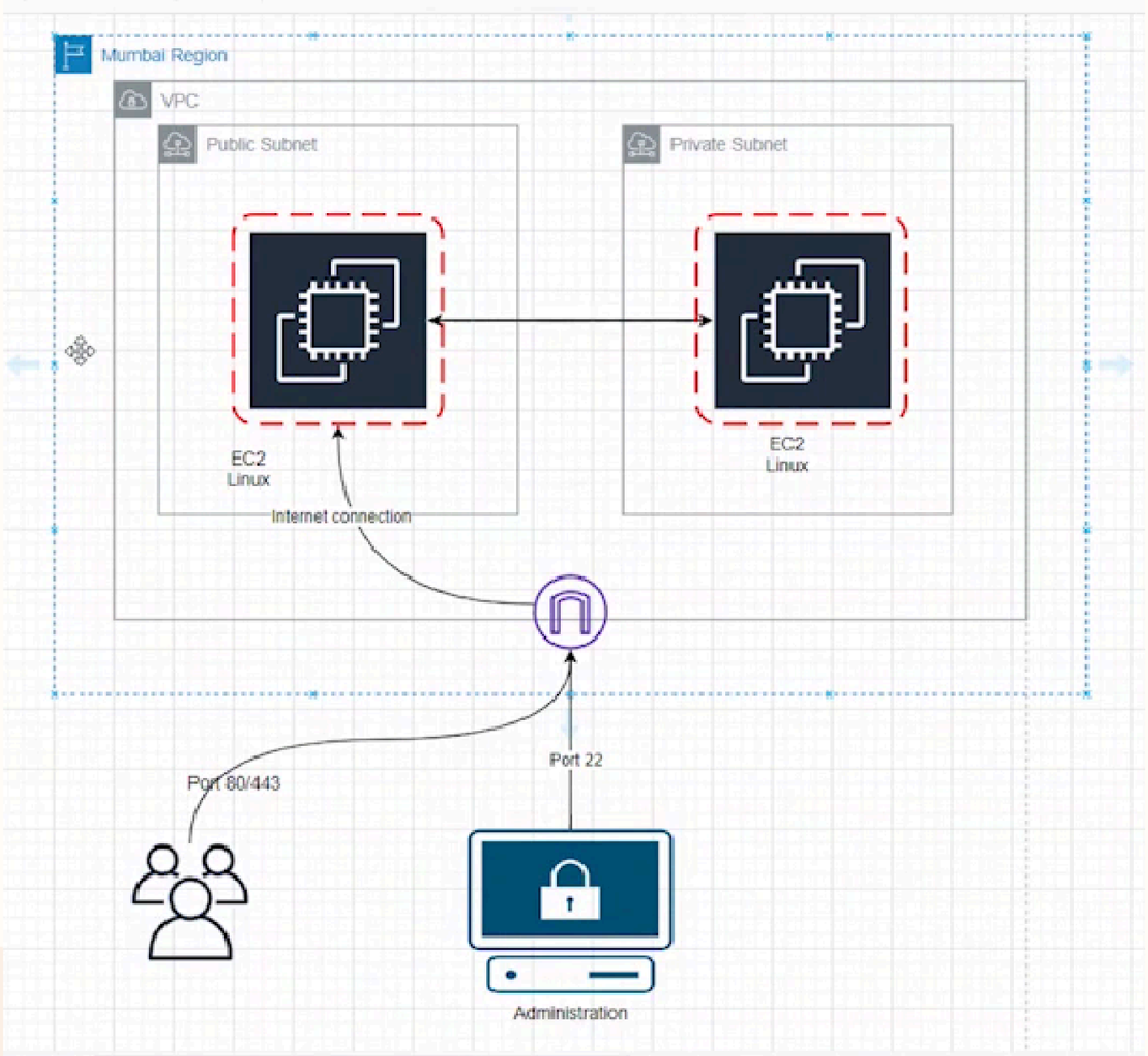
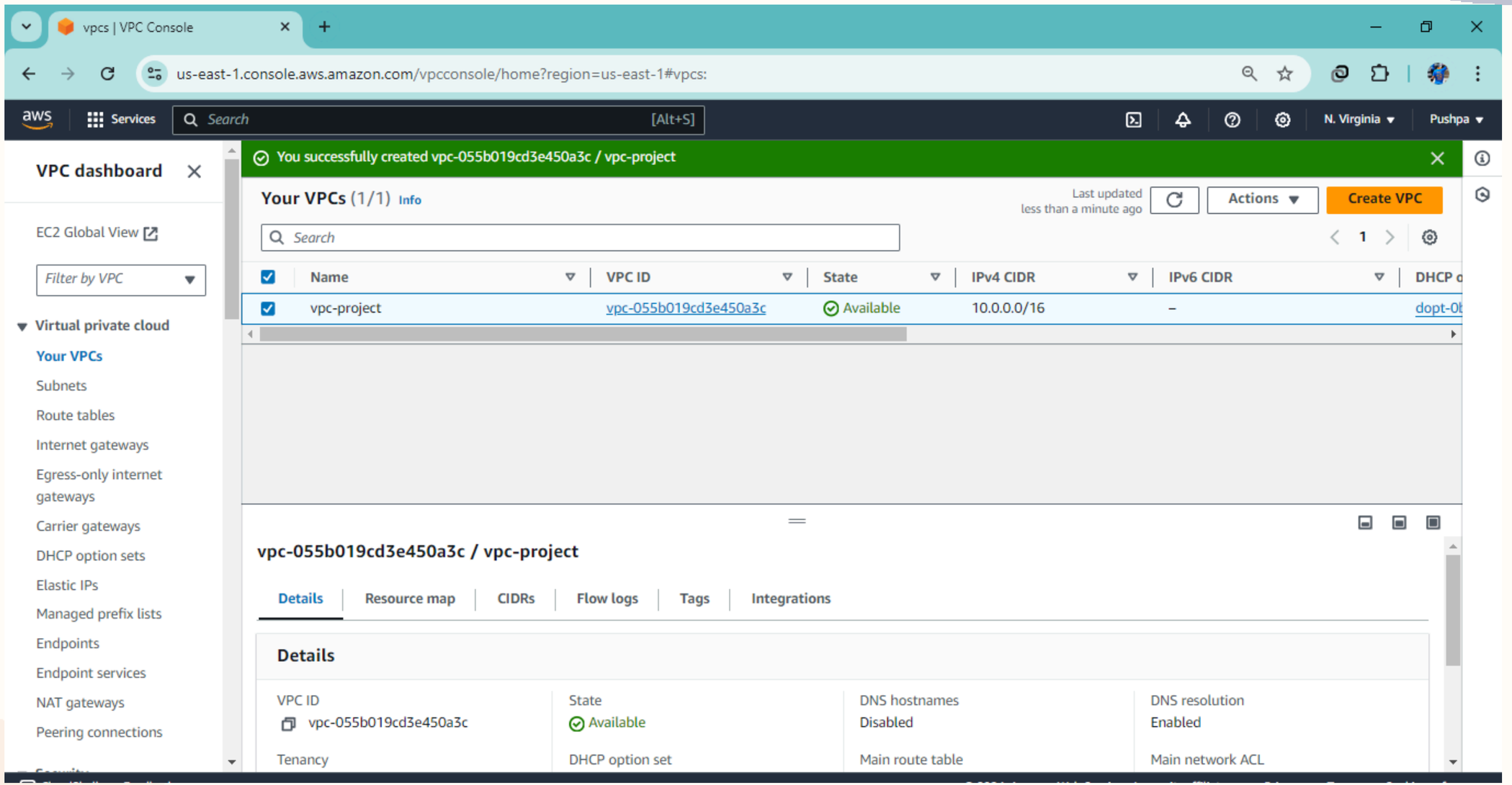
PROJECT ON VPC

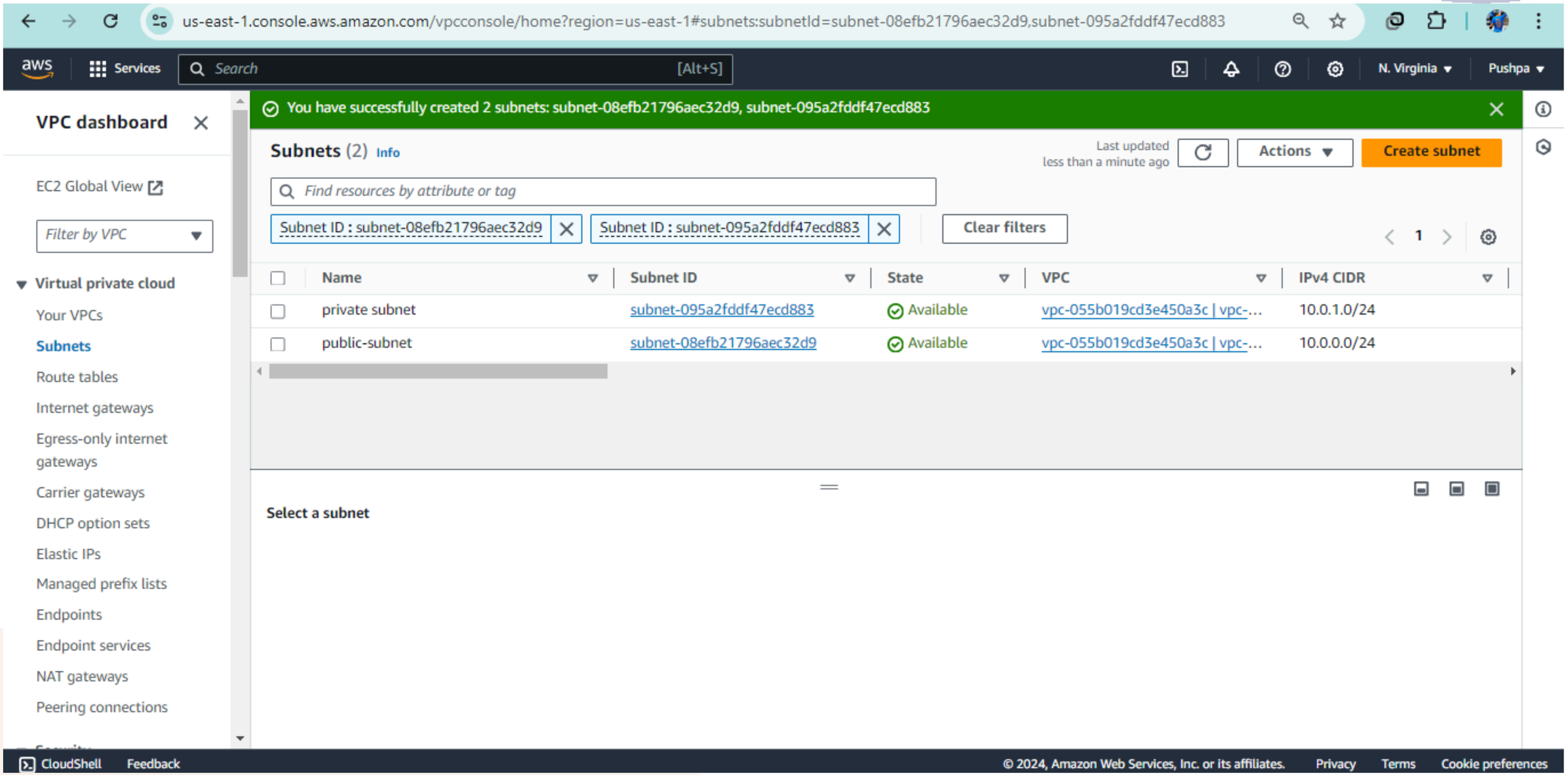
Title:-Hosting a small website using VPC+EC2



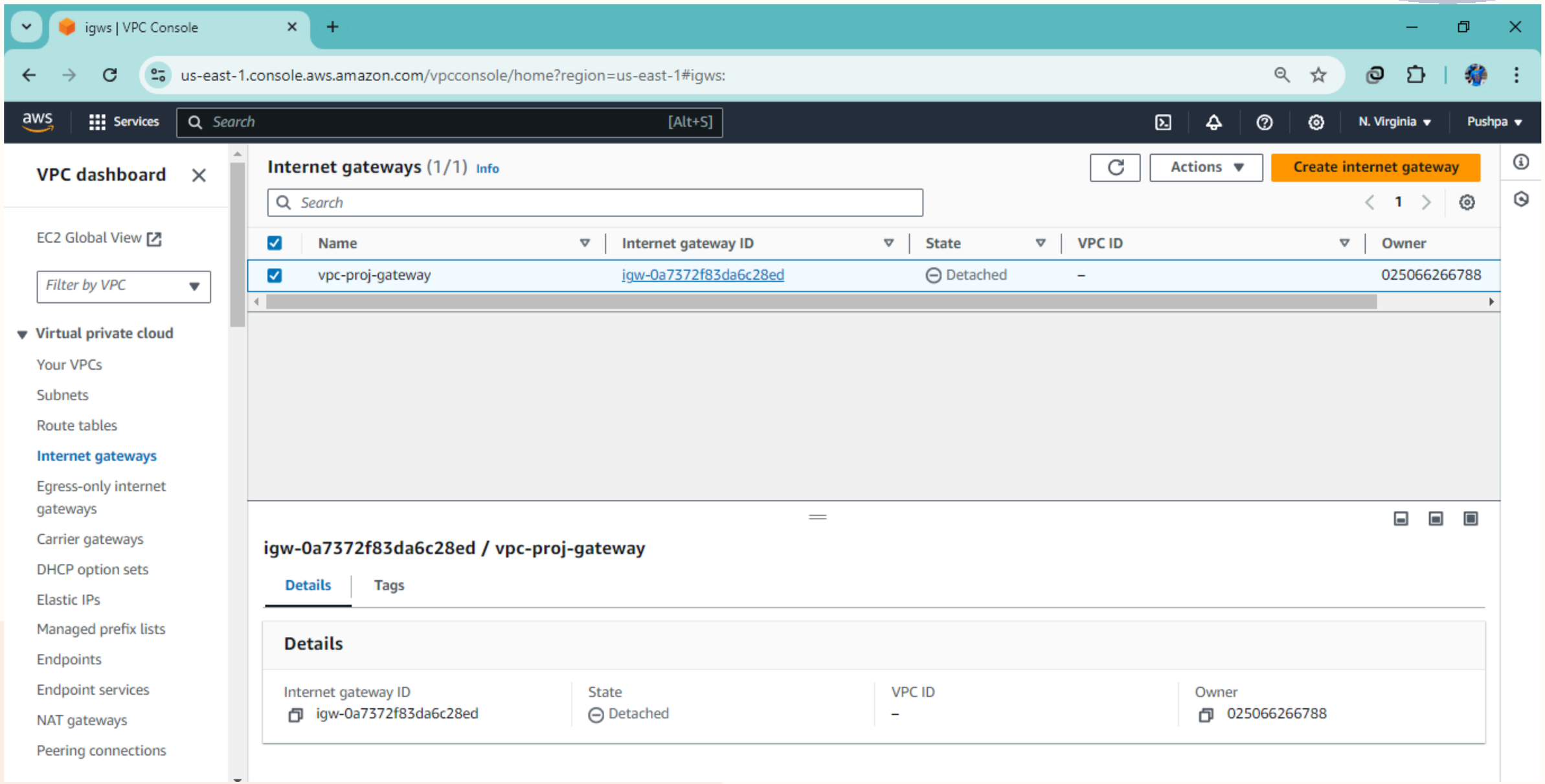
1.Create a VPC



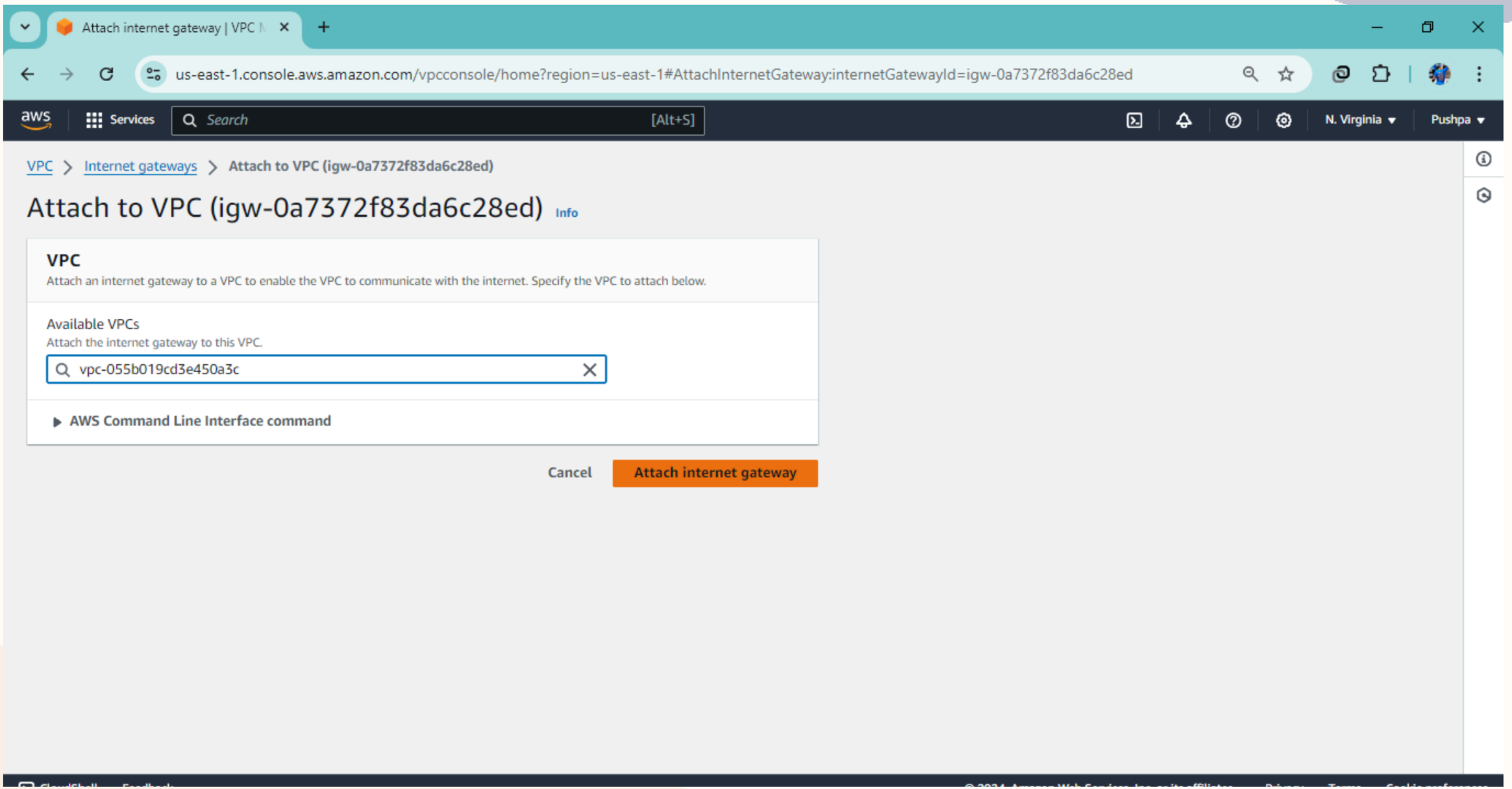
2.Create two subnets(Public-subnet &Private subnet)



3.Create an IGW(Internet Gateway)



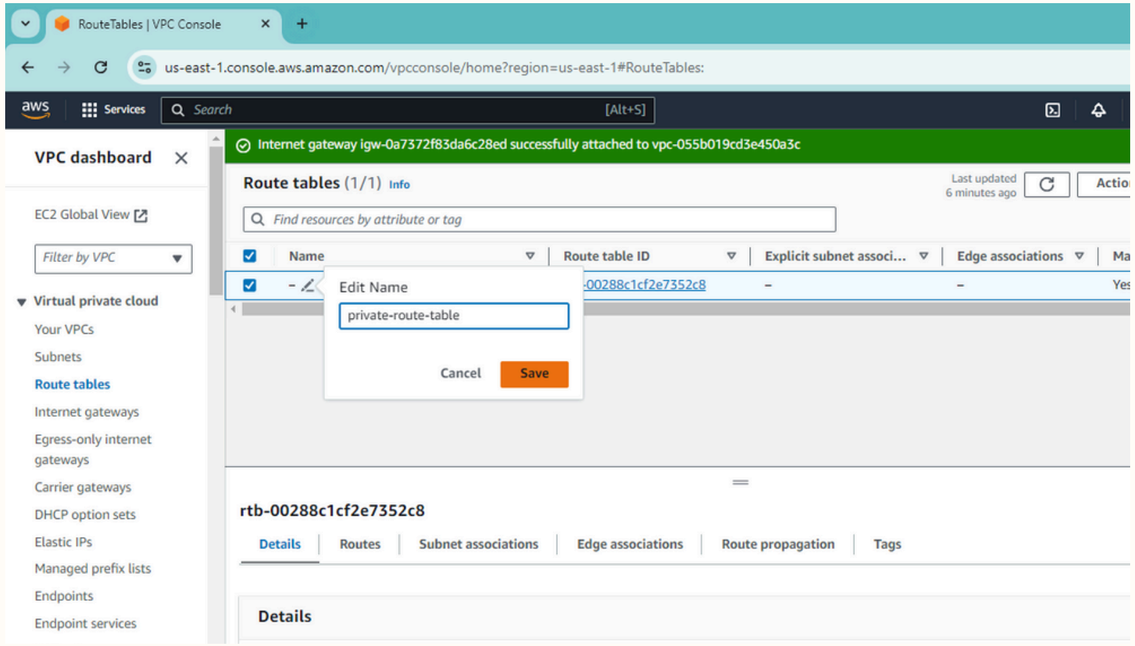
4.Connect this IGW to the vpc

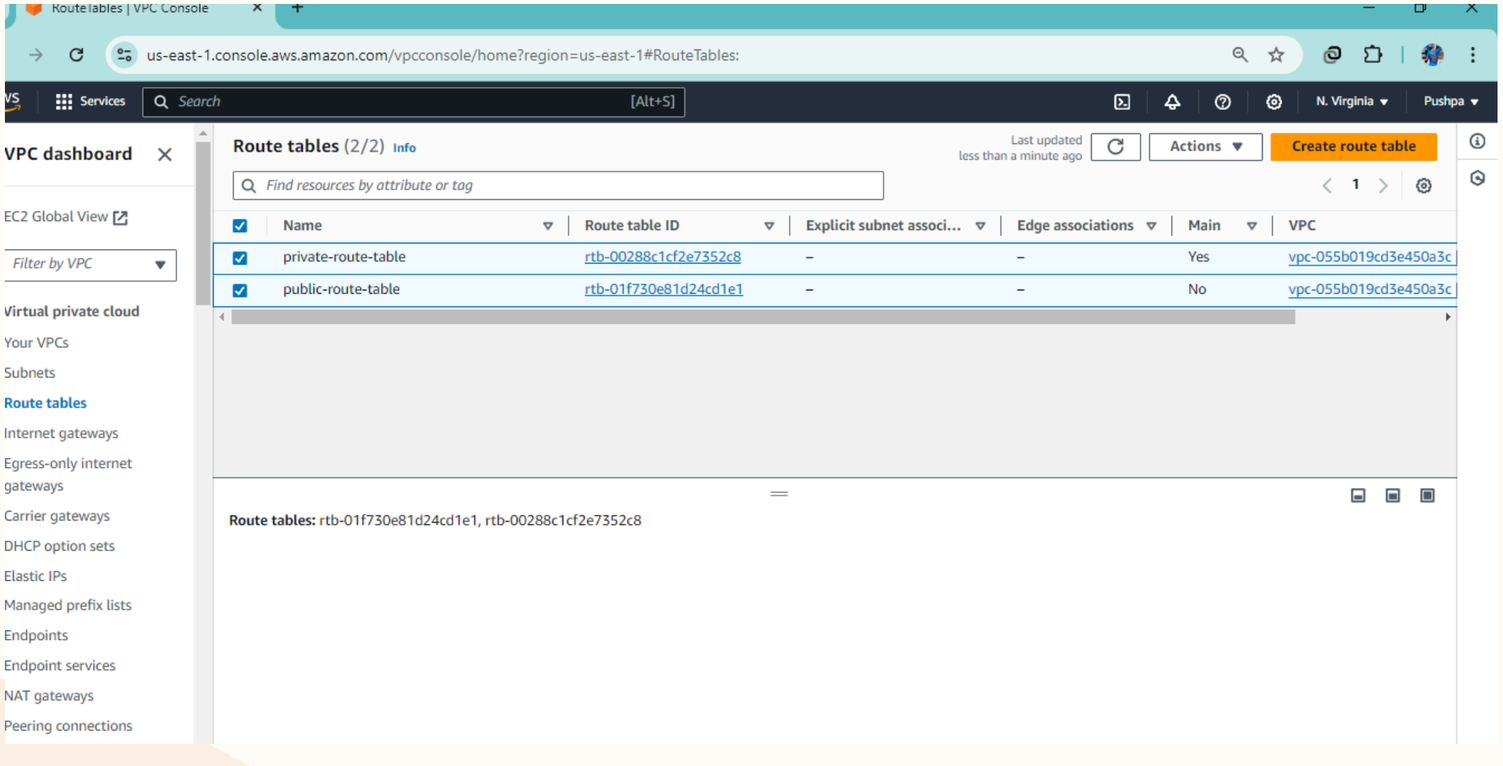


5.Now we have to connect this IGW to the public subnet.For this we have to change the route tables(which are default established when subnets are created).In both Private subnet-route table and public subnet route table their Id’s are same.So when we change configurations in one route table the other one will also gets changed.(i.e when we connect IGW to public subnet it will also be attached to private subnet)

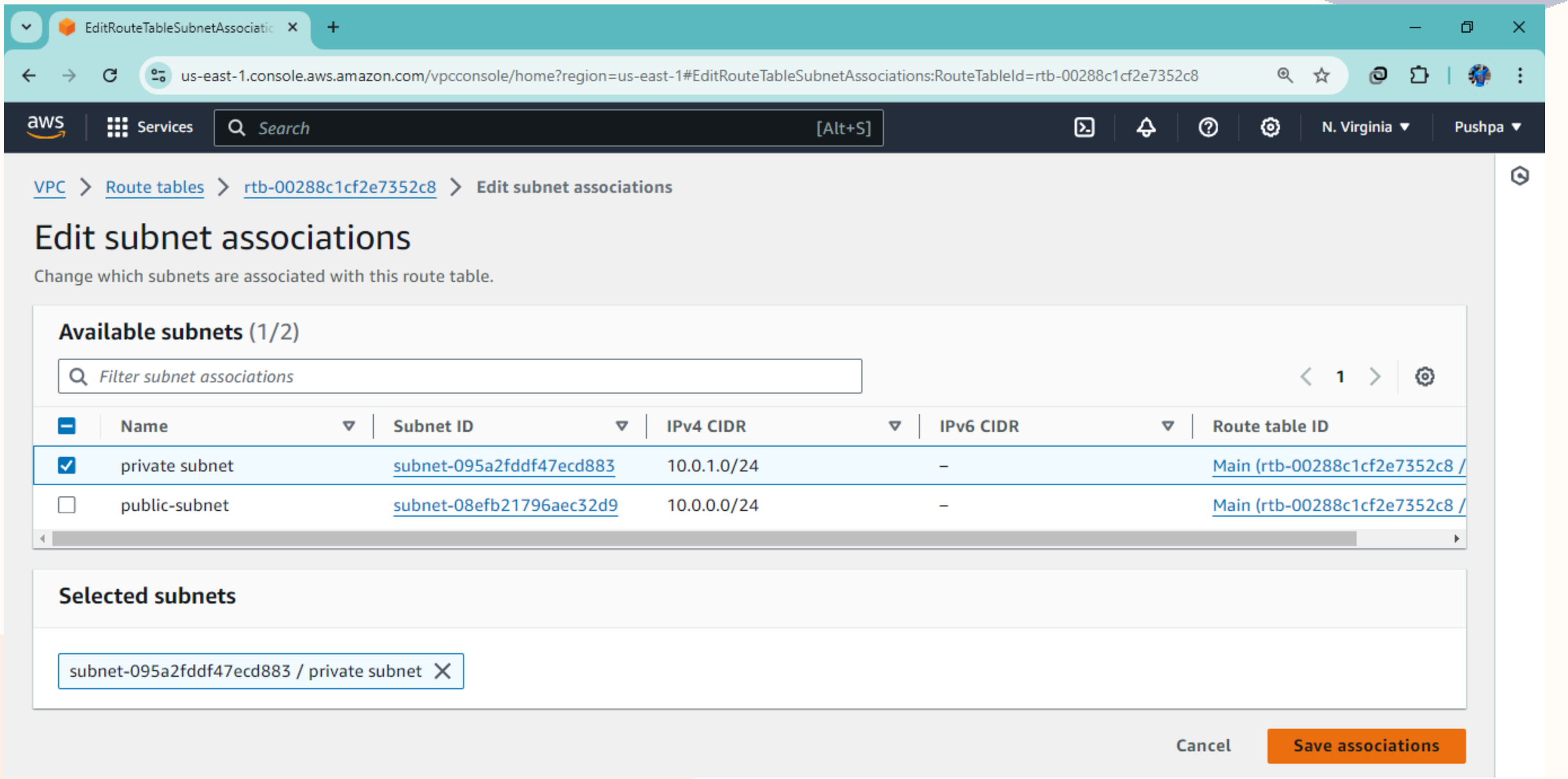
6.Now create a new route table in the VPC in the name of “public-rt”.

7.And one route-table will be default created during subnet creation name that as “private-rt”.

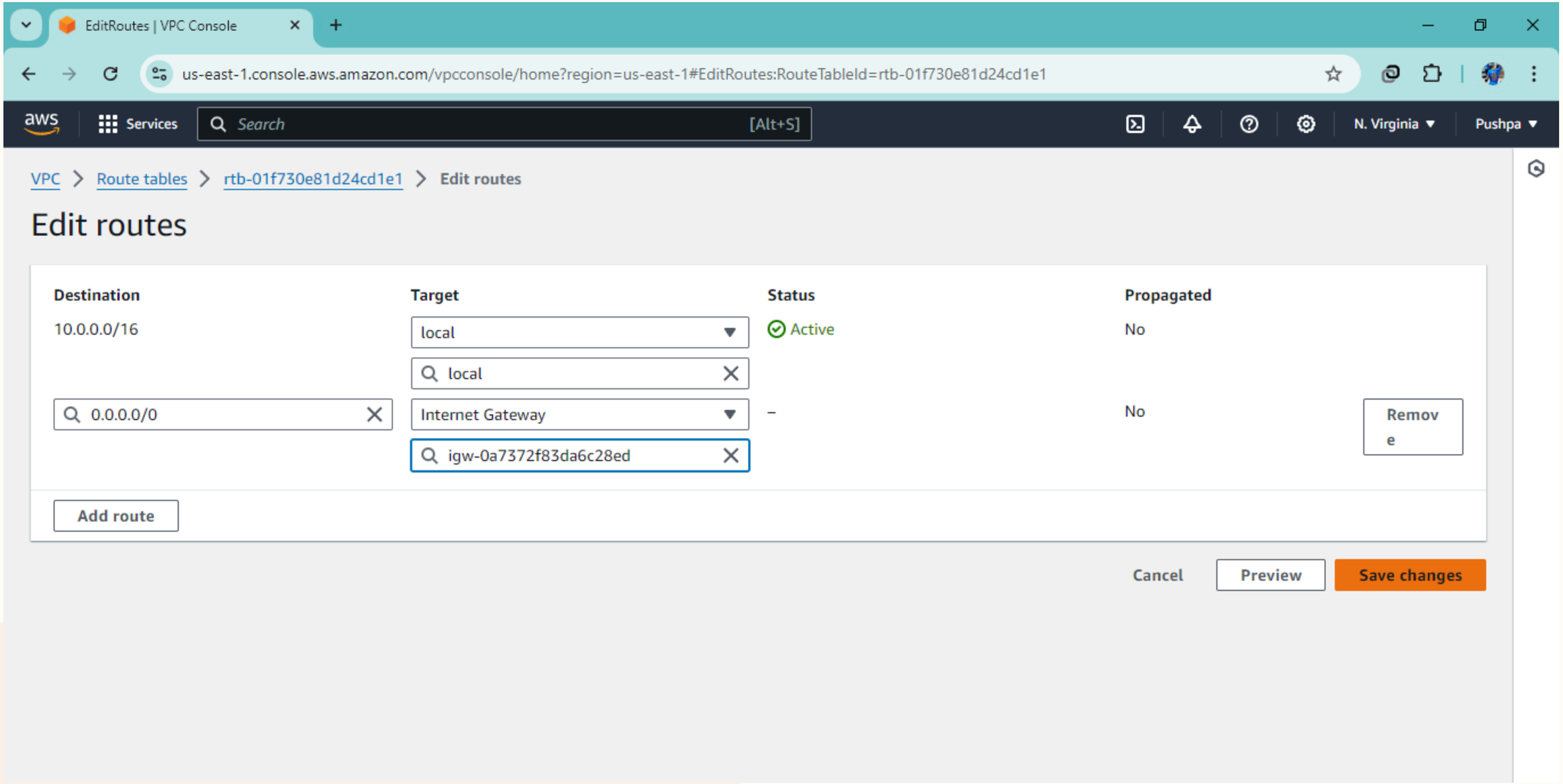

RouteTables | VPC Console
us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#RouteTables:
Services
Search
[Alt+S]
VPC dashboard
Internet gateway igw-0a7372f83da6c28ed successfully attached to vpc-055b019cd3e450a3c
Route tables (1/1) Info
Last updated 6 minutes ago
Find resources by attribute or tag
Name
Route table ID
Explicit subnet associ...
Edge associations
Edit Name
private-route-table
Cancel
Save
EC2 Global View
Filter by 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
Endpoints
Endpoint services
rtb-00288c1cf2e7352c8
Details
Routes
Subnet associations
Edge associations
Route propagation
Tags
Details


RouteTables | VPC Console
us-east-1.console.aws.amazon.com/vpcconsole/home?region=us-east-1#RouteTables:
Services
Search
[Alt+S]
N. Virginia
Pushpa
VPC dashboard
Route tables (2/2) Info
Last updated less than a minute ago
Actions
Create route table
Find resources by attribute or tag
Name
Route table ID
Explicit subnet associ...
Edge associations
Main
VPC
private-route-table
rtb-00288c1cf2e7352c8
Yes
public-route-table
rtb-01f730e81d24cd1e1
No
EC2 Global View
Filter by 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
Endpoints
Endpoint services
NAT gateways
Peering connections
Route tables: rtb-01f730e81d24cd1e1, rtb-00288c1cf2e7352c8

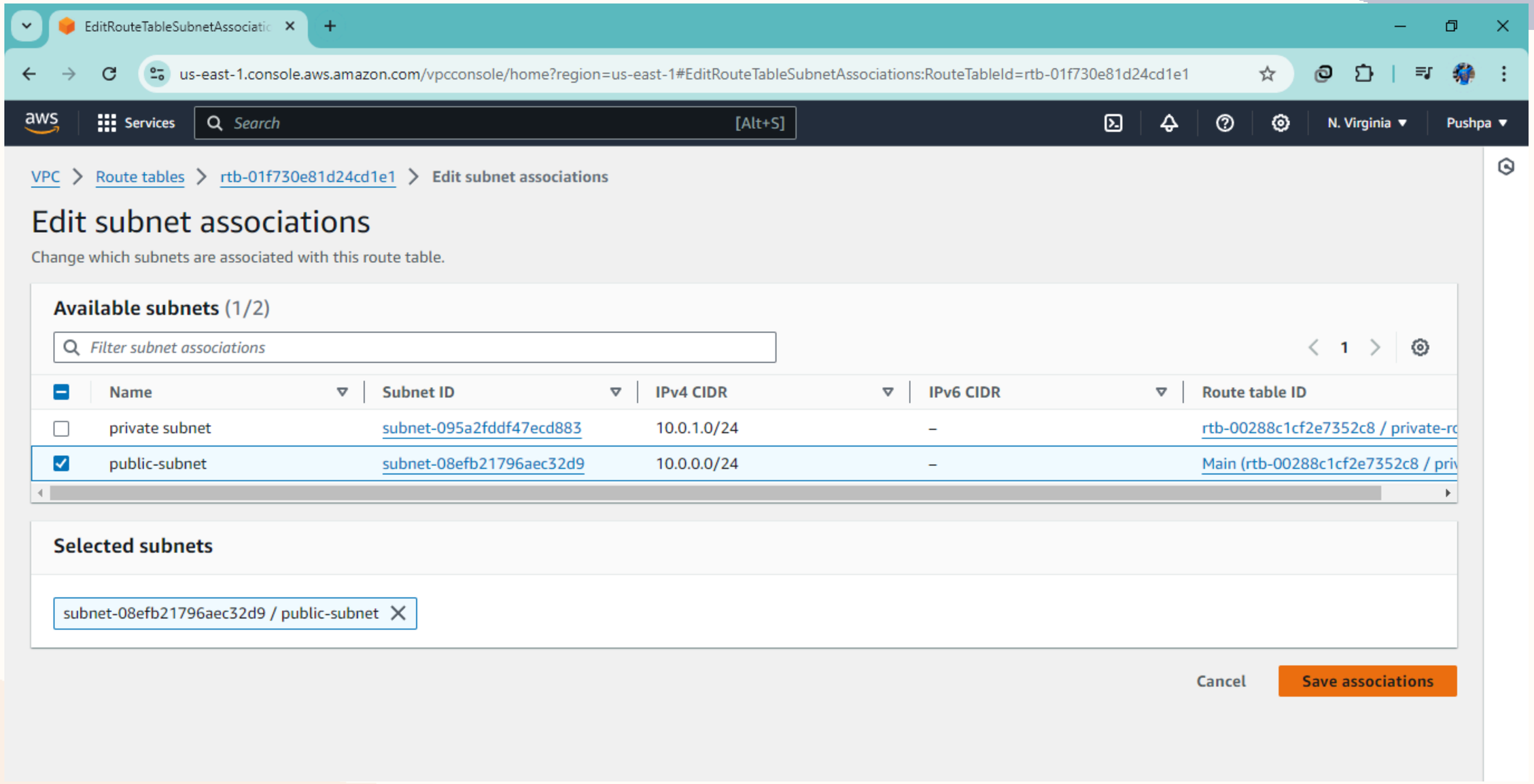
8.Now go to “private-rt” >edit subnet associations>select private subnet >save it.



9.Now go to “public-rt” >edit routes> 0.0.0.0 & IGW>save it.



And goto edit subnet associations>select public subnet >save it



Now we have attached IGW to public subnet.

10.Now go to EC2 and launch 2 linux instances with same keypair(.pem)

1.public instance:-

-In the network give VPC to it

-In the subnet give public subnet

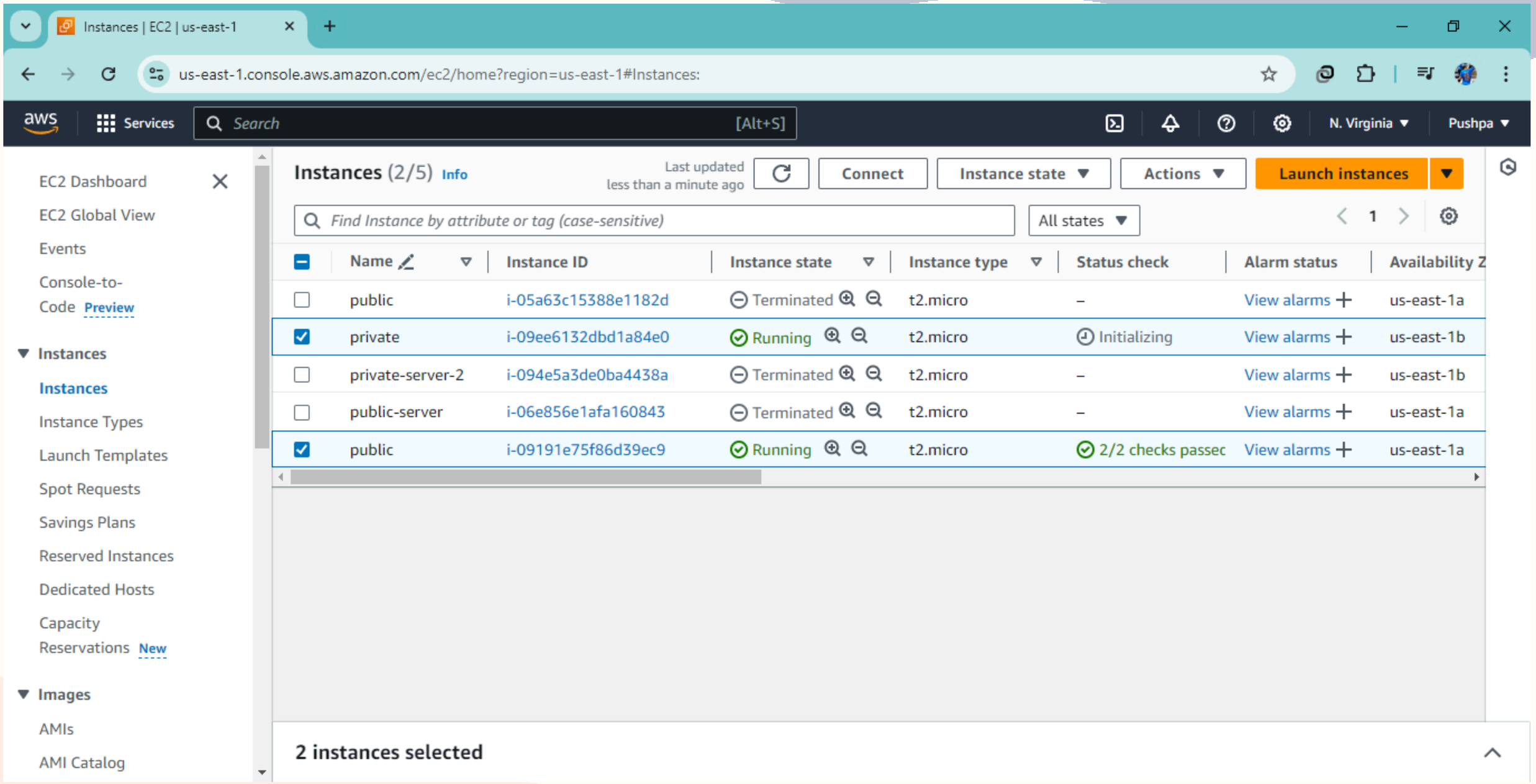
-In configure Security Group add one rule(Custom tcp,port num-80 ,anywhere)

2.private instance:-

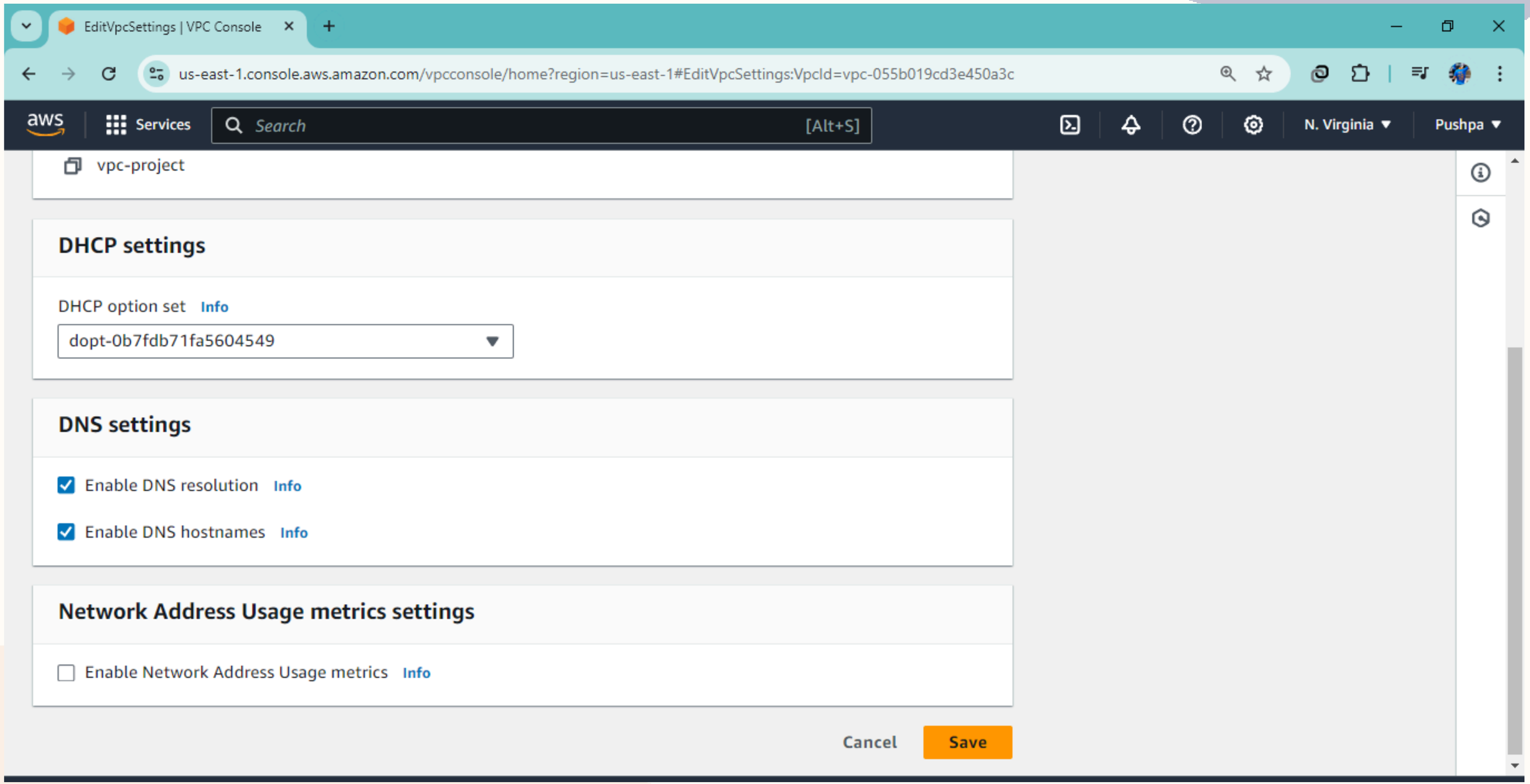
-In the network give VPC to it

-In the subnet give private subnet

-In configure Security Group ,no need of adding another one just leave ssh -22 but change it to custom and keep “10.0.0.0/16”.


Instances | EC2 | us-east-1
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#Instances:
aws
Services
Search
[Alt+S]
N. Virginia
Pushpa
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
Images
AMIs
AMI Catalog
Instances (2/5) Info
Last updated less than a minute ago
Connect
Instance state
Actions
Launch instances
Find Instance by attribute or tag (case-sensitive)
All states
1
Name
Instance ID
Instance state
Instance type
Status check
Alarm status
Availability Z
public i-05a63c15388e1182d Terminated t2.micro – View alarms us-east-1a
private i-09ee6132dbd1a84e0 Running t2.micro Initializing View alarms us-east-1b
private-server-2 i-094e5a3de0ba4438a Terminated t2.micro – View alarms us-east-1b
public-server i-06e856e1afa160843 Terminated t2.micro – View alarms us-east-1a
public i-09191e75f86d39ec9 Running t2.micro 2/2 checks passec View alarms us-east-1a
2 instances selected

After creating oublic instance enable vpc’s DNS host names



Entering into the Instances

-we are using “mobaxterm” app instead of “putty” because in mobaxterm we don’t have to convert the .pem file again into .ppk

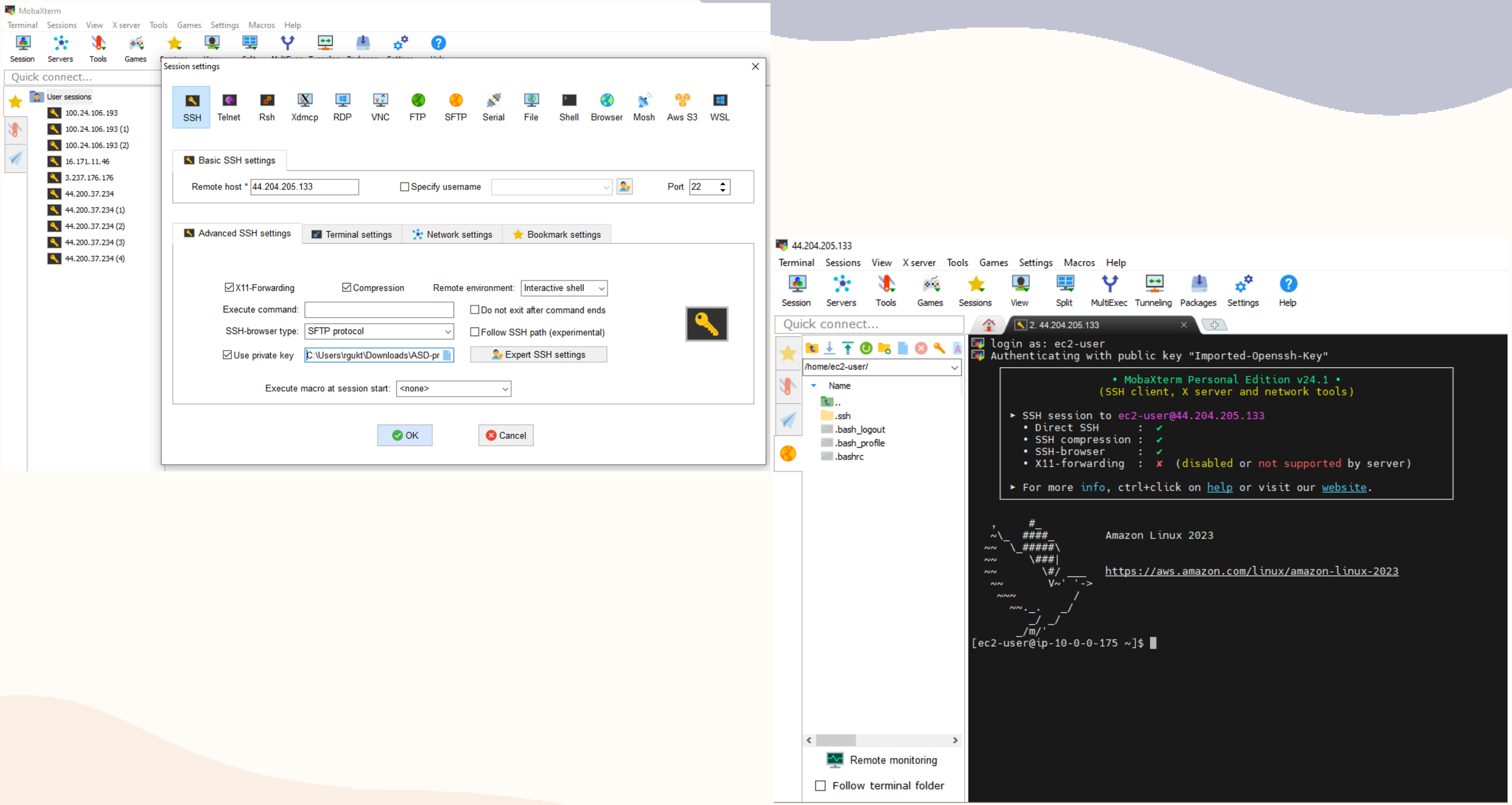
-go to Mobaxterm >session>remote host(give public ip)>username(optional)> advanced ssh settings >use provate key (mark it)>give your keypair<ok

Now we are in our ec2-instance(public-instance)

-Login as:ec2-user

-Now try to enter into private ec2-instance with same process,but we will get connection timeout error becoz we didn’t give any acess to private-instance.

-So now we will try to enter into private instance through the public instance.


MobaXterm
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games
Quick connect...
User sessions
100.24.106.193
100.24.106.193 (1)
100.24.106.193 (2)
16.171.11.46
3.237.176.176
44.200.37.234
44.200.37.234 (1)
44.200.37.234 (2)
44.200.37.234 (3)
44.200.37.234 (4)
Session settings
SSH Telnet Rsh Xdmcp RDP VNC FTP SFTP Serial File Shell Browser Mosh Aws S3 WSL
Basic SSH settings
Remote host * 44.204.205.133
Specify username
Port 22
Advanced SSH settings
Terminal settings
Network settings
Bookmark settings
X11-Forwarding
Compression
Remote environment: Interactive shell
Execute command:
Do not exit after command ends
SSH-browser type: SFTP protocol
Follow SSH path (experimental)
Use private key
C:\Users\rgukt\Downloads\ASD-pr
Expert SSH settings
Execute macro at session start: <none>
OK
Cancel
44.204.205.133
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
Quick connect...
2. 44.204.205.133
/home/ec2-user/
Name
..
.ssh
.bash_logout
.bash_profile
.bashrc
Remote monitoring
Follow terminal folder
login as: ec2-user
Authenticating with public key "Imported-Openssh-Key"
• MobaXterm Personal Edition v24.1 •
(SSH client, X server and network tools)
▸ SSH session to ec2-user@44.204.205.133
• Direct SSH : ✔
• SSH compression : ✔
• SSH-browser : ✔
• X11-forwarding : ✘ (disabled or not supported by server)
▸ For more info, ctrl+click on help or visit our website.
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023
[ec2-user@ip-10-0-0-175 ~]$

STEPS to enter into private instance through public instance:-

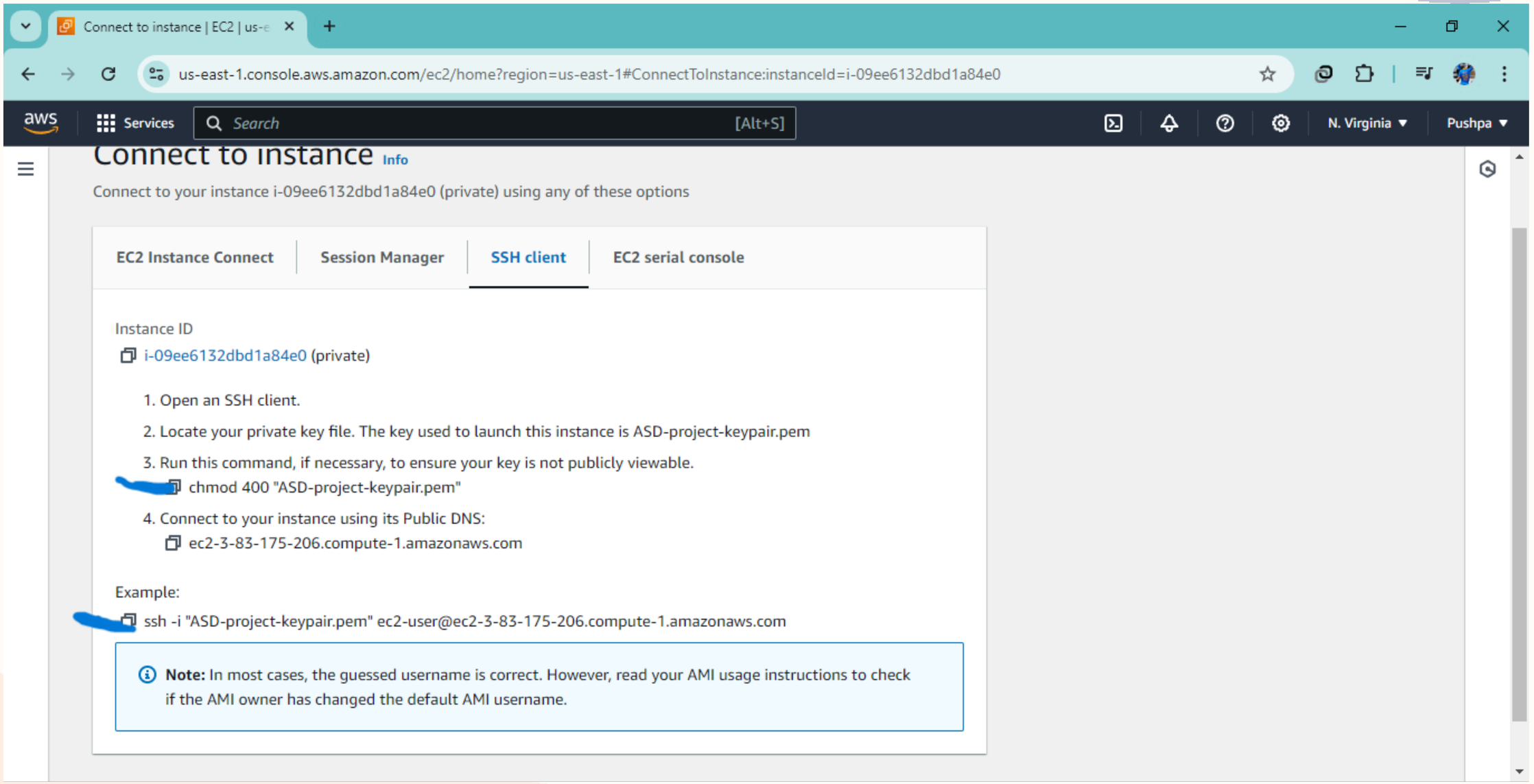
-In the server(public-instance) , in the left side click on “up arrow” and upload your keypair file

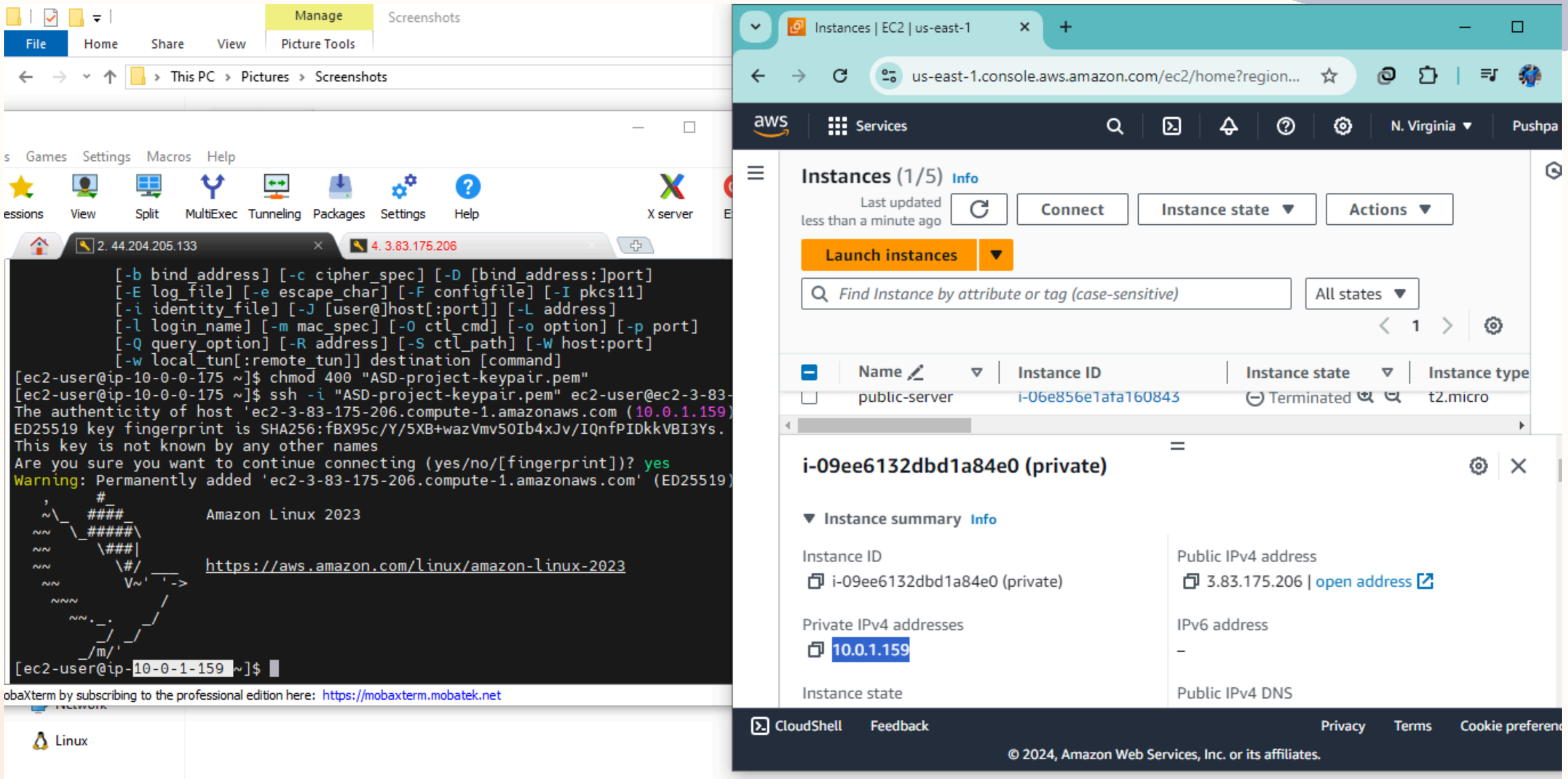
-In the Public Instance type “ssh”

-Now go to aws>dashboard>private-ec2 instance>connect >ssh client>copy the chmod (3rd step) and paste it in ec2 server

-Then copy the example and paste it it ec2 server>enter

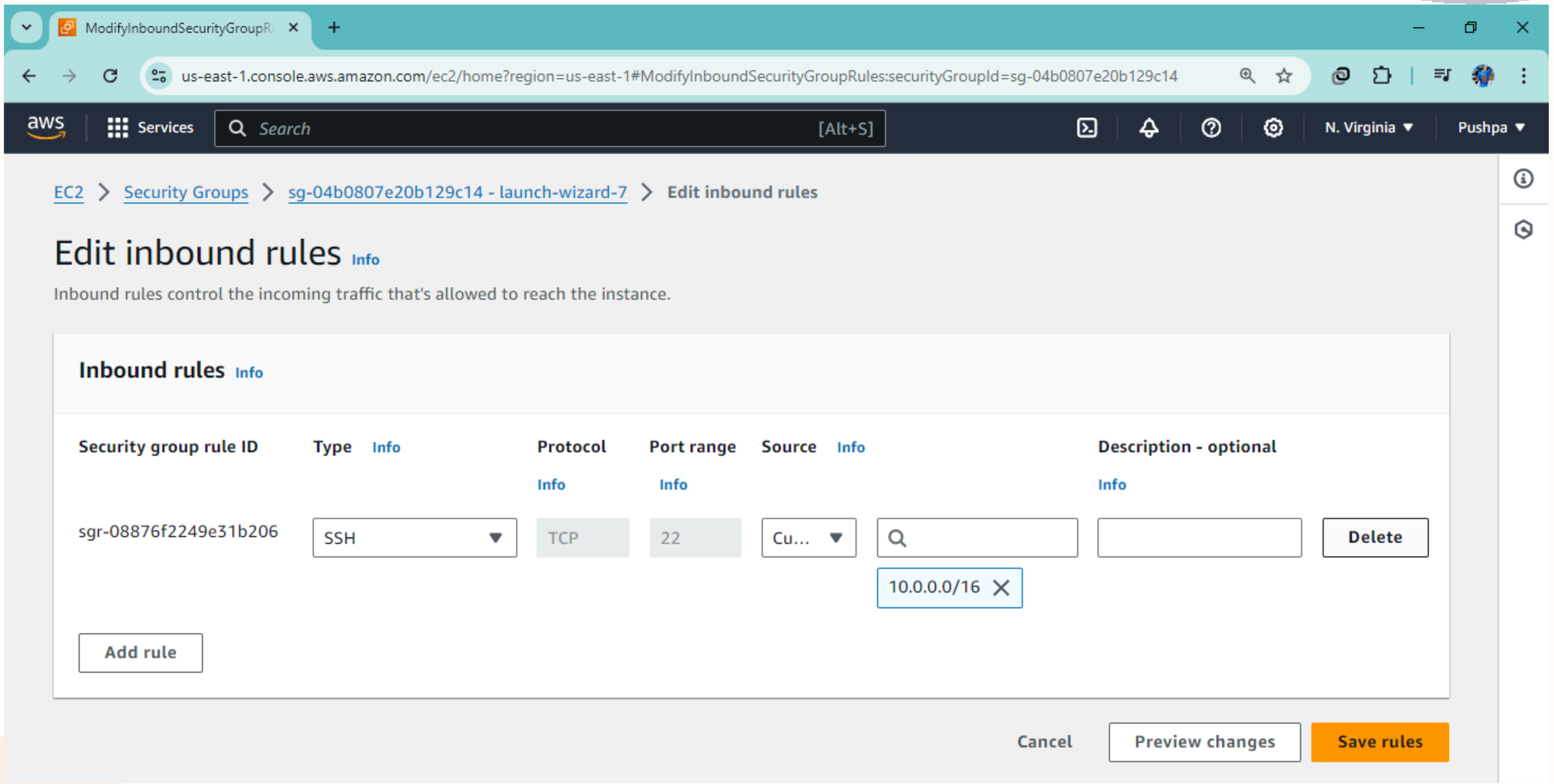
-Check the IP address of the server you are currently in and compare it to the private IP address of Private ec2 instance.


Connect to instance | EC2 | us-e
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#ConnectToInstance:instanceId=i-09ee6132dbd1a84e0
aws
Services
Search
[Alt+S]
N. Virginia
Pushpa
Connect to instance Info
Connect to your instance i-09ee6132dbd1a84e0 (private) using any of these options
EC2 Instance Connect
Session Manager
SSH client
EC2 serial console
Instance ID
i-09ee6132dbd1a84e0 (private)
1. Open an SSH client.
2. Locate your private key file. The key used to launch this instance is ASD-project-keypair.pem
3. Run this command, if necessary, to ensure your key is not publicly viewable.
chmod 400 "ASD-project-keypair.pem"
4. Connect to your instance using its Public DNS:
ec2-3-83-175-206.compute-1.amazonaws.com
Example:
ssh -i "ASD-project-keypair.pem" ec2-user@ec2-3-83-175-206.compute-1.amazonaws.com
Note: In most cases, the guessed username is correct. However, read your AMI usage instructions to check if the AMI owner has changed the default AMI username.



Now we are in private server.

11.Now goto private ec2>security>security group(click)>edit inbound rule>delete>save



we have deleted the above rule

12.Now logout from private serever(by clicking Ctrl+d) and again login to private server.

-we may get connection timedout error since we removed inbound rules

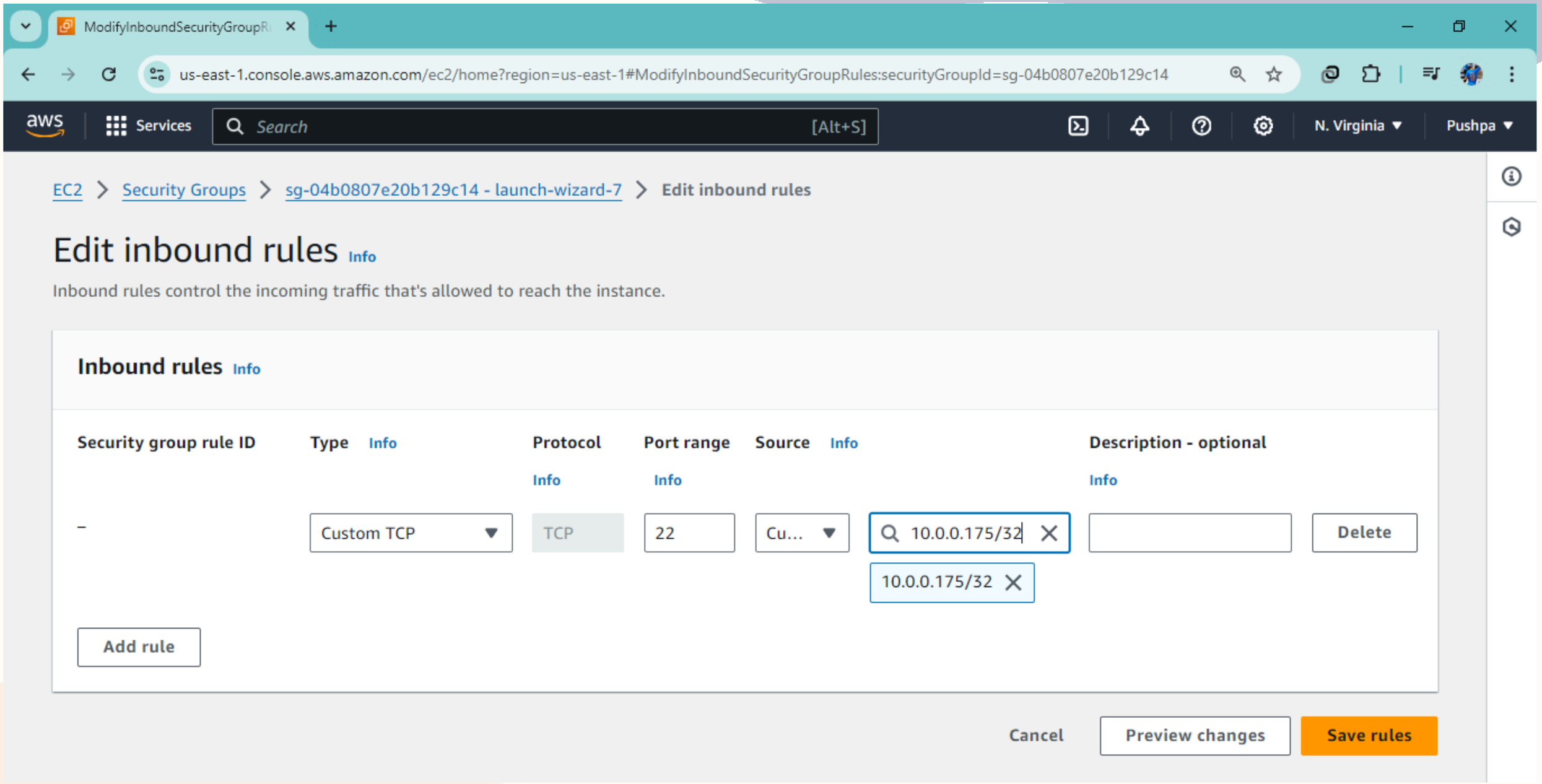
-Now lets again edit the inbound rules of private instance

-Copy the private IP of public server

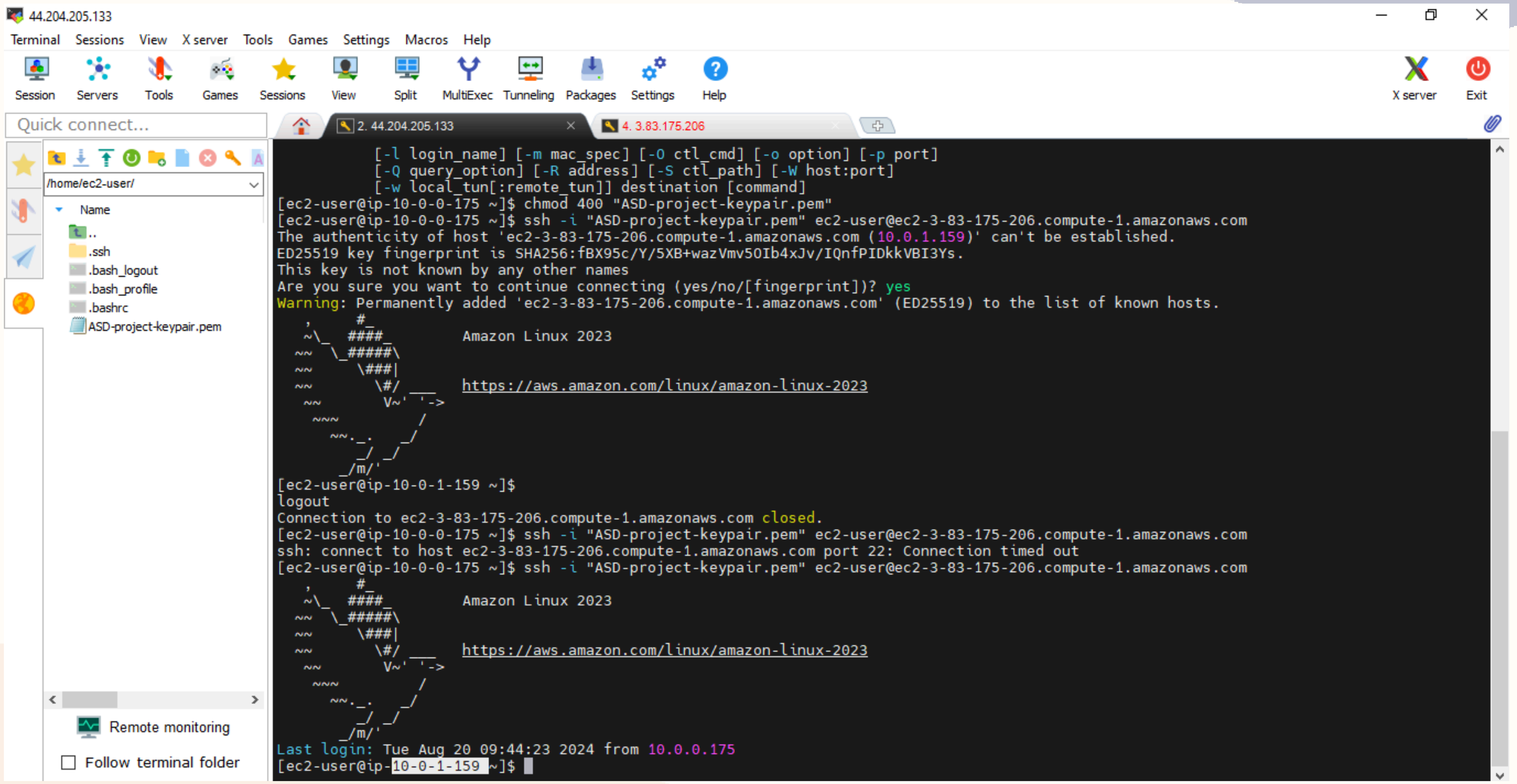
-goto private server>security group>edit inbound rule>add rule> give custom,port range-22,and paste that IP address(also give /32 so that only one ip address will be allowed(that one is ntn gbut the public server))

-What we have done is we given access to connect to private server only through public server ,no other servers can connect to the private server now.

-Now go to public server and try connecting to private server.


ModifyInboundSecurityGroupR
us-east-1.console.aws.amazon.com/ec2/home?region=us-east-1#ModifyInboundSecurityGroupRules:securityGroupId=sg-04b0807e20b129c14
aws
Services
Search
[Alt+S]
N. Virginia
Pushpa
EC2 > Security Groups > sg-04b0807e20b129c14 - launch-wizard-7 > Edit inbound rules
Edit inbound rules Info
Inbound rules control the incoming traffic that's allowed to reach the instance.
Inbound rules Info
Security group rule ID
Type Info
Protocol Info
Port range Info
Source Info
Description - optional Info
–
Custom TCP
TCP
22
Cu...
10.0.0.175/32
10.0.0.175/32
Delete
Add rule
Cancel
Preview changes
Save rules

-Now go to public server and try connecting to private server.



-lets try small html code

-ssh

-sudo yum install httpd –y

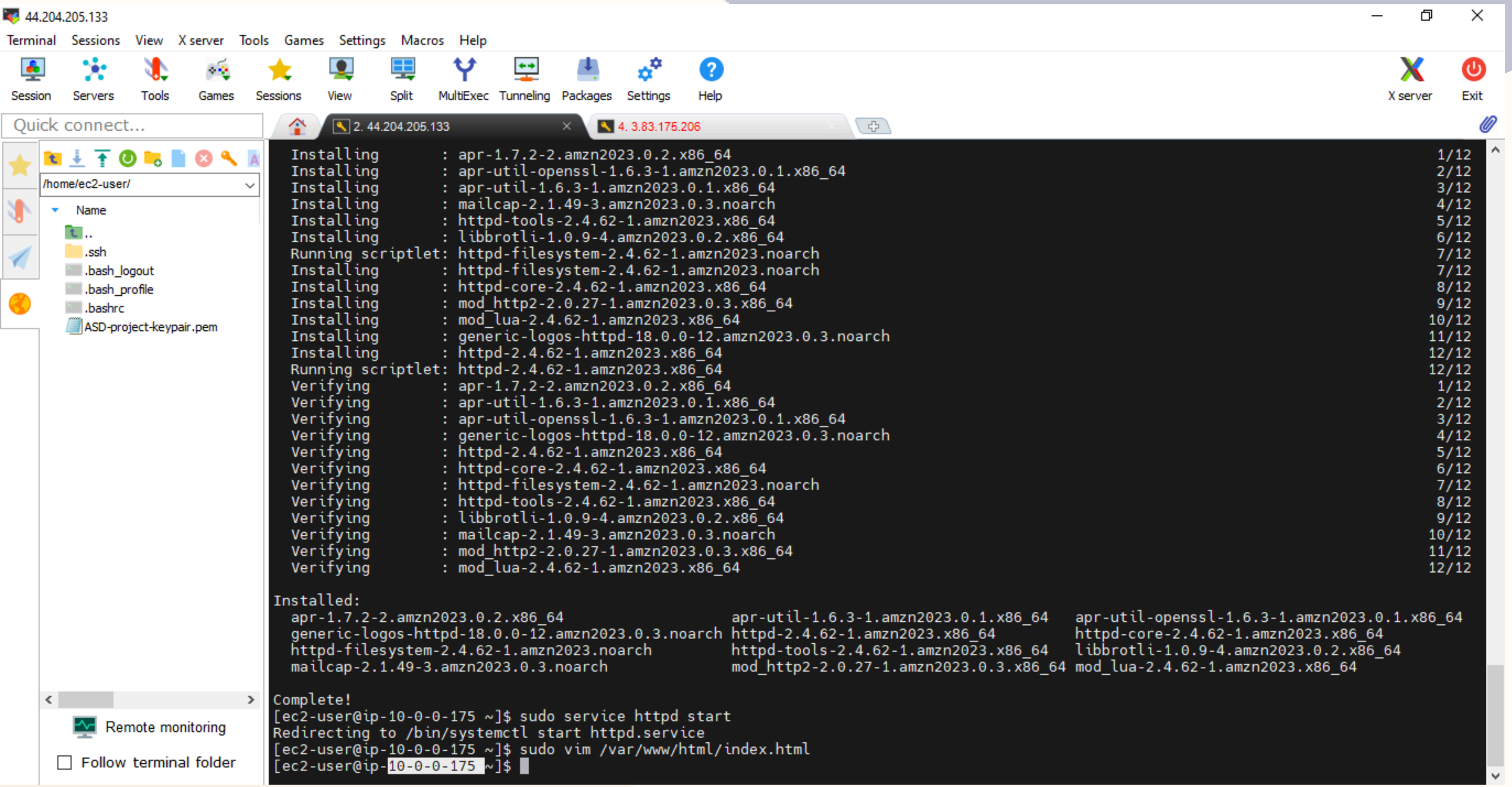
-sudo service httpd start

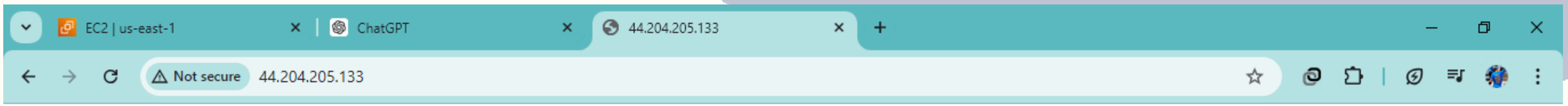
-sudo vim /var/www/html/index.html

(html code here)

type “i” so you can write the code

-after press “esc” and type “:wq”


44.204.205.133
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
X server Exit
Quick connect...
2. 44.204.205.133
4. 3.83.175.206
/home/ec2-user/
Name
..
.ssh
.bash_logout
.bash_profile
.bashrc
ASD-project-keypair.pem
Remote monitoring
Follow terminal folder
Installing : apr-1.7.2-2.amzn2023.0.2.x86_64 1/12
Installing : apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64 2/12
Installing : apr-util-1.6.3-1.amzn2023.0.1.x86_64 3/12
Installing : mailcap-2.1.49-3.amzn2023.0.3.noarch 4/12
Installing : httpd-tools-2.4.62-1.amzn2023.x86_64 5/12
Installing : libbrotli-1.0.9-4.amzn2023.0.2.x86_64 6/12
Running scriptlet: httpd-filesystem-2.4.62-1.amzn2023.noarch 7/12
Installing : httpd-filesystem-2.4.62-1.amzn2023.noarch 7/12
Installing : httpd-core-2.4.62-1.amzn2023.x86_64 8/12
Installing : mod_http2-2.0.27-1.amzn2023.0.3.x86_64 9/12
Installing : mod_lua-2.4.62-1.amzn2023.x86_64 10/12
Installing : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch 11/12
Installing : httpd-2.4.62-1.amzn2023.x86_64 12/12
Running scriptlet: httpd-2.4.62-1.amzn2023.x86_64 12/12
Verifying : apr-1.7.2-2.amzn2023.0.2.x86_64 1/12
Verifying : apr-util-1.6.3-1.amzn2023.0.1.x86_64 2/12
Verifying : apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64 3/12
Verifying : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch 4/12
Verifying : httpd-2.4.62-1.amzn2023.x86_64 5/12
Verifying : httpd-core-2.4.62-1.amzn2023.x86_64 6/12
Verifying : httpd-filesystem-2.4.62-1.amzn2023.noarch 7/12
Verifying : httpd-tools-2.4.62-1.amzn2023.x86_64 8/12
Verifying : libbrotli-1.0.9-4.amzn2023.0.2.x86_64 9/12
Verifying : mailcap-2.1.49-3.amzn2023.0.3.noarch 10/12
Verifying : mod_http2-2.0.27-1.amzn2023.0.3.x86_64 11/12
Verifying : mod_lua-2.4.62-1.amzn2023.x86_64 12/12
Installed:
apr-1.7.2-2.amzn2023.0.2.x86_64 apr-util-1.6.3-1.amzn2023.0.1.x86_64 apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64
generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch httpd-2.4.62-1.amzn2023.x86_64 httpd-core-2.4.62-1.amzn2023.x86_64
httpd-filesystem-2.4.62-1.amzn2023.noarch httpd-tools-2.4.62-1.amzn2023.x86_64 libbrotli-1.0.9-4.amzn2023.0.2.x86_64
mailcap-2.1.49-3.amzn2023.0.3.noarch mod_http2-2.0.27-1.amzn2023.0.3.x86_64 mod_lua-2.4.62-1.amzn2023.x86_64
Complete!
[ec2-user@ip-10-0-0-175 ~]$ sudo service httpd start
Redirecting to /bin/systemctl start httpd.service
[ec2-user@ip-10-0-0-175 ~]$ sudo vim /var/www/html/index.html
[ec2-user@ip-10-0-0-175 ~]$



This is my project output on VPC handson

-Now copy public ip and browse we will get the output.

Thank you!