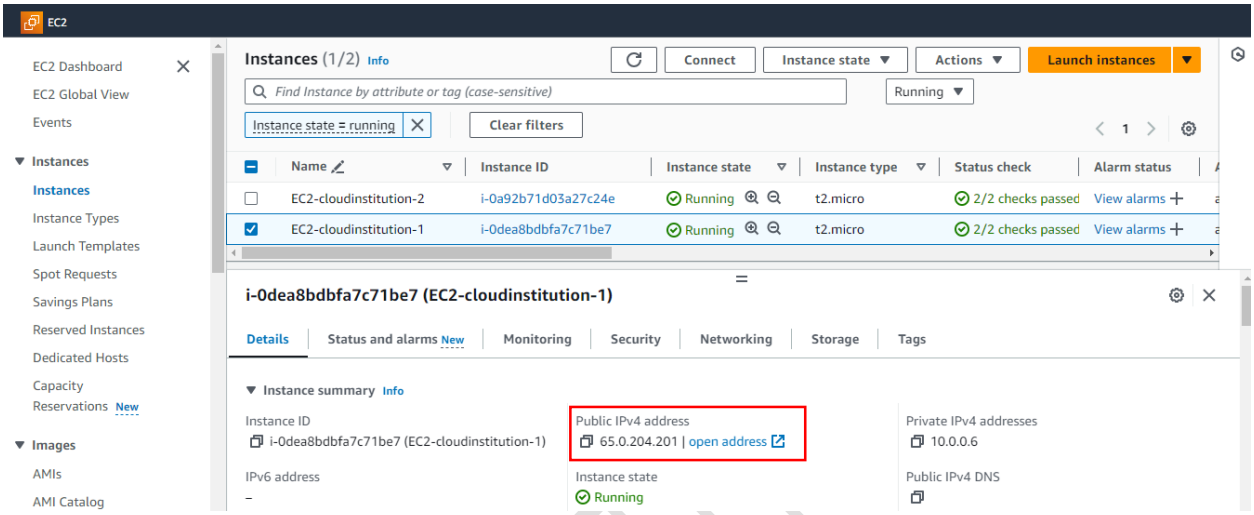
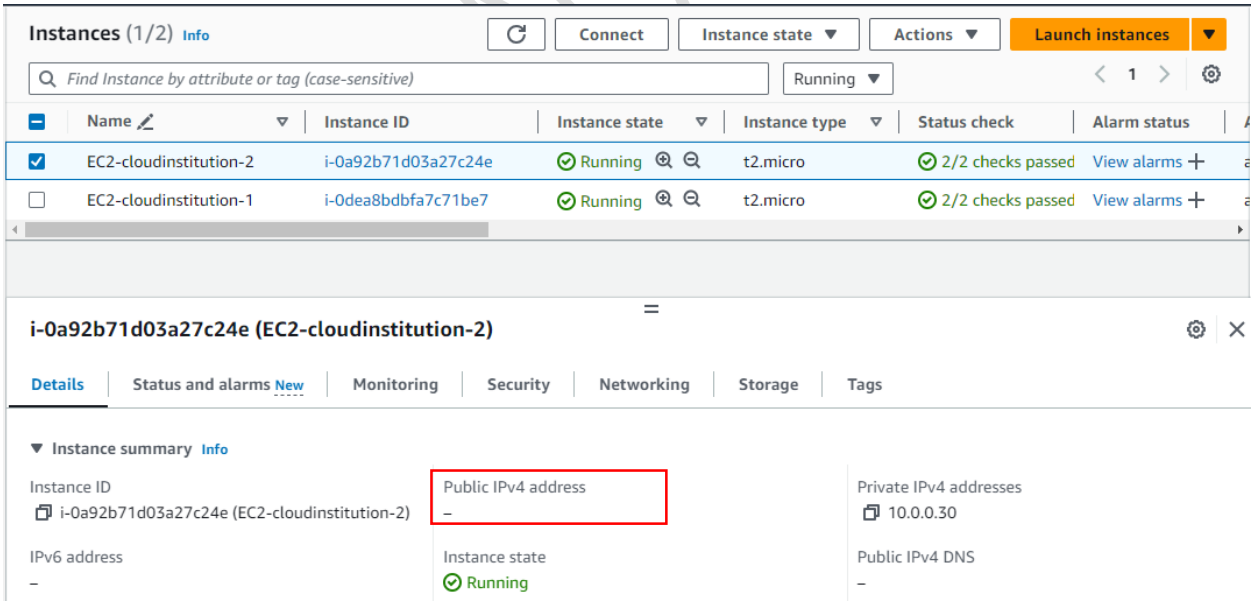
NAT GATEWAY

Step 1 : Create 2 instances

“Ec2-cloudinstitution-1” in public subnet and



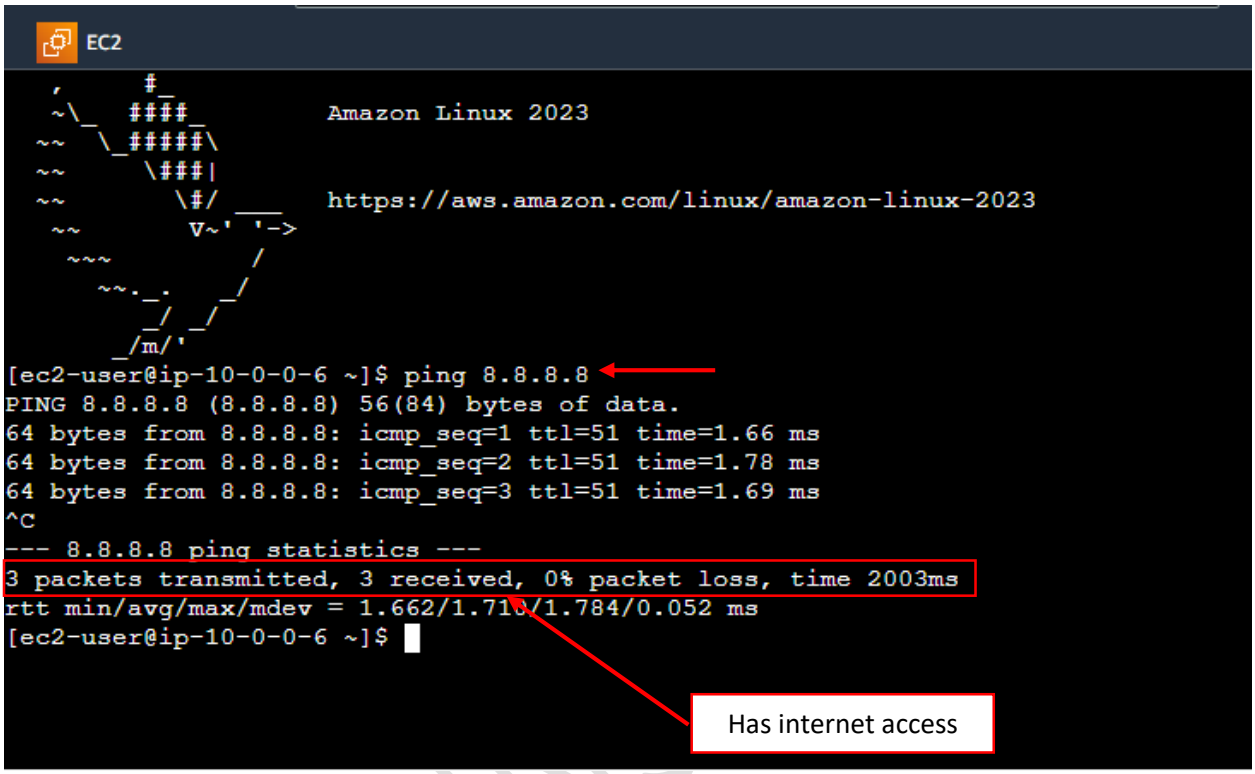
“Ec2-cloudinstitution-2” in private subnet



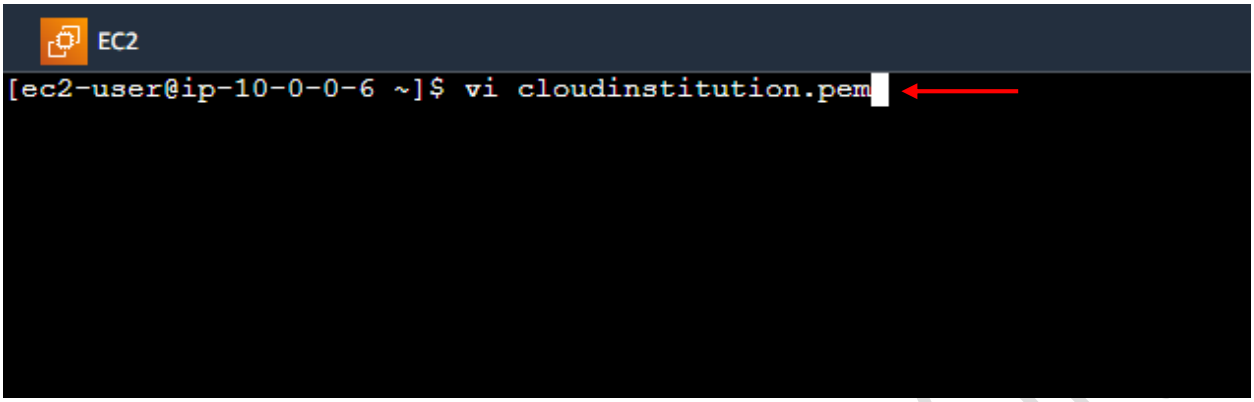
Note: While you are creating an instance in private subnet, you don’t get a public IPV4 address

Step 2 : Connect your EC2-cloudinstitution-1 instance

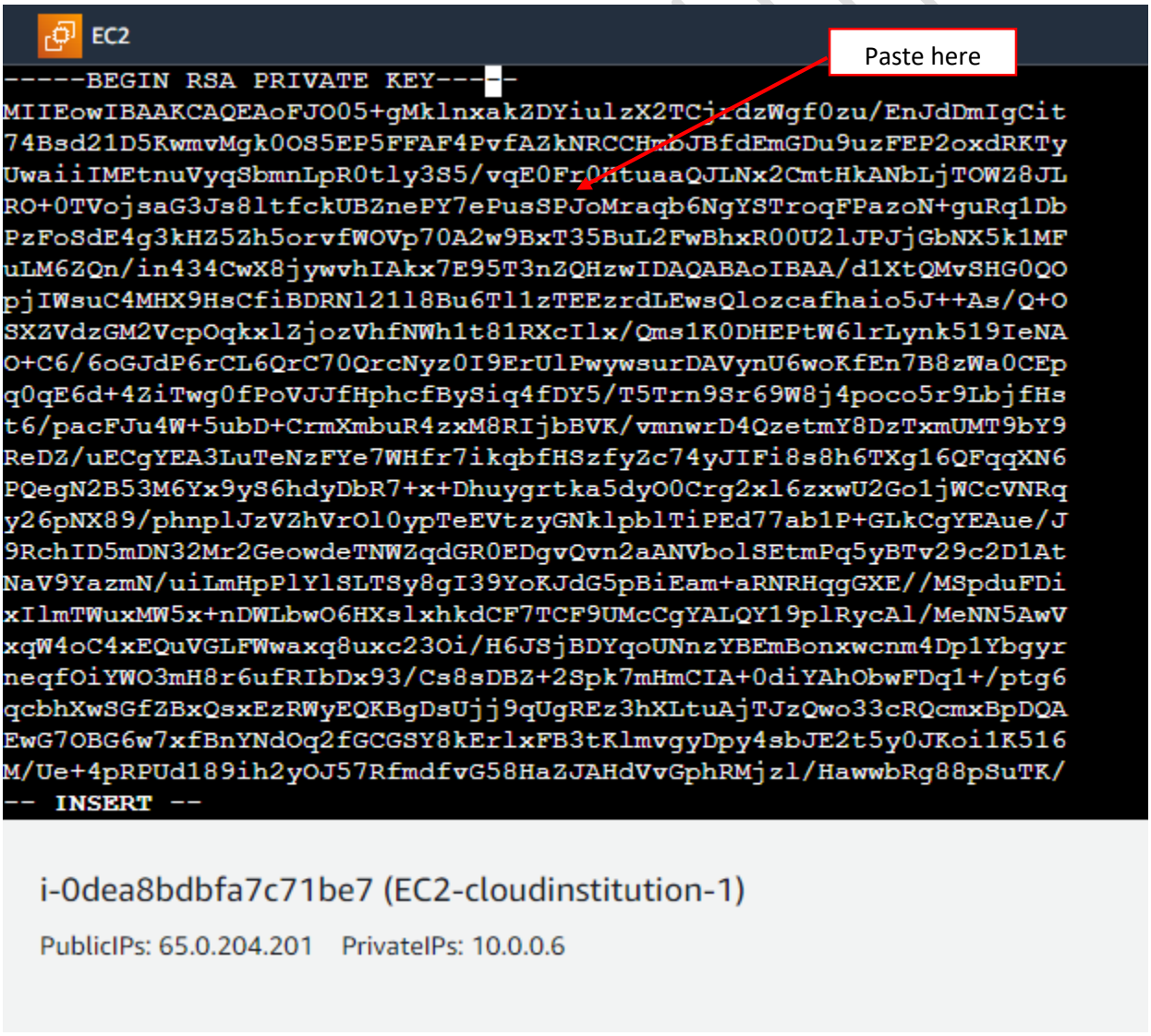
“ping 8.8.8.8 “- Internet Connectivity Check helps to confirm that your network has internet access.



Create a **.pem** file



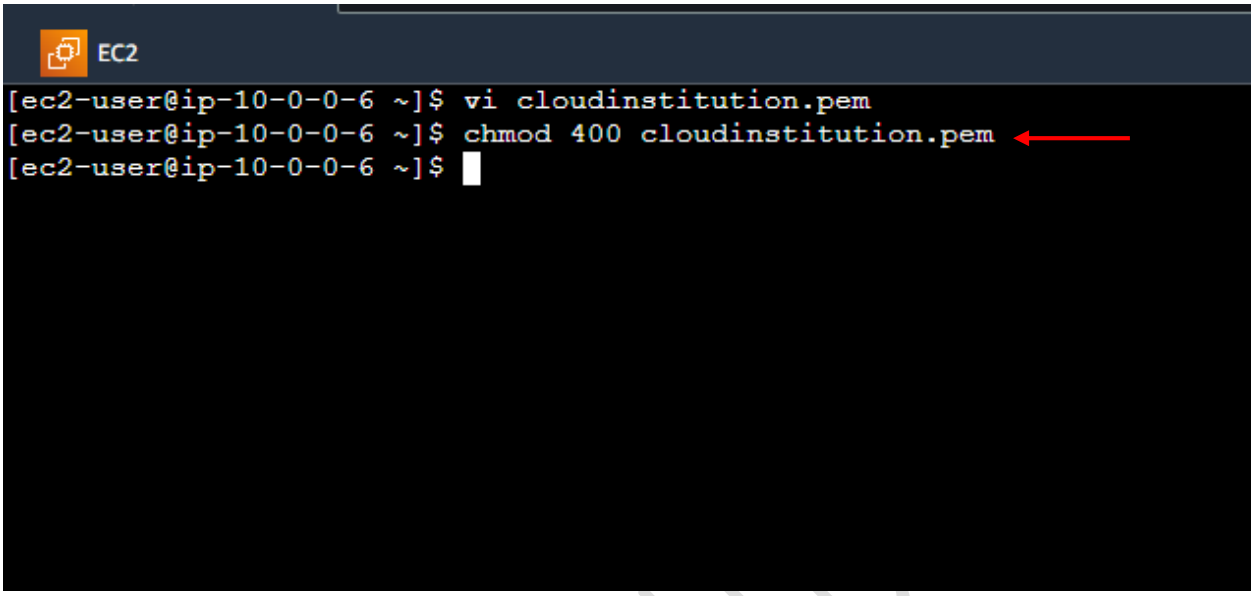
Copy your keypair



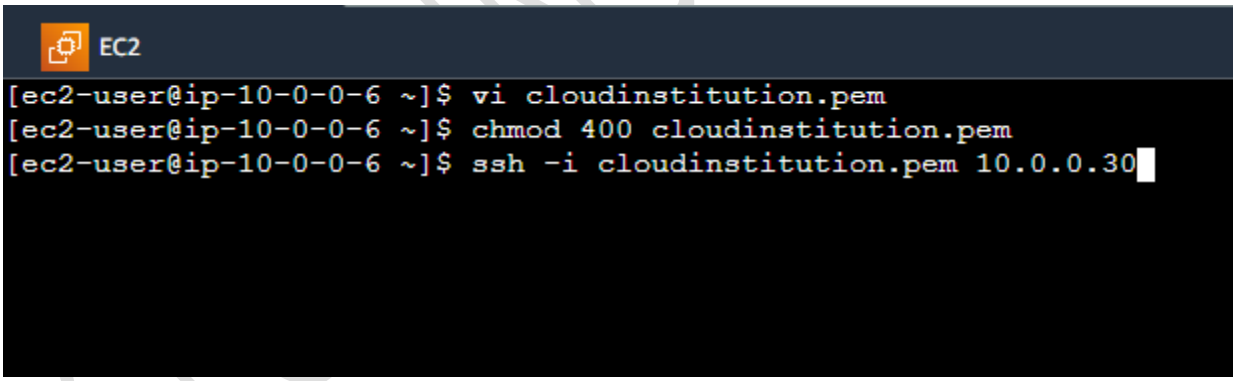
i-0dea8bdbfa7c71be7 (EC2-cloudinstitution-1)

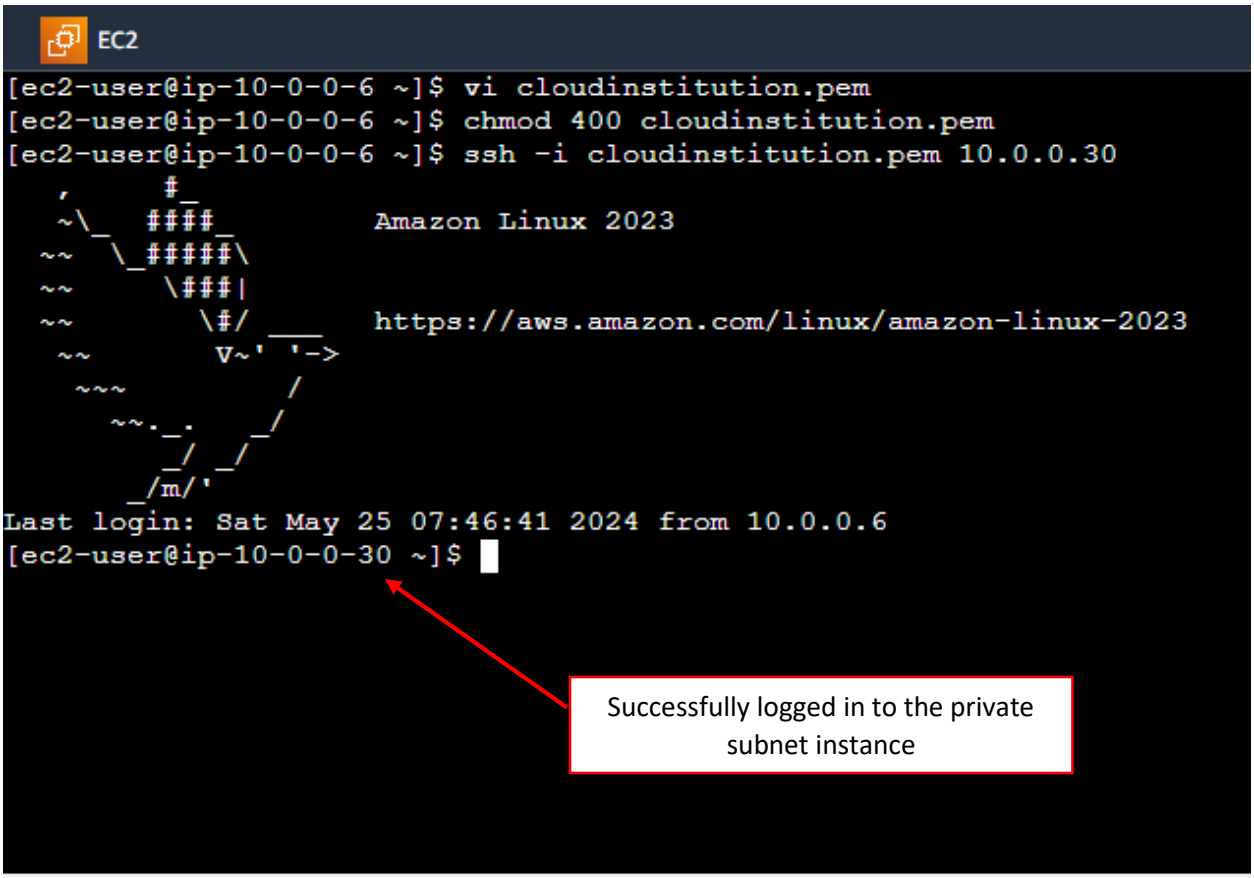
PublicIPs: 65.0.204.201 PrivateIPs: 10.0.0.6

The command **chmod 400 <filename>.pem** is used to set the permissions of the file <filename>.pem to ensure it is secure.



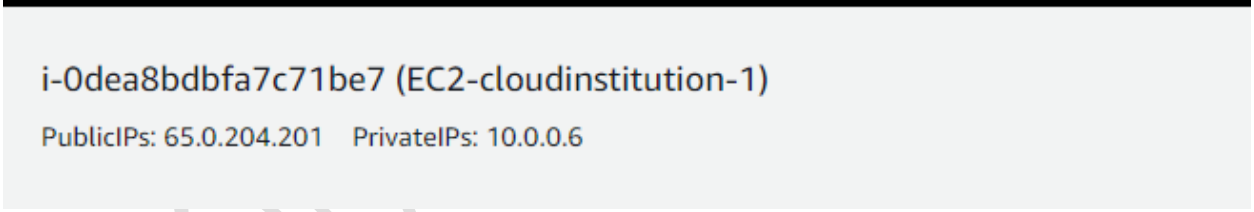
The command **ssh -i <filename>.pem <private instance ip address>** is used to securely connect to a remote server using SSH (Secure Shell)




EC2
[ec2-user@ip-10-0-0-6 ~]$ vi cloudinstitution.pem
[ec2-user@ip-10-0-0-6 ~]$ chmod 400 cloudinstitution.pem
[ec2-user@ip-10-0-0-6 ~]$ ssh -i cloudinstitution.pem 10.0.0.30
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023
Last login: Sat May 25 07:46:41 2024 from 10.0.0.6
[ec2-user@ip-10-0-0-30 ~]$
Successfully logged in to the private subnet instance
i-0dea8bdbfa7c71be7 (EC2-cloudinstitution-1)
PublicIPs: 65.0.204.201 PrivateIPs: 10.0.0.6

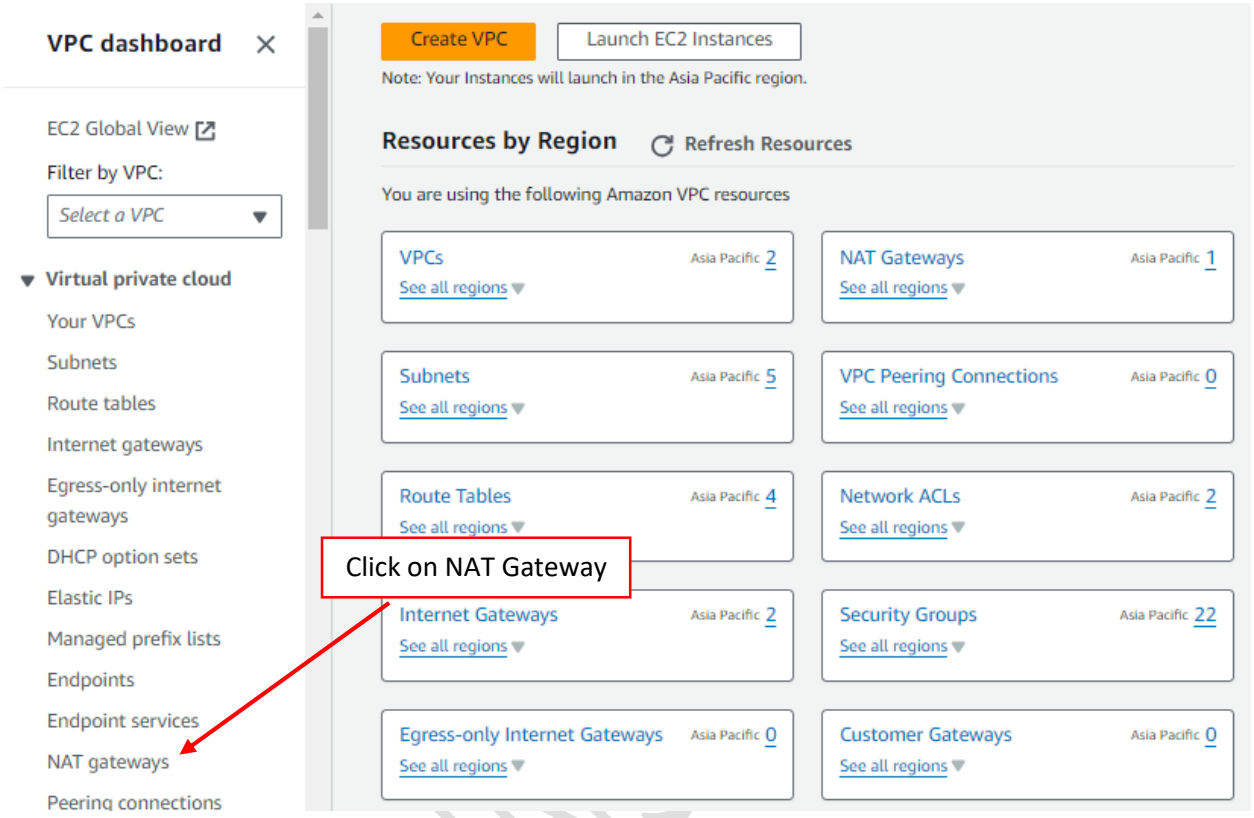
Check for the internet access in the private subnet instance

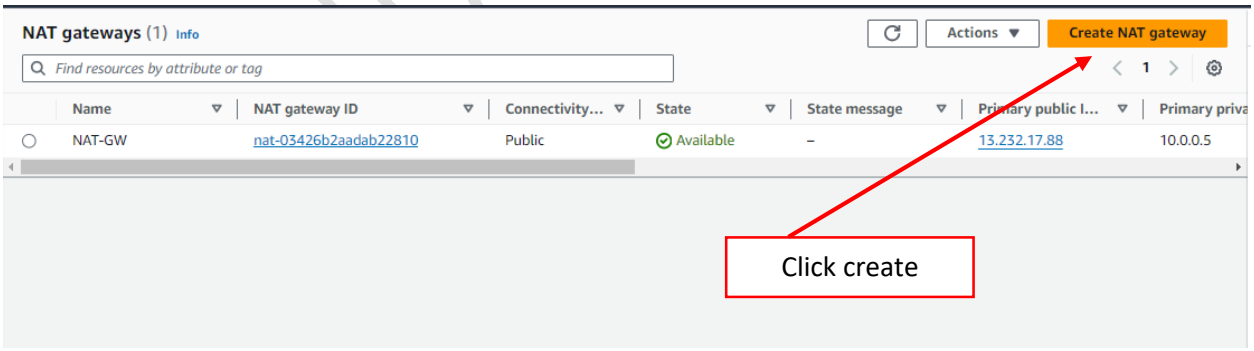
Use ping 8.8.8.8 command

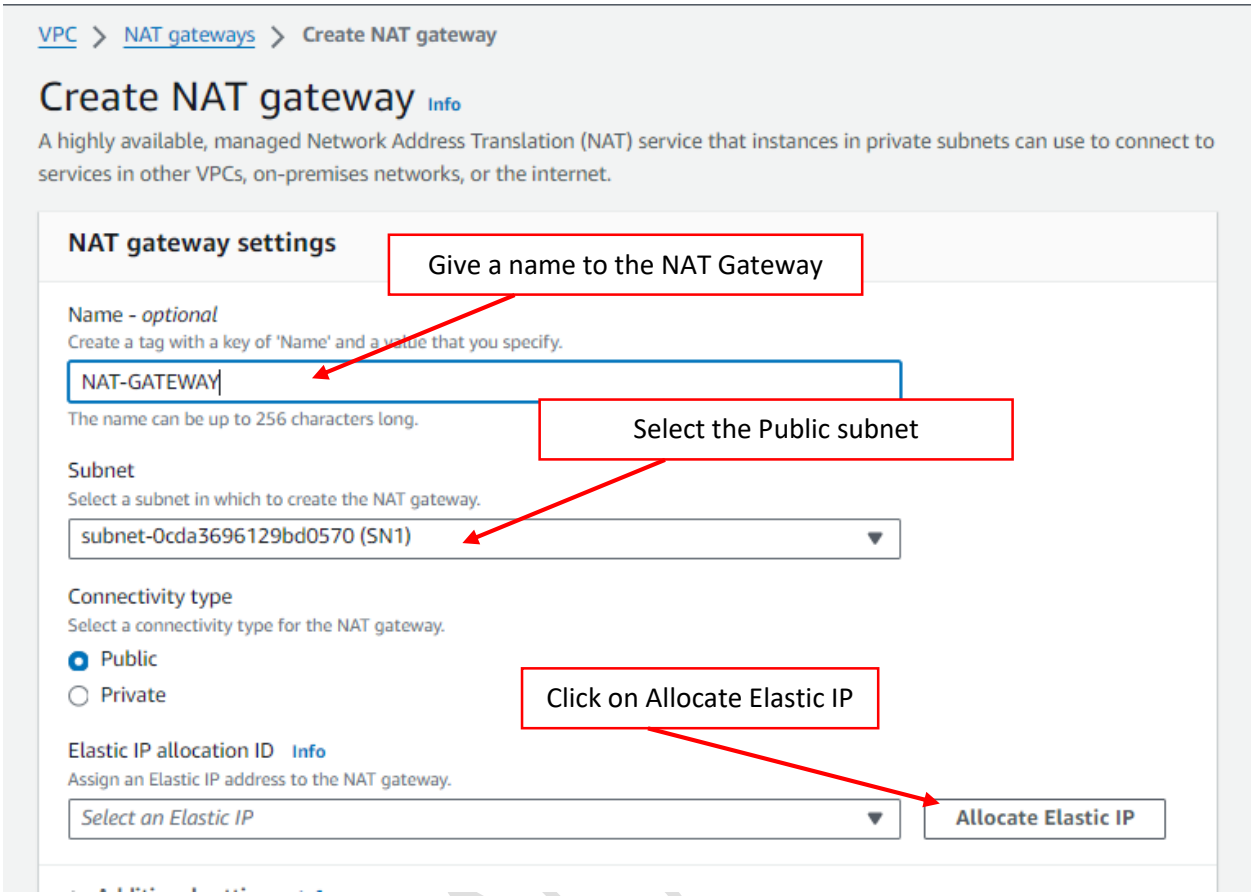


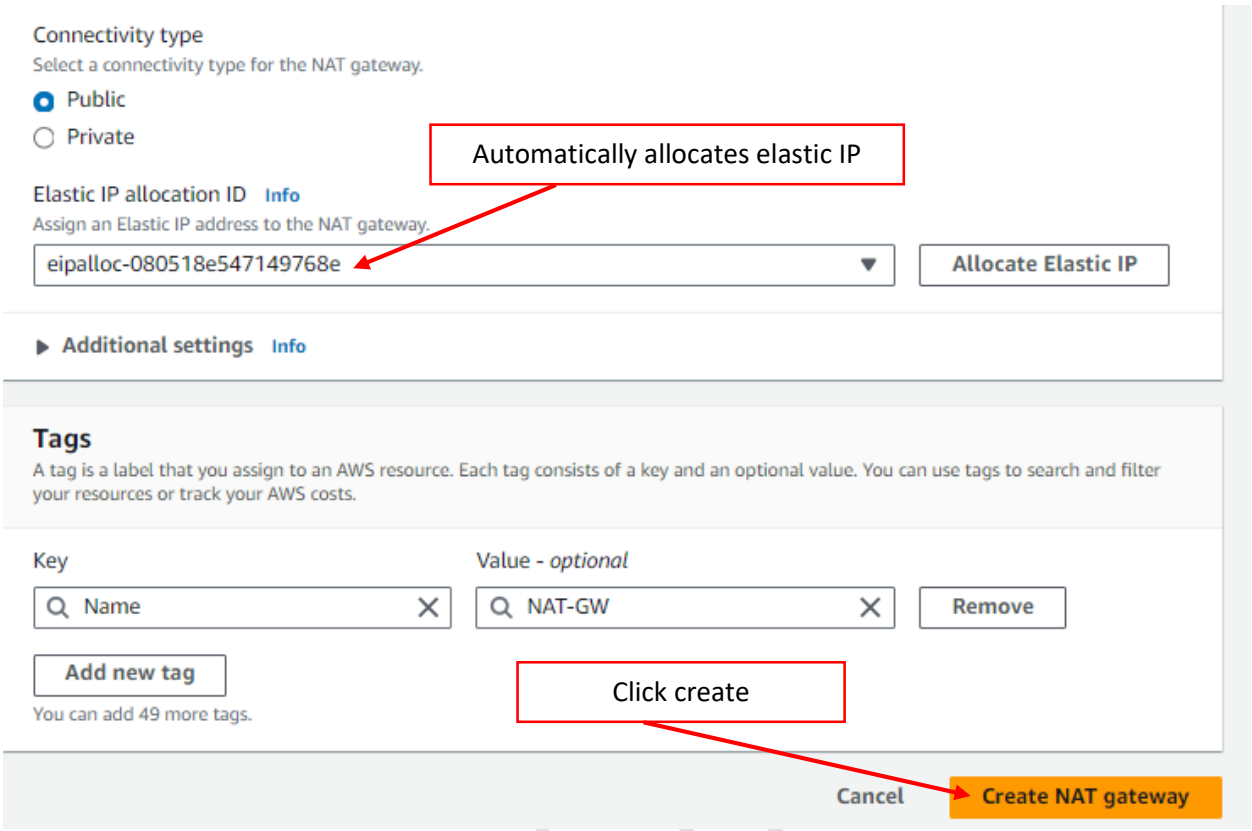
Step 3 : Create a NAT Gateway

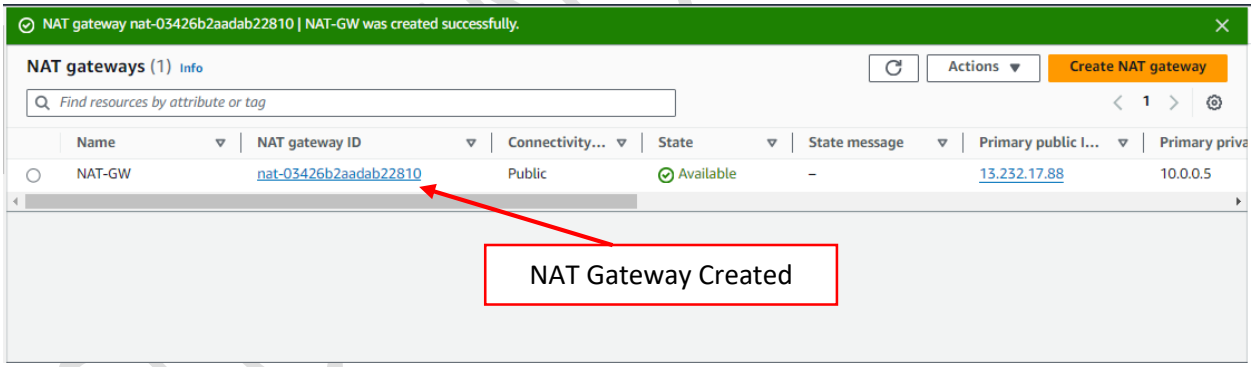
Now go to the VPC dashboard

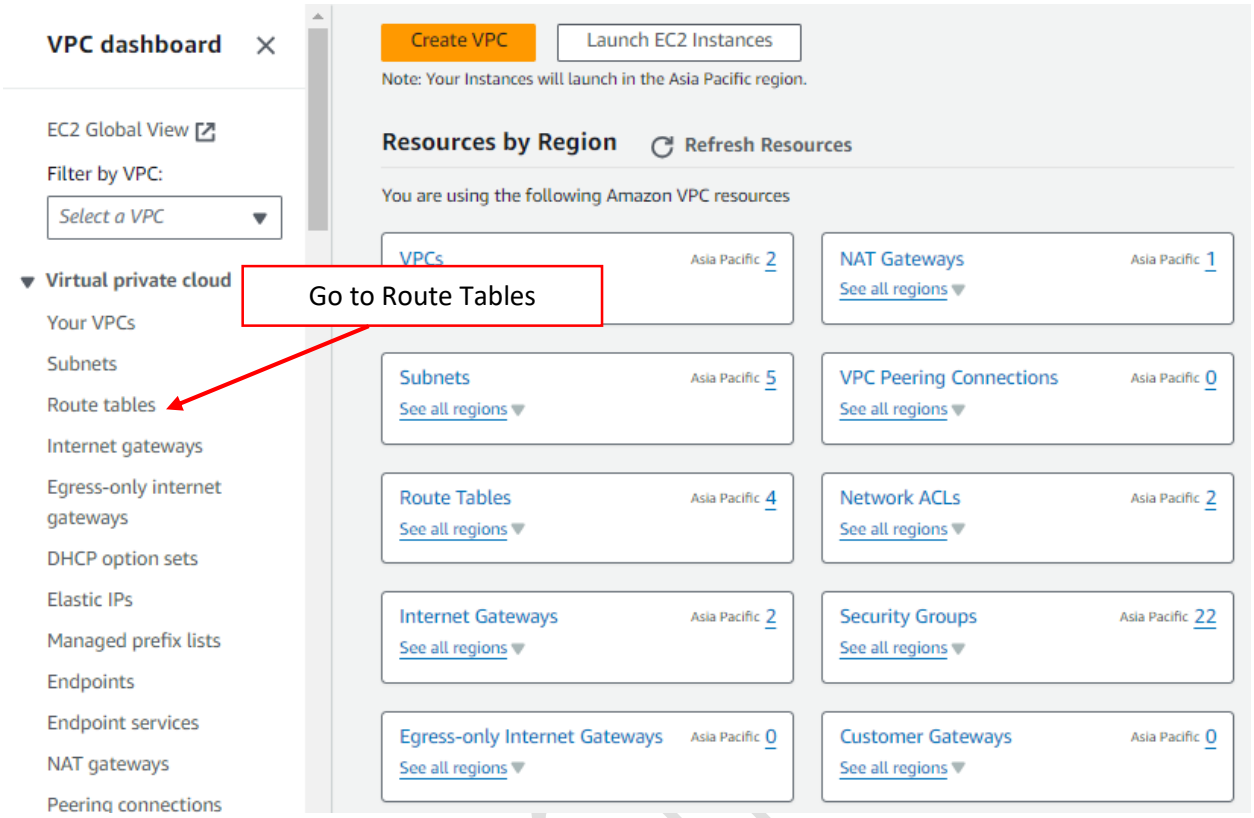


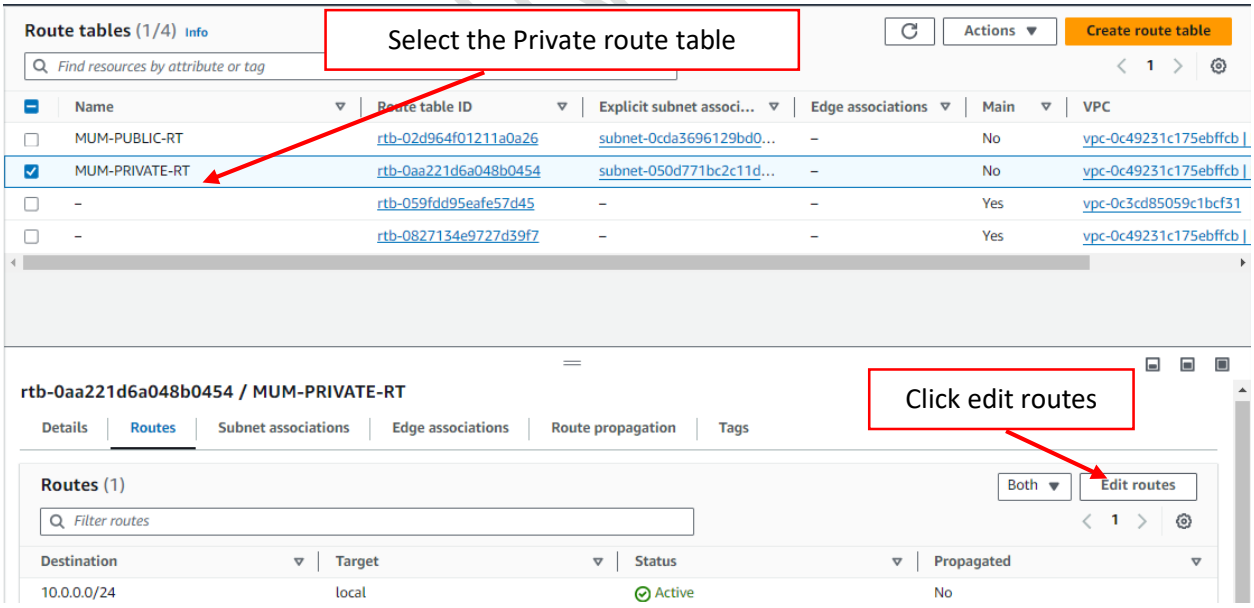


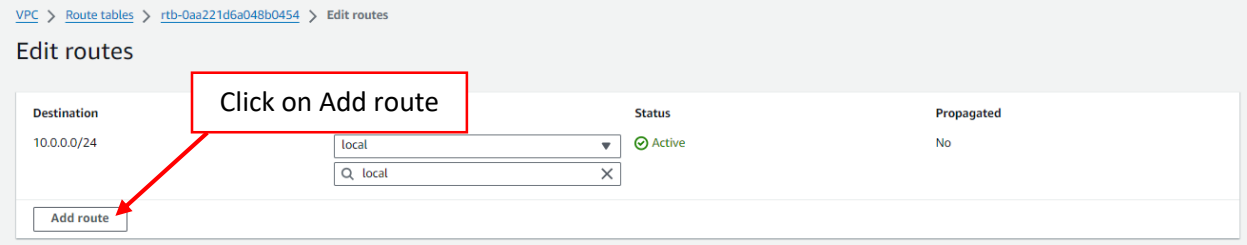

VPC > NAT gateways > Create NAT gateway
Create NAT gateway Info
A highly available, managed Network Address Translation (NAT) service that instances in private subnets can use to connect to services in other VPCs, on-premises networks, or the internet.
NAT gateway settings
Give a name to the NAT Gateway
Name - optional
Create a tag with a key of 'Name' and a value that you specify.
NAT-GATEWAY
The name can be up to 256 characters long.
Select the Public subnet
Subnet
Select a subnet in which to create the NAT gateway.
subnet-0cda3696129bd0570 (SN1)
Connectivity type
Select a connectivity type for the NAT gateway.
Public
Private
Click on Allocate Elastic IP
Elastic IP allocation ID Info
Assign an Elastic IP address to the NAT gateway.
Select an Elastic IP
Allocate Elastic IP

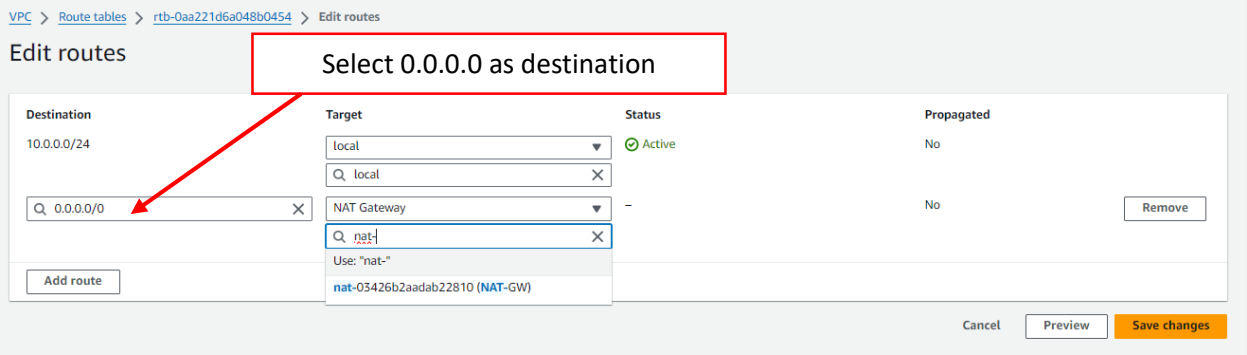

Connectivity type
Select a connectivity type for the NAT gateway.
Public
Private
Automatically allocates elastic IP
Elastic IP allocation ID Info
Assign an Elastic IP address to the NAT gateway.
eipalloc-080518e547149768e
Allocate Elastic IP
Additional settings Info
Tags
A tag is a label that you assign 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
NAT-GW
Remove
Add new tag
You can add 49 more tags.
Click create
Cancel
Create NAT gateway

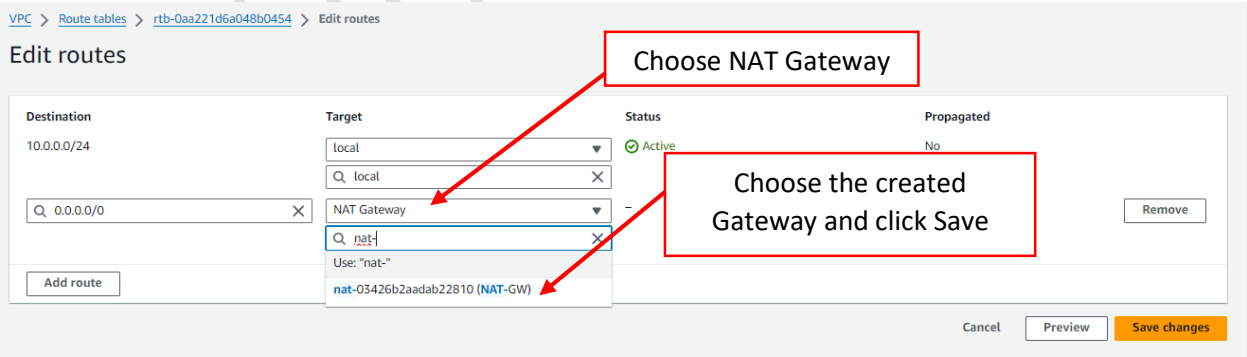

NAT gateway nat-03426b2aadab22810 | NAT-GW was created successfully.
NAT gateways (1) Info
Actions
Create NAT gateway
Find resources by attribute or tag
Name
NAT gateway ID
Connectivity...
State
State message
Primary public I...
Primary priva
NAT-GW
nat-03426b2aadab22810
Public
Available
13.232.17.88
10.0.0.5
NAT Gateway Created


VPC dashboard
Create VPC
Launch EC2 Instances
Note: Your Instances will launch in the Asia Pacific region.
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
Go to Route Tables
Resources by Region
Refresh Resources
You are using the following Amazon VPC resources
VPCs Asia Pacific 2
NAT Gateways Asia Pacific 1
See all regions
Subnets Asia Pacific 5
VPC Peering Connections Asia Pacific 0
Route Tables Asia Pacific 4
Network ACLs Asia Pacific 2
Internet Gateways Asia Pacific 2
Security Groups Asia Pacific 22
Egress-only Internet Gateways Asia Pacific 0
Customer Gateways Asia Pacific 0

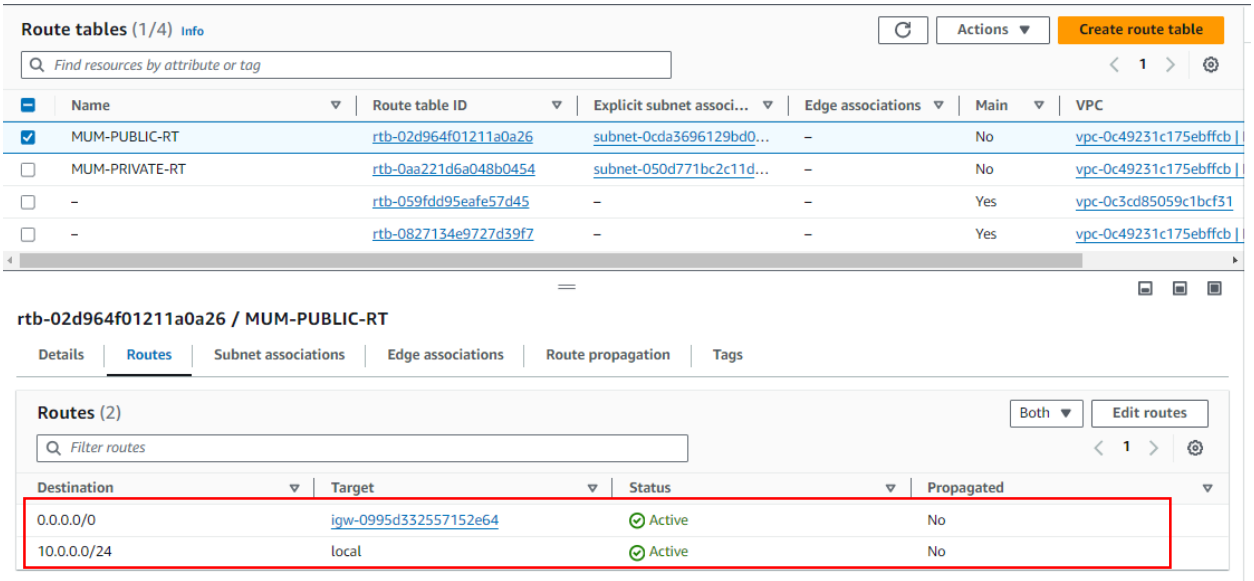

Route tables (1/4) Info
Select the Private route table
Actions
Create route table
Find resources by attribute or tag
Name
Route table ID
Explicit subnet associ...
Edge associations
Main
VPC
MUM-PUBLIC-RT rtb-02d964f01211a0a26 subnet-0cda3696129bd0... – No vpc-0c49231c175ebffcb |
MUM-PRIVATE-RT rtb-0aa221d6a048b0454 subnet-050d771bc2c11d... – No vpc-0c49231c175ebffcb |
– rtb-059fdd95eafe57d45 – – Yes vpc-0c3cd85059c1bcf31
– rtb-0827134e9727d39f7 – – Yes vpc-0c49231c175ebffcb |
rtb-0aa221d6a048b0454 / MUM-PRIVATE-RT
Click edit routes
Details
Routes
Subnet associations
Edge associations
Route propagation
Tags
Routes (1)
Both
Edit routes
Filter routes
Destination
Target
Status
Propagated
10.0.0.0/24 local Active No


VPC > Route tables > rtb-0aa221d6a048b0454 > Edit routes
Edit routes
Click on Add route
Destination
Status
Propagated
10.0.0.0/24
local
Active
No
local
Add route

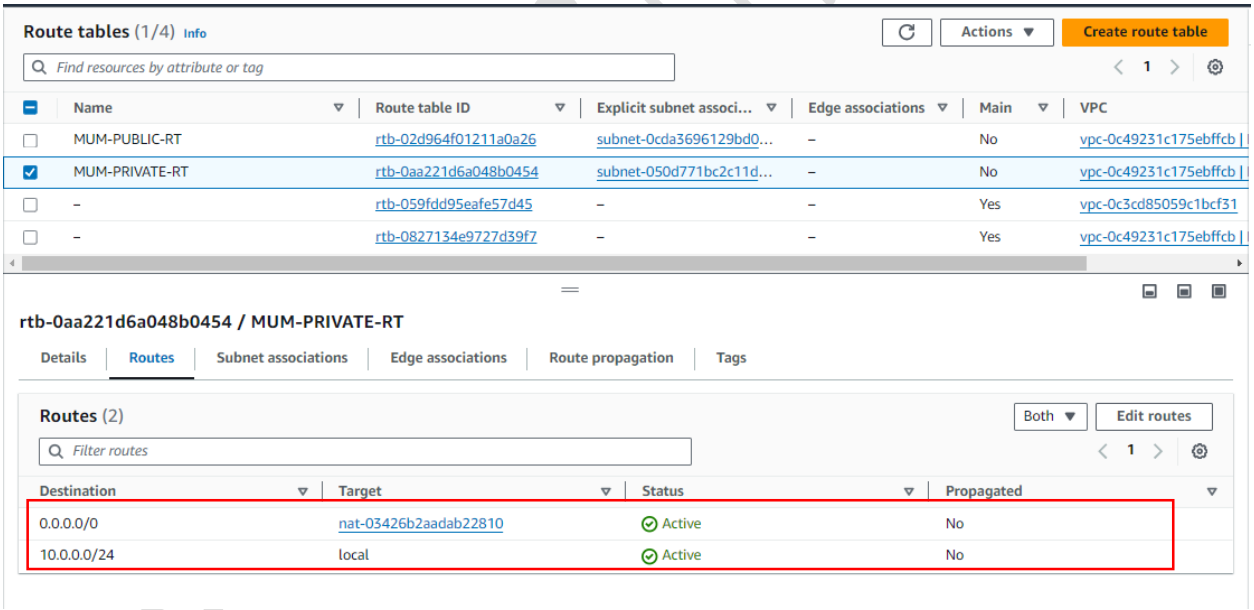

VPC > Route tables > rtb-0aa221d6a048b0454 > Edit routes
Edit routes
Select 0.0.0.0 as destination
Destination
Target
Status
Propagated
10.0.0.0/24
local
Active
No
local
0.0.0.0/0
NAT Gateway
–
No
Remove
nat-
Use: "nat-"
nat-03426b2aadab22810 (NAT-GW)
Add route
Cancel
Preview
Save changes


VPC > Route tables > rtb-0aa221d6a048b0454 > Edit routes
Edit routes
Choose NAT Gateway
Choose the created Gateway and click Save
Destination
Target
Status
Propagated
10.0.0.0/24
local
Active
No
local
0.0.0.0/0
NAT Gateway
–
Remove
nat-
Use: "nat-"
nat-03426b2aadab22810 (NAT-GW)
Add route
Cancel
Preview
Save changes

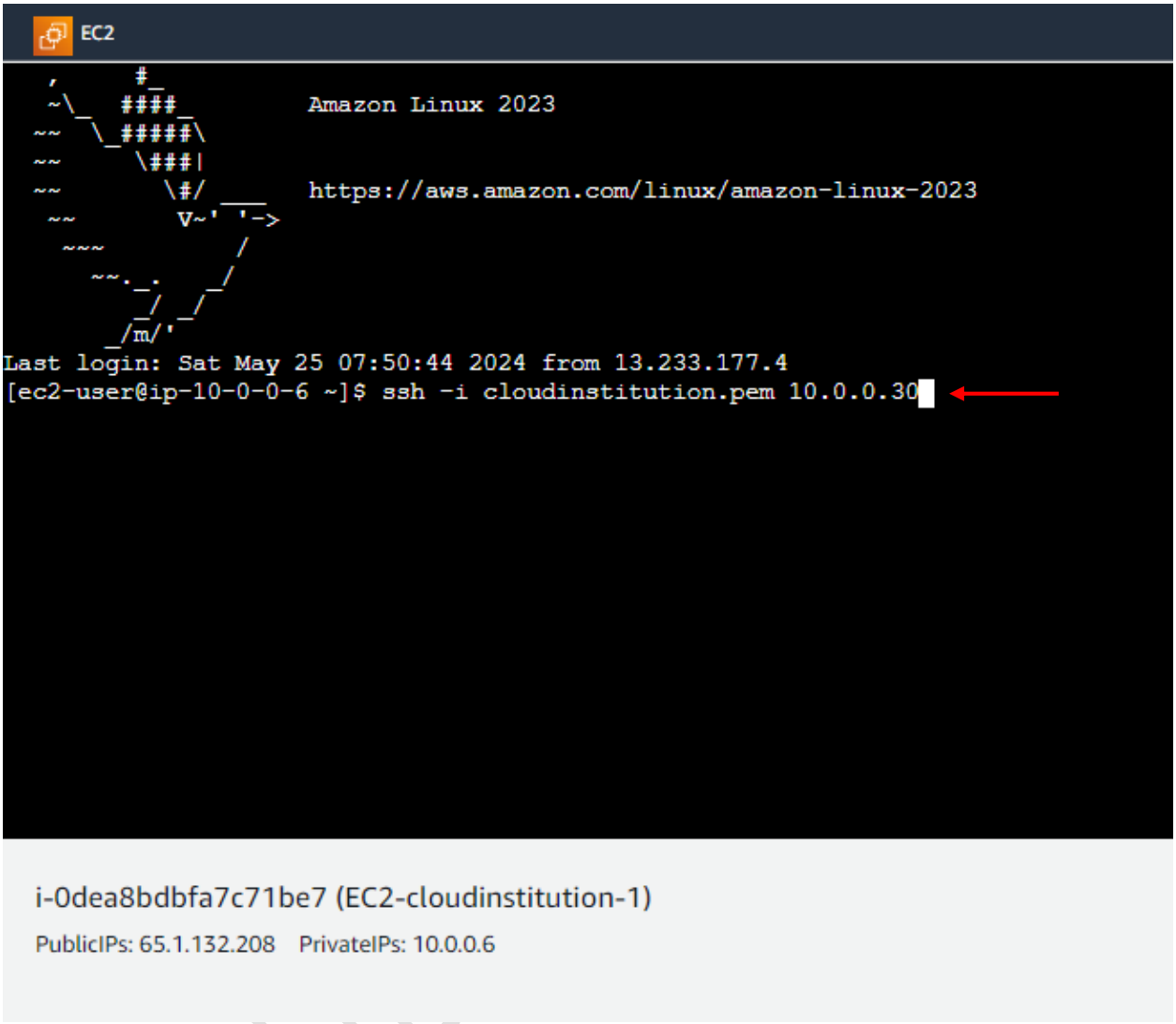
Note : Public route table is attached to internet gateway

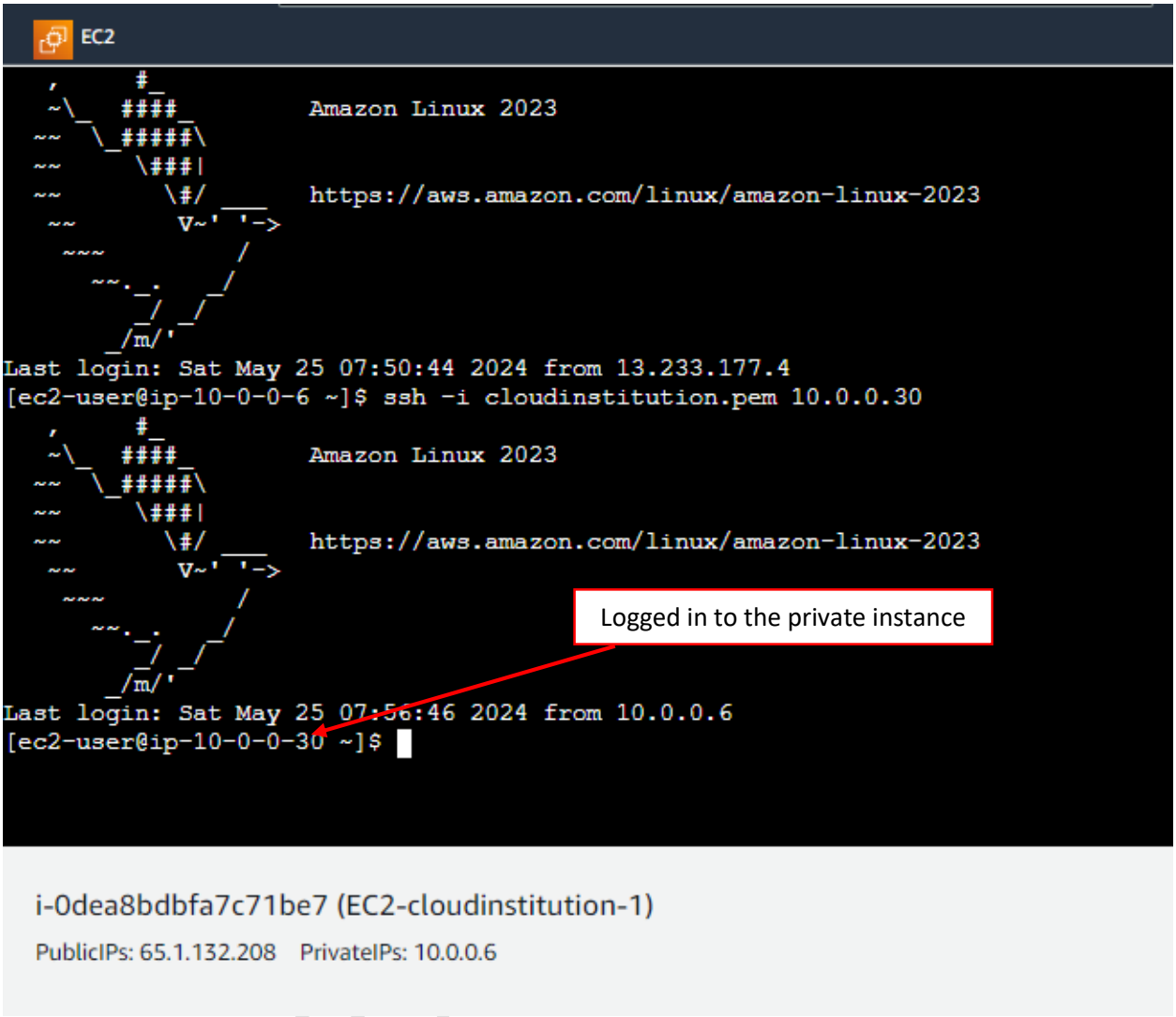


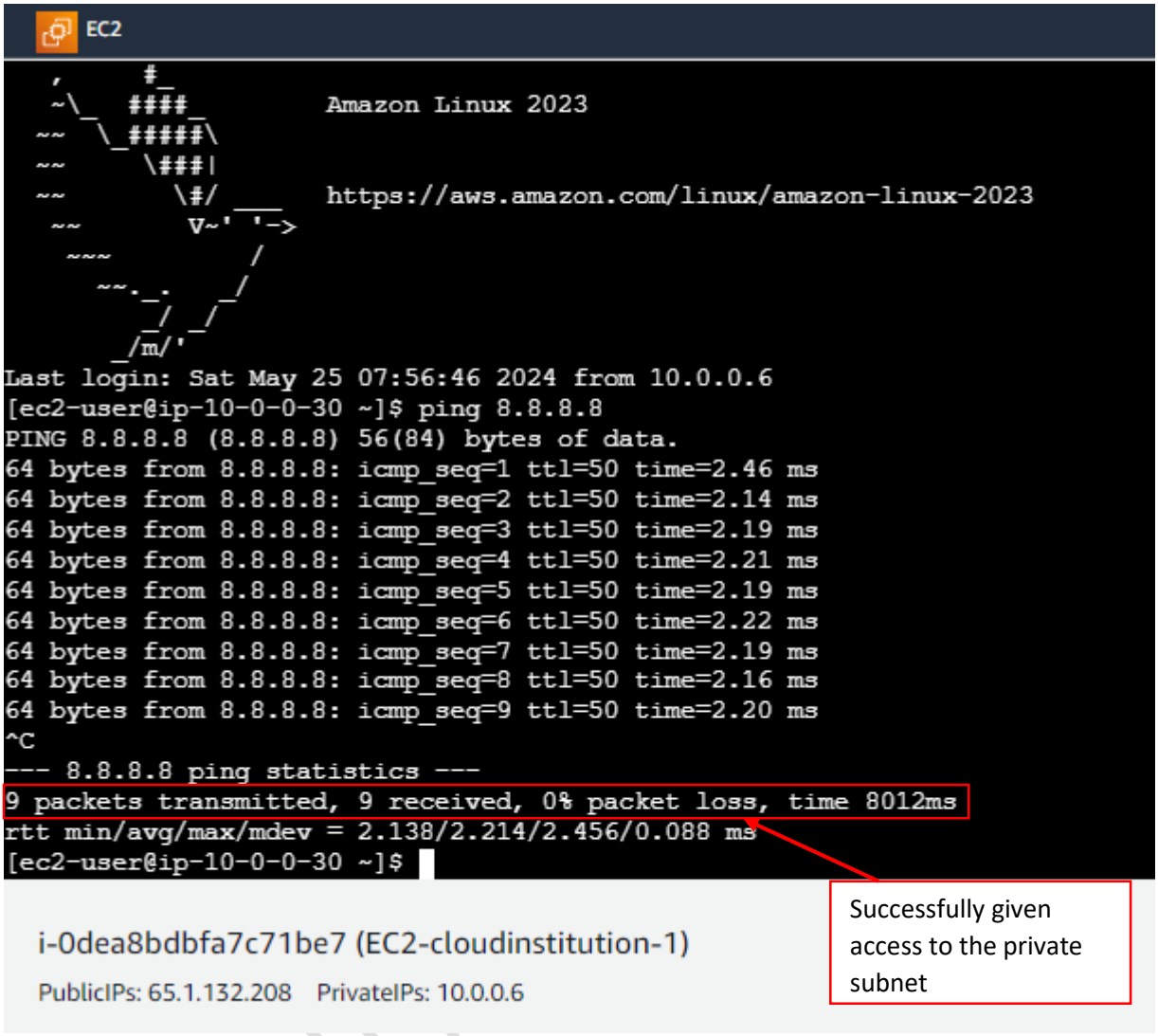
Note : Private route table is attached to NAT gateway



Step 4 : Now connect the private subnet instance




EC2
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023
Last login: Sat May 25 07:50:44 2024 from 13.233.177.4
[ec2-user@ip-10-0-0-6 ~]$ ssh -i cloudinstitution.pem 10.0.0.30
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023
Logged in to the private instance
Last login: Sat May 25 07:56:46 2024 from 10.0.0.6
[ec2-user@ip-10-0-0-30 ~]$
i-0dea8bdbfa7c71be7 (EC2-cloudinstitution-1)
PublicIPs: 65.1.132.208 PrivateIPs: 10.0.0.6


EC2
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023
Last login: Sat May 25 07:56:46 2024 from 10.0.0.6
[ec2-user@ip-10-0-0-30 ~]$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=50 time=2.46 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=50 time=2.14 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=50 time=2.19 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=50 time=2.21 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=50 time=2.19 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=50 time=2.22 ms
64 bytes from 8.8.8.8: icmp_seq=7 ttl=50 time=2.19 ms
64 bytes from 8.8.8.8: icmp_seq=8 ttl=50 time=2.16 ms
64 bytes from 8.8.8.8: icmp_seq=9 ttl=50 time=2.20 ms
^C
--- 8.8.8.8 ping statistics ---
9 packets transmitted, 9 received, 0% packet loss, time 8012ms
rtt min/avg/max/mdev = 2.138/2.214/2.456/0.088 ms
[ec2-user@ip-10-0-0-30 ~]$
i-0dea8bdbfa7c71be7 (EC2-cloudinstitution-1)
PublicIPs: 65.1.132.208 PrivateIPs: 10.0.0.6
Successfully given access to the private subnet