

Lesson 05 Demo 05

Configuring Subnets, Route Table, and NAT

Objective: To create a Virtual Private Cloud (VPC) on AWS, set up subnets, configure route tables, and create a Network Address Translation (NAT) gateway

Tools required: Amazon workspaces

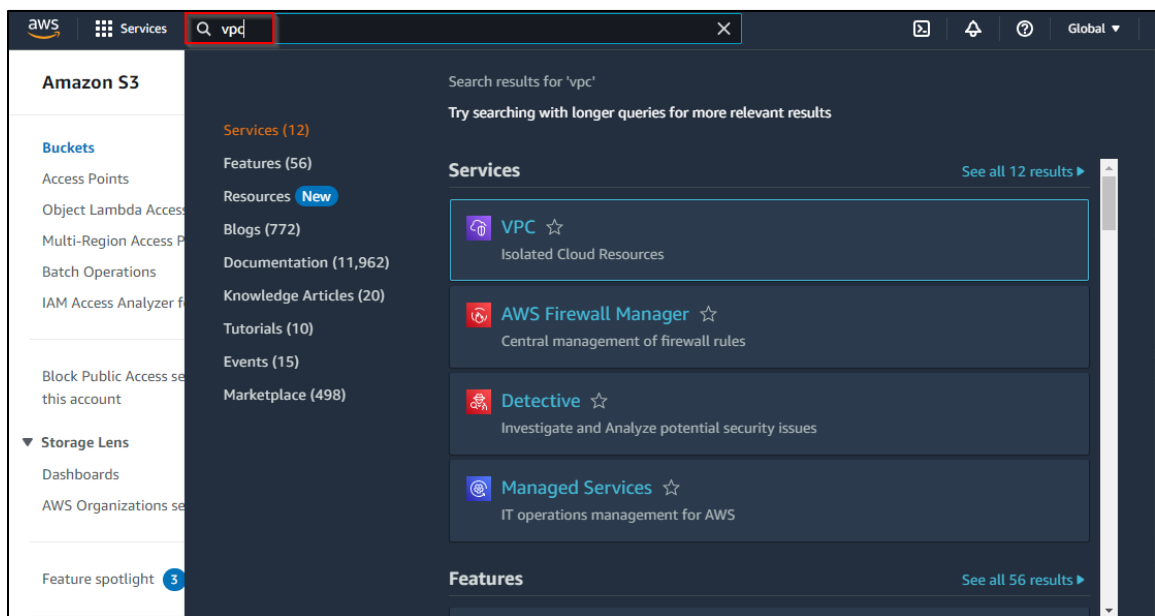
Prerequisites: Amazon account

Steps to be followed:

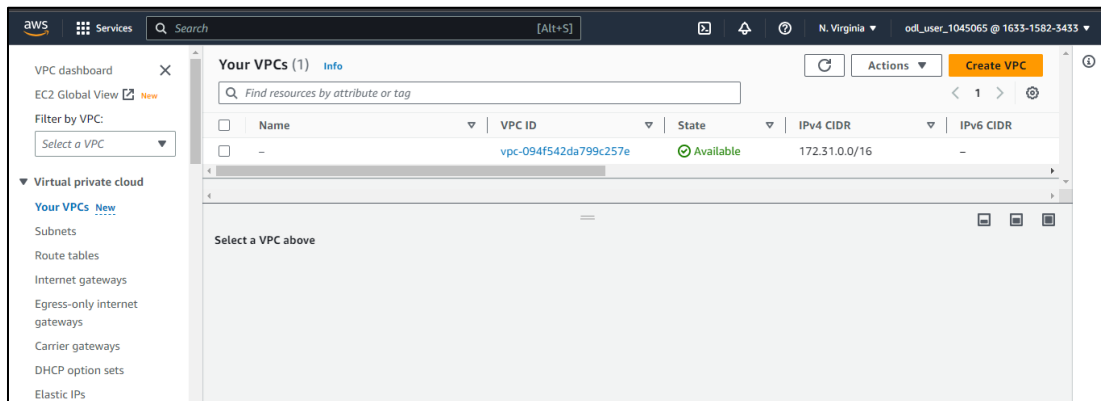
1. Create a VPC
2. Create Internet gateways
3. Create Subnets
4. Create a route table and NAT

Step 1: Create a VPC

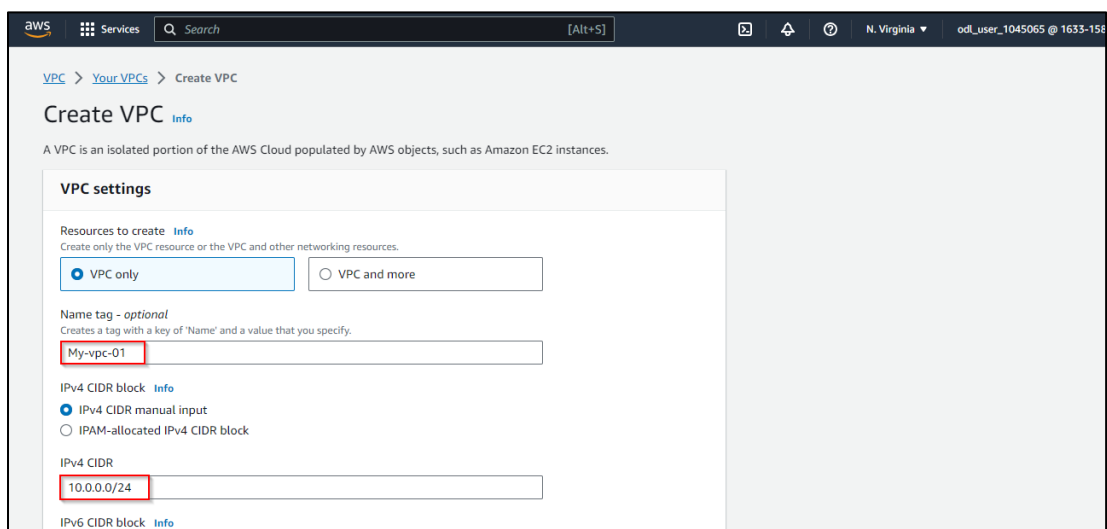
1.1 Navigate to the AWS Console home, search and select **VPC**



1.2 Click on Create VPC



1.3 Enter the VPC Name as **My-vpc-01** and IPv4 CIDR as **10.0.0.0/24**



1.4 Click on **Create VPC**

10.0.0.0/24

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

Tags

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value - optional	
Name	My-vpc-01	Remove tag

[Add tag](#)

You can add 49 more tags

Cancel [Create VPC](#)

You successfully created vpc-06d214d1fa50580f5 / My-vpc-01

VPC > Your VPCs > vpc-06d214d1fa50580f5

vpc-06d214d1fa50580f5 / My-vpc-01

[Actions](#)

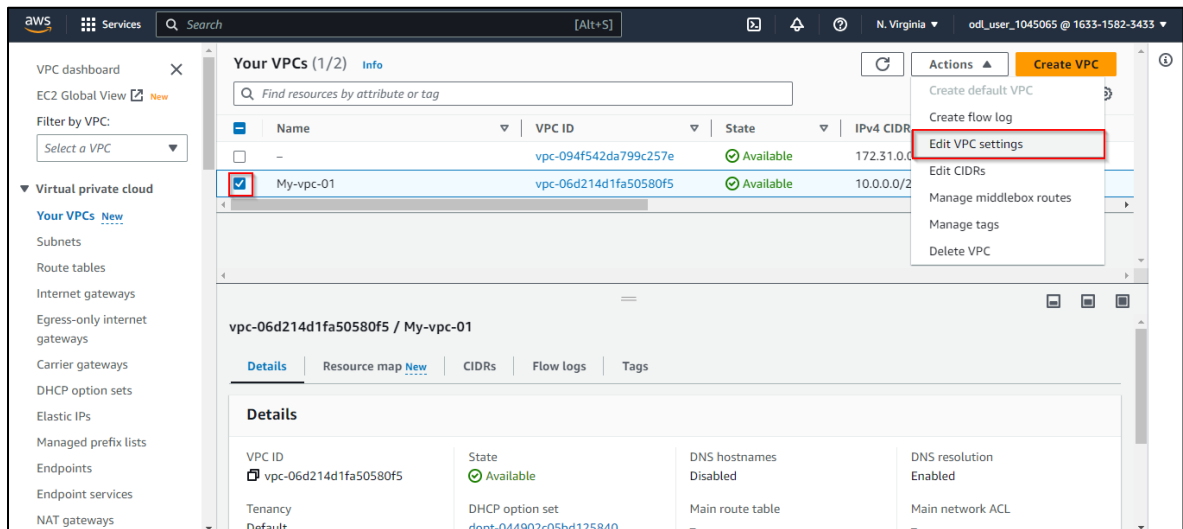
Details [Info](#)

VPC ID vpc-06d214d1fa50580f5	State ✔ Available	DNS hostnames Disabled	DNS resolution Enabled
Tenancy Default	DHCP option set dopt-044902c05bd125840	Main route table rtb-08dc22a852ff406d8	Main network ACL acl-0612ab9edfc3bfa2f
Default VPC No	IPv4 CIDR 10.0.0.0/24	IPv6 pool -	IPv6 CIDR (Network border group) -
Network Address Usage metrics Disabled	Route 53 Resolver DNS Firewall rule groups -	Owner ID 163315823433	

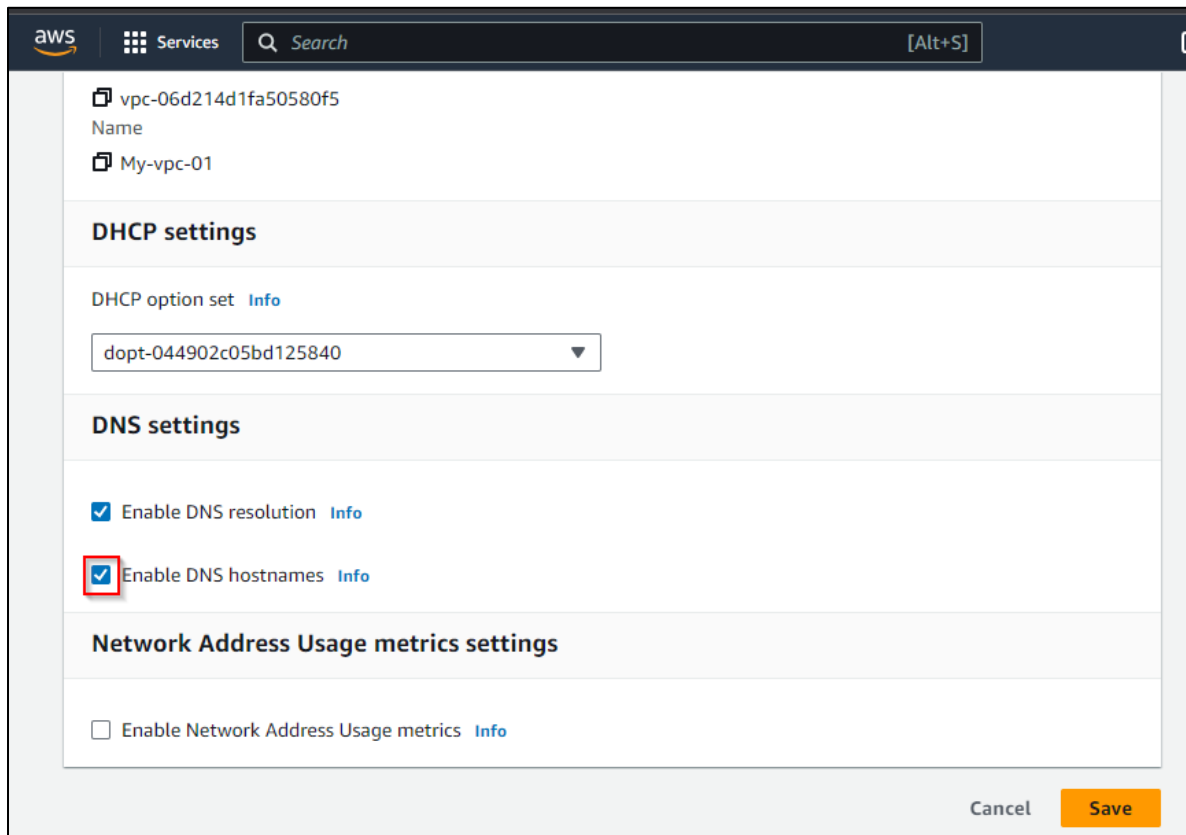
[Resource map](#) [CIDRs](#) [Flow logs](#) [Tags](#)

The VPC is successfully created.

1.5 Select the VPC, click on **Edit VPC settings** under **Actions**

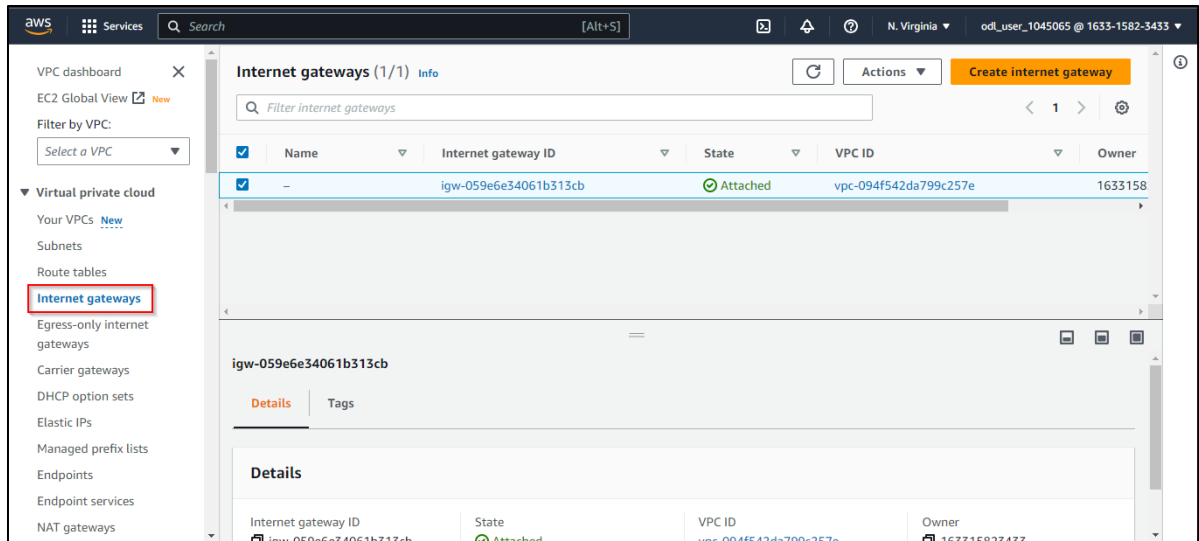


1.6 Select **Enable DNS hostnames** and then click on **Save**



Step 2: Create Internet gateways

2.1 Navigate to **Internet gateways** under Virtual private cloud in the VPC dashboard, then click on **Create internet gateway**



2.2 Name it as **my-internet-gateway**, and click on **Create internet gateway**

An internet gateway is a virtual router that connects a VPC to the internet. To create a new internet gateway specify the name for the gateway below.

Internet gateway settings

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

my-internet-gateway

Tags - optional

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value - optional	
Name	my-internet-gateway	Remove

Add new tag
You can add 49 more tags.

Cancel **Create internet gateway**

2.3 Click on **Attach to a VPC**

The following internet gateway was created: igw-007a719520351b6d4 - my-internet-gateway. You can now attach to a VPC to enable the VPC to communicate with the internet. **Attach to a VPC**

[VPC](#) > [Internet gateways](#) > igw-007a719520351b6d4

igw-007a719520351b6d4 / my-internet-gateway

Details [Info](#)

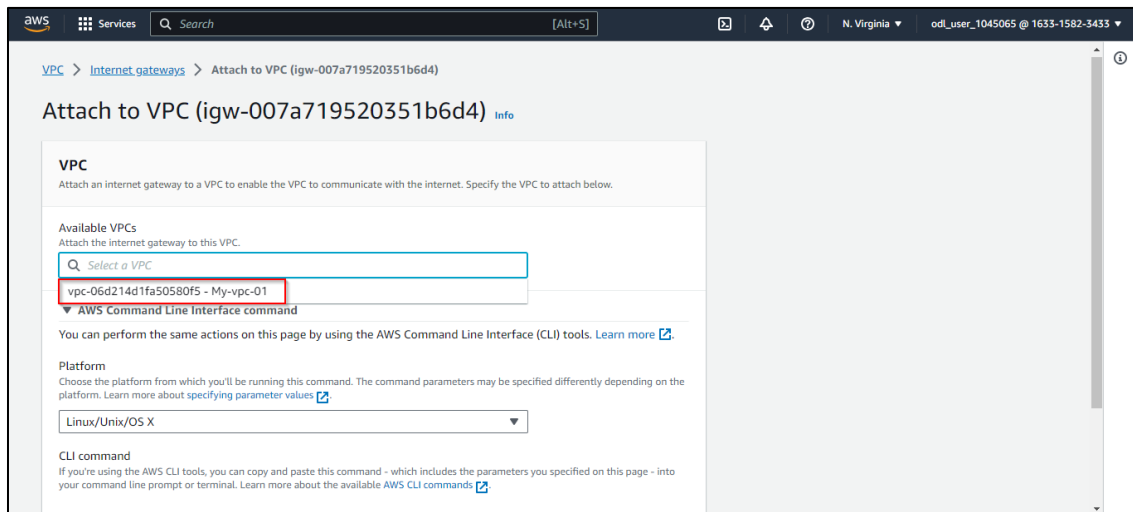
Internet gateway ID	State	VPC ID	Owner
igw-007a719520351b6d4	Detached	-	163315823433

Tags

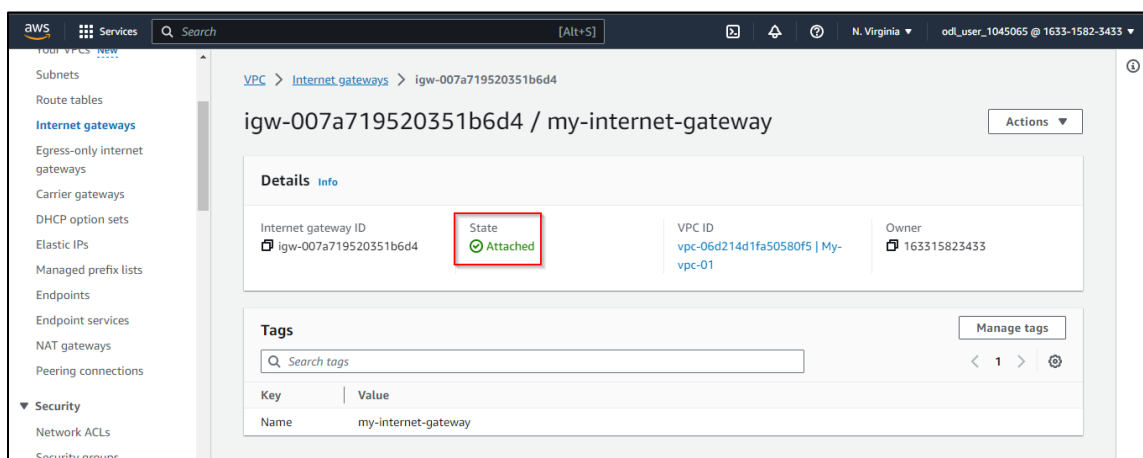
Key	Value
Name	my-internet-gateway

Manage tags < 1 >

2.4 Select **Available VPCs**



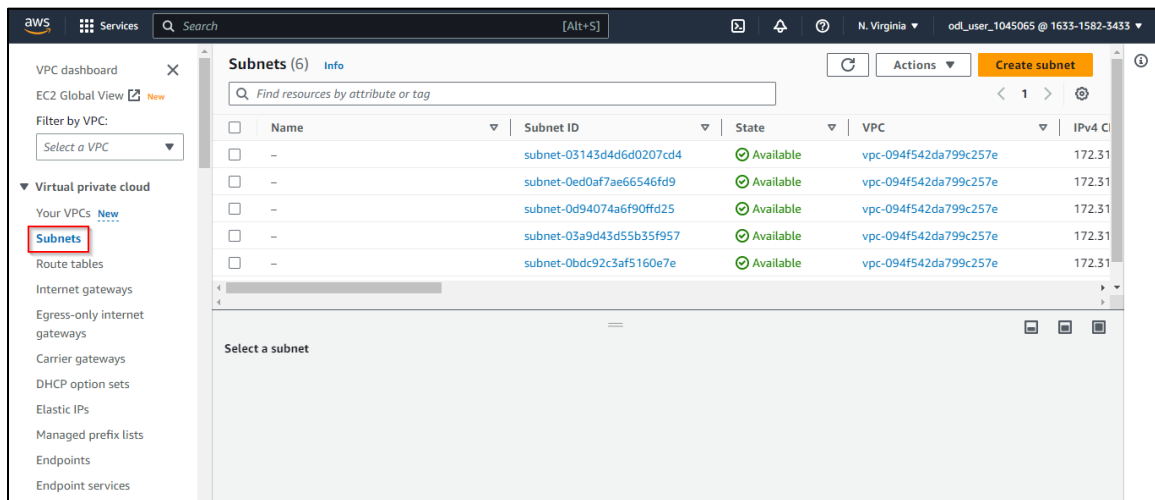
2.5 Click on **Attach internet gateway**



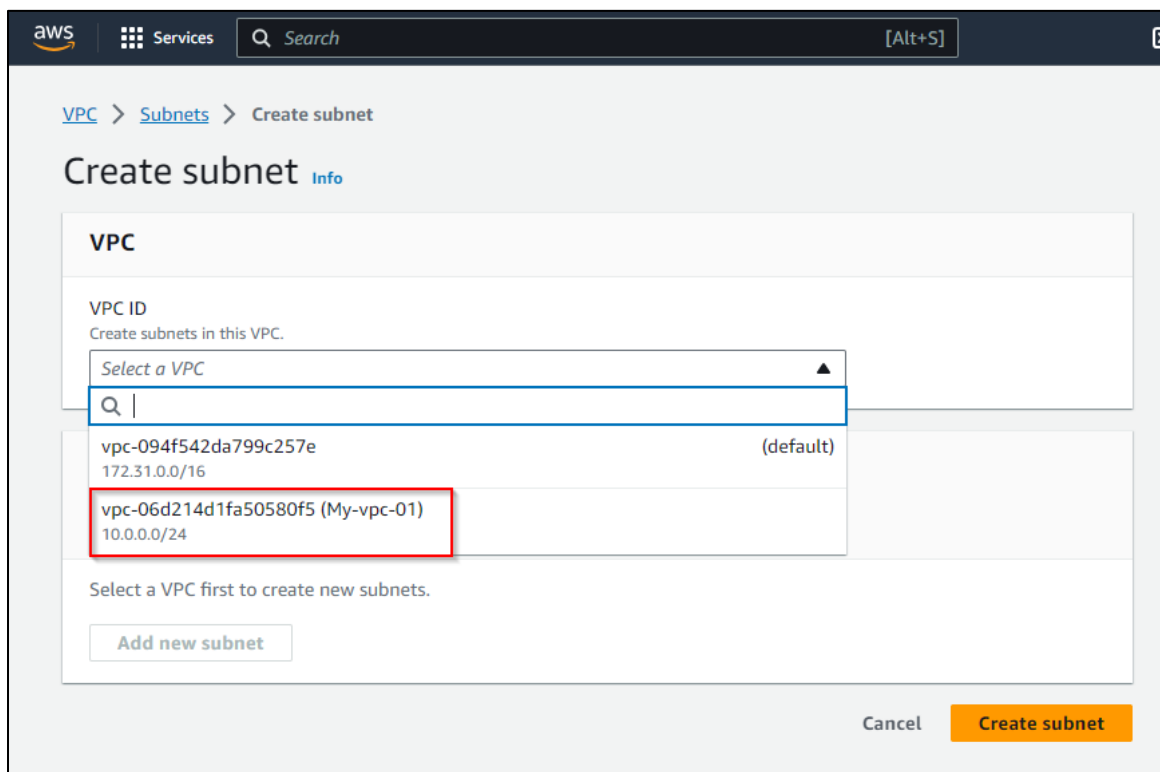
The VPC is successfully attached.

Step 3: Create Subnets

3.1 Navigate to **Subnets** under **Virtual private cloud** in the VPC dashboard, then click on **Create subnet**



3.2 Select **My-vpc-01** in the VPC ID



3.3 Enter the name as **my-public-subnet** and IPv4 CIDR block as **10.0.0.0/24**, then click on **Create subnet**

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

my-public-subnet
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 CIDR block [Info](#)
10.0.0.0/24

▼ **Tags - optional**

Key	Value - optional	
Name	my-public-subnet	Remove

Add new tag

You can add 49 more tags.

Remove

Add new subnet

Cancel **Create subnet**

✓ You have successfully created 1 subnet: subnet-086ea29857a8197f8

Subnets (1) [Info](#)

Find resources by attribute or tag

Subnet ID = subnet-086ea29857a8197f8 Clear filters

	Name	Subnet ID	State	VPC	IPv4 CIDR
<input type="checkbox"/>	my-public-subnet	subnet-086ea29857a8197f8	Available	vpc-06d214d1fa50580f5 My-v...	10.0.0.0/24

Select a subnet

The subnet is created successfully.

Now, create a **VPC** as **my-vpc-02** for the private subnet, just like the previous steps from 1.2 to 1.6. Enter the **IPv4 CIDR** as **10.0.0.0/22** during VPC creation.

3.4 Click on **my-vpc-02**

aws Services Search [Alt+S] N. Virginia odl_user_1045065 @ 1633-1582-3433

VPC > Subnets > Create subnet

Create subnet [Info](#)

VPC

VPC ID
Create subnets in this VPC.

Select a VPC

- vpc-0c519090ec9b7f33d (my-vpc-02)
10.0.0.0/22
- vpc-094f542da799c257e (default)
172.31.0.0/16
- vpc-06d214d1fa50580f5 (My-vpc-01)
10.0.0.0/24

[Add new subnet](#)

[Cancel](#) [Create subnet](#)

3.5 Enter subnet name as **my-private-subnet** and IPv4 CIDR block as **10.0.0.0/22**, then click on **Create subnet**

aws Services Search [Alt+S] N. Virginia odl_user_1045065 @ 1633-1582-3433

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

my-private-subnet

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 CIDR block [Info](#)
10.0.0.0/22

▼ **Tags - optional**

Key	Value - optional	
Name	my-private-subnet	Remove

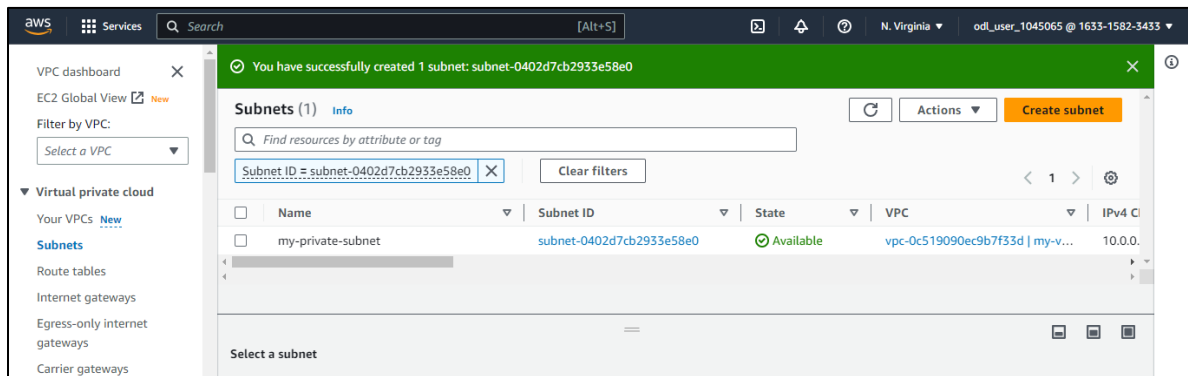
[Add new tag](#)

You can add 49 more tags.

[Remove](#)

[Add new subnet](#)

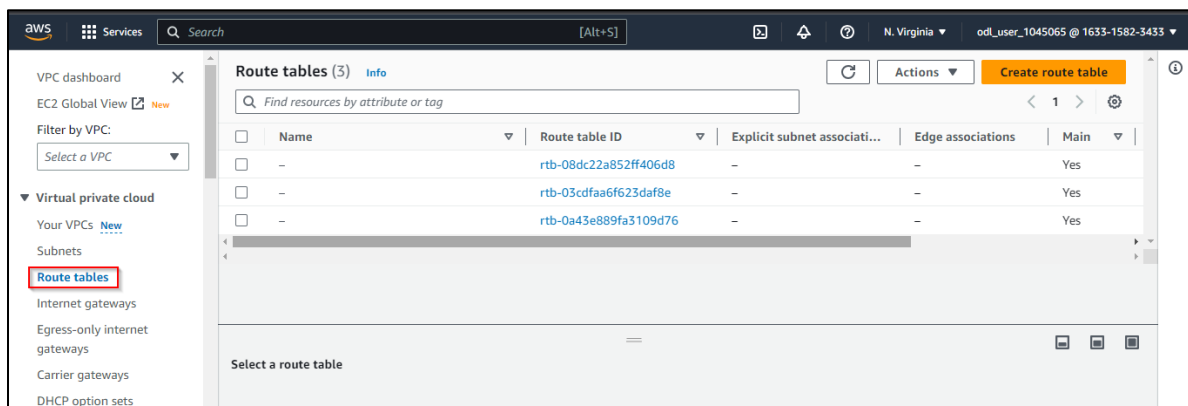
[Cancel](#) [Create subnet](#)



The private subnet is created successfully.

Step 4: Create a Route table and NAT

4.1 Navigate to **Route tables** under **Virtual private cloud** in the VPC dashboard, then click on **Create route table**



4.2 Enter the **Name** as **my-sample-route** and select **VPC** as **My-vpc-01**, then click on **Create route table**

connection.

Route table settings

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

my-sample-route

VPC
The VPC to use for this route table.

vpc-06d214d1fa50580f5 (My-vpc-01)

vpc-0c519090ec9b7f33d (my-vpc-02)

vpc-094f542da799c257e (default)

vpc-06d214d1fa50580f5 (My-vpc-01)

Key **Value - optional**

Name my-sample-route

Add new tag

You can add 49 more tags.

Cancel Create route table

Route table rtb-097a764465bd560fd | my-sample-route was created successfully.

VPC > Route tables > rtb-097a764465bd560fd

rtb-097a764465bd560fd / my-sample-route

You can now check network connectivity with Reachability Analyzer

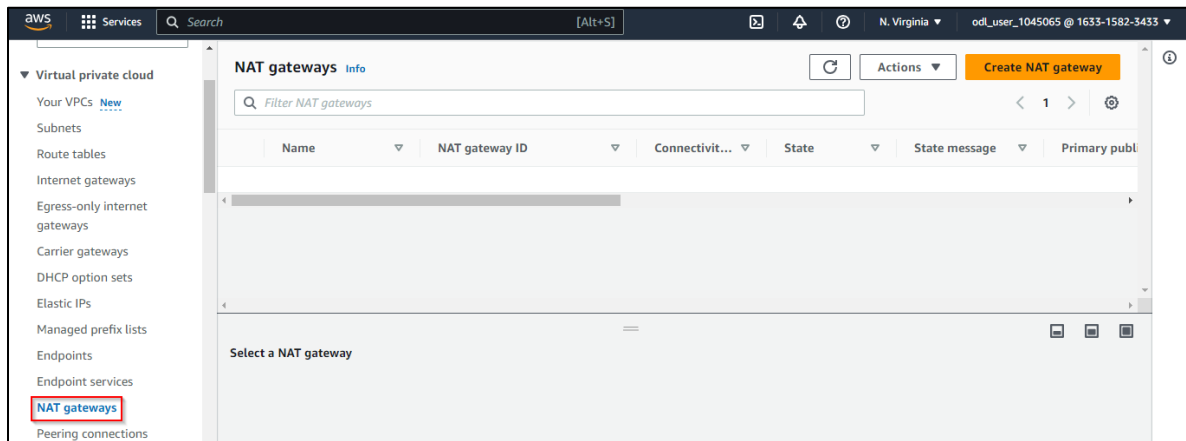
Run Reachability Analyzer

Details Info

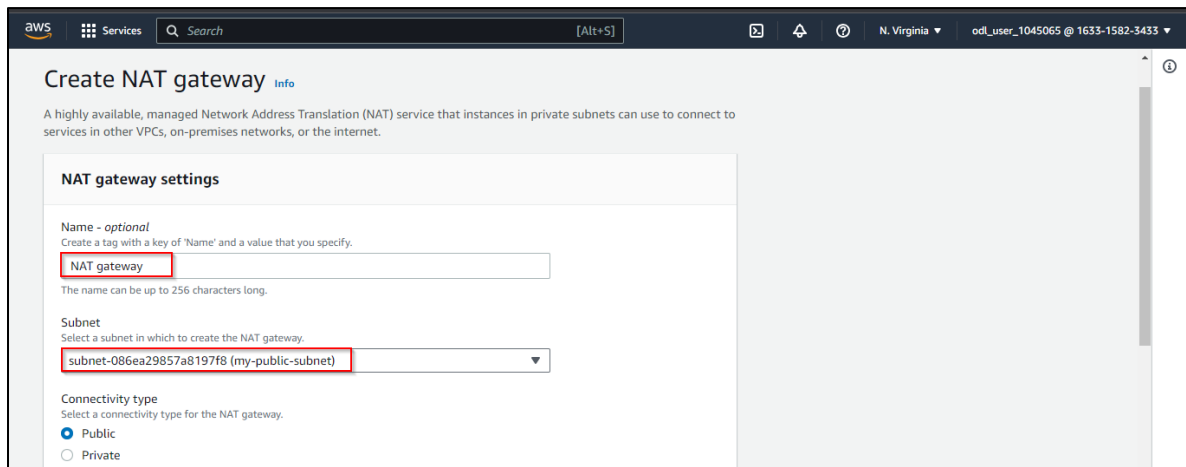
Route table ID rtb-097a764465bd560fd	Main No	Explicit subnet associations -	Edge associations -
VPC vpc-06d214d1fa50580f5 My-vpc-01	Owner ID 163315823433		

The route table is created successfully.

4.3 Navigate to the NAT gateways, click on Create NAT gateway



4.4 Enter the NAT name as NAT gateway, select the subnet as my-public-subnet, and choose Public from the Connectivity type



4.5 Click on **Allocate Elastic IP**

aws Services Search [Alt+S]

✓ Elastic IP address 44.214.168.110 (eipalloc-09013f412b9069c0a) allocated.

NAT gateway settings

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

NAT gateway

The name can be up to 256 characters long.

Subnet
Select a subnet in which to create the NAT gateway.

subnet-086ea29857a8197f8 (my-public-subnet)

Connectivity type
Select a connectivity type for the NAT gateway.

☒ Public
☐ Private

Elastic IP allocation ID [Info](#)
Assign an Elastic IP address to the NAT gateway.

eipalloc-09013f412b9069c0a

Allocate Elastic IP

► Additional settings [Info](#)

4.6 Click on **Create NAT gateway**

► Additional settings [Info](#)

Tags

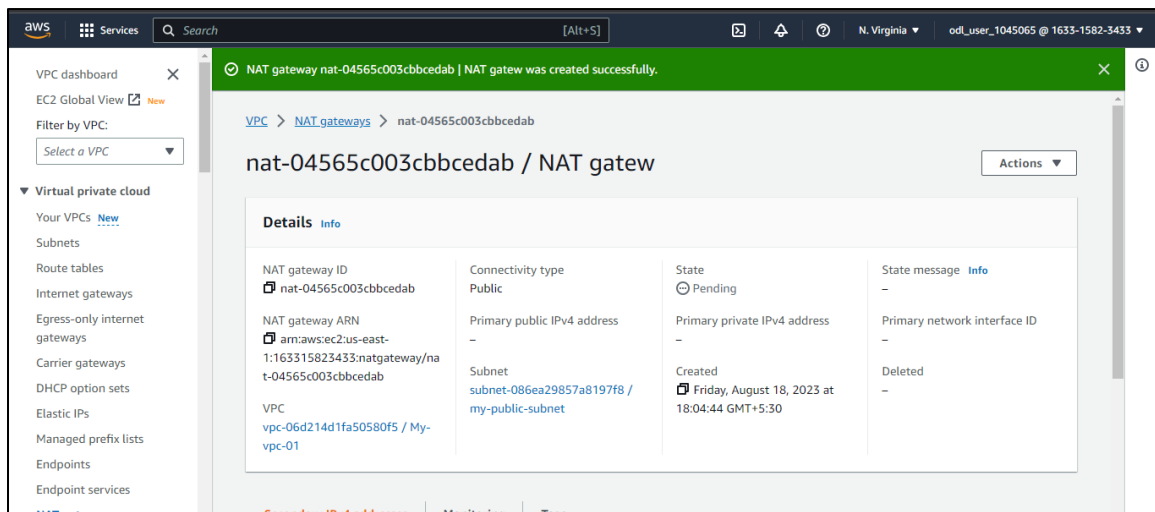
A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

Key	Value - optional	
Name	NAT gatewa	Remove

[Add new tag](#)

You can add 49 more tags.

Cancel **Create NAT gateway**



NAT gateway is created successfully.

By following these steps, you have successfully demonstrated the process of setting up a robust network infrastructure within your AWS Virtual Private Cloud (VPC).

By creating subnets, configuring route tables, and implementing a Network Address Translation (NAT) gateway, you have established a well-organized and secure network.