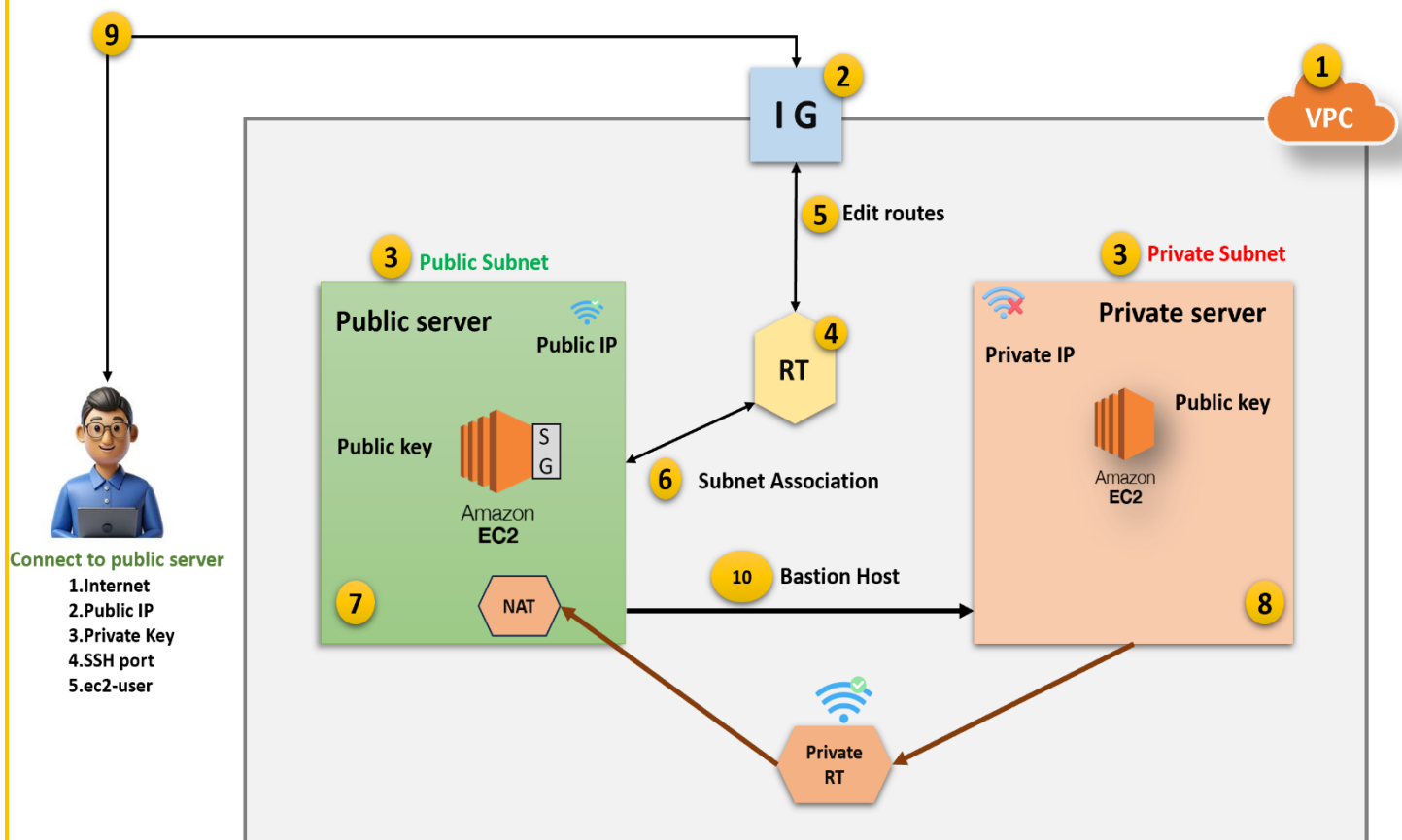


Creation of VPC and deployment of Public and Private Server.

Steps To Create Custom Network.

- 1.Create VPC
- 2.Create IG and Attach to VPC
- 3.Create Subnets
- 4.Create Route Table
- 5.Provide Routing from IG to Route Table
- 6.Provide Routing from RT to Required Subnet
- 7.Create Public Server in Public Subnet
8. Create Private Server in Private Subnet
- 9.Connect to Public Server
- 10.Connect to Private Server



1.Create VPC:

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.

demoVPC

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](#)

☒ 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	demoVPC	Remove tag
Add tag		

You can add 49 more tags

VPC Name = DemoVPC

IPv4 CIDR = 10.0.0.0/16

2.Create IG and Attach to VPC:

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.

demoIG

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	demoIG	Remove

Add new tag
You can add 49 more tags.

Cancel **Create internet gateway**

Internet Gateway created i.e. demoIG

aws Services Search [Alt+S] Mumbai steve11431

EC2 VPC

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

Notifications

The following Internet gateway was created: igw-0691450442082bfbb - demoIG. You can now attach to a VPC to enable the VPC to communicate with the internet. **Attach to a VPC**

You successfully created vpc-01b1f2ea812b7cda1 / demoVPC

VPC > Internet gateways > igw-0691450442082bfbb

igw-0691450442082bfbb / demoIG

Details [Info](#)

Internet gateway ID	State	VPC ID	Owner
igw-0691450442082bfbb	Detached	-	463657798727

Tags

Search tags

Key	Value
Name	demoIG

Manage tags

1

Click on Attach to VPC then Select Created VPC

VPC > Internet gateways > Attach to VPC (igw-0691450442082bfbb)

Attach to VPC (igw-0691450442082bfbb) [Info](#)

VPC
Attach an internet gateway to a VPC to enable the VPC to communicate with the internet. Specify the VPC to attach below.

Available VPCs
Attach the internet gateway to this VPC.

select a VPC

vpc-01b1f2ea812b7cda1 - demoVPC

AWS Command Line Interface command

Cancel **Attach internet gateway**

VPC > Internet gateways > Attach to VPC (igw-0691450442082bfbb)

Attach to VPC (igw-0691450442082bfbb) [Info](#)

VPC
Attach an internet gateway to a VPC to enable the VPC to communicate with the internet. Specify the VPC to attach below.

Available VPCs
Attach the internet gateway to this VPC.

vpc-01b1f2ea812b7cda1

AWS Command Line Interface command

Cancel **Attach internet gateway**

3.Create Subnets

[VPC](#) > [Subnets](#) > Create subnet

Create subnet [Info](#)

VPC

VPC ID

Create subnets in this VPC.

vpc-01b1f2ea812b7cda1 (demoVPC)

Q |

vpc-089885c6eb4ecc84e (default)
172.31.0.0/16

vpc-01b1f2ea812b7cda1 (demoVPC)
10.0.0.0/16

Select DemoVPC

Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

Public Subnet

Subnet 1 of 2

Subnet name

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

public

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.

Asia Pacific (Mumbai) / ap-south-1a

Subnet comes under AZ

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.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.0.0/24 256 IPs

< > ^ v

▼ Tags - optional

Key

Q Name X

Value - optional

Q public X

Remove

Add new tag

You can add 49 more tags.

Remove

Click on Add Another Subnet i.e. Private subnet.

Subnet 2 of 2

Private Subnet

Subnet name

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

private

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.

Asia Pacific (Mumbai) / ap-south-1a

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.

10.0.0.0/16

IPv4 subnet CIDR block

10.0.1.0/24

256 IPs

▼ Tags - optional

Key

Value - optional

Q Name

X

Q private

X

Remove

Add new tag

You can add 49 more tags.

Remove

Add new subnet

Cancel

Create subnet

VPC dashboard

EC2 Global View

Filter by VPC

Virtual private cloud

Your VPCs

Subnets

Route tables

Internet gateways

Enforce network isolation

You have successfully created 2 subnets: subnet-0d05f487aca3a3109, subnet-0829acefdc3b26ded

Subnets (2) [Info](#)

Last updated less than a minute ago

Actions

Create subnet

Find resources by attribute or tag

Subnet ID: subnet-0d05f487aca3a3109 X Subnet ID: subnet-0829acefdc3b26ded X Clear filters

	Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR	IPv6
☐	public	subnet-0d05f487aca3a3109	Available	vpc-01b1f2ea812b7cda1 dem...	10.0.0.0/24	-	-
☐	private	subnet-0829acefdc3b26ded	Available	vpc-01b1f2ea812b7cda1 dem...	10.0.1.0/24	-	-

Public Subnet & Private Subnet created Successfully.

4.Create Route Table:

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.

demoVPCRT

VPC
The VPC to use for this route table.

vpc-01b1f2ea812b7cda1 (demoVPC)

Q

vpc-089885c6eb4ecc84e (default)

vpc-01b1f2ea812b7cda1 (demoVPC) ✓

can use tags to search and filter your resources or track your AWS costs.

Key **Value - optional**

Q Name X Q demoVPCRT X Remove

Add new tag

You can add 49 more tags.

Cancel Create route table

VPC > Route tables > rtb-0c2b4ed2dbe885b99

rtb-0c2b4ed2dbe885b99 / demoVPCRT

Actions

Details Info

Route table ID rtb-0c2b4ed2dbe885b99	Main No	Explicit subnet associations -	Edge associations -
VPC vpc-01b1f2ea812b7cda1 demoVPC	Owner ID 463657798727		

Routes Subnet associations Edge associations Route propagation Tags

Routes (1)

Filter routes

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No

Public Route Table created Successfully I.e. demoVPCRT

5. Provide Routing from IG to Route Table:

Routes				
Subnet associations Edge associations Route propagation Tags				
Routes (1)				
Filter routes				
Destination	Target	Status	Propagated	
10.0.0.0/16	local	Active	No	

Click on Edit Routes Option

VPC > Route tables > rtb-0c2b4ed2dbe885b99 > Edit routes

Edit routes

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No
0.0.0.0/0	Internet Gateway	-	No

Click on Add Route

0.0.0.0/0 =Everyone can connect

Select Internet Gateway i.e. demoIG

6. Provide Routing from RT to Required Subnet:

Routes | **Subnet associations** | Edge associations | Route propagation | Tags

Explicit subnet associations (0) Edit subnet associations

< 1 > ⚙

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

Click on Subnet Associations then select Edit subnet Associations.

VPC > Route tables > [rtb-0c2b4ed2cbe885b99](#) > Edit subnet associations

Edit subnet associations

Change which subnets are associated with this route table.

Available subnets (1/2) Edit subnet associations

< 1 > ⚙

	Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
☒	public	subnet-0d05f487aca3a3109	10.0.0.0/24	-	Main (rtb-01857d933f2552f8c)
☐	private	subnet-0829acefdc3b26ded	10.0.1.0/24	-	Main (rtb-01857d933f2552f8c)

Selected subnets

[subnet-0d05f487aca3a3109](#) / public ✕

Cancel **Save associations**

Select public subnet

Routes | **Subnet associations** | Edge associations | Route propagation | Tags

Explicit subnet associations (1) Edit subnet associations

< 1 > ⚙

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
public	subnet-0d05f487aca3a3109	10.0.0.0/24	-

Subnets without explicit associations (1) Edit subnet associations

The following subnets have not been explicitly associated with any route tables and are therefore associated with the main route table:

< 1 > ⚙

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
private	subnet-0829acefdc3b26ded	10.0.1.0/24	-

Public Subnet connected with Route table.

7.Create Public Server in Public Subnet:

[EC2](#) > ... > Launch an instance

public Server in public subnet.

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

Amazon Linux

macOS

Ubuntu

Windows

Red Hat

SUSE Li

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI

ami-04a37924ffe27da53 (64-bit (x86), uefi-preferred) / ami-0846b753e2af0da6e (64-bit (Arm), uefi)

Virtualization: hvm ENA enabled: true Root device type: ebs

Free tier eligible

Description

Amazon Linux 2023 is a modern, general purpose Linux-based OS that comes with 5 years of long term support. It is optimized for AWS and designed to provide a secure, stable and high-performance execution environment to develop and run your cloud applications.

Amazon Linux 2023 AMI 2023.6.20241010.0 x86_64 HVM kernel-6.1

Architecture	Boot mode	AMI ID	Username	
64-bit (x86)	uefi-preferred	ami-04a37924ffe27da53	ec2-user	Verified provider

▼ 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*

multicloud ▼

 [Create new key pair](#)
▼ Network settings [Info](#)VPC - *required* [Info](#)
 vpc-01b1f2ea812b7cda1 (demoVPC)
 10.0.0.0/16

Select newly created VPC i.e. demoVPC
Subnet [Info](#)
 subnet-0d05f487aca3a3109
 VPC: vpc-01b1f2ea812b7cda1 Owner: 463657798727
 Availability Zone: ap-south-1a Zone type: Availability Zone
 IP addresses available: 251 CIDR: 10.0.0.0/24

public ▼

Select public subnet.
Auto-assign public IP [Info](#)

Enable

Enable Auto Assign Public IP

 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
Common security groups [Info](#)

Select security groups ▼

 custom_SG sg-03b7a5f358503cb70 ✕
 VPC: vpc-01b1f2ea812b7cda1

 [Compare security group rules](#)

Security groups that you add or remove here will be added to or removed from all your network interfaces.

► **Advanced network configuration**
[EC2](#) > [Security Groups](#) > Create security group
Create security group [Info](#)

A security group acts as a virtual firewall for your instance to control inbound and outbound traffic. To create a new security group, complete the fields below.

Basic details

Security group name [Info](#)

custom_SG

Name cannot be edited after creation.

Description [Info](#)

Allow Access

VPC [Info](#)

vpc-01b1f2ea812b7cda1 (demoVPC) ▼

Inbound rules [Info](#)

Type Info	Protocol Info	Port range Info	Source Info	Description - optional Info
SSH ▼	TCP	22	Anywhere-IPv4 ▼	Q 0.0.0.0/0 ✕
HTTP ▼	TCP	80	Anywhere-IPv4 ▼	Q 0.0.0.0/0 ✕

Add rule

Add SSH (22) & HTTP (80) in inbound rules.

8. Create Private Server in Private Subnet:

Name and tags
Info

Private Server in Private subnet.

Name

privateServer

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

Search our full catalog including 1000s of application and OS images

Recents

Quick Start

Amazon Linux

aws

macOS

Mac

Ubuntu

ubuntu

Windows

Microsoft

Red Hat

Red Hat

SUSE Li

SUSE

Browse more AMIs

Including AMIs from AWS, Marketplace and the Community

Amazon Machine Image (AMI)

Amazon Linux 2023 AMI

Free tier eligible

ami-04a37924ffe27da53 (64-bit (x86), uefi-preferred) / ami-0846b753e2af0da6e (64-bit (Arm), uefi)
Virtualization: hvm ENA enabled: true Root device type: ebs

Description

Amazon Linux 2023 is a modern, general purpose Linux-based OS that comes with 5 years of long term support. It is optimized for AWS and designed to provide a secure, stable and high-performance execution environment to develop and run your cloud applications.

Amazon Linux 2023 AMI 2023.6.20241010.0 x86_64 HVM kernel-6.1

Architecture

64-bit (x86)

Boot mode

uefi-preferred

AMI ID

ami-04a37924ffe27da53

Username

ec2-user

Verified provider

Abhijeet Multicloud lab

11

▼ Instance type [Info](#) | [Get advice](#)

Instance type

t2.micro

Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true
On-Demand Linux base pricing: 0.0124 USD per Hour
On-Demand Windows base pricing: 0.017 USD per Hour
On-Demand RHEL base pricing: 0.0268 USD per Hour
On-Demand Ubuntu Pro base pricing: 0.0142 USD per Hour
On-Demand SUSE base pricing: 0.0124 USD per Hour

☐ All generations[Compare instance types](#)

Additional costs apply for AMLs with pre-installed software

▼ 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*

multicloud

[Create new key pair](#)**▼ Network settings** [Info](#)VPC - *required* [Info](#)vpc-01b1f2ea812b7cda1 (demoVPC)
10.0.0.0/16Subnet [Info](#)subnet-0829acefdc3b26ded
VPC: vpc-01b1f2ea812b7cda1 Owner: 463657798727
Availability Zone: ap-south-1a Zone type: Availability Zone
IP addresses available: 251 CIDR: 10.0.1.0/24

private

Select private subnetAuto-assign public IP [Info](#)

Disable

Disable Auto Assign Public IPFirewall (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 groupCommon security groups [Info](#)

Select security groups

[Compare security group rules](#)custom_SG sg-03b7a5f358503cb70 ✕
VPC: vpc-01b1f2ea812b7cda1

Security groups that you add or remove here will be added to or removed from all your network interfaces.

► **Advanced network configuration****Instances (2)** [Info](#)Last updated
less than a minute ago[Connect](#)

Instance state ▼

Actions ▼

[Launch instances](#) ▼

Find Instance by attribute or tag (case-sensitive)

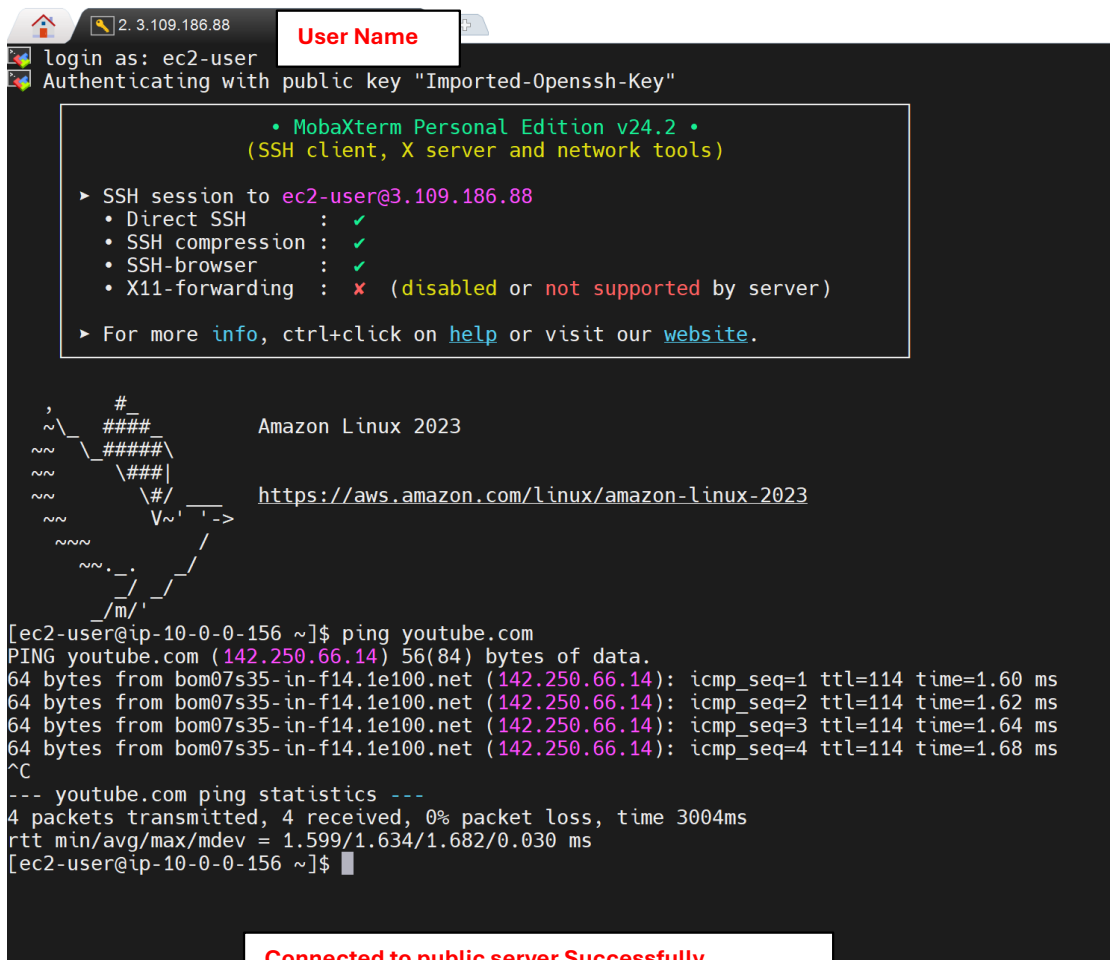
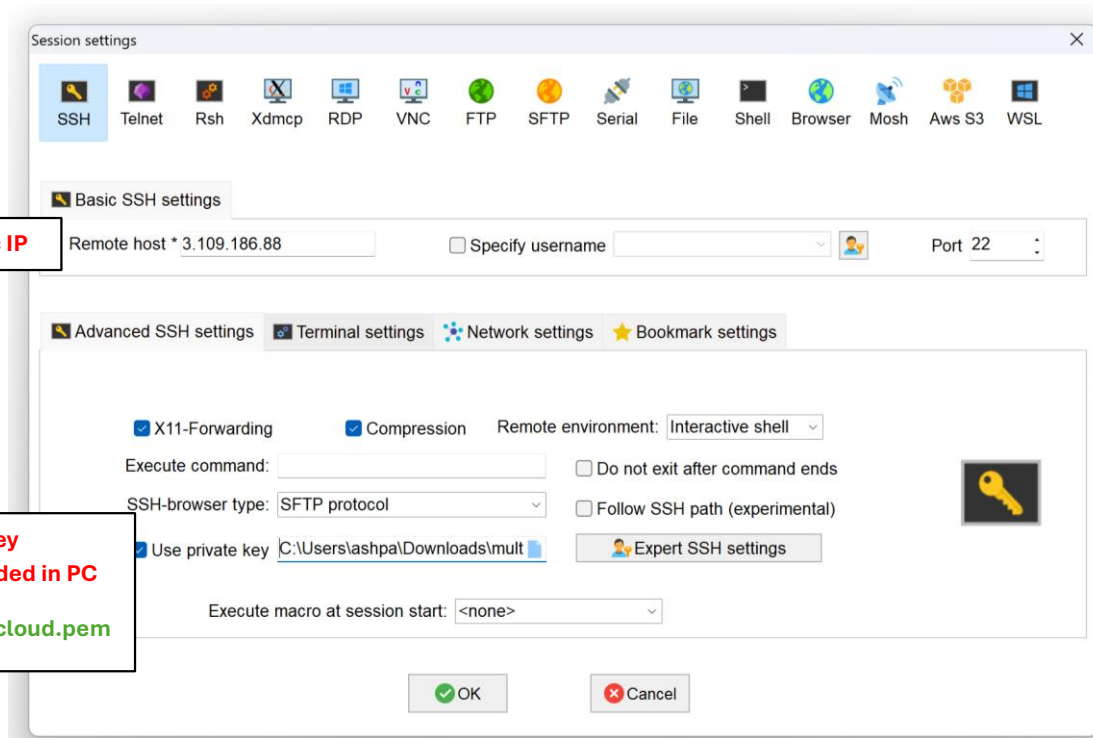
All states ▼

< 1 >

☐	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS	Public IPv4 ...	Elastic IP
☐	privateServer	i-0f7005b0deb25dd13	Running	t2.micro	Initializing	View alarms +	ap-south-1a	-	-	-
☐	publicServer	i-043ed69b3fba5b91c	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1a	-	3.109.186.88	-

Public and private servers created successfully.

9.Connect to Public Server (using Mobaxterm):



10. Connect to Private Server with the help of Public Server: (Bastion Host)

Private IP - 10.0.1.160

Private Key- multicloud.pem

SSH -SG

Connecting Private server by using upload Private key option in mobaxterm.

```

ck connect...
/home/ec2-user/
Name
ssh
.bash_history
.bash_logout
.bash_profile
.bashrc
multicloud.pem

SSH session to ec2-user@3.109.186.88
• 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

Last login: Tue Oct 29 10:08:29 2024 from 106.213.80.152
[ec2-user@ip-10-0-0-156 ~]$ ls
multicloud.pem
[ec2-user@ip-10-0-0-156 ~]$ ssh -i "multicloud.pem" ec2-user@10.0.1.160
The authenticity of host '10.0.1.160 (10.0.1.160)' can't be established.
ED25519 key fingerprint is SHA256:050IT9jGRtmGVQvtHNSHS2LNraBtwsmov4YaSRA02no.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '10.0.1.160' (ED25519) to the list of known hosts.
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@                WARNING: UNPROTECTED PRIVATE KEY FILE!                @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
Permissions 0644 for 'multicloud.pem' are too open.
It is required that your private key files are NOT accessible by others.
This private key will be ignored.
Load key "multicloud.pem": bad permissions
ec2-user@10.0.1.160: Permission denied (publickey,gssapi-keyex,gssapi-with-mic).
[ec2-user@ip-10-0-0-156 ~]$ chmod 400 "multicloud.pem"
[ec2-user@ip-10-0-0-156 ~]$ ssh -i "multicloud.pem" ec2-user@10.0.1.160

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

[ec2-user@ip-10-0-1-160 ~]$
  
```

Commands used:

ls

chmod 400 "multicloud.pem"

ssh -i "multicloud.pem" ec2-user@10.0.1.160

By using vi command (create file inside and add content):

```

Quick connect...
User sessions
3.109.186.88

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

Last login: Tue Oct 29 11:06:18 2024 from 106.213.80.152
[ec2-user@ip-10-0-0-156 ~]$ vi multicloud.pem
[ec2-user@ip-10-0-0-156 ~]$ cat multicloud.pem
-----BEGIN RSA PRIVATE KEY-----
MIIEogIBAAKCAQEARL+/DGeF0t8Eiw56hnRi0dHP84PIAdDMm3RszPNJae3ykQ/F
YuyBikaAkWZk4HHf5x5B6Qn11mNXuUtv79LbXaLQn5QA463mpg5M9yCqeDBRUrEi
+Hhd0e7s7IDnQtTtOF6x00Pgt1+IOZH2LGZYghysupHyPXyv7WQySw+V0a2Kx8Wq
L7H1zLR9sYEAtXjU1swrBQ/ZCrapN+ZvalqhcwzJHURij1f1VP34JKtZ1GaRPQ
0uE3a1fYoDpSHinGcZmMm+/FYyjhMQ0tDeAwfC8n9IMVtHrR4CfG/s3F2VQgFD7
wY1L/G7pwSLky4W2VAmKtUx92b5JUZsLqaFAQIDAQABAOIBAEcuCw6Vc+rSEhEq
0hpEwqMqDGO0P09gNa6oXlkso9PWG+LS/P198z5Ro863b4NrfCax8UKe3YquQd
n6/191WqJP8bBFkUnFJ2ZTI5PT5E8k66+ntzpwccstQoFnLuqNLgTGI0zgN+Ref
qTakpTuXjSSjFmL3gxYR/1dt+FL3HZfRLNUR5BZVR/MxJmPtUe7VPevS4Lah6SNE
21FNON0QesSbWVKe9FPEmkgDvw0LB/15cWNI8b0/Sw1ERUD9DeX0z70yAegMQZ2X
bdUDW7vcgDEfYHtpvwo4jwHjUIn20TGIrhgkUtGK8nq2HKG+PrRgQ1Bk8L+Aiq
kCMaRAECgYEA2g66R0M3rp3qmZa2N4LTZFmJP+AVJG5k/AH7ZWH9kzL901+kV8cW
mwdxOXjVe79toYtnVEEaw1QUgIFWMI6Mr04mLKKUhsX+uqTGE07NqC4QylrVjL0X
UwSPmsiuqLZ2XwP68Bn2L0vc3tUX6VZE/mSX+g9Cp9VsmQhJN/+yOpECgYEAys7F
ezSdKsl8JaBgE3E6/6M66QNAQrlhAPscfls957u0oRtk7kMmXZQNsfpJhv5KC3c
LJDr0fnnKDjVxFnk8+vaUFnPIzWqSo+ZnWui0wdLH9oDgcgt9WoZBvKTEgV9D108
4mDsetwyQ06oYYtsC6TLd+fGdm4s+ByfLHbne3ECgYAFg2PQU3G/93wr//S8ePZj
zIRjHA6NFEF3YbF1cJXRuB1jd+qW0ZDPwKNrOZPK0hXshMzLA45iq+iMyzhbsn0a
JxauADpTIGRrwaJEAjSm80s5owtug1UawQafMJ1yhPaGSaqFw33m/JkYezL2GM
KQzypJoh1jKVt/Dp+owOEQKBgHCKXaaHUqayFVL5dsYDjRiCheDXSLPmqH/JiUB
Cnm5V66t72EVfz03Rht0TRCjgs9Y9c889FRL8mUXkjvHtiqz5RSxY0+0gW6QHmBw
QgN9jW+qnYh0CwU3va89D0gaUaaNXBs4ZmNcyPL6dUJ7/uzI43MZfWjgYKmRr26
xYFBA0GAHma+HZkylC/u3XZaZM6MBLdsGsrN489yf5YQoamRAZ6EaVQ52PP3qwa
Z1Wgsp7fRr0FdyV2z4yx3LIoUnhBGMQRNtoHV0iDrIFcYNz9yZrLXJR1s6o0nNH
/3M1hL776J1EfpjGex/hn4tRjwpAZsFHVhy6qe4/FWzJVkQPpyWo=
-----END RSA PRIVATE KEY-----
[ec2-user@ip-10-0-0-156 ~]$ ssh -i "multicloud.pem" ec2-user@10.0.1.160
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@                WARNING: UNPROTECTED PRIVATE KEY FILE!                @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
Permissions 0644 for 'multicloud.pem' are too open.
It is required that your private key files are NOT accessible by others.
This private key will be ignored.
Load key "multicloud.pem": bad permissions
ec2-user@10.0.1.160: Permission denied (publickey,gssapi-keyex,gssapi-with-mic).
[ec2-user@ip-10-0-0-156 ~]$ chmod 400 "multicloud.pem"
[ec2-user@ip-10-0-0-156 ~]$ ssh -i "multicloud.pem" ec2-user@10.0.1.160

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

Last login: Tue Oct 29 10:52:50 2024 from 10.0.0.156
[ec2-user@ip-10-0-1-160 ~]$

```

Commands used:

Vi multicloud.pem

Wq!

Cat multicloud.pem

chmod 400 "multicloud.pem"

ssh -i "multicloud.pem" ec2-user@10.0.1.160

Steps To Provide Internet to Private Server Using NAT Gateway.

1.Create NAT Gateway

2.Create Route Table

3.Edit Routes (Provide Path from NAT Gateway to Private RT)

4.Provide Path from Private RT to Private Subnet

1.Create NAT Gateway:



VPC > NAT gateways > Create NAT gateway

Create NAT gateway [Info](#)

A highly available, managed Network Address Translation (NAT) service that instances in private subnets can use to connect to services in other VPCs, on-premises networks, or the internet.

NAT gateway settings

demoNAT

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

The name can be up to 256 characters long.

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

Select 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.

Allocate Elastic IP

Static IP

▶ **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	demoNAT	Remove

You can add 49 more tags.

2.Create Route Table:

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.

demoVPC-PrivateRT

VPC
The VPC to use for this route table.

vpc-01b1f2ea812b7cda1 (demoVPC)

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	demoVPC-PrivateRT	Remove

You can add 49 more tags.

Create Route table for Private server.

3.Edit Routes (Provide Path from NAT Gateway to Private RT):

VPC > Route tables > rtb-06dd4d67ef76390e6 > Edit routes

Edit routes

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No
0.0.0.0/0	local	-	No
	NAT Gateway	-	No
	nat-	-	No
	Use: "nat-"	-	No
	nat-0196d481d5681c7be (demoNAT)	-	No

Updated routes for rtb-06dd4d67ef76390e6 / demoVPC-PrivateRT successfully

VPC > Route tables > rtb-06dd4d67ef76390e6

rtb-06dd4d67ef76390e6 / demoVPC-PrivateRT

Actions

Details Info

Route table ID rtb-06dd4d67ef76390e6	Main No	Explicit subnet associations -	Edge associations -
VPC vpc-01b1f2ea812b7cda1 demoVPC	Owner ID 463657798727		

Routes Subnet associations Edge associations Route propagation Tags

Routes (2)

Destination	Target	Status	Propagated
0.0.0.0/0	nat-0196d481d5681c7be	Active	No
10.0.0.0/16	local	Active	No

Path from NAT Gateway to Private RT Created Successfully.

4. Provide Path from Private RT to Private Subnet:

Updated routes for rtb-06dd4d67ef76390e6 / demoVPC-PrivateRT successfully

Select Subnet Associations then click on Edit subnet Associations.

VPC > Route tables > rtb-06dd4d67ef76390e6

rtb-06dd4d67ef76390e6 / demoVPC-PrivateRT

Details

Route table ID: rtb-06dd4d67ef76390e6
VPC: vpc-01b1f2ea812b7cda1 | demoVPC
Main: No
Owner ID: 465657798727
Explicit subnet associations: --
Edge associations: --

Routes | **Subnet associations** | Edge associations | Route propagation | Tags

Explicit subnet associations (0)

Find subnet association

No subnet associations
You do not have any subnet associations.

Subnets without explicit associations (1)

The following subnets have not been explicitly associated with any route tables and are therefore associated with the main route table:

Find subnet association

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
private	subnet-0829acefdc3b26ded	10.0.1.0/24	--

VPC > Route tables > rtb-06dd4d67ef76390e6 > Edit subnet associations

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
☐	public	subnet-0d05f487aca3a3109	10.0.0.0/24	--	rtb-0c2b4cd2dbc885b99 / demoVPCRT
☒	private	subnet-0829acefdc3b26ded	10.0.1.0/24	--	Main (rtb-01857d933f2552f8c)

Selected subnets

[subnet-0829acefdc3b26ded / private](#) X

Cancel **Save associations**

Select Private Subnet

Providing Internet to The Private Server with The Help of NAT Gateway.

```

3.109.186.88
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...
★ User sessions
3.109.186.88

Z1Wgsp7fRr0FdyV2z4yx3LIoUnhBGMQNRToHV0iDrIFcYNz9yZYrLXJR1s6o0nNH
/3M1hL776J1EfPjGex/hn4tRJwpAZsFHVhy6qe4/FWzJVkQPyWo=
-----END RSA PRIVATE KEY-----
[ec2-user@ip-10-0-0-156 ~]$ ssh -i "multicloud.pem" ec2-user@10.0.1.160
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
@           WARNING: UNPROTECTED PRIVATE KEY FILE!           @
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
Permissions 0644 for 'multicloud.pem' are too open.
It is required that your private key files are NOT accessible by others.
This private key will be ignored.
Load key "multicloud.pem": bad permissions
ec2-user@10.0.1.160: Permission denied (publickey,gssapi-keyex,gssapi-with-mic).
[ec2-user@ip-10-0-0-156 ~]$ chmod 400 "multicloud.pem"
[ec2-user@ip-10-0-0-156 ~]$ ssh -i "multicloud.pem" ec2-user@10.0.1.160

#
#####
#          #
#         ##
#        ###
#       ###
#      ###
#     ###
#    ###
#   ###
#  ###
# ###
# ##
# #
#
#          #
#         ##
#        ###
#       ###
#      ###
#     ###
#    ###
#   ###
#  ###
# ###
# ##
# #
#
#          #
#         ##
#        ###
#       ###
#      ###
#     ###
#    ###
#   ###
#  ###
# ###
# ##
# #
#

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

Last login: Tue Oct 29 10:52:50 2024 from 10.0.0.156
[ec2-user@ip-10-0-1-160 ~]$ exit
logout
Connection to 10.0.1.160 closed.
[ec2-user@ip-10-0-0-156 ~]$ ssh -i "multicloud.pem" ec2-user@10.0.1.160

#
#####
#          #
#         ##
#        ###
#       ###
#      ###
#     ###
#    ###
#   ###
#  ###
# ###
# ##
# #
#
#          #
#         ##
#        ###
#       ###
#      ###
#     ###
#    ###
#   ###
#  ###
# ###
# ##
# #
#

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

Last login: Tue Oct 29 11:09:17 2024 from 10.0.0.156
[ec2-user@ip-10-0-1-160 ~]$ ping youtube.com
PING youtube.com (142.250.66.14) 56(84) bytes of data:
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=1 ttl=113 time=2.37 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=2 ttl=113 time=1.91 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=3 ttl=113 time=1.88 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=4 ttl=113 time=1.87 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=5 ttl=113 time=1.90 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=6 ttl=113 time=2.50 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=7 ttl=113 time=1.85 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=8 ttl=113 time=1.89 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=9 ttl=113 time=1.85 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=10 ttl=113 time=1.97 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=11 ttl=113 time=1.89 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=12 ttl=113 time=1.52 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=13 ttl=113 time=1.63 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=14 ttl=113 time=1.59 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=15 ttl=113 time=1.54 ms
64 bytes from bom07s35-in-f14.1e100.net (142.250.66.14): icmp_seq=16 ttl=113 time=1.52 ms
^C
--- youtube.com ping statistics ---
16 packets transmitted, 16 received, 0% packet loss, time 15025ms
rtt min/avg/max/mdev = 1.515/1.853/2.498/0.268 ms
[ec2-user@ip-10-0-1-160 ~]$

```

Ping youtube.com Successfully through private server.

3.109.186.88

Terminal Sessions View X server Tools Games Settings Macros Help

Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help

Quick connect...

User sessions

3.109.186.88

```

64 bytes from bom07s35-in-f14.1e108.net (142.250.66.14): icmp_seq=6 ttl=113 time=2.50 ms
64 bytes from bom07s35-in-f14.1e108.net (142.250.66.14): icmp_seq=7 ttl=113 time=1.85 ms
64 bytes from bom07s35-in-f14.1e108.net (142.250.66.14): icmp_seq=8 ttl=113 time=1.89 ms
64 bytes from bom07s35-in-f14.1e108.net (142.250.66.14): icmp_seq=9 ttl=113 time=1.85 ms
64 bytes from bom07s35-in-f14.1e108.net (142.250.66.14): icmp_seq=10 ttl=113 time=1.97 ms
64 bytes from bom07s35-in-f14.1e108.net (142.250.66.14): icmp_seq=11 ttl=113 time=1.89 ms
64 bytes from bom07s35-in-f14.1e108.net (142.250.66.14): icmp_seq=12 ttl=113 time=1.52 ms
64 bytes from bom07s35-in-f14.1e108.net (142.250.66.14): icmp_seq=13 ttl=113 time=1.63 ms
64 bytes from bom07s35-in-f14.1e108.net (142.250.66.14): icmp_seq=14 ttl=113 time=1.59 ms
64 bytes from bom07s35-in-f14.1e108.net (142.250.66.14): icmp_seq=15 ttl=113 time=1.54 ms
64 bytes from bom07s35-in-f14.1e108.net (142.250.66.14): icmp_seq=16 ttl=113 time=1.52 ms
^C
-- youtube.com ping statistics --
16 packets transmitted, 16 received, 0% packet loss, time 1502ms
rtt min/avg/max/mdev = 1.515/1.853/2.496/0.268 ms
[ec2-user@ip-10-0-1-160 ~]$ sudo yum install git -y
Amazon Linux 2023 repository
Dependencies resolved.

```

Package	Architecture	Version	Repository	Size
Installing:				
git	x86_64	2.40.1-1.amzn2023.0.3	amazonlinux	54 k
Installing dependencies:				
git-core	x86_64	2.40.1-1.amzn2023.0.3	amazonlinux	4.3 M
git-core-doc	noarch	2.40.1-1.amzn2023.0.3	amazonlinux	2.6 M
perl-Error	noarch	1:0.17029-5.amzn2023.0.2	amazonlinux	41 k
perl-File-Find	noarch	1.37.477.amzn2023.0.6	amazonlinux	26 k
perl-git	noarch	2.40.1-1.amzn2023.0.3	amazonlinux	42 k
perl-TermReadKey	x86_64	2.38-9.amzn2023.0.2	amazonlinux	36 k
perl-lib	x86_64	0.65-477.amzn2023.0.6	amazonlinux	15 k

Transaction Summary

Install 8 Packages

Total download size: 7.1 M
Installed size: 34 M

Downloading Packages:

Package	Download Size	Progress	Time
(1/8): git-2.40.1-1.amzn2023.0.3.x86_64.rpm	54 kB	883 kB/s	00:00
(2/8): git-core-doc-2.40.1-1.amzn2023.0.3.noarch.rpm	2.6 MB	23 MB/s	00:00
(3/8): perl-Error-1:0.17029-5.amzn2023.0.2.noarch.rpm	41 kB	771 kB/s	00:00
(4/8): perl-git-2.40.1-1.amzn2023.0.3.noarch.rpm	42 kB	2.3 MB/s	00:00
(5/8): perl-File-Find-1.37.477.amzn2023.0.6.noarch.rpm	26 kB	1.1 MB/s	00:00
(6/8): git-core-2.40.1-1.amzn2023.0.3.x86_64.rpm	4.3 MB	24 MB/s	00:00
(7/8): perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64.rpm	36 kB	887 kB/s	00:00
(8/8): perl-lib-0.65-477.amzn2023.0.6.x86_64.rpm	15 kB	350 kB/s	00:00

Total: 29 MB/s | 7.1 MB 00:00

Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction

Package	Progress
Preparing	1/1
Installing	1/8
Installing	2/8
Installing	3/8
Installing	4/8
Installing	5/8
Installing	6/8
Installing	7/8
Installing	8/8
Running scriptlet	8/8
Verifying	1/8
Verifying	2/8
Verifying	3/8
Verifying	4/8
Verifying	5/8
Verifying	6/8
Verifying	7/8
Verifying	8/8

Installed:

Package	Architecture	Version	Repository
git-2.40.1-1.amzn2023.0.3.x86_64	x86_64	2.40.1-1.amzn2023.0.3	amazonlinux
git-core-doc-2.40.1-1.amzn2023.0.3.noarch	noarch	2.40.1-1.amzn2023.0.3	amazonlinux
perl-Error-1:0.17029-5.amzn2023.0.2.noarch	noarch	1:0.17029-5.amzn2023.0.2	amazonlinux
perl-File-Find-1.37.477.amzn2023.0.6.noarch	noarch	1.37.477.amzn2023.0.6	amazonlinux
perl-git-2.40.1-1.amzn2023.0.3.noarch	noarch	2.40.1-1.amzn2023.0.3	amazonlinux
perl-TermReadKey-2.38-9.amzn2023.0.2.x86_64	x86_64	2.38-9.amzn2023.0.2	amazonlinux
perl-lib-0.65-477.amzn2023.0.6.x86_64	x86_64	0.65-477.amzn2023.0.6	amazonlinux

Complete!
[ec2-user@ip-10-0-1-160 ~]\$

Installed git Successfully in Private Server.