

How to Setup VPC on AWS Quickly

Hello User, In this post we go through the process of Setting a VPC on AWS.

The process involves Creation of Internet Gateway, Route tables, Subnets etc.

There are many reasons why should Use VPC over a traditional data centers.

- Scalability and Elasticity
- Cost Efficient
- Security and Compliance
- Disaster Recovery and High Availability

Prerequisites:

Before we deep dive in this tutorial, User should have a basic understanding about VPC, IP addressing, CIDR, Routes, Networks.

Lets Begin the Show..

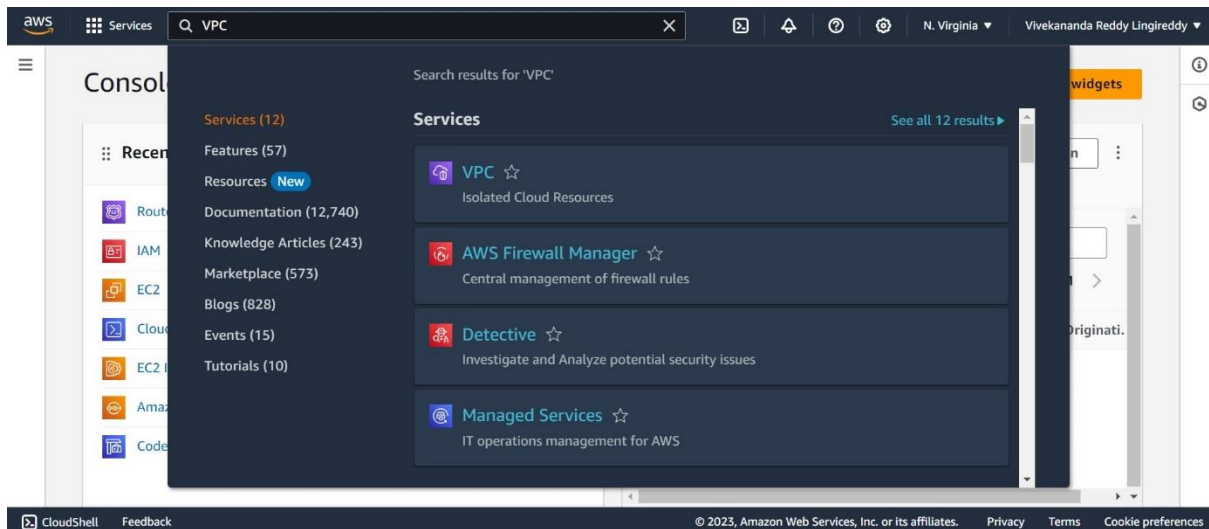
Steps to Set Up the VPC on AWS

1. Login to AWS Management Console and Creation of VPC
2. Creating Subnets inside VPC
3. Creating Internet Gateway
4. Creating Route tables
5. Attaching Route to Subnets and Internet Gateway
6. Launching an EC2 instance on VPC inside the Public Subnet
7. Termination

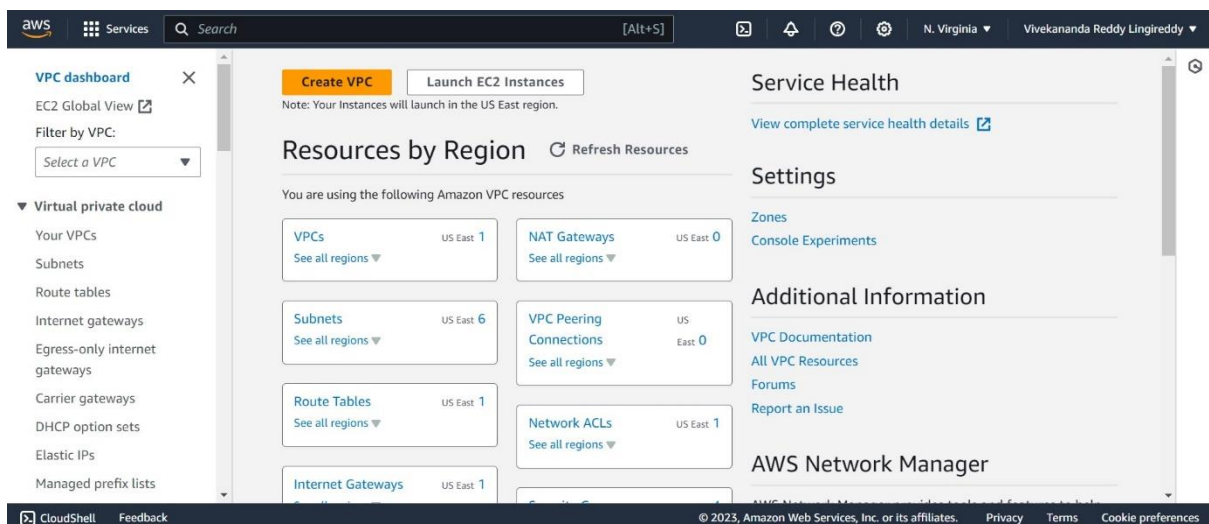
Step 1: Login to AWS Management Console and Navigate to VPC

First login to AWS Management Console. After you login, Navigate to Search bar and search VPC.

Once you see VPC, Click on it to Open the VPC Service.



Click on VPC and you will see a default VPC already exist, Now click on create VPC and click VPC only name it to your choice.



Let me Name it MyVPC-CloudKatha and add CIDR as 10.0.1.0/24.

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.

MyVPC-CloudKatha

IPv4 CIDR block [Info](#)
☒ IPv4 CIDR manual input
☐ IPAM-allocated IPv4 CIDR block

IPv4 CIDR
10.0.1.0/24
CIDR block size must be between /16 and /28.

IPv6 CIDR block [Info](#)
☒ No IPv6 CIDR block

Choose tenancy as default and click create VPC.

You will confirmation Once it is created and Shown under Your VPCs.

You successfully created vpc-0a39a083cc6b1a5e8 / MyVPC-CloudKatha

[VPC](#) > [Your VPCs](#) > vpc-0a39a083cc6b1a5e8

vpc-0a39a083cc6b1a5e8 / MyVPC-CloudKatha [Actions](#)

Details [Info](#)

VPC ID vpc-0a39a083cc6b1a5e8	State Available	DNS hostnames Disabled	DNS resolution Enabled
Tenancy Default	DHCP option set dopt-02ce291ddf5fbab7c	Main route table rtb-0c09b7b1dd9528c11	Main network ACL acl-04761b43b76745297
Default VPC No	IPv4 CIDR 10.0.1.0/24	IPv6 pool -	IPv6 CIDR (Network border group) -
Network Address Usage metrics Disabled	Route 53 Resolver DNS Firewall rule groups -	Owner ID 893099868825	

Your VPCs (2) [Info](#) [Refresh](#) [Actions](#) [Create VPC](#)

<input type="checkbox"/>	Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR
<input type="checkbox"/>	Default	vpc-0b3e0d113e2a9639d	Available	172.31.0.0/16	-
<input type="checkbox"/>	MyVPC-CloudKatha	vpc-0a39a083cc6b1a5e8	Available	10.0.1.0/24	-

Select a VPC above

Now we have setup the VPC. Lets us create Subnets inside it.

Step 2: Creating Subnets inside VPC

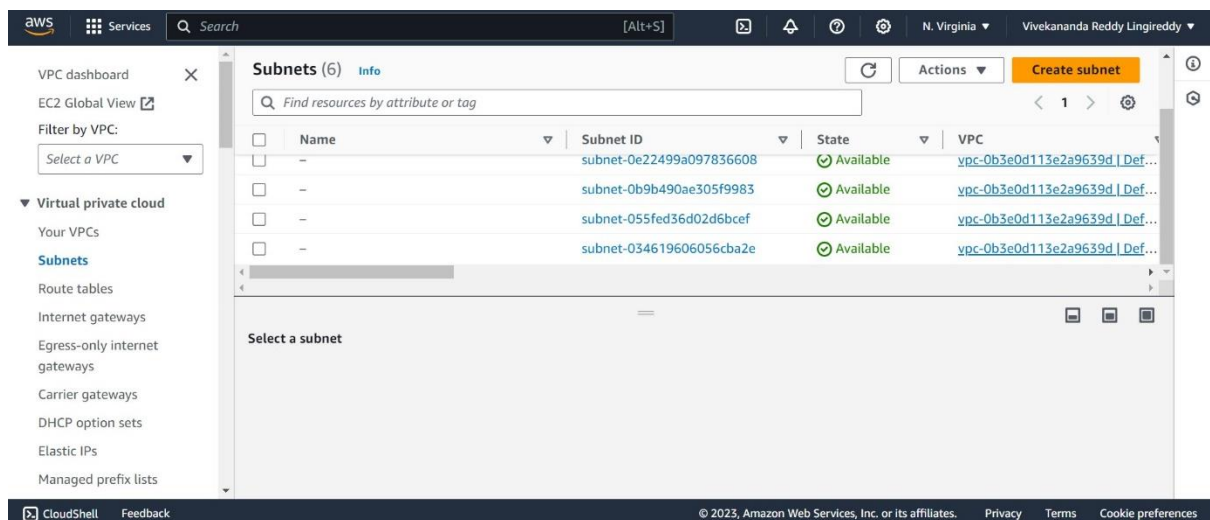
Subnets: Sub Networks are commonly called as subnets. Subnets are sub networks of a Large Internet Network. Subnets make it easy to access resource over a giant network.

Now we are creating two Subnets, Public and Private.

- Public subnets are internet facing networks and traffic is enabled to it.
- Private subnets are Not enabled to traffic but they can be connected only to outside world to get updates and installation purpose etc. Used to place your data base and application servers inside with no internet access.
- Subnets can be launched in multiple availability zones.

Let us Create a Public subnet, Click on the Subnets option on the left side bar.

You will find some default subnets already exists. Click on create Subnet.



- Select the VPC we created from drop down

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VPC > Subnets > Create subnet

Create subnet Info

VPC

VPC ID
Create subnets in this VPC.
vpc-0a39a083cc6b1a5e8 (MyVPC-CloudKatha)

Associated VPC CIDRs

IPv4 CIDRs
10.0.1.0/24

Subnet settings
Specify the CIDR blocks and Availability Zone for the subnet.

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Name the Subnet of your Choice and Select the Availability Zone. I'm select here US East and naming it **PublicSubnet-CloudKatha**, you can choose your default region.

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Subnet 1 of 1

Subnet name
Create a tag with a key of 'Name' and a value that you specify.
publicSubnet-cloudKatha
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
US East (N. Virginia) / us-east-1a (selected)
US East (N. Virginia) / us-east-1b
US East (N. Virginia) / us-east-1c

Tags - optional

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Add CIDR that is inside the VPC's CIDR. Here add the CIDR and click create Subnet.

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Choose the IPv4 VPC CIDR block to create a subnet in.
10.0.1.0/24

IPv4 subnet CIDR block
10.0.1.0/24 (64 IPs)

Tags - optional

Key: Name Value: publicSubnet-CloudKatha

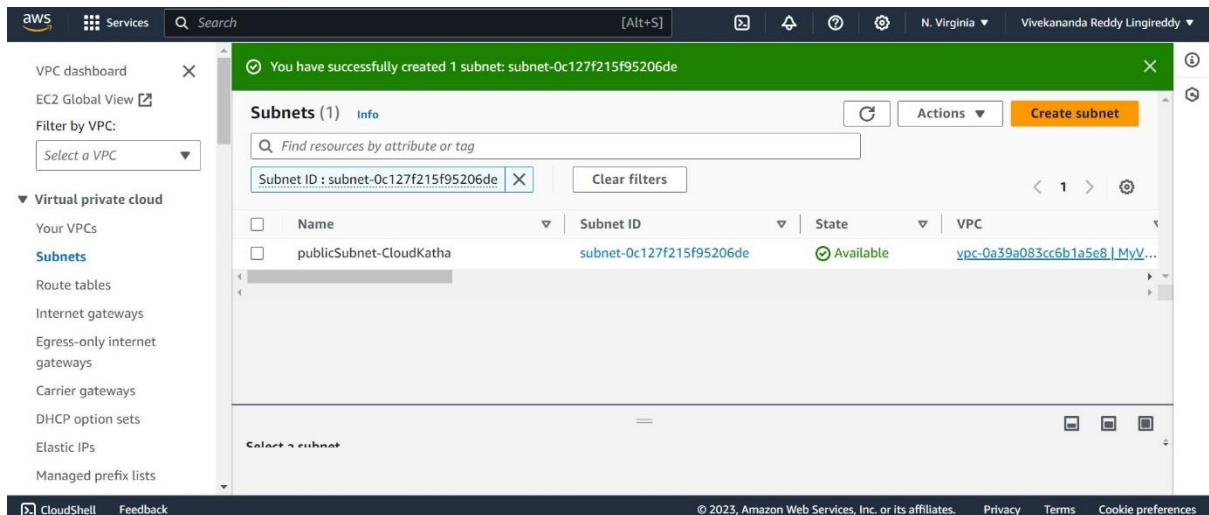
Add new tag
You can add 49 more tags.

Remove

Add new subnet

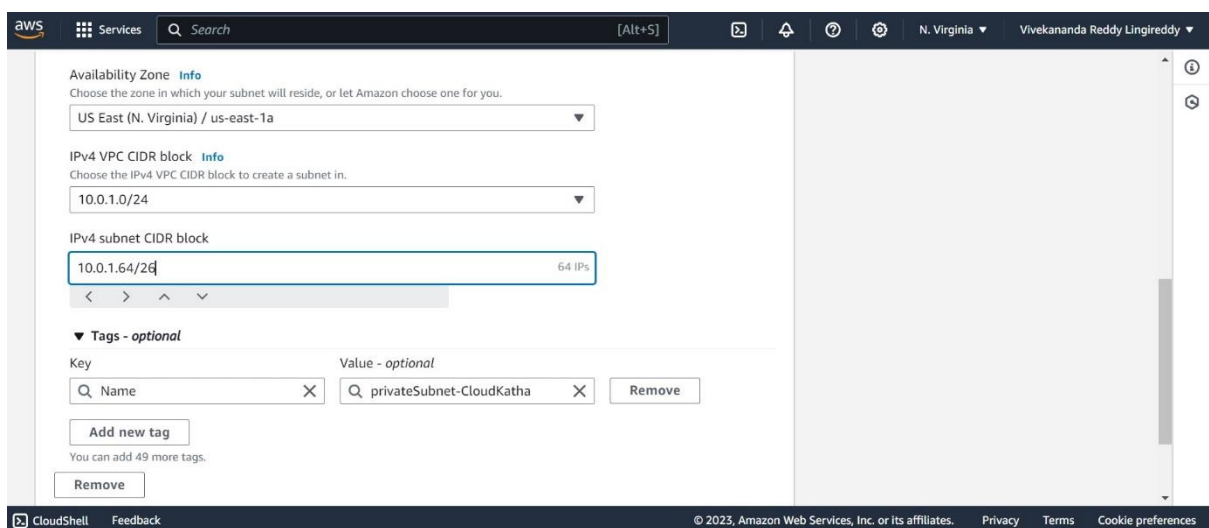
Cancel Create subnet

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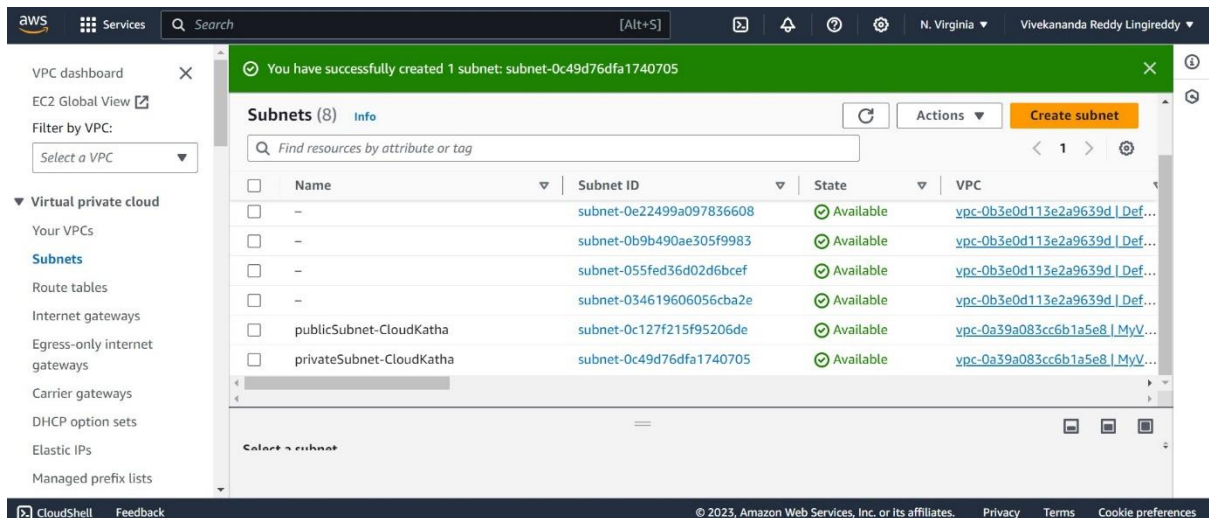


Now the Same way, we are creating a private subnet inside VPC and name it

PrivateSubnet-Cloudkatha, Availability Zone and add CIDR that doesn't conflict the public 10.0.1.64/26. Click create subnet.



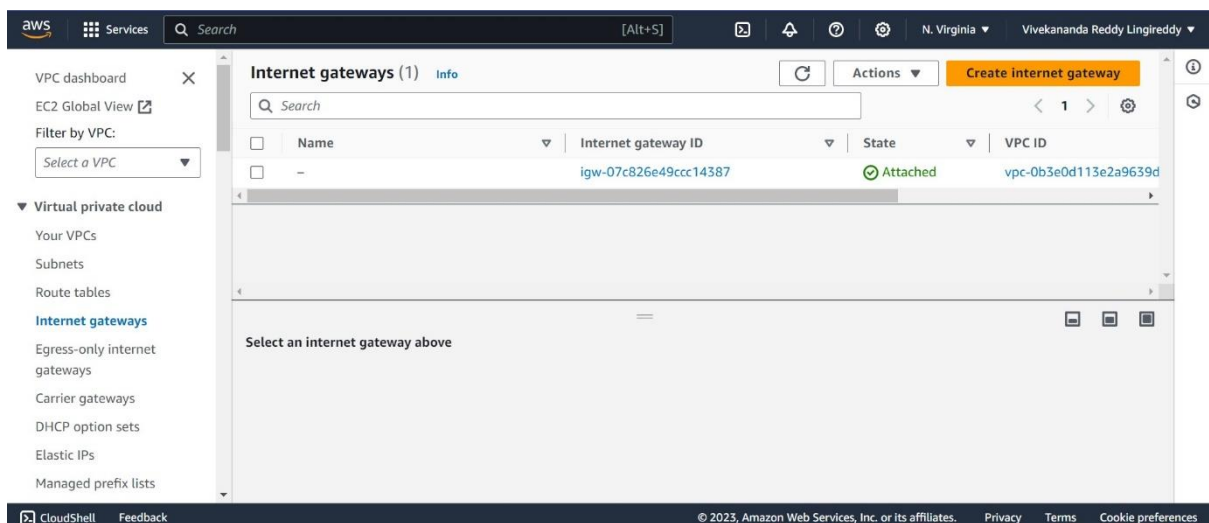
Now we are done step 2 creating subnets.



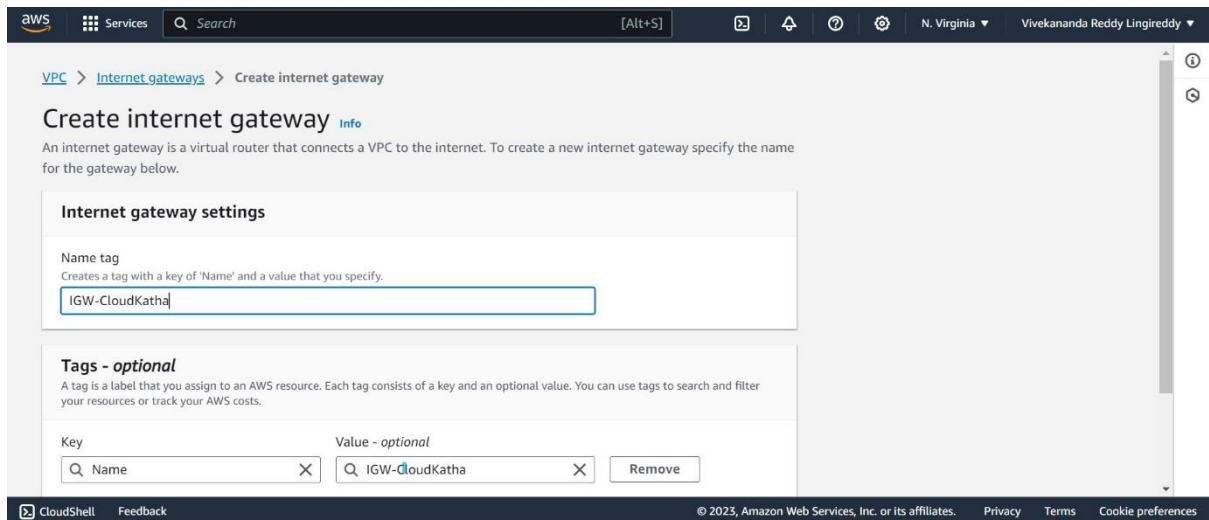
Step 3: Creating Internet Gateway

Now from the picture, Navigate to Internet gateways on your left bar.

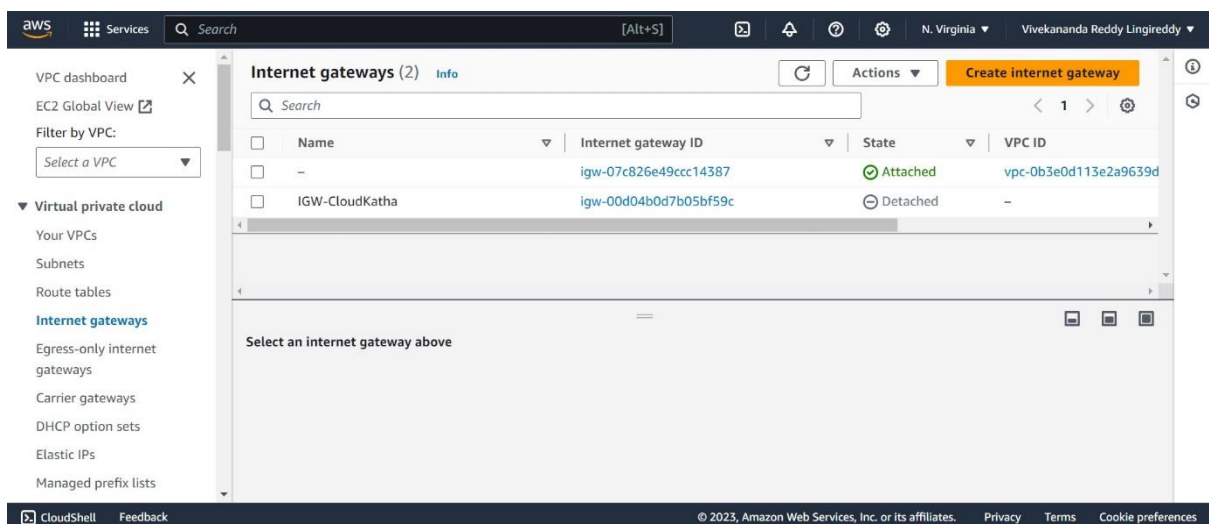
Internet Gateway: It is tunnel between outside world to your VPC. It allows traffic from the Internet to your VPC components i.e subnets.



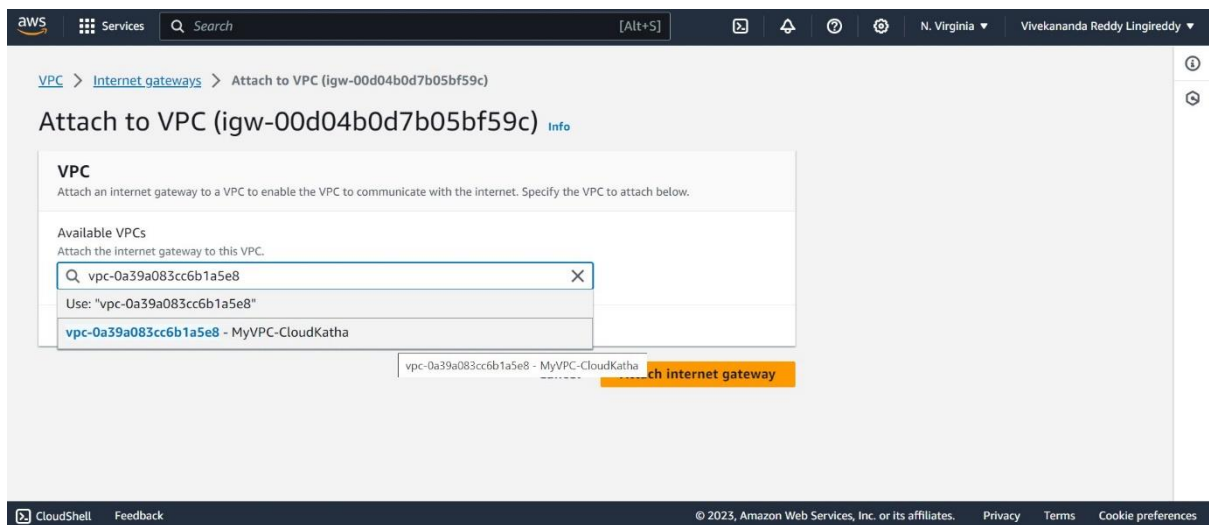
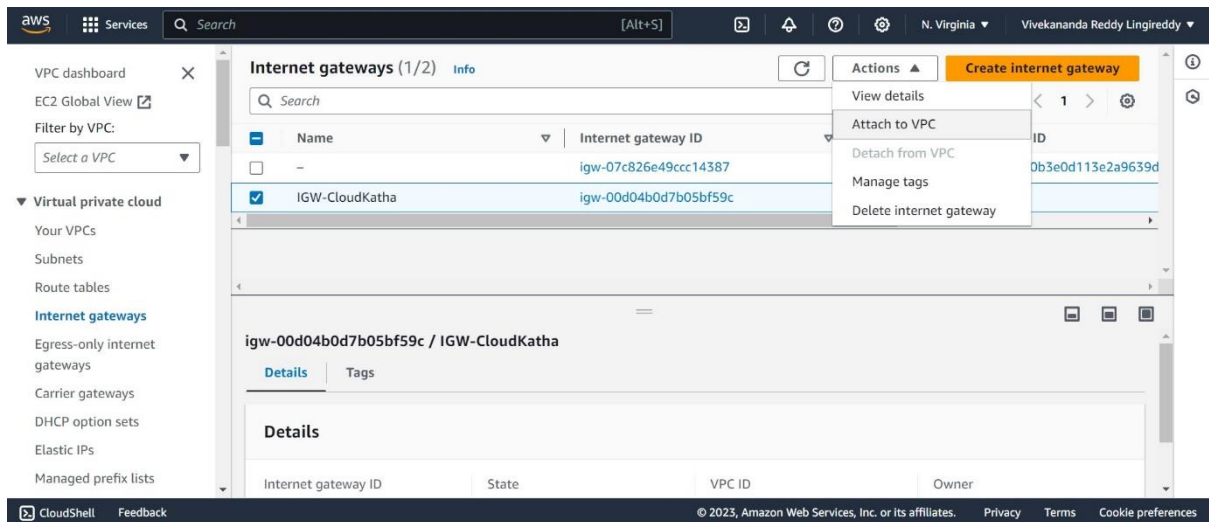
Click on Create internet gateway and name it as **IGW- CloudKatha** and create it.



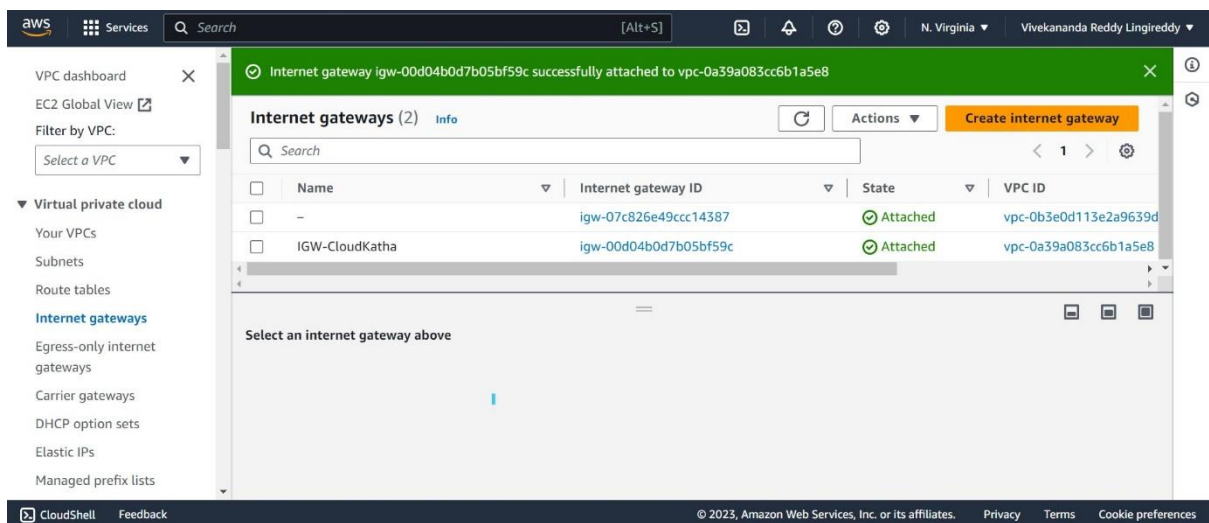
Now click on **Internet gateways**



You will see it as **detached**. Because it is not yet attached to VPC. So, Click on that Attach to VPC and locate your VPC from drop down.

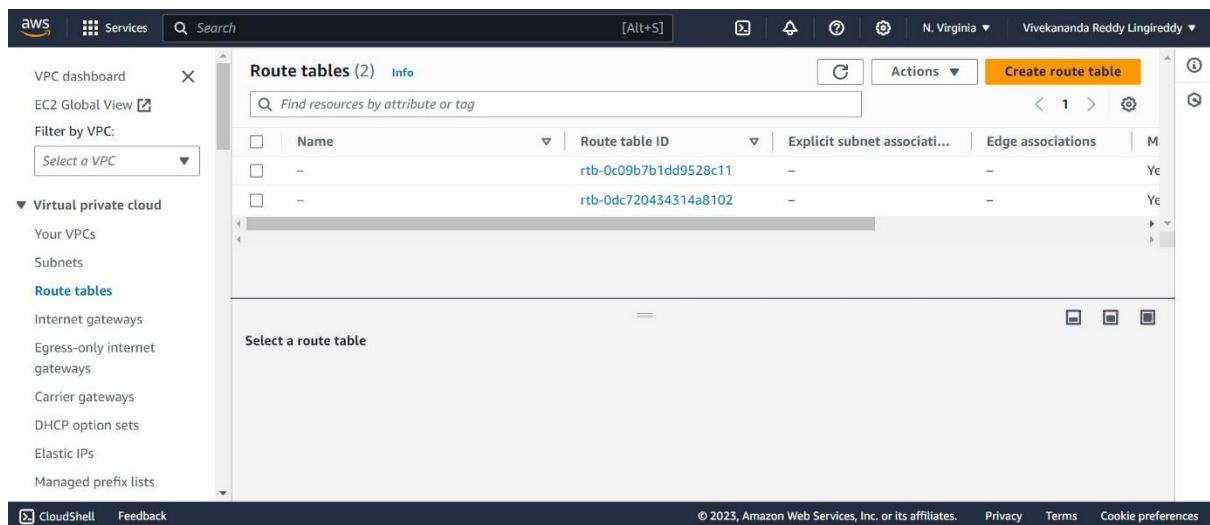


Now will see it as Attached.



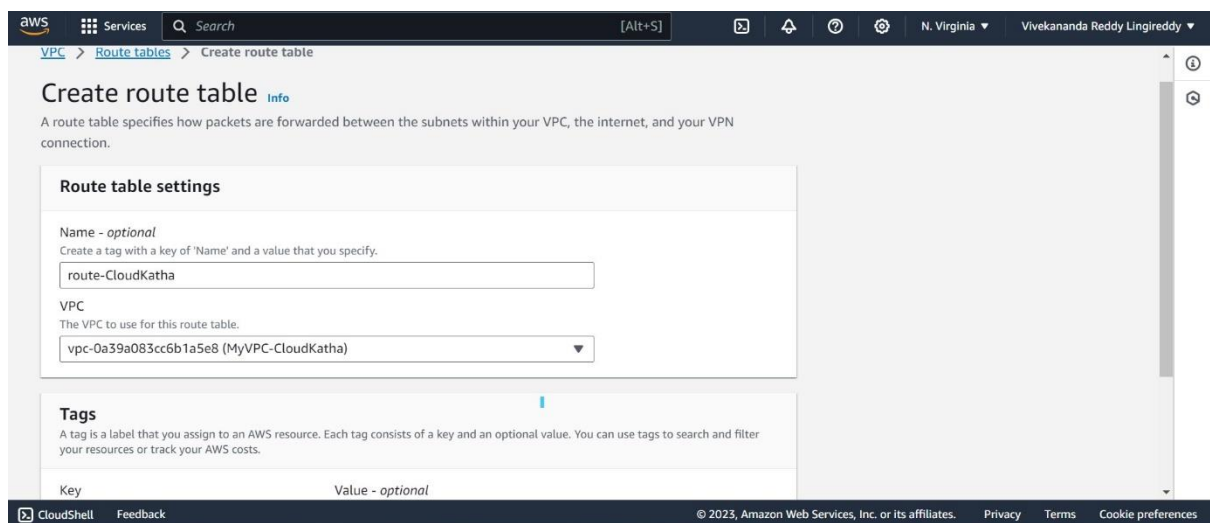
Step 4: Creating Route tables

Click on Route tables on the left side bar and click Create route table.

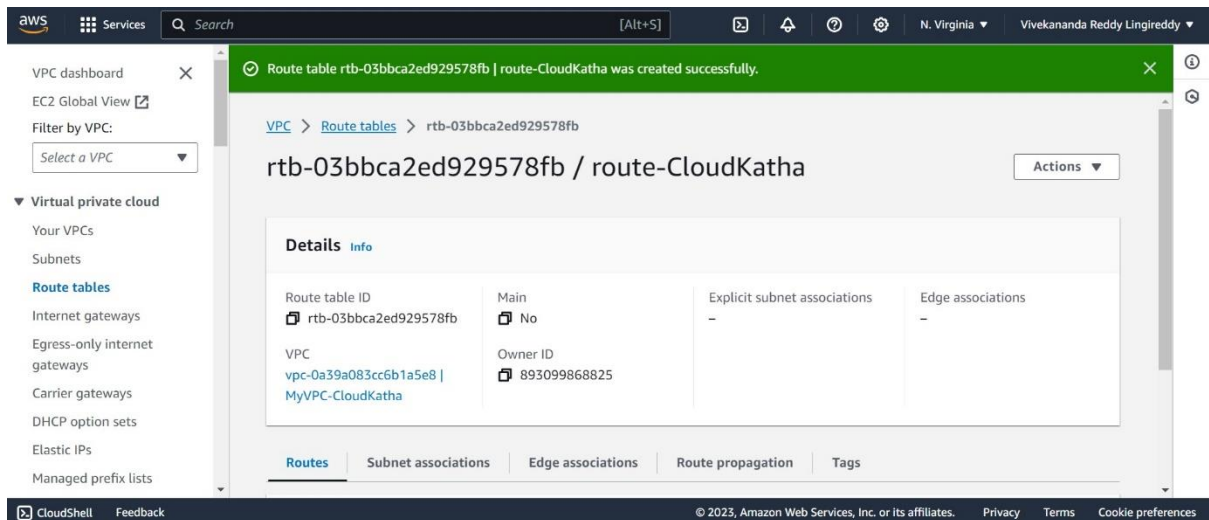


We will create **two** route tables one is for the **Public** another for **Private**.

Name the route table as **routePublic-CloudKatha**. I had created as just route later changed it.

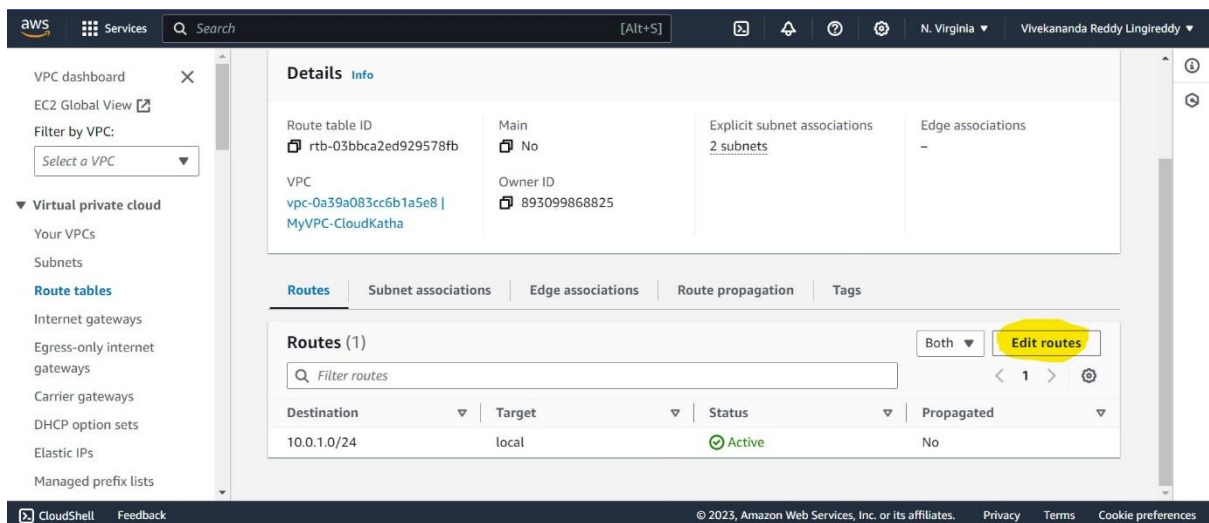


Once it is created you will see **Routes, Subnet Associations** below. Click on **routes** to attach it to the Internet gateway and also click on subnet associations to attach public subnet to it.



Step 5: Attaching Route to Subnets and Internet Gateway

Click on **Edit routes** to Attach **Internet Gateway** to allow traffic to public subnet.



Select the **Internet Gateway** (IGW-Cloudkatha) we had created and save changes

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VPC > Route tables > rtb-03bbca2ed929578fb > Edit routes

Edit routes

Destination: 10.0.1.0/24

Q 0.0.0.0/0 X

Add route

Carrier Gateway
Core Network
Egress Only Internet Gateway
Gateway Load Balancer Endpoint
Instance
Internet Gateway
local
NAT Gateway

Status: Active

Propagated: No

Remove

Cancel Preview Save changes

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VPC dashboard X
EC2 Global View
Filter by VPC: Select a VPC

Virtual private cloud
Your VPCs
Subnets
Route tables
Internet gateways
Egress-only internet gateways
Carrier gateways
DHCP option sets
Elastic IPs
Managed prefix lists

Updated routes for rtb-03bbca2ed929578fb / route-CloudKatha successfully

Details

Route table ID rtb-03bbca2ed929578fb	Main No	Explicit subnet associations 2 subnets	Edge associations -
VPC vpc-0a39a083cc6b1a5e8 MyVPC-CloudKatha	Owner ID 893099868825		

Routes Subnet associations Edge associations Route propagation Tags

Routes (2)

Filter routes

Destination	Target	Status	Propagated
0.0.0.0/0	igw-00d04b0d7b05bf59c	Active	No
10.0.1.0/24	local	Active	No

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Now Click on **Subnet Associations**, attach the **publicsubnet** to it and save changes

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Edit subnet associations

Change which subnets are associated with this route table.

Available subnets (1/2)

Filter subnet associations

	Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
<input type="checkbox"/>	privateSubnet-CloudKatha	subnet-0c49d76dfa1740705	10.0.164/26	-	Main (rtb-0c09b7b1dd9528c11)
<input checked="" type="checkbox"/>	publicSubnet-CloudKatha	subnet-0c127f215f95206de	10.0.1.0/26	-	rtb-03bbca2ed929578fb / route-

Selected subnets

subnet-0c127f215f95206de / publicSubnet-CloudKatha X

Cancel Save associations

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Now create one more **Route table** for **private subnet**. Navigate to route tables pages and create as below

The screenshot shows the 'Create route table' page in the AWS Management Console. The breadcrumb navigation is 'VPC > Route tables > Create route table'. The page title is 'Create route table' with an 'Info' link. A description states: 'A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.' The 'Route table settings' section includes a 'Name - optional' field with the value 'routePrivate-CloudKatha' and a 'VPC' dropdown menu showing 'vpc-0a39a083cc6b1a5e8 (MyVPC-CloudKatha)'. The 'Tags' section explains that a tag is a label for an AWS resource. The footer includes 'CloudShell', 'Feedback', and copyright information for Amazon Web Services, Inc. (© 2023).

Follow as the same for the Private from above process and attach private subnet under associations and **no need to attach to Internet Gateways as we don't allow traffic to private subnet**. Create a route table.

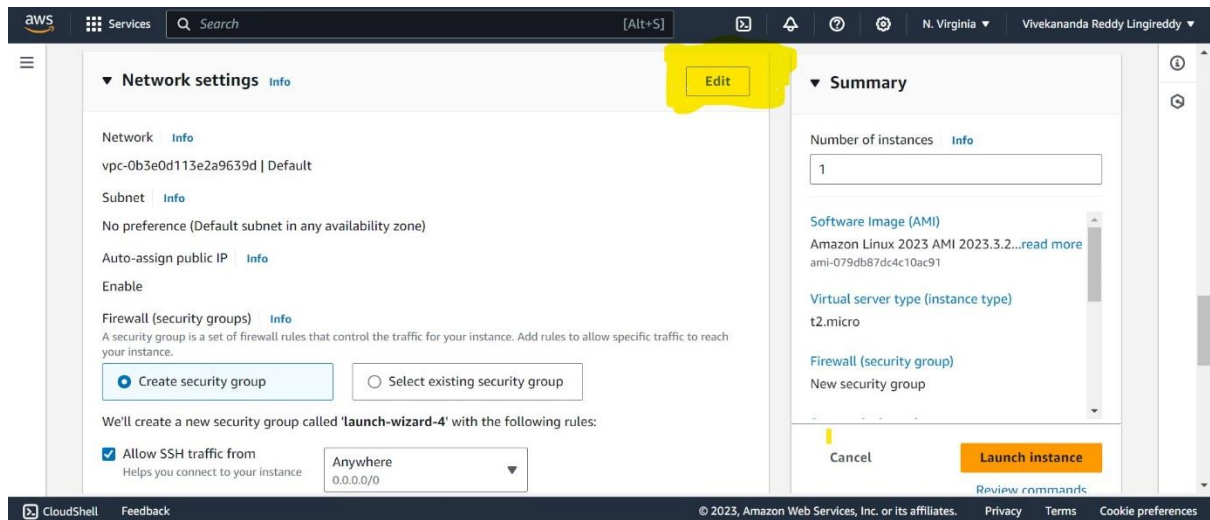
Now we have done with VPC with subnets accessing internet. Let's launch an instance and connect to it through the SSH.

Step 6: Launching an EC2 instance on VPC inside the Public Subnet

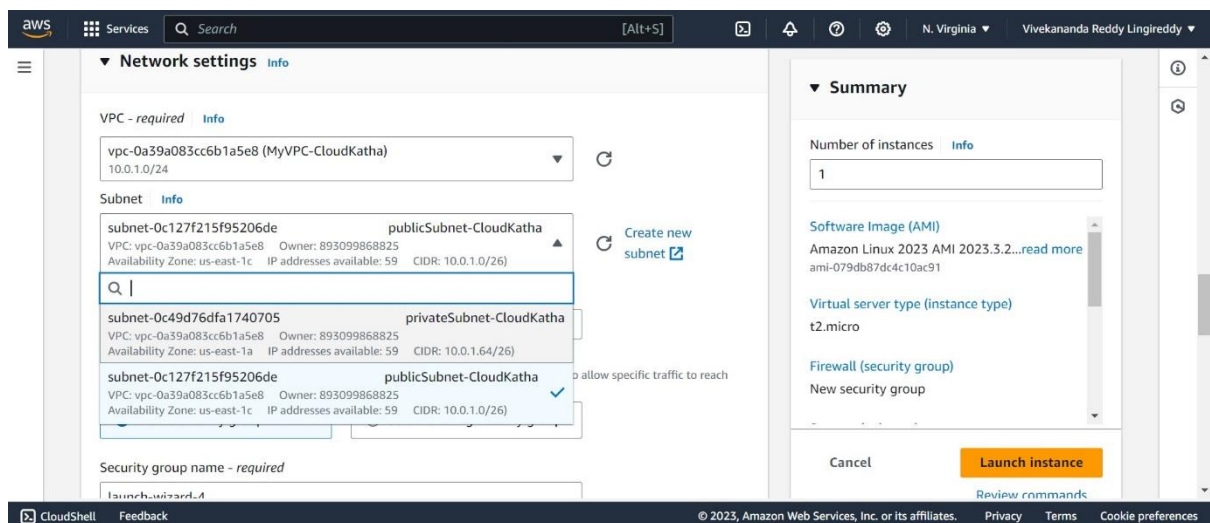
From the Console, navigate to EC2 and click on instance name it.

The screenshot shows the 'Launch an instance' page in the AWS Management Console. The breadcrumb navigation is 'EC2 > Instances > Launch an instance'. The page title is 'Launch an instance' with an 'Info' link. A description states: '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.' The 'Name and tags' section includes a 'Name' field with the value 'publicInstance-CloudKatha' and an 'Add additional tags' link. The 'Application and OS Images (Amazon Machine Image)' section is expanded, showing 'Amazon Linux 2023 AMI 2023.3.2...read more' with the ID 'ami-079db87d4c10ac91'. The 'Virtual server type (instance type)' is set to 't2.micro'. The 'Firewall (security group)' is set to 'New security group'. The 'Summary' section on the right shows 'Number of instances' as '1'. At the bottom, there are 'Cancel' and 'Launch instance' buttons, and a 'Review commands' link. The footer includes 'CloudShell', 'Feedback', and copyright information for Amazon Web Services, Inc. (© 2023).

Select any Operating System, here I had selected Amazon Linux and create key pair as CloudKatha and save the .pem in your directory



Click edit and Select our VPC, public subnet, Enable the auto-assign public ip and name the security group.



On creating Security Group, allow traffic and launch instance.

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subnet-0c127f215f95206de publicSubnet-CloudKatha
VPC: vpc-0a39a083cc6b1a5e8 Owner: 893099868825
Availability Zone: us-east-1c IP addresses available: 59 CIDR: 10.0.1.0/26

Create new subnet

Auto-assign public IP [Info](#)
Enable

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
cloudKatha

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](#)
cloudKatha security group

Inbound Security Group Rules

Summary

Number of instances [Info](#)
1

Software Image (AMI)
Amazon Linux 2023 AMI 2023.3.2...[read more](#)
ami-079db87dc4c10ac91

Virtual server type (instance type)
t2.micro

Firewall (security group)
New security group

Cancel Launch instance

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Inbound Security Group Rules

Security group rule 1 (TCP, 22, 0.0.0.0/0)

Type [Info](#) Protocol [Info](#) Port range [Info](#)
ssh TCP 22

Source type [Info](#) Source [Info](#) Description - optional [Info](#)
Anywhere Add CIDR, prefix list or secur e.g. SSH for admin desktop
Anywhere ✓ 0.0.0.0/0
Custom
My IP /0 allow all IP addresses to access your instance. We recommend
setting security group rules to allow access from known IP addresses only.

Add security group rule

Advanced network configuration

Summary

Number of instances [Info](#)
1

Software Image (AMI)
Amazon Linux 2023 AMI 2023.3.2...[read more](#)
ami-079db87dc4c10ac91

Virtual server type (instance type)
t2.micro

Firewall (security group)
New security group

Cancel Launch instance

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Once Instance is created, You can SSH to instance with putty/ git bash/ ubuntu.

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EC2 Dashboard EC2 Global View Events Console-to-Code [Preview](#)

Instances

Instances

Instance Types Launch Templates Spot Requests Savings Plans Reserved Instances Dedicated Hosts Capacity Reservations [New](#)

Instances (1) [Info](#) Connect Instance state Actions Launch instances

Find Instance by attribute or tag (case-sensitive)

Instance ID = i-02668a62aec3c6f2b Clear filters

	Name	Instance ID	Instance state	Instance type	Status check	Alarm status
<input type="checkbox"/>	publicInstance...	i-02668a62aec3c6f2b	Running	t2.micro	Initializing	No alarms

Select an instance

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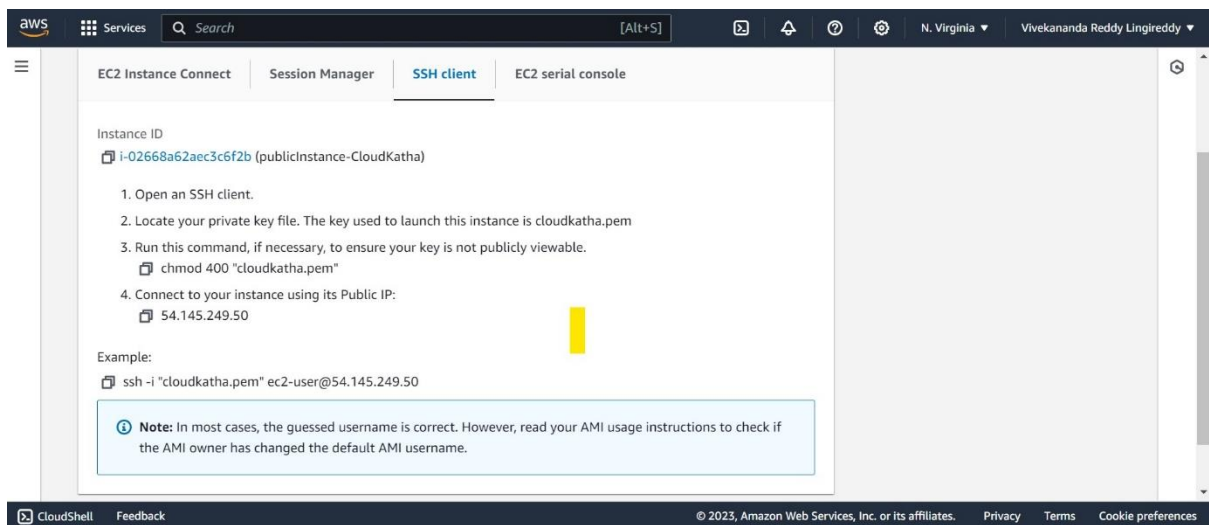
For Putty follow

With Gitbash

Open Gitbash and locate to your keypair saved location.

Change the file permissions to readable only with

Chmod command as below, copy it and paste it terminal.



Now SSH via below command

```
vivek@DESKTOP-4VIKGR3 MINGW64 /e/Projects/Devops
$ chmod 400 "cloudkatha.pem"

vivek@DESKTOP-4VIKGR3 MINGW64 /e/Projects/Devops
$ ssh -i "cloudkatha.pem" ec2-user@54.145.249.50
```

Type yes

```
vivek@DESKTOP-4VIKGR3 MINGW64 /e/Projects/Devops
$ chmod 400 "cloudkatha.pem"

vivek@DESKTOP-4VIKGR3 MINGW64 /e/Projects/Devops
$ ssh -i "cloudkatha.pem" ec2-user@54.145.249.50
The authenticity of host '54.145.249.50 (54.145.249.50)' can't be established.
ED25519 key fingerprint is SHA256:wmUP0a72aKNCEJ80QzEq2vhBMT1YLWYRv+4kpn+qo8/k.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? Y
Please type 'yes', 'no' or the fingerprint: yes
Warning: Permanently added '54.145.249.50' (ED25519) to the list of known hosts.

#
      #####
     /#####\
    /#####\
   /#####\
  /#####\
 /#####\
/#####\
#####
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023

[ec2-user@ip-10-0-1-20 ~]$
```

Connected to instance inside the public subnet.

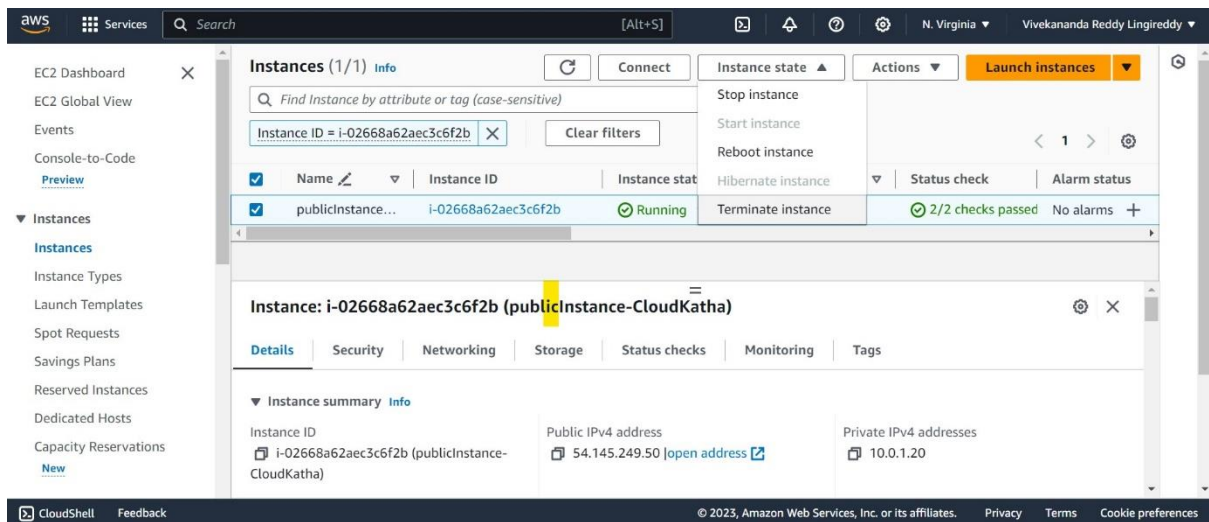
This way you can create multiple instances on your vpc and load resources.

Hope you found this interesting...but.....wait one last step

Step 7: Termination

You had enough practice with VPC I hope. But if we don't Terminate, will be charged enough.

Go to Ec2 terminate instance



Go to Subnets delete subnets

Go to route tables delete them

Go internet gateways, detach the vpn and delete it

Finally delete the VPC.

