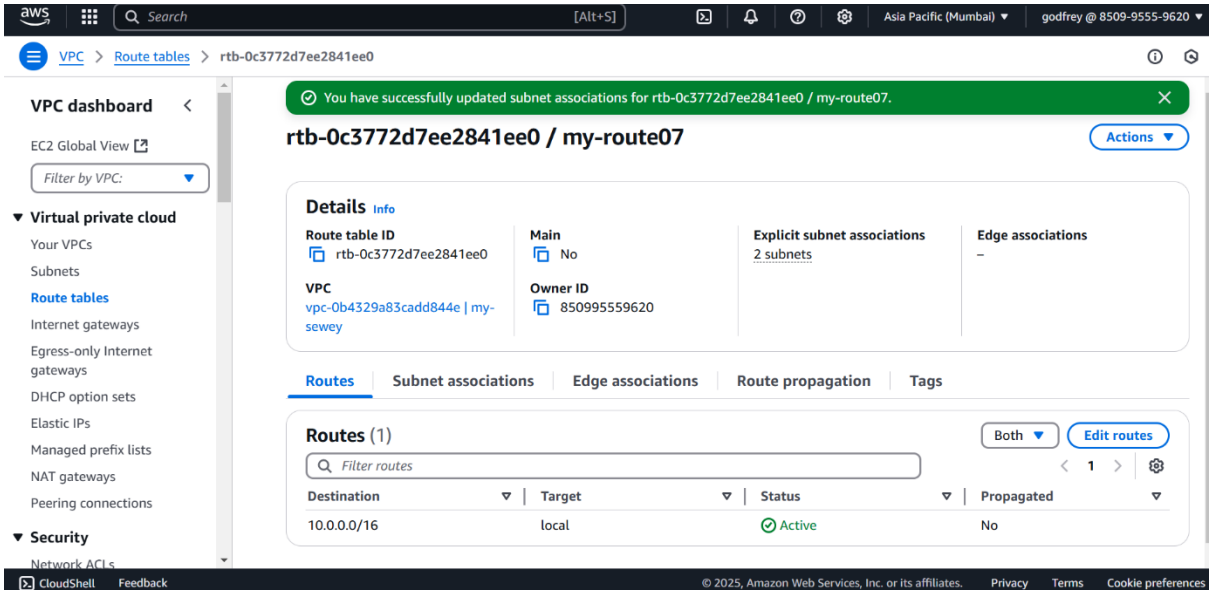
Step 3: Configure route tables

Navigate to **route tables** and click **create route tables**.



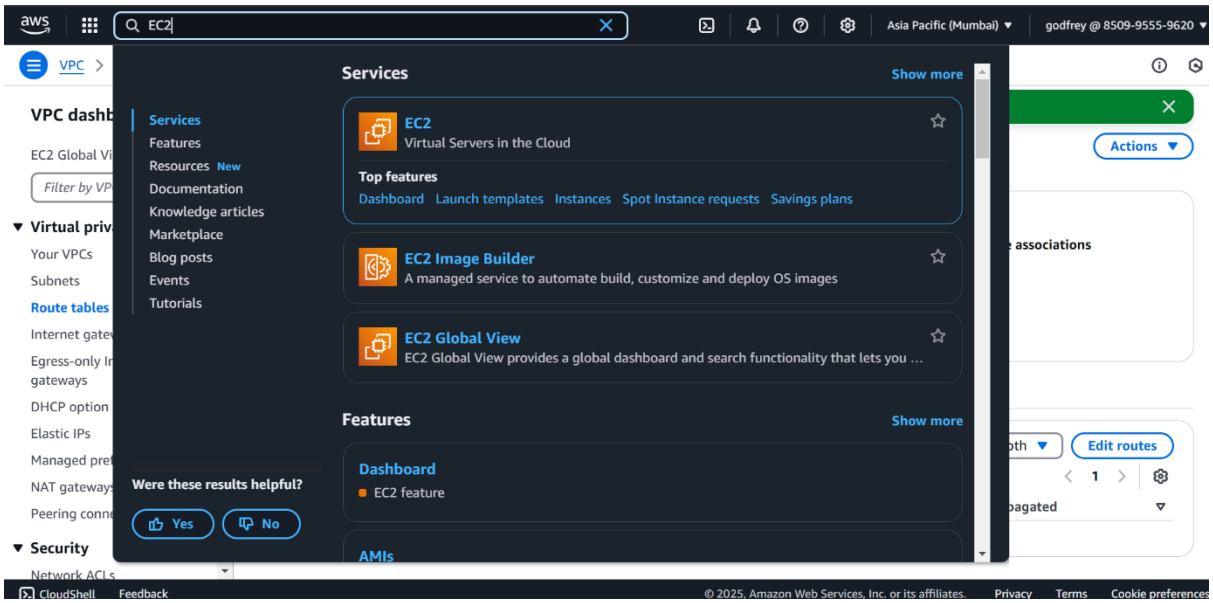


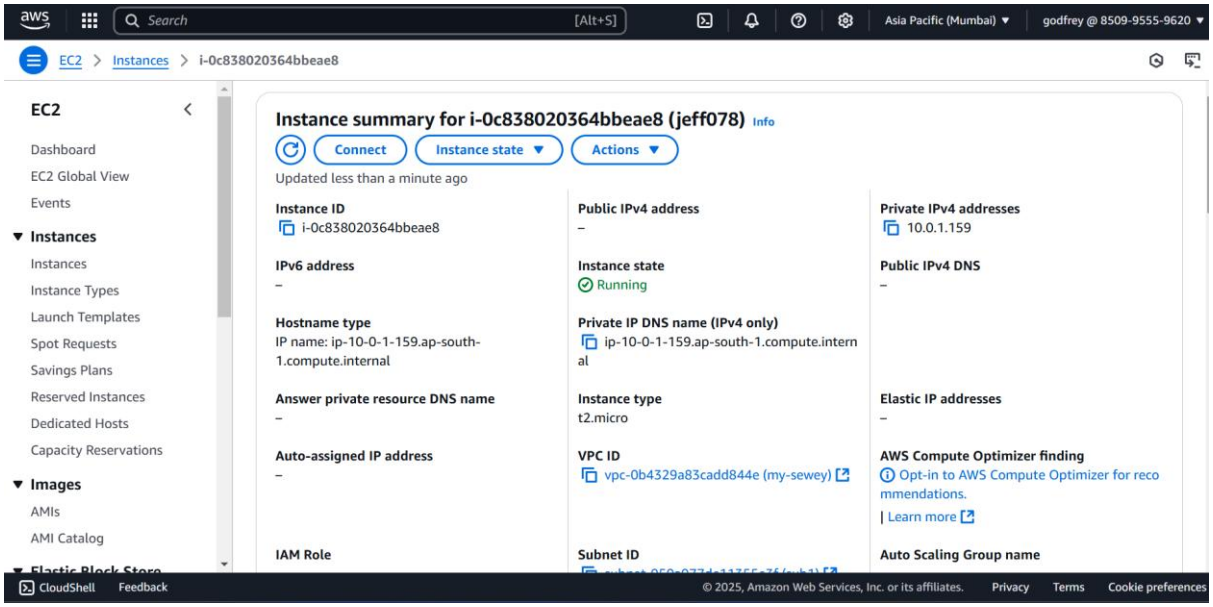
Step 4: Configure security groups



Step 5: Launch EC2 instances

Go to **EC2 instance,** click **create instance**





Step 6: Test internal communication

```
ssh -i your-key.pem ec2-user@PRIVATE_INSTANCE_IP
```

EXPECTED OUTCOME:

After completing these steps, you will achieve:

1) A secure VPC setup with private and public subnets.

2) Internal communication between instances in a controlled environment.

3) A strong understanding of AWS networking principles.

4) A private subnet isolated from internet access.