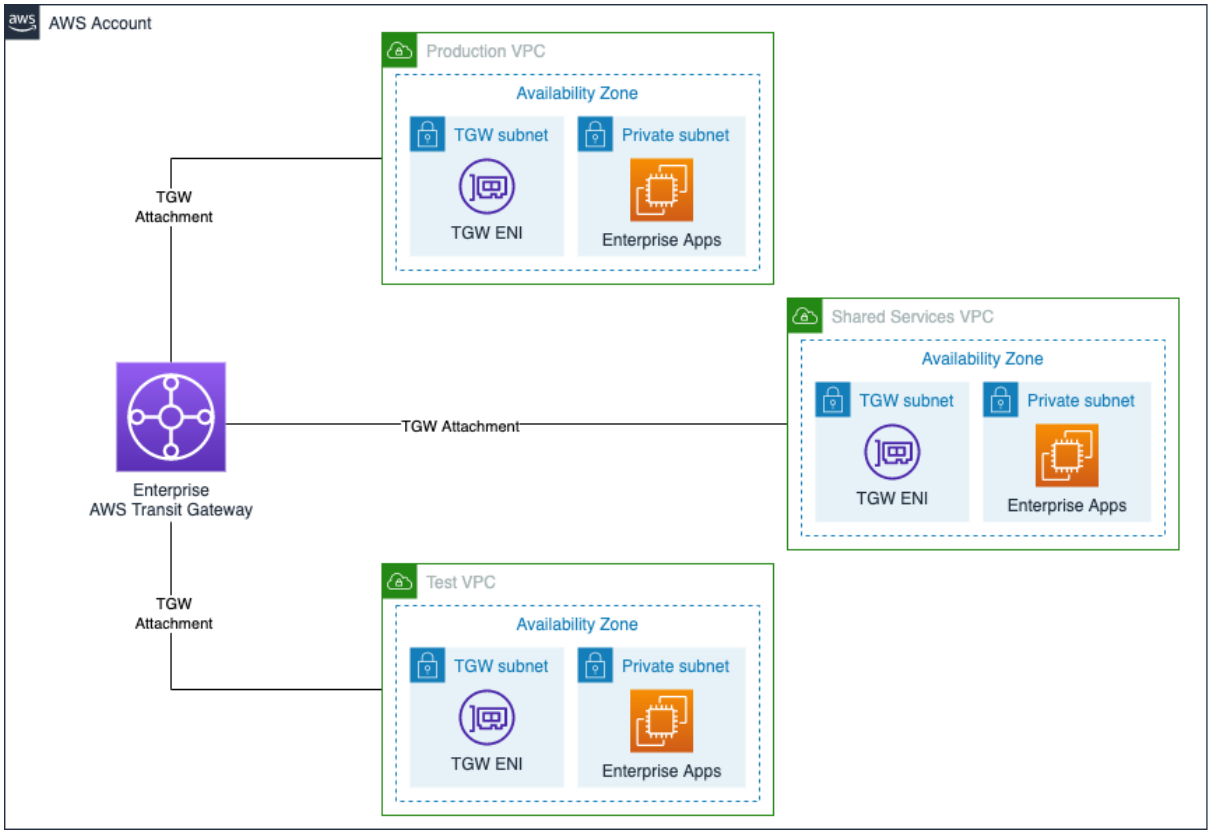
What is Transit Gateway

1. Transit gateway means interconnection between multiple VPC's
2. It acts as central hub

Transit Gateway Diagram

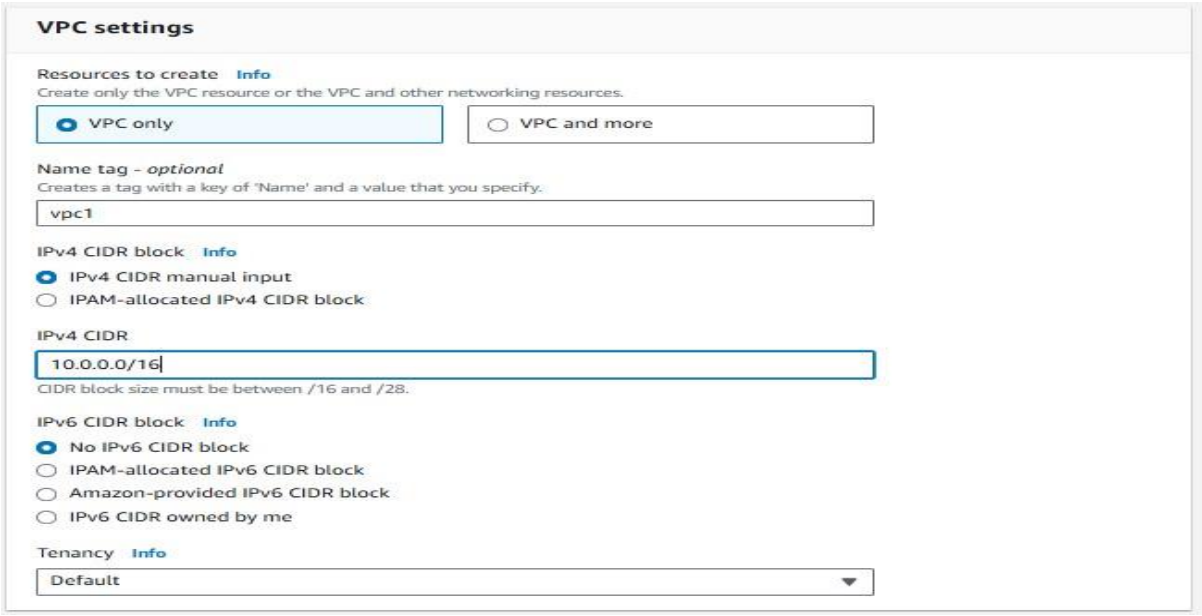


Steps to create Transit Gateway

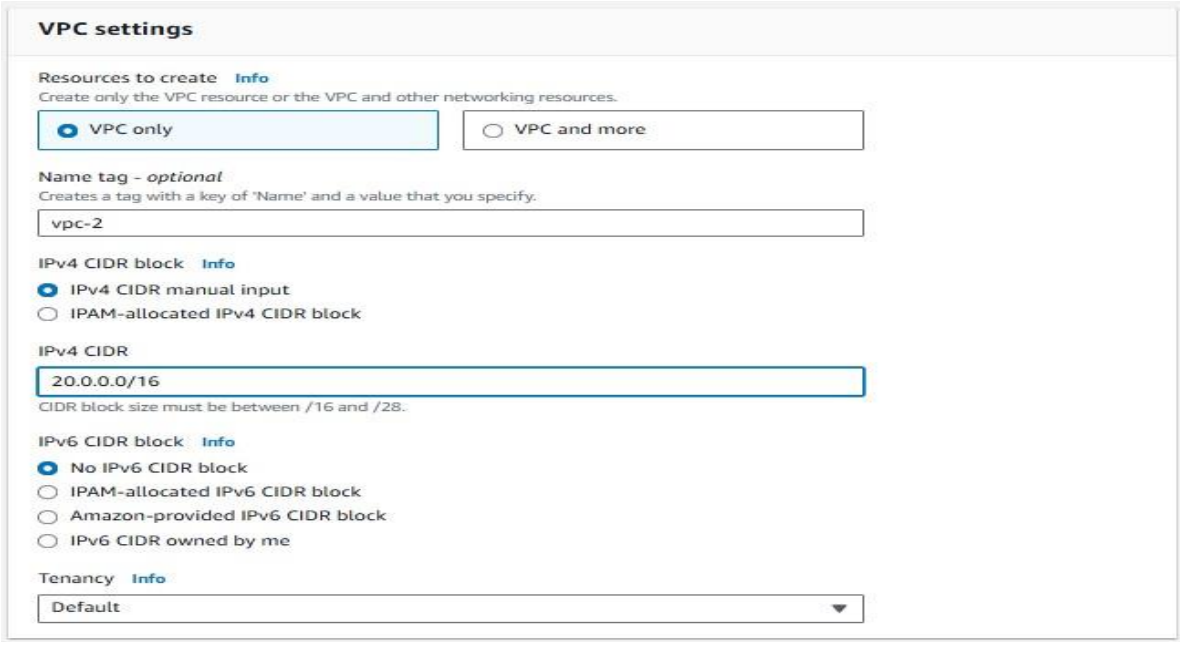
Step 1:

1. Create three VPC'S
2. First create one VPC
    - Click on create VPC
    - Select VPC only
    - Give the name for VPC as VPC 1

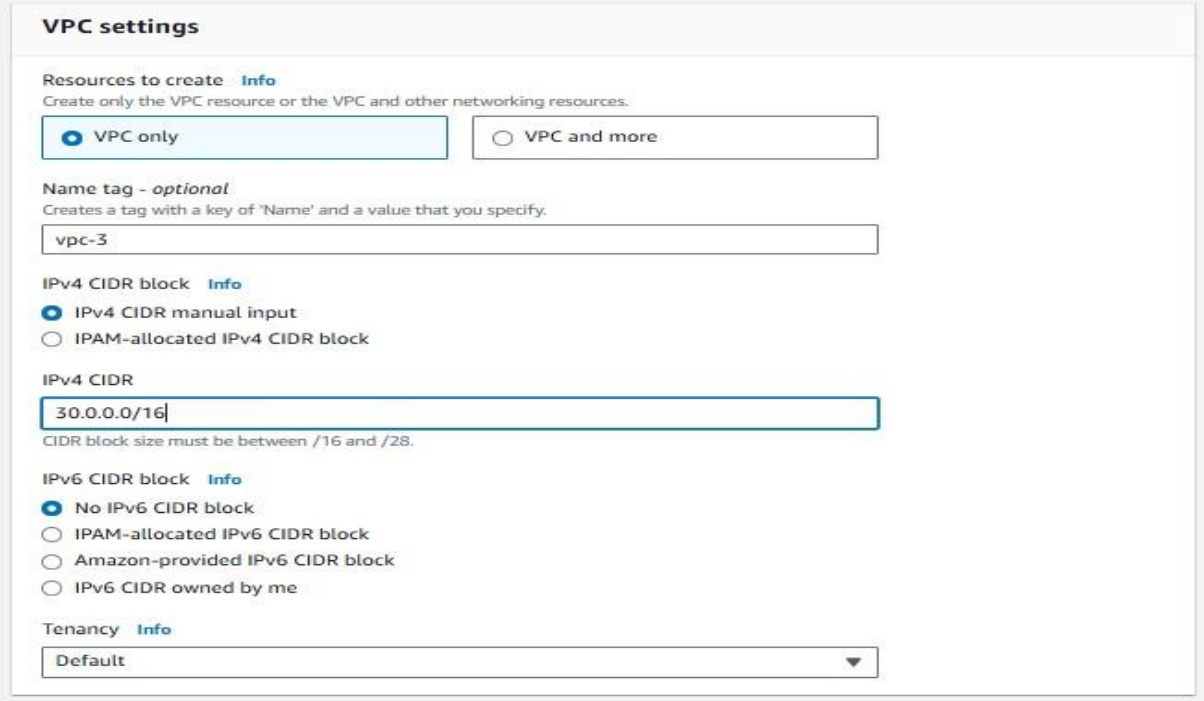
- Give the CIDR block range as (10.0.0.0/16)
- Finally click on create VPC as shown in below figure



3. Create second VPC
    - Click on create VPC
    - Select VPC only
    - Give the name for VPC as VPC 2
    - Select the CIDR block range as (20.0.0.0/16)
    - Finally click on create VPC as shown in below figure

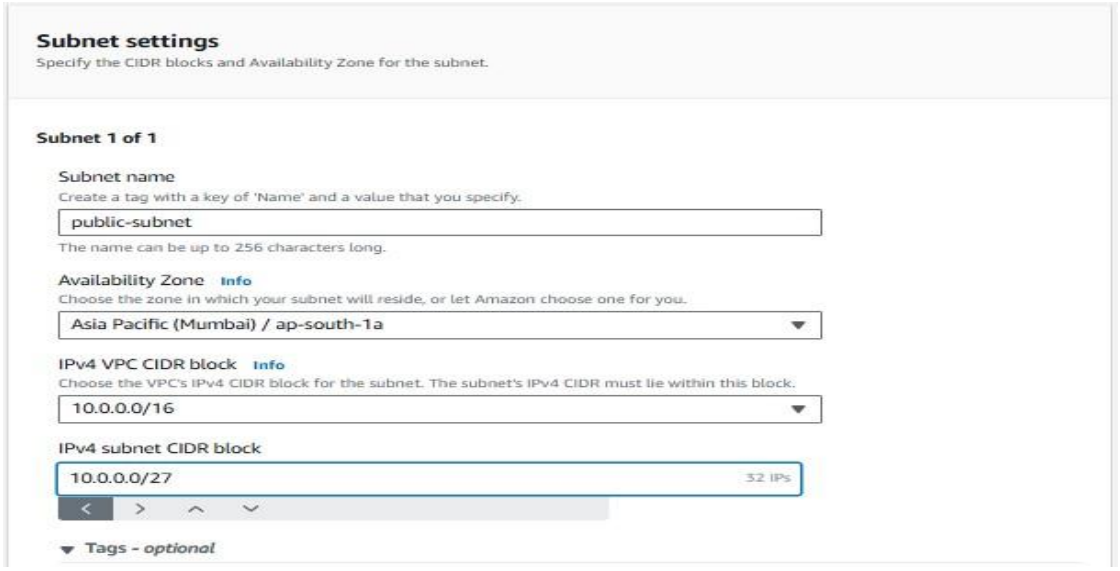


4. Create third VPC
    - Click on create VPC
    - Select VPC only
    - Give the name for VPC as VPC 3
    - Select the CIDR block range as (30.0.0.0/16)
    - Finally click on create VPC as shown in below figure

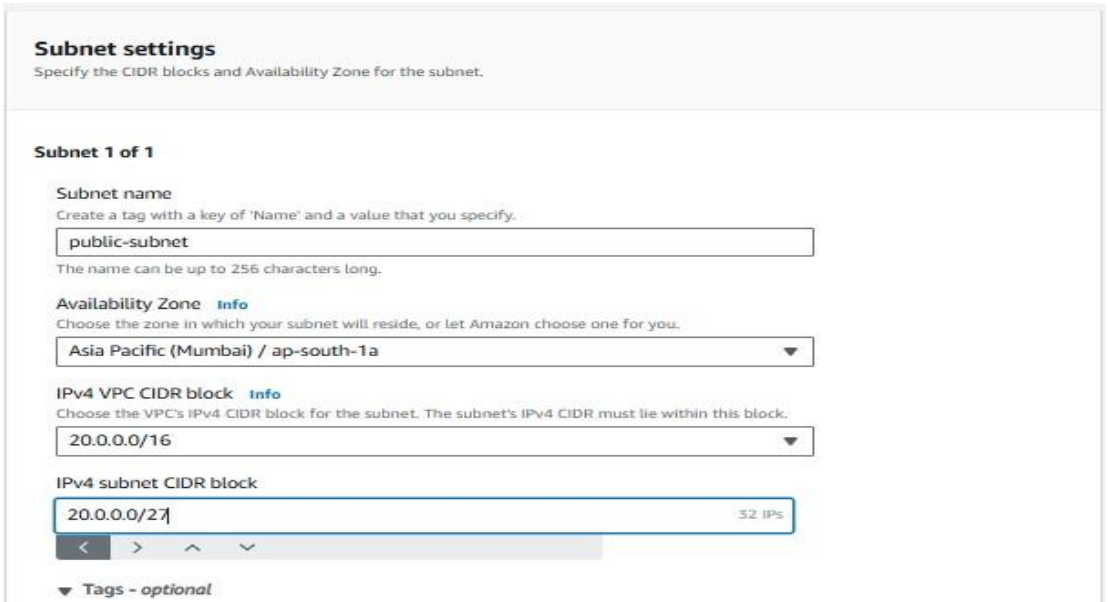


Step 2:

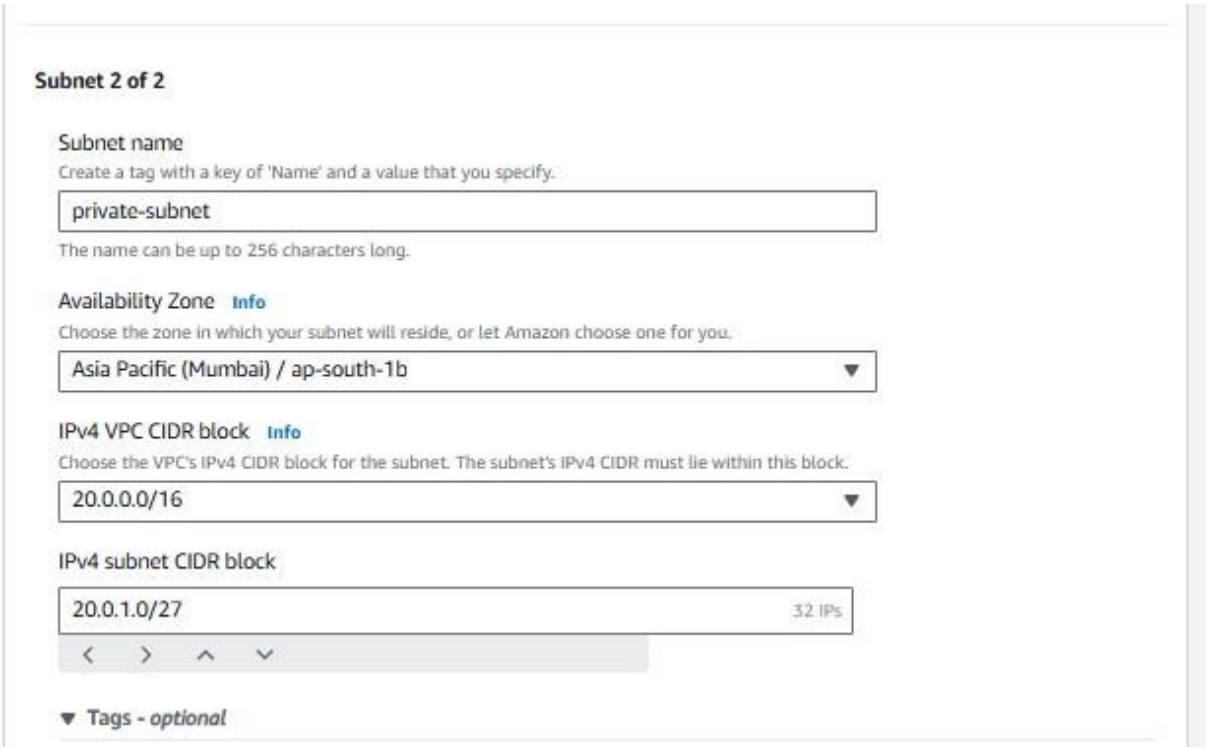
1. Create subnets
2. First create one public subnet in VPC 1
3. Click on create subnet
    - Select the VPC as VPC 1
    - Edit subnet settings
    - Give the name for subnet as public-subnet
    - Select the availability zone
    - Give the CIDR block range for subnet as (10.0.0.0/27)
    - Finally click on create subnet as shown in below figure



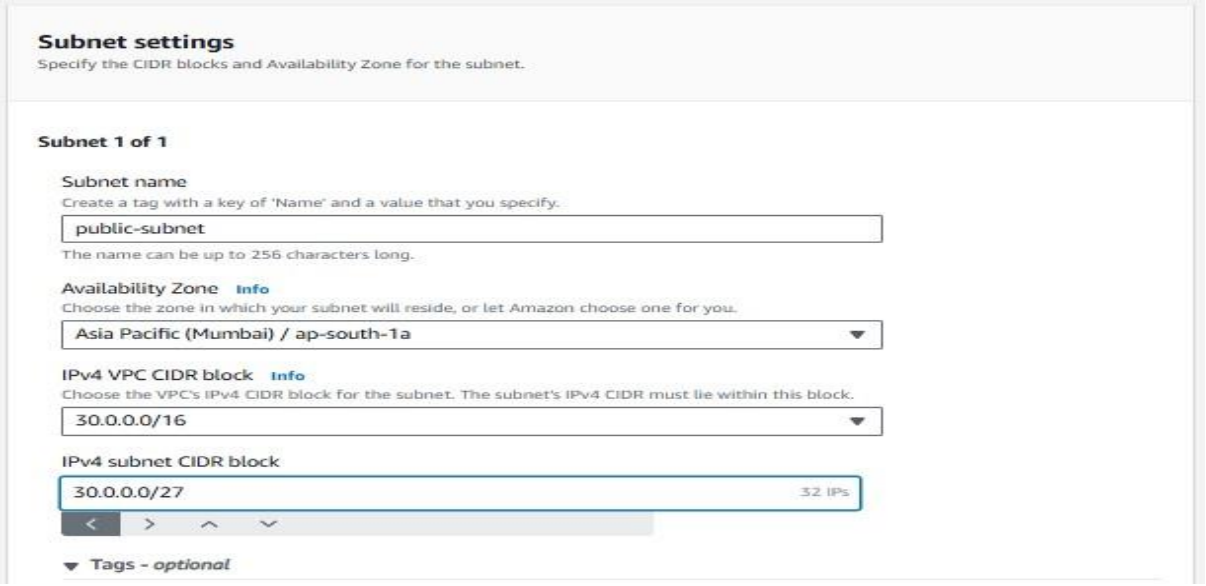
4. Create two subnets, one subnet as public-subnet and second subnet as private-subnet in VPC 2
5. First create one public-subnet in VPC 2
6. Click on create subnets
    - Select VPC as VPC 2
    - Edit subnet settings
    - Give the name for subnet as public-subnet
    - Select the availability zone
    - Give CIDR block range for subnet as (20.0.0.0/27)
    - Finally click on create subnet as shown in below figure



7. Now create private-subnet in VPC 2
8. Click on create subnet
    - Select VPC as VPC 2
    - Edit subnet settings
    - Give the name for subnet as private-subnet
    - Select the availability zone
    - Give CIDR block range for subnet as (20.0.1.0/27)
    - Finally click on create subnet as shown in below figure



9. Create one public -subnet in VPC 3
10. Click on create subnet
    - Select VPC as VPC 3
    - Edit subnet settings
    - Give the name for subnet as public-subnet
    - Select the availability zone
    - Give the CIDR block range for subnet as (30.0.0.0/16)
    - Finally click on create subnet as shown in below figure



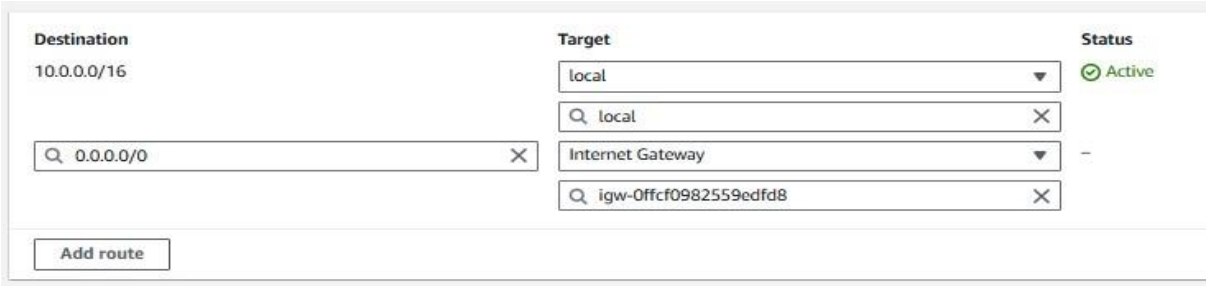
Step 3:

1. Go to route tables
2. By default, three route tables are created for three VPC'S
3. Give the names for three created route tables to avoid the confusions
4. Create one route table for private-subnet in VPC 2
5. Click on create route table
    - Give the name for route table as private-route
    - Select the VPC as VPC 2
    - Finally click on create route table
6. Select the private-route in route table
    - Click on subnet associations
    - Click on edit subnet associations
    - Select private-subnet
    - Click on save associations

Step 4:

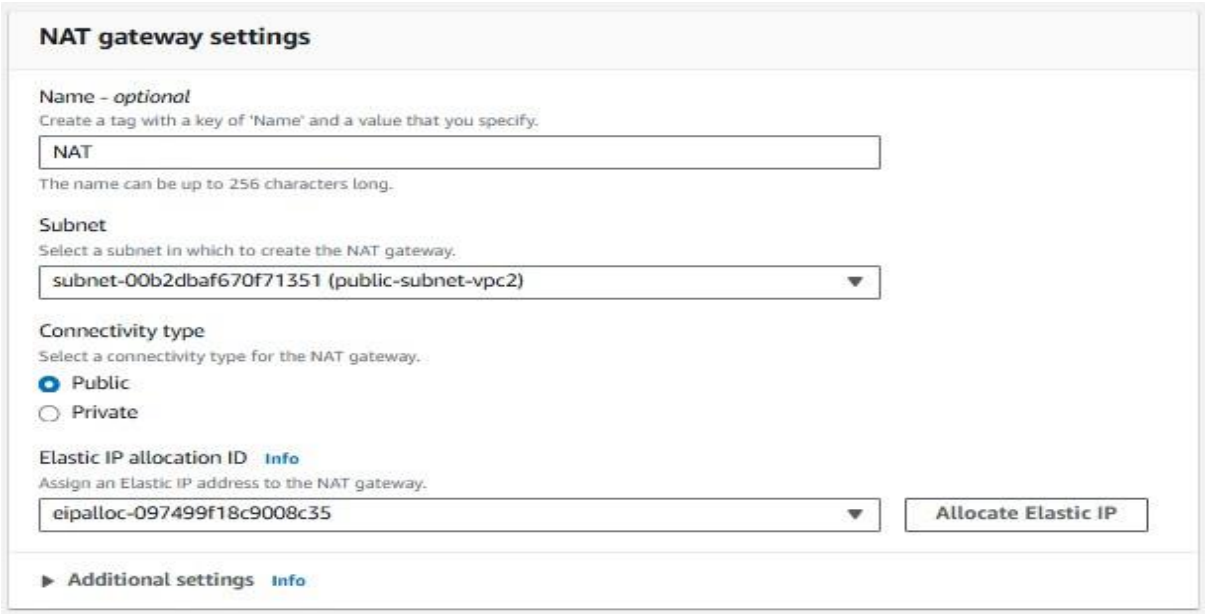
1. Go to internet gateway

2. Create one internet gateway
3. Click on create internet gateway
    - Give the name for internet gateway
    - Finally click on create internet gateway
    - Attach the created internet gateway to VPC 1
4. Go to route table
    - Select VPC 1 created route table
    - Click on routes
    - Click on edit routes
    - Click on add routes
    - Select internet gateway and ID
    - Click on save changes as shown in below figure

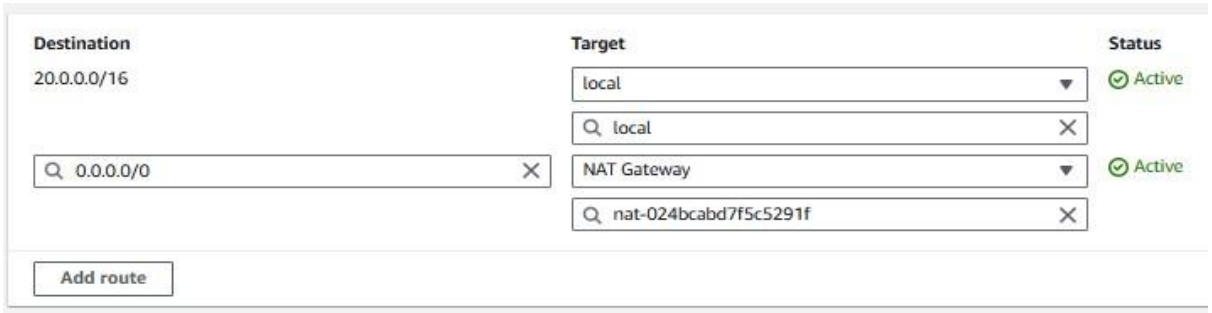


Step 5:

1. Select NAT gateway
2. Create one NAT gateway
3. Click on create NAT gateway
    - Give the name for NAT gateway
    - Select the subnet as public-subnet in VPC 2
    - Connectivity type is public
    - Click on allocate elastic IP
    - Finally click on create NAT gateway
    - As shown in below figure



4. Go to route table
5. Select private-route of VPC 2 in route table
    - Click on routes
    - Click on edit routes
    - Click on add routes
    - Select NAT gateway and ID
    - Click on save changes as shown in below figure



Step 6:

1. Select transit gateway
2. Click on create transit gateway
    - Give the name for transit gateway
    - No need to select ASN leave as default

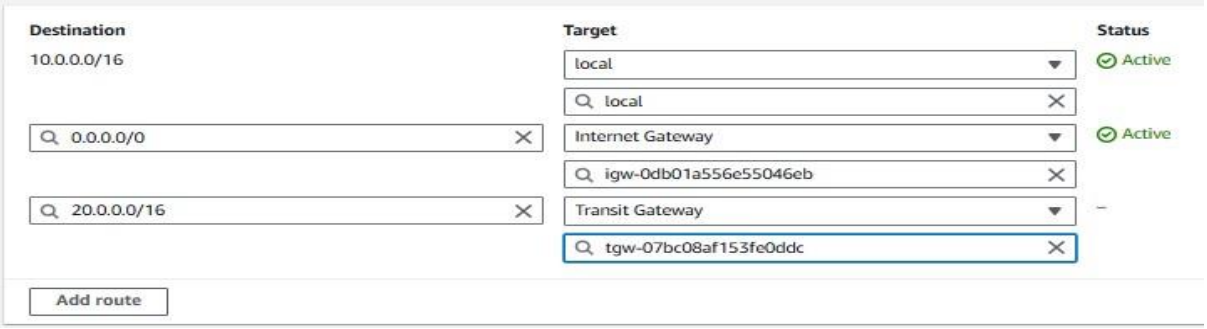
- Finally click on create transit gateway

3. Select transit gateway attachments
4. Create one transit gateway attachment
    - Give the name for transit gateway attachments
    - Select the transit gateway ID
    - Select the attachment type as VPC
    - Select the VPC ID as VPC 1
    - Finally click on create transit gateway attachments
5. Create the second transit gateway attachment
    - Give the name for transit gateway attachments
    - Select the transit gateway ID
    - Select the attachment type as VPC
    - Select the VPC ID as VPC 2
    - Finally click on create transit gateway attachments
6. Create the third transit gateway attachment
    - Give the name for transit gateway attachments
    - Select the transit gateway ID
    - Select the attachment type as VPC
    - Select the VPC ID as VPC 3
    - Finally click on create transit gateway attachments

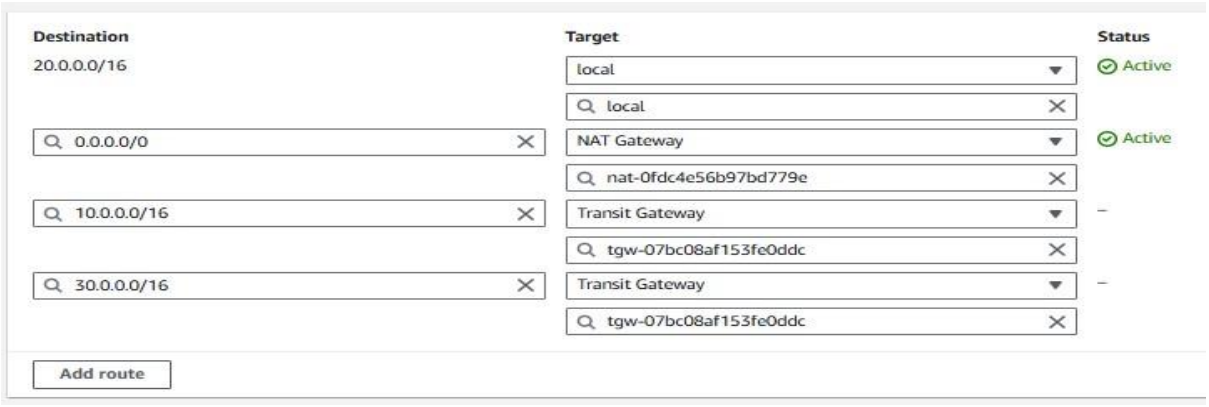
Step 7:

1. Select the route tables
2. Select the public-route in VPC 1
    - Click on routes
    - Click on edit routes
    - Click on add route
    - Type VPC 2 CIDR block range ID as (20.0.0.0/16) to provide connection for VPC 1 to VPC 2
    - Select transit gateway and ID

- Finally click on save changes as shown in below figure

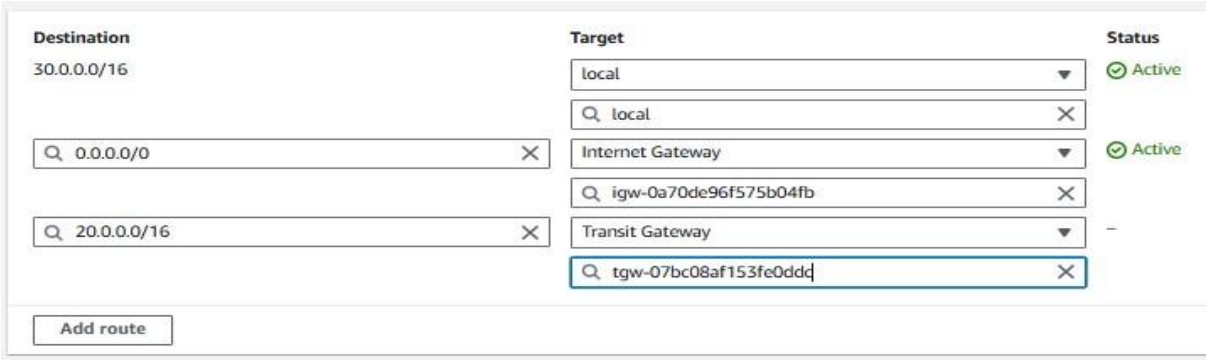


3. Select the private-route in VPC 2
    - Click on routes
    - Click on edit routes
    - Click on add route
    - Type VPC 1 CIDR block range ID as (10.0.0.0/16) to provide connection for VPC 2 to VPC 1
    - Click on add route
    - Type VPC 3 CIDR block range ID as (30.0.0.0/16) to provide connection for VPC 2 to VPC 3
    - Select transit gateway and ID
    - Click on save changes as shown in below figure



4. Select the public-route in VPC 3
    - Click on routes
    - Click on edit routes
    - Click on add route

- Type VPC 2 CIDR block range ID as (20.0.0.0/16) to provide connection for VPC 3 to VPC 2
- Select the transit gateway and ID
- Click on save changes and shown in below figure



Step 8:

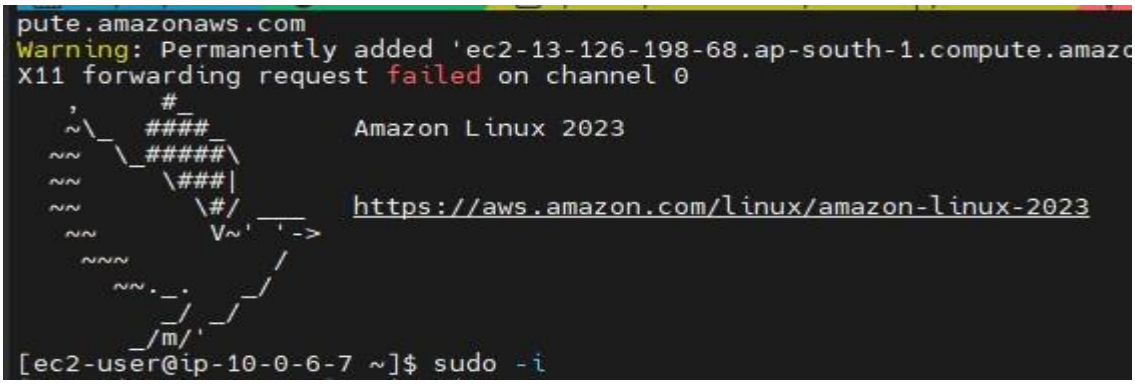
1. Select the EC2 service
2. Create three instances with three VPC'S
3. First create one instance
4. Click on launch instance
    - Select the name for instance
    - Select the AMI as Amazon Linux
    - Select the key pair
    - Edit the network settings
    - Select the VPC as VPC 1
    - Select the subnet
    - Enable the auto assign public IP
    - Finally click on launch instance
5. Create second instance
6. Click on launch instance
    - Select the name for instance
    - Select the AMI as Amazon Linux
    - Select the key pair

- Edit the network settings
- Select the VPC as VPC 2
- Select the subnet as private-subnet
- Disable the auto assign public IP
- Finally click on launch instance

7. Create third instance
8. Click on launch instance
    - Select the name for instance
    - Select the AMI as Amazon Linux
    - Select the key pair
    - Edit the network settings
    - Select the VPC as VPC 3
    - Select the subnet
    - Enable the auto assign public IP
    - Finally click on launch instance

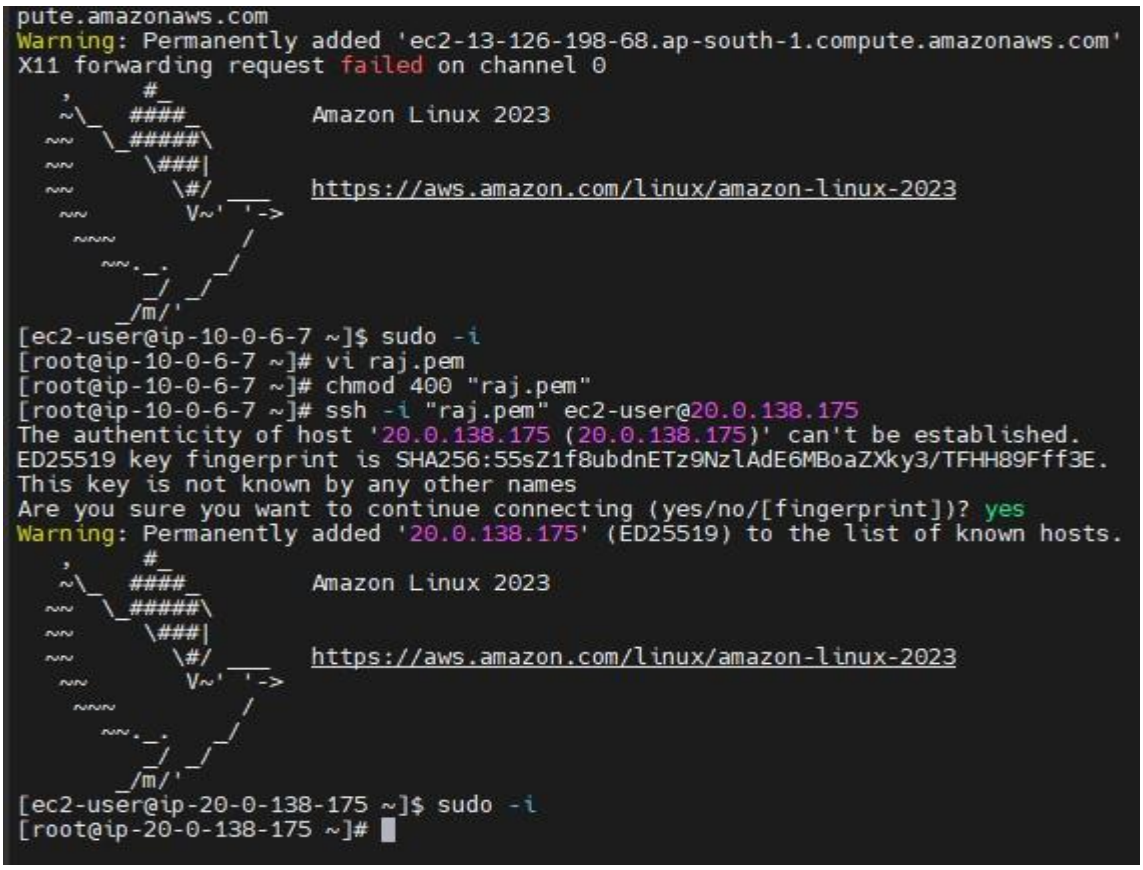
Step 9:

1. Select the first instance
2. Click on connect option
    - Click on EC2 instance connect
    - Click on connect option
    - It will directly connect to the instance as shown in below figure



- Type sudo -i it will switch to root location

3. Select the second instance
    - Copy the key pair and go to terminal
    - After switching into the root user
    - Type vi space key pair then vi editor will open and click I to enter into the insert mode then copy the key pair content and paste the content in vi editor save and come back to the terminal
    - Copy the chmod 400 "raj.pem" from ssh client in second instance and paste in terminal
    - Copy the example URL from ssh client in second instance and paste in terminal
    - Then it will ask yes/no then click yes and give enter
    - Then the second instance is connected as shown in below figure



4. Select the third instance
    - Copy the key pair and go to terminal
    - After switching into the root user
    - Type vi space key pair then vi editor will open and click I to enter into the insert mode then copy the key pair content and paste the content in vi editor save and come back to the terminal
    - Copy the chmod 400 "raj.pem" from ssh client in third instance and paste in terminal
    - Copy the example URL from ssh client in third instance and paste in terminal
    - Then it will ask yes/no then click yes and give enter
    - Then the third instance is connected as shown in below figure