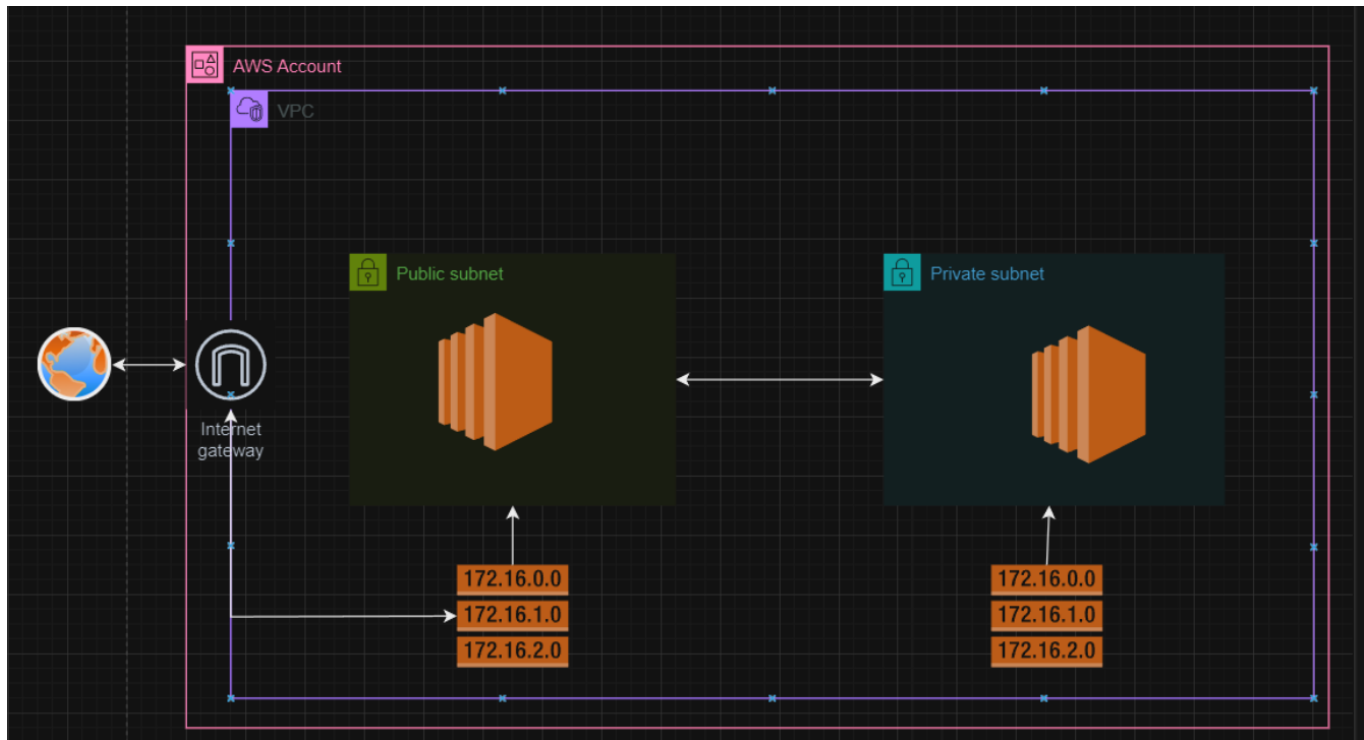


VPC

Created AWS Account.

Putty and Mobxstream 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 splitted 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 splitted 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

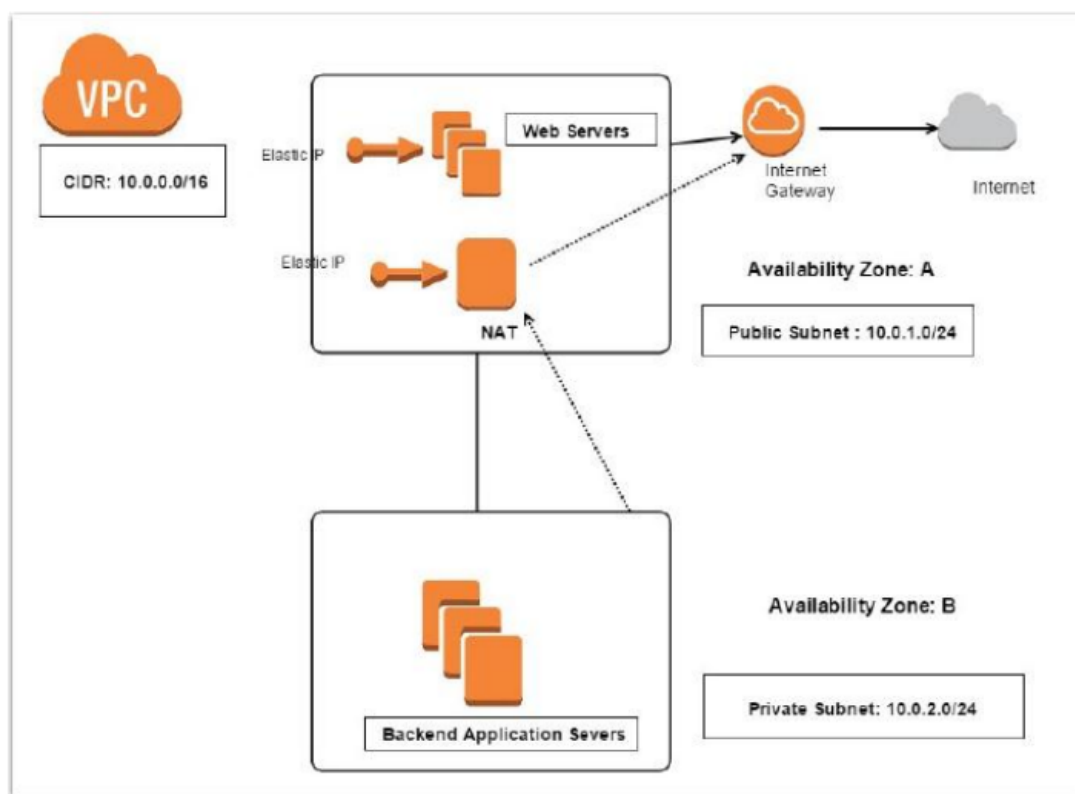
Connecting the ec2 server from Command prompt

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

VPC with public and private subnets Architecture



- EC2 ->
- RT ->

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

step 1:

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
- Endpoints
- Endpoint services
- NAT gateways
- Peering connections

▼ Security

- Network ACLs

Introducing the new VPC console experience

We've made updates to the VPC console. This new experience won't change how you work in the console. If you experience a problem with your access, [see the troubleshooting documentation](#) to get information about how to resolve it. You can opt out of the new experience until 31 May 2024. Before that date, you must resolve the access issues to continue using the console. You can also [report issue details](#).

[Create VPC](#) [Launch EC2 Instances](#)

Note: Your Instances will launch in the US East region.

Resources by Region Refresh Resources

You are using the following Amazon VPC resources

Resource	US East 1
VPCs See all regions	1
NAT Gateways See all regions	0
Subnets See all regions	3
VPC Peering Connections See all regions	0
Route Tables See all regions	1
Network ACLs See all regions	1
Internet Gateways See all regions	1
Security Groups See all regions	1

Service Health

[View complete service health details](#)

Settings

[Zones](#)

[Console Experiments](#)

Additional Information

[VPC Documentation](#)

[All VPC Resources](#)

[Forums](#)

[Report an Issue](#)

AWS Network Manager

AWS Network Manager provides tools and features to help you manage and monitor your network on AWS. Network Manager makes it easier to perform connectivity management, network monitoring and troubleshooting, IP management, and network security and governance.

[Get started with Network Manager](#)

Site-to-Site VPN Connections

Go to your VPC

step 2:

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
- Endpoints
- Endpoint services
- NAT gateways
- Peering connections

▼ Security

- Network ACLs

Your VPCs (1) Info

	Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP options
<input type="checkbox"/>	-	vpc-0953fc3a361ca9532	Available	172.31.0.0/16	-	dopt-0694

Select a VPC above

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:

aws

Services

Search

[Alt+S]

Ohio

siddiq

VPC dashboard

EC2 Global View

Filter by VPC:

Select a VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Egress-only Internet gateways

DHCP option sets

Elastic IPs

Managed prefix lists

Endpoints

Endpoint services

NAT gateways

Peering connections

Security

Network ACLs

You successfully created vpc-0158026b3dccc2988 / vpc1

Internet gateways (1)

Info

Actions

Create internet gateway

Search

Name	Internet gateway ID	State	VPC ID	Owner
-	igw-0b8679a364e196023	Attached	vpc-0953fc3a361ca9532	730335423416

Select an internet gateway above

Go to Internet gateway and create internet gateway.

step 2:

[VPC](#) > [Internet gateways](#) > Create internet gateway

Create internet gateway [Info](#)

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.

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

[Remove](#)[Add new tag](#)

You can add 49 more tags.

[Cancel](#)[Create internet gateway](#)

Enter the name and create internet gateway

Attach internet gateway into VPC

step 1:

The screenshot shows the AWS Management Console interface for Internet gateways. On the left is a navigation sidebar with 'Virtual private cloud' expanded. The main content area shows a table of Internet gateways. One gateway named 'internet' is selected. Below the table, the details for this gateway are displayed, showing its ID, state (Detached), VPC ID, and owner.

Name	Internet gateway ID	State	VPC ID	Owner
-	igw-0b8679a364e196023	Attached	vpc-0953fc3a361ca9532	730335423416
<input checked="" type="checkbox"/> internet	igw-0c6f971cb024c9585	Detached	-	730335423416

igw-0c6f971cb024c9585 / internet

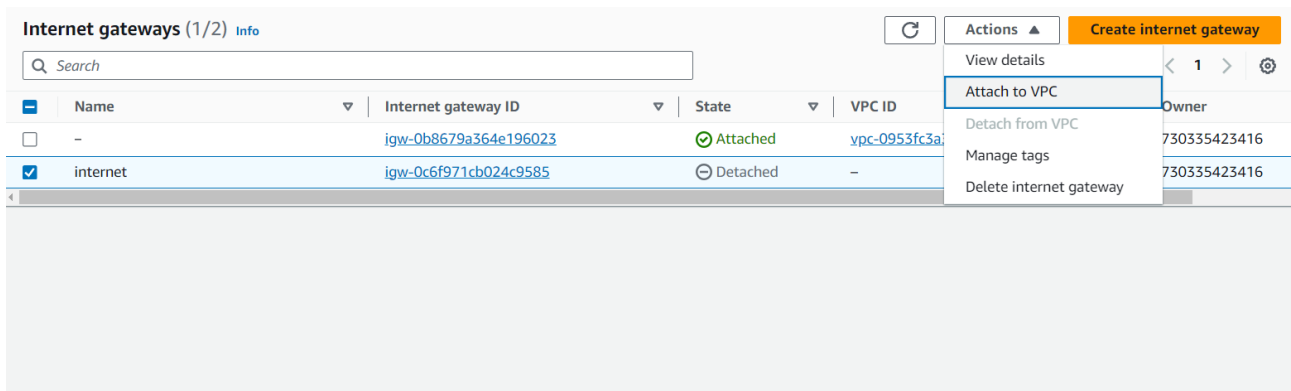
[Details](#) [Tags](#)

Details

Internet gateway ID igw-0c6f971cb024c9585	State Detached	VPC ID -	Owner 730335423416
--	-------------------	-------------	-----------------------

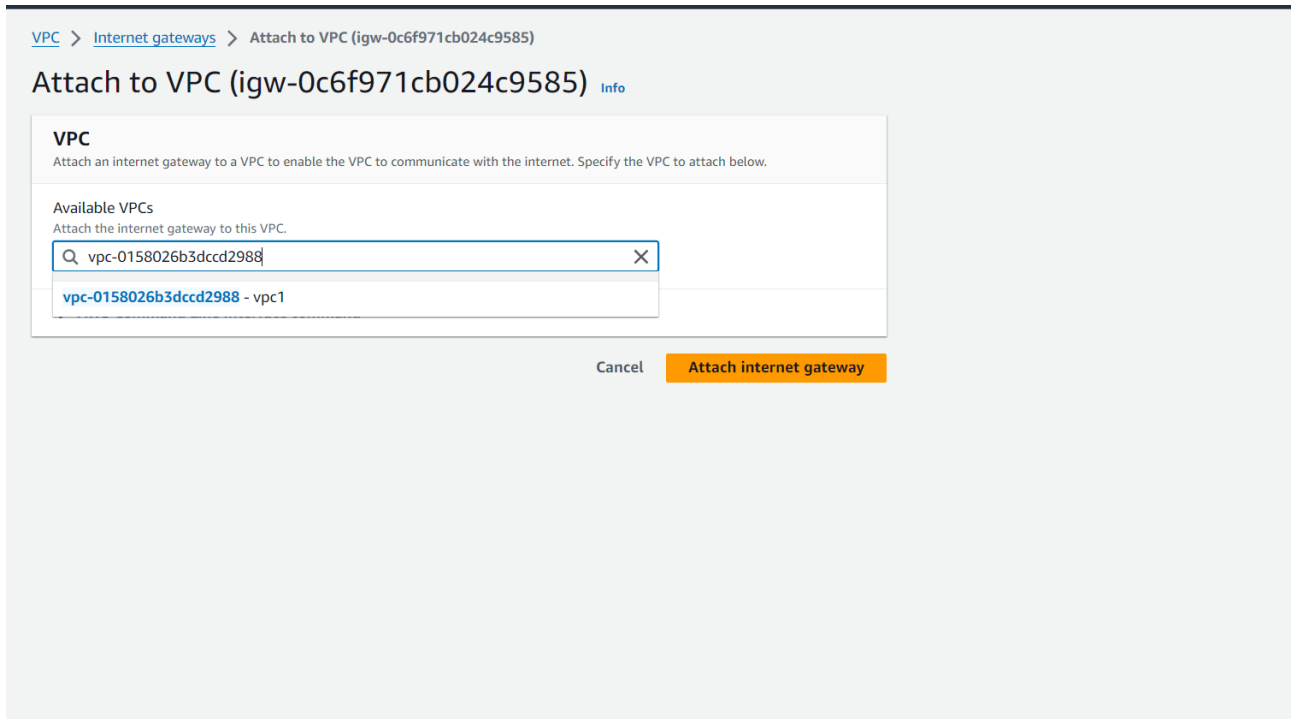
Select internet gateway and click action

step 2:



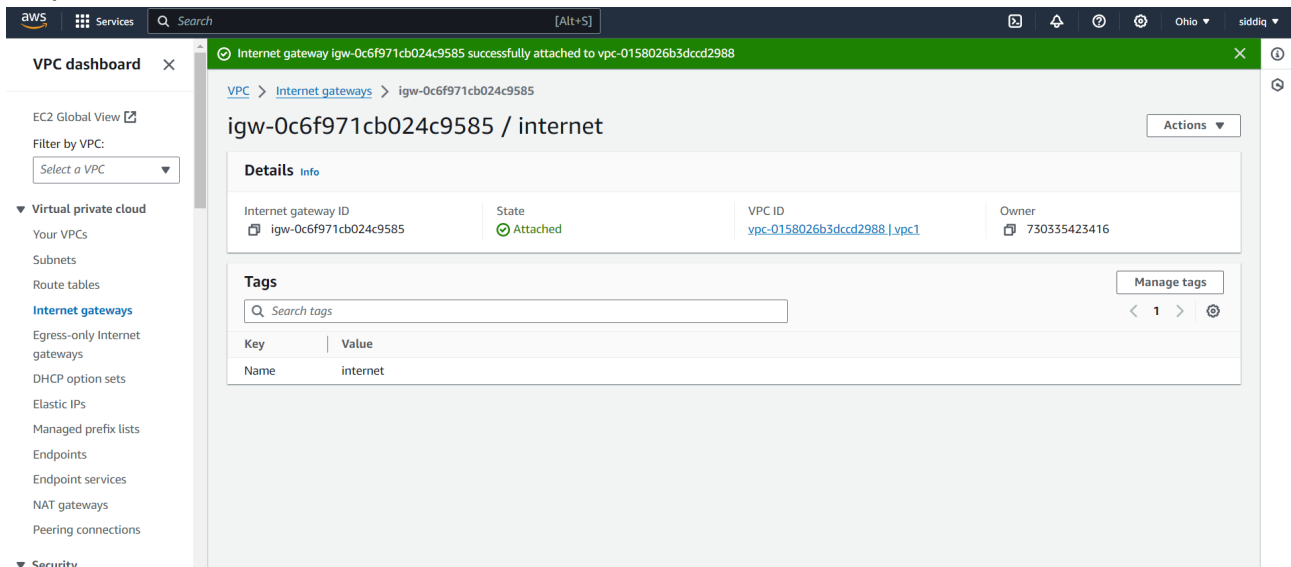
click the attach to VPC

step 3:



Select the VPC which you created and attach internet gateway

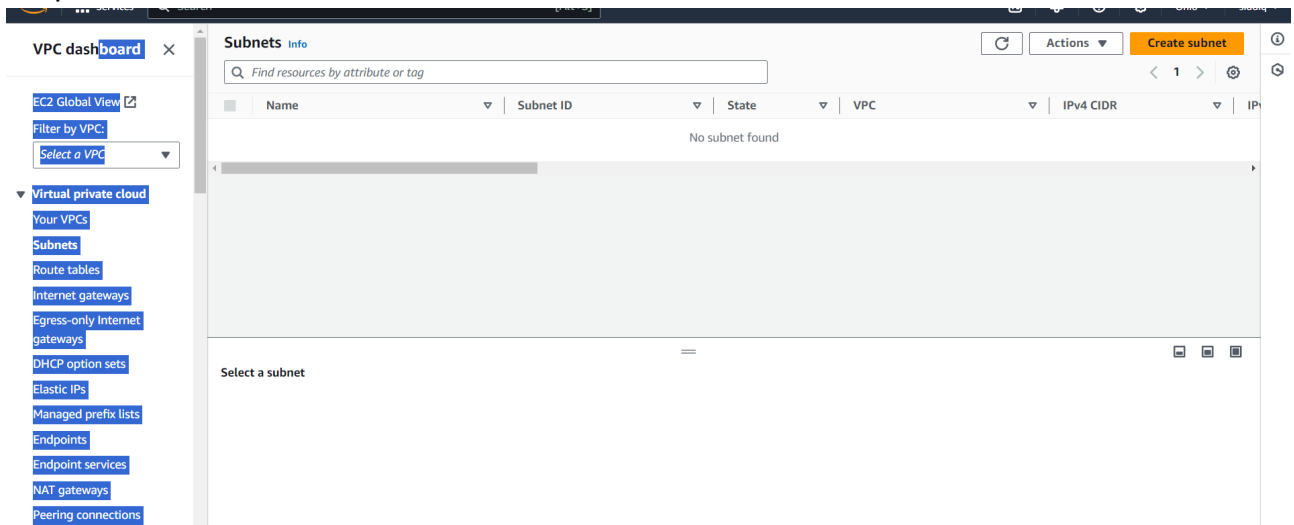
output:



Internet gateway and VPC are connected.

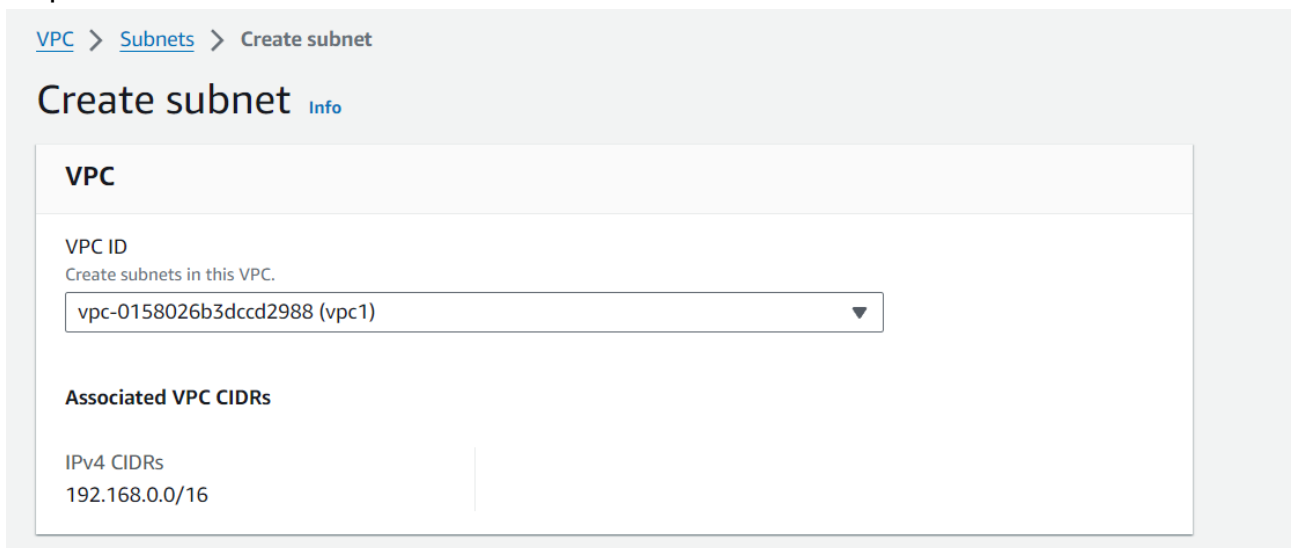
SUBNET :

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.

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.

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.

IPv4 subnet CIDR block

256 IPs

< > ^ v

▼ Tags - optional

Key

×

Value - optional

×

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:

Subnets (2) [Info](#)

Refresh

Actions ▼

Create subnet

< 1 > ⚙

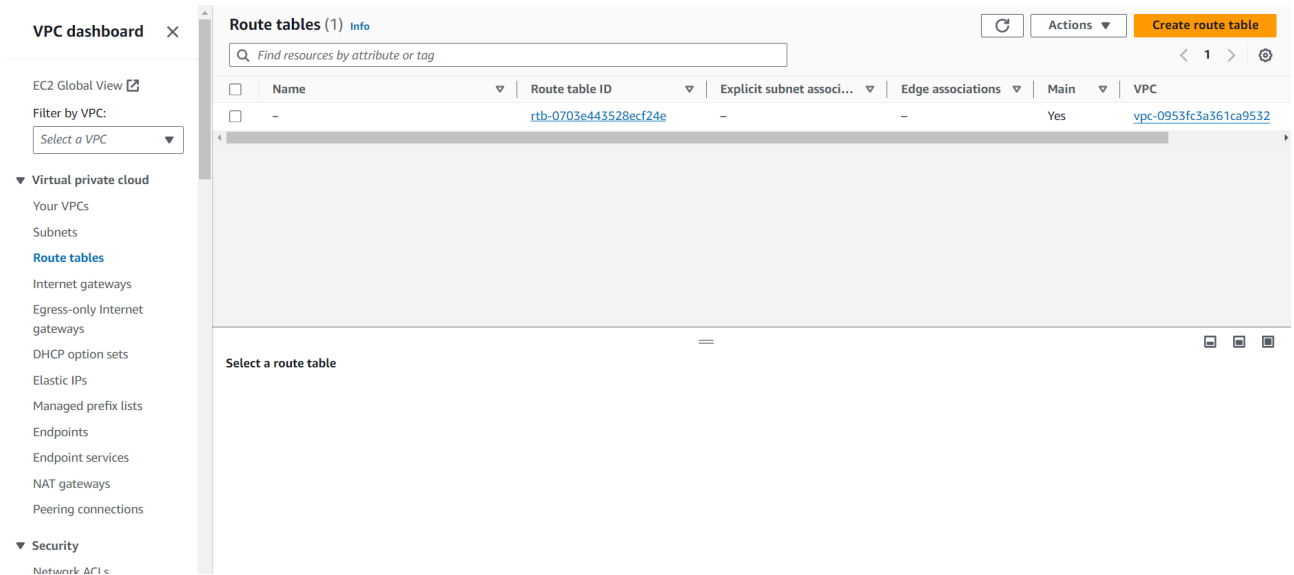
<input type="checkbox"/>	Name ▼	Subnet ID ▼	State ▼	VPC ▼	IPv4 CIDR ▼	IP
<input type="checkbox"/>	public	subnet-0ceeaec6c509ee833	Available	vpc-0158026b3dccd2988 vpc1	192.168.1.0/24	-
<input type="checkbox"/>	private	subnet-015990201bcfbf07a	Available	vpc-0158026b3dccd2988 vpc1	192.168.2.0/24	-

Select a subnet

check the two subnet

ROOT TABLE

step 1:



go to route table and click create route table.

step 2:

[VPC](#) > [Route tables](#) > Create route table

Create route table Info

A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.

Route table settings

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

VPC
The VPC to use for this route table.

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	
<input type="text" value="Name"/>	<input type="text" value="rout-public"/>	<input type="button" value="Remove"/>

You can add 49 more tags.

Enter the name and select VPC and create route table.

create another route table for private user.

connect route table with subnet:

step1:

VPC dashboard ✕

EC2 Global View

Filter by VPC:
[Select a VPC](#)

▼ Virtual private cloud

- Your VPCs
- Subnets
- Route tables**
- Internet gateways
- Egress-only Internet gateways
- DHCP option sets
- Elastic IPs
- Managed prefix lists
- Endpoints
- Endpoint services
- NAT gateways
- Peering connections

▼ Security

- Network ACLs

Route tables (1/4) [Info](#)

<input type="checkbox"/>	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
<input type="checkbox"/>	-	rtb-0703e443528ecf24e	-	-	Yes	vpc-0953fc3a361ca9532
<input type="checkbox"/>	-	rtb-05744317a63ba5cad	-	-	Yes	vpc-0158026b3dccd2988 vpc1
<input checked="" type="checkbox"/>	route-public	rtb-0bfc1006d6ed8543f	-	-	No	vpc-0158026b3dccd2988 vpc1
<input type="checkbox"/>	route-private	rtb-0ec4c01b65f72c968	-	-	No	vpc-0158026b3dccd2988 vpc1

rtb-0bfc1006d6ed8543f / route-public

[Details](#) [Routes](#) [Subnet associations](#) [Edge associations](#) [Route propagation](#) [Tags](#)

Details

Route table ID rtb-0bfc1006d6ed8543f	Main No	Explicit subnet associations -	Edge associations -
VPC vpc-0158026b3dccd2988 vpc1	Owner ID 730335423416		

CloudShell Feedback

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select the public subnet and go to subnet associations
step 2:

Explicit subnet associations (0)

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
No subnet associations You do not have any subnet associations.			

[Edit subnet associations](#)

click edit.

step 3:

[VPC](#) > [Route tables](#) > [rtb-0ec4c01b65f72c968](#) > Edit subnet associations

Edit subnet associations

Change which subnets are associated with this route table.

Available subnets (2)

<input type="checkbox"/>	Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
<input type="checkbox"/>	public	subnet-0ceeaec6c509ee833	192.168.1.0/24	-	rtb-0bfc1006d6ed8543f / route-public
<input type="checkbox"/>	private	subnet-015990201bcfbf07a	192.168.2.0/24	-	Main (rtb-05744317a63ba5cad)

[Cancel](#) [Save associations](#)

select the proper subnet to route and save associations.

Create EC2 :

Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name

[Add additional tags](#)

▼ Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

[Recents](#)[Quick Start](#)

step 2:

▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - *required*

[Create new key pair](#)

select the key pair to instance.

step 3:

▼ Network settings Info

Edit

Network Info

vpc-0953fc3a361ca9532

Subnet Info

-

Auto-assign public IP Info

-

Firewall (security groups) Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

☒ Create security group

☐ Select existing security group

We'll create a new security group called 'launch-wizard-1' with the following rules:

☒ Allow SSH traffic from

Helps you connect to your instance


Anywhere
0.0.0.0/0

☐ Allow HTTPS traffic from the internet

To set up an endpoint, for example when creating a web server

☐ Allow HTTP traffic from the internet

To set up an endpoint, for example when creating a web server

 Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

×

click edit

step 4:

▼ Network settings

Info

VPC - required

Info

vpc-0158026b3dccd2988 (vpc1)

192.168.0.0/16

▼

↻

Subnet

Info

subnet-0ceeaec6c509ee833

public

▼

VPC: vpc-0158026b3dccd2988

Owner: 730335423416

Availability Zone: us-east-2a

IP addresses available: 251

CIDR: 192.168.1.0/24

↻

Create new subnet

↗

Auto-assign public IP

Info

Enable

▼

Additional charges apply

when outside of free tier allowance

Firewall (security groups)

Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

☒ Create security group

☐ Select existing security group

Security group name - required

launch-wizard-1

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and _-:/()#,@[]+=&;{}!\$*

Description - required

Info

launch-wizard-1 created 2024-05-10T05:44:14.709Z

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)