AWS Region:

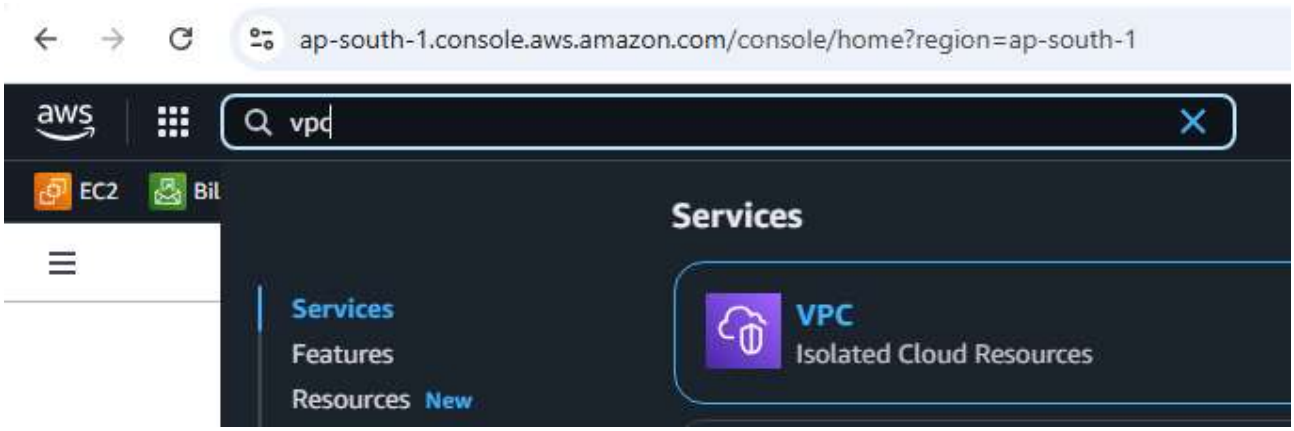
- An AWS Region is a group of data centers in a specific geographic area. When choosing a Region, it's best to select one that's geographically close to your users to reduce latency.
- Regions are isolated from each other, so if a service failure occurs in one Region, it won't affect other Regions. Ex:
    - us-east-1 (N. Virginia)
    - ap-south-1 (Mumbai)

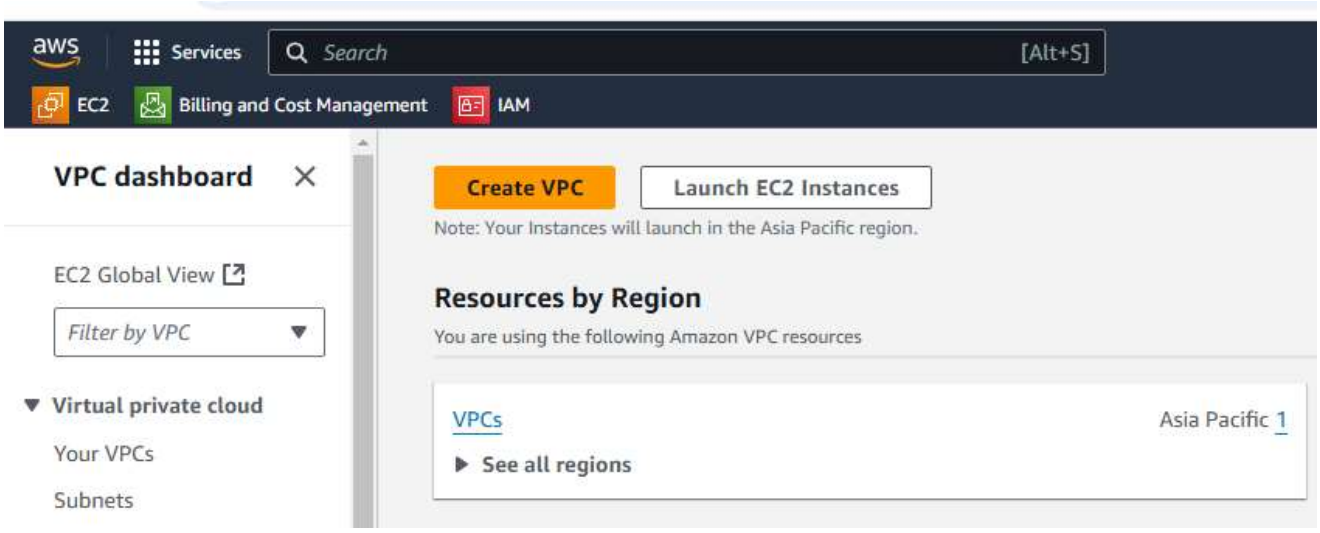
Data center:

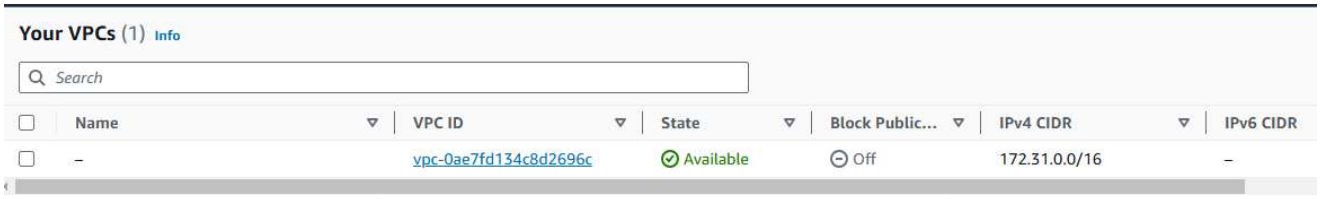
- An AWS Region can contain multiple Availability Zones (AZs) which are called as data centers (DCs). The EC2 instances get created under these DCs.
- A data center is a physical location (Physical Host) that stores computing machines and their related hardware equipment.
- It contains the computing infrastructure that IT systems require, such as servers, data storage drives, and network equipment. It is the physical facility that stores any company's digital data.
- Ex: For the region ap-south-1 (Mumbai), we have following 3 DCs available.
    - ap-south-1b
    - ap-south-1b
    - ap-south-1c

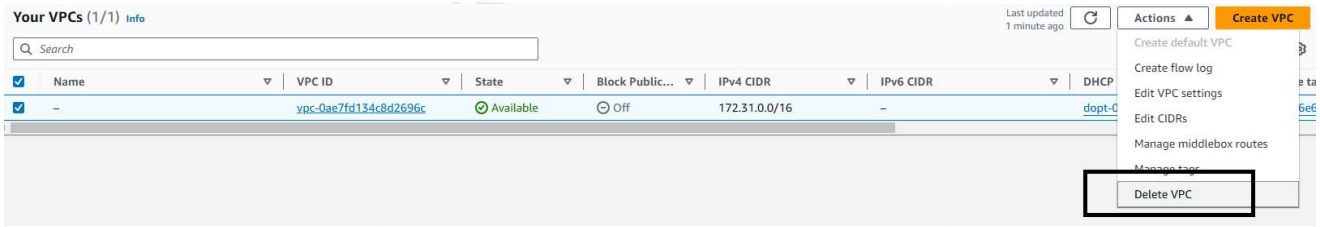
Amazon Virtual Private Cloud (VPC):

- Amazon Virtual Private Cloud (VPC) is a service that allows users to create a virtual network within the Amazon Web Services (AWS) cloud.
- VPCs are logically isolated from other virtual networks in the AWS cloud and can be configured to closely look like a traditional network.
- Under AZs, multiple users create their resources in an isolated way so that they cannot communicate with each other. This service is called as VPC.
- When 2 different users create EC2 instances under same Physical Host, still they cannot communicate with each other, because both of them got created under their own VPC.
- When we create AWS account, AWS provides us default VPCs under every region.
- When we create EC2 instance, they get created under the default VPCs. We cannot create EC2 instances without VPCs.




aws
Services
Search
[Alt+S]
EC2
Billing and Cost Management
IAM
VPC dashboard
EC2 Global View
Filter by VPC
Virtual private cloud
Your VPCs
Subnets
Create VPC
Launch EC2 Instances
Note: Your Instances will launch in the Asia Pacific region.
Resources by Region
You are using the following Amazon VPC resources
VPCs
Asia Pacific 1
See all regions


Your VPCs (1) Info
Search
Name
VPC ID
State
Block Public...
IPv4 CIDR
IPv6 CIDR
–
vpc-0ae7fd134c8d2696c
Available
Off
172.31.0.0/16
–


Your VPCs (1/1) Info
Search
Last updated
1 minute ago
Actions
Create VPC
Create default VPC
Create flow log
Edit VPC settings
Edit CIDRs
Manage middlebox routes
Delete VPC
Name
VPC ID
State
Block Public...
IPv4 CIDR
IPv6 CIDR
DHCP
–
vpc-0ae7fd134c8d2696c
Available
Off
172.31.0.0/16
–

Delete VPC

Will be deleted

This VPC will be deleted permanently and cannot be recovered later:

Name	VPC ID	State
–	vpc-0ae7fd134c8d2696c	Available

Will also be deleted

The following 7 resources will also be deleted permanently and cannot be recovered later:

Find entries

1 2

Name	Resource ID	State
–	igw-02449037c9f52d79b	Availab
–	sg-0fd002ab63400f424	-
–	sg-064098f46b9f61575	-
–	sg-0b0e46ba953101b16	-
–	subnet-0f4f3c2ce9c2d1f55	Availab

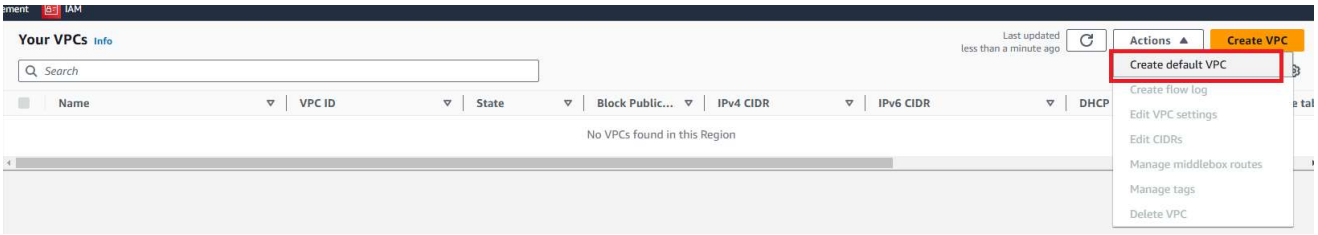
Warning: If you delete this default VPC, you can't launch instances in this Region unless you specify a subnet in another VPC or create a new default VPC.

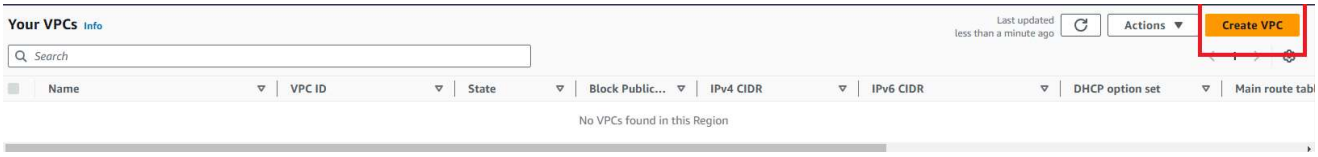
I acknowledge that I want to delete my default VPC.

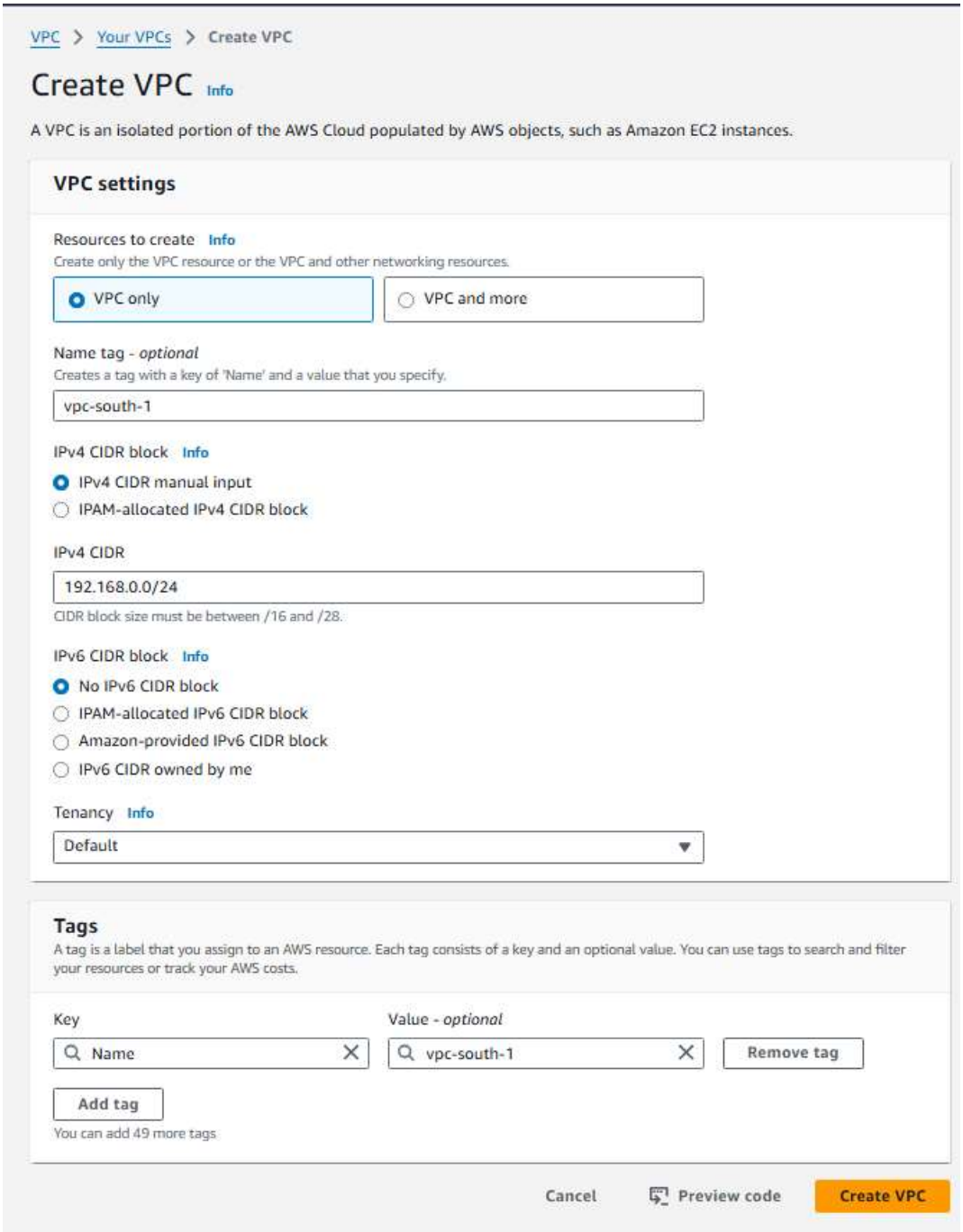
To confirm deletion, type *delete default vpc* in the field:

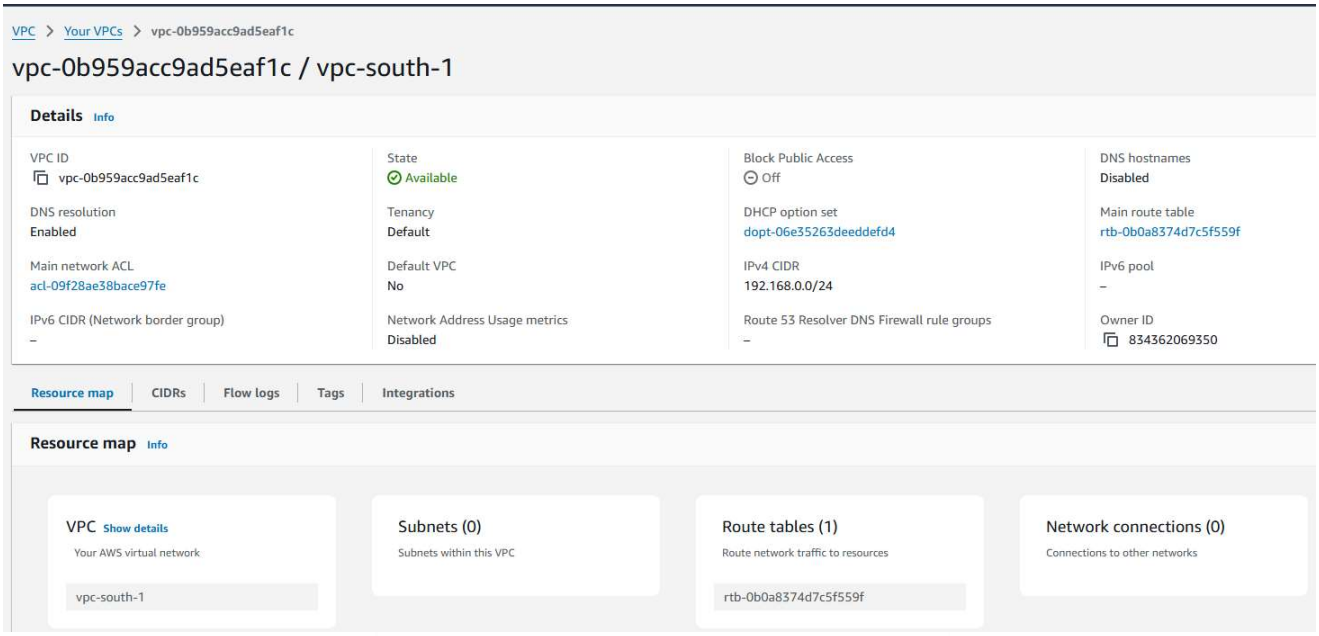
delete default vpc

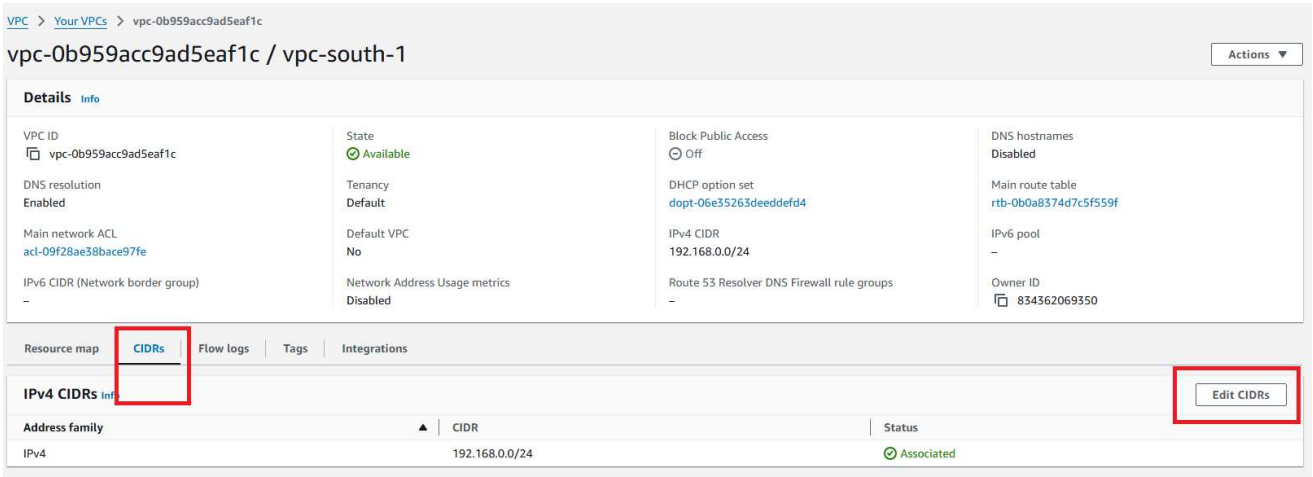
Cancel Delete




Your VPCs Info
Search
Last updated less than a minute ago
Actions
Create VPC
Name
VPC ID
State
Block Public...
IPv4 CIDR
IPv6 CIDR
DHCP option set
Main route tabl
No VPCs found in this Region


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.
vpc-south-1
IPv4 CIDR block Info
IPv4 CIDR manual input
IPAM-allocated IPv4 CIDR block
IPv4 CIDR
192.168.0.0/24
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
vpc-south-1
Remove tag
Add tag
You can add 49 more tags
Cancel
Preview code
Create VPC

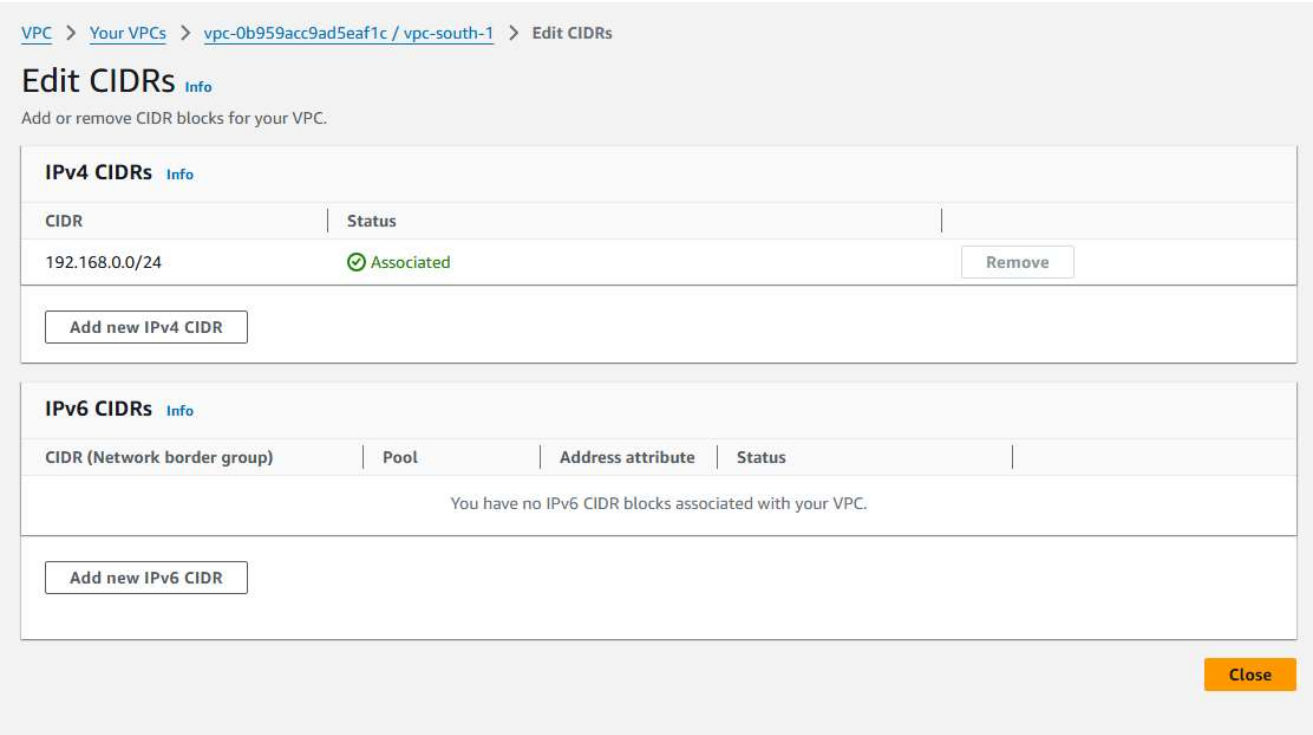




CIDR:

Classless Inter-Domain Routing (CIDR) is a method for allocating IP addresses that improves data routing efficiency. CIDR is a key concept in network management, especially in AWS, where it's used to define IP address ranges and control network traffic.

An IP address consists of 32 bits (for example, 192.168. 1.1 in IPv4). In CIDR (Classless Inter-Domain Routing) notation, the /24 indicates that the first 24 bits represent the network, leaving 8 bits for hosts.

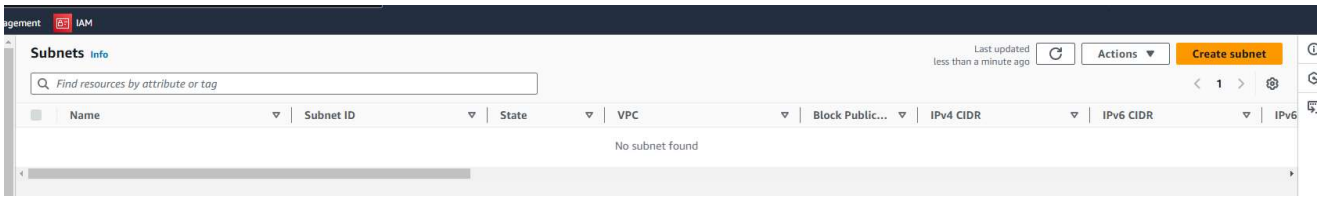


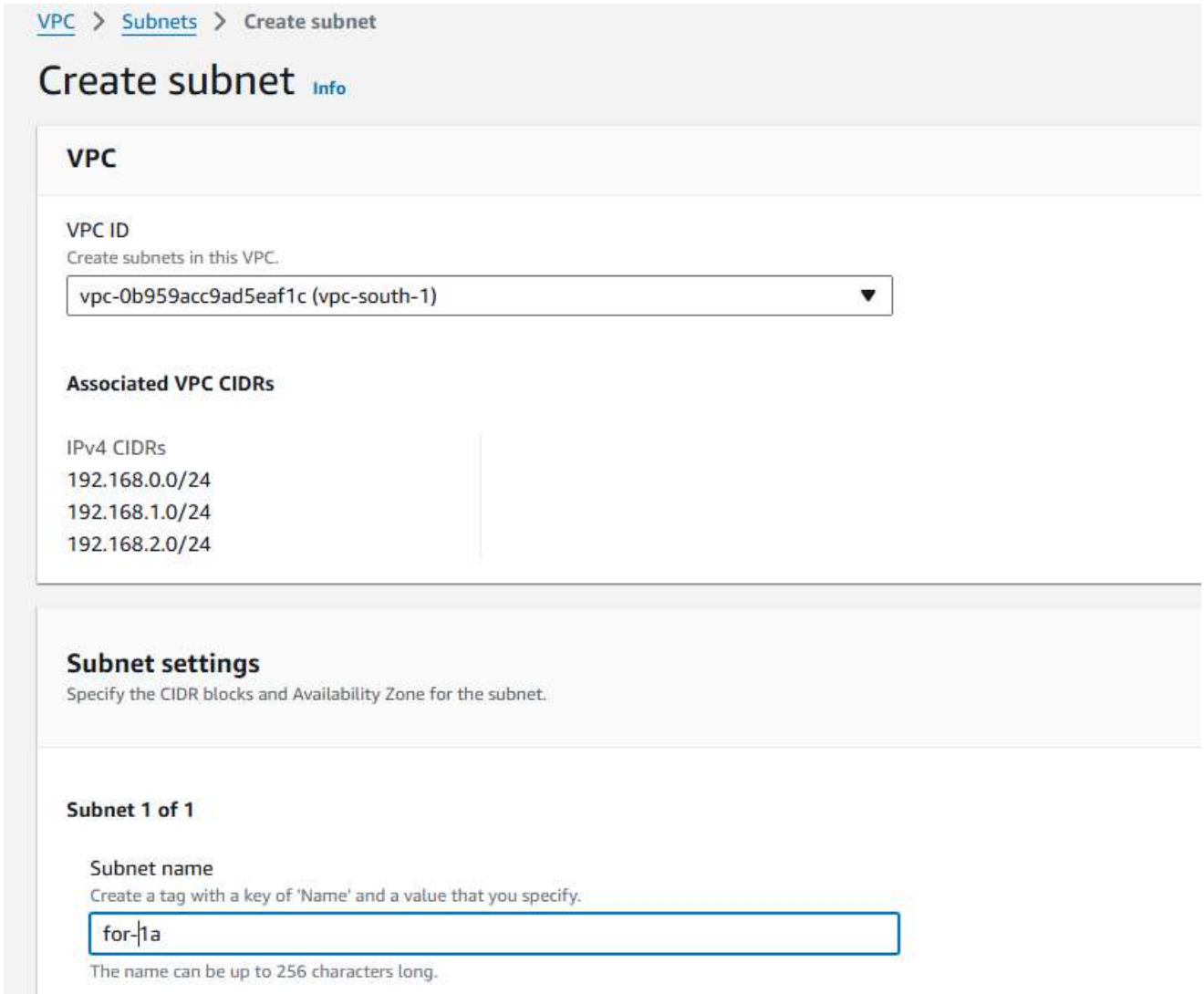
Add new IPV4 CIDR:

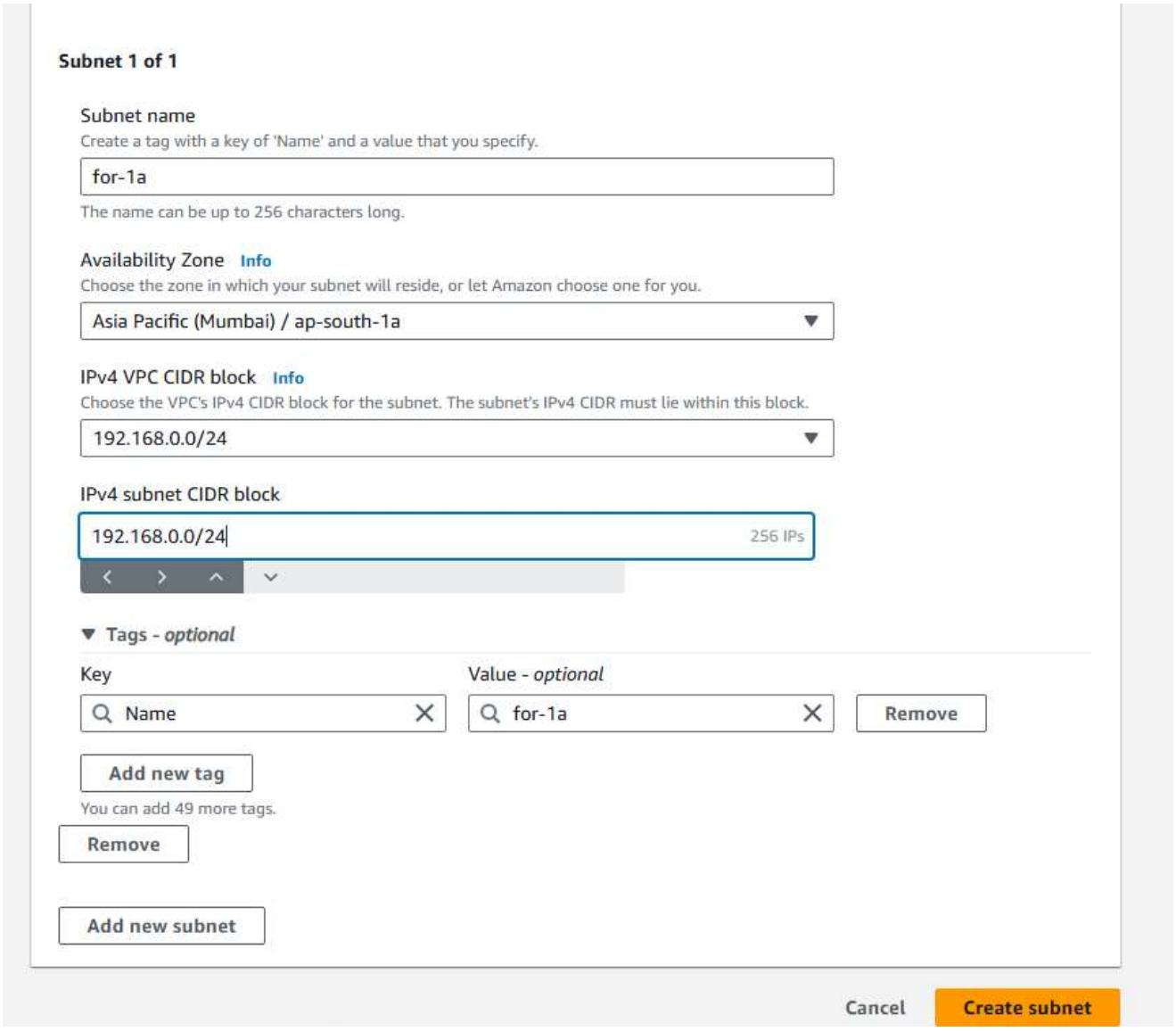
We can add up to 5 CIDRs.

Subnet:

- A subnet in Amazon Web Services (AWS) is a range of IP addresses within a Virtual Private Cloud (VPC) that allows you to group resources and launch AWS resources.
- It is a section of a VPC that contains a range of IP addresses. You can launch AWS resources, such as Amazon EC2 instances, into your subnets.
- You can connect a subnet to the internet, other VPCs, and your own data centers. You can also route traffic to and from your subnets using route tables.






Subnet 1 of 1
Subnet name
Create a tag with a key of 'Name' and a value that you specify.
for-1a
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.
192.168.0.0/24
IPv4 subnet CIDR block
192.168.0.0/24
256 IPs
Tags - optional
Key
Value - optional
Name
for-1a
Remove
Add new tag
You can add 49 more tags.
Remove
Add new subnet
Cancel
Create subnet

Subnet settings

Specify the CIDR blocks and Availability Zone for the subnet.

Subnet 1 of 1

Subnet name

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

for-1b

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-1b

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.

192.168.1.0/24

IPv4 subnet CIDR block

192.168.1.0/24 256 IPs

▼ Tags - *optional*

Key	Value - *optional*	
Name	for-1b	Remove

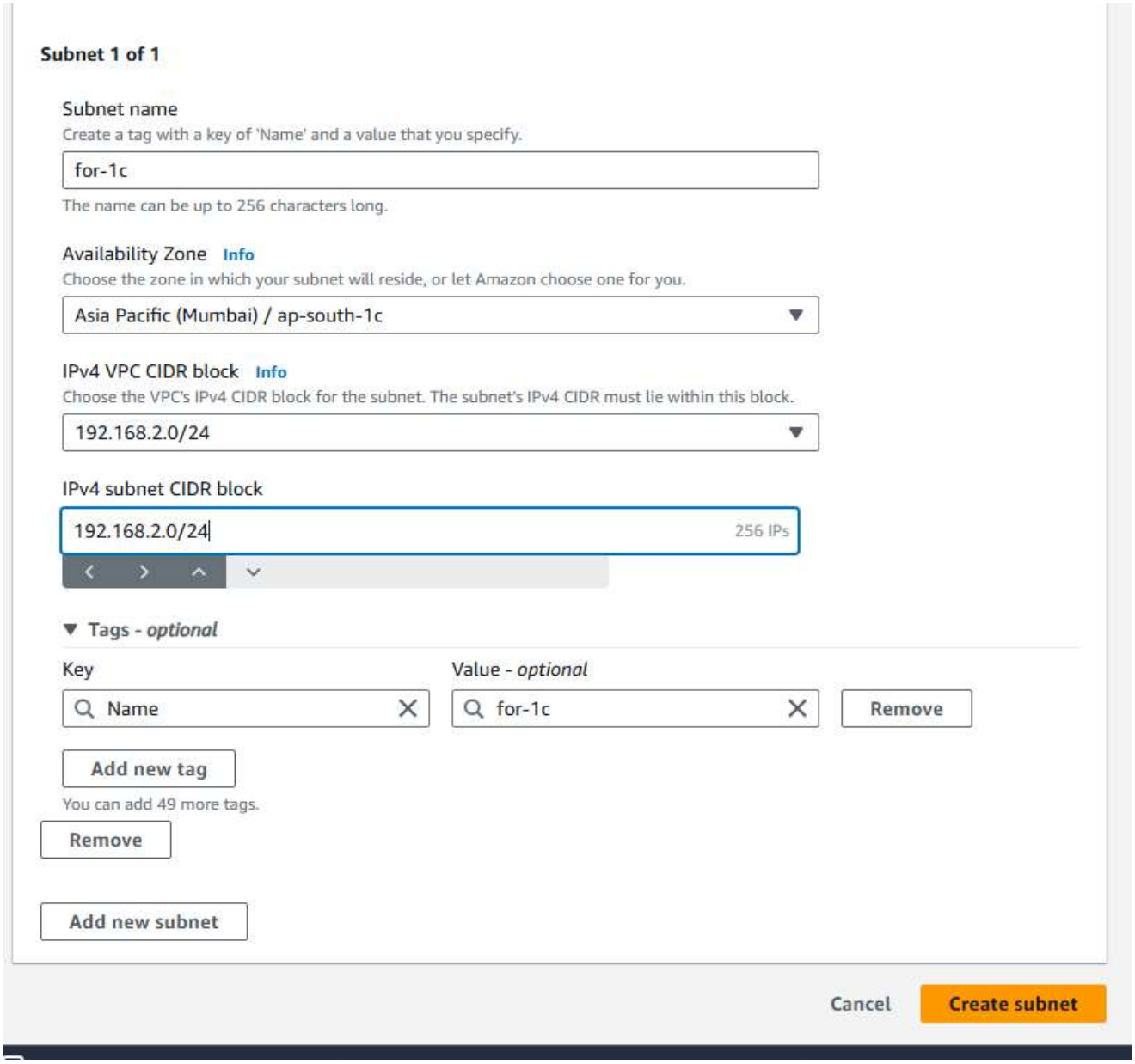
Add new tag

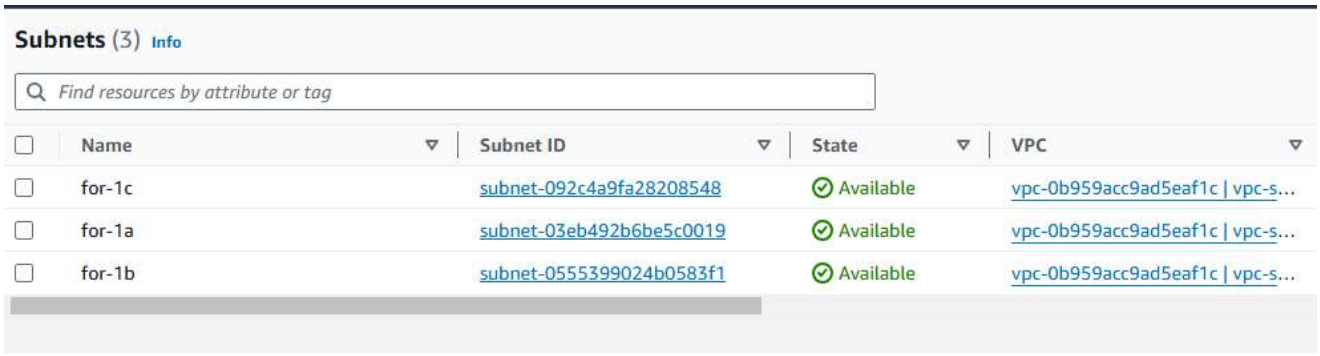
You can add 49 more tags.

Remove

Add new subnet

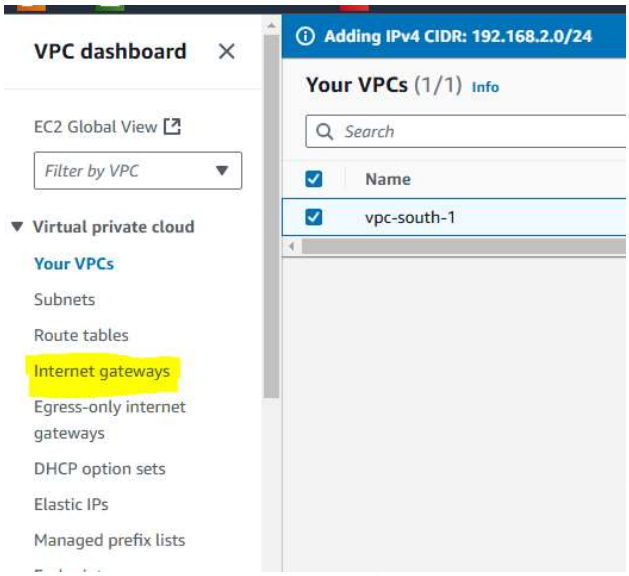
Cancel Create subnet


Subnet 1 of 1
Subnet name
Create a tag with a key of 'Name' and a value that you specify.
for-1c
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-1c
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.
192.168.2.0/24
IPv4 subnet CIDR block
192.168.2.0/24
256 IPs
Tags - optional
Key
Value - optional
Name
for-1c
Remove
Add new tag
You can add 49 more tags.
Remove
Add new subnet
Cancel
Create subnet

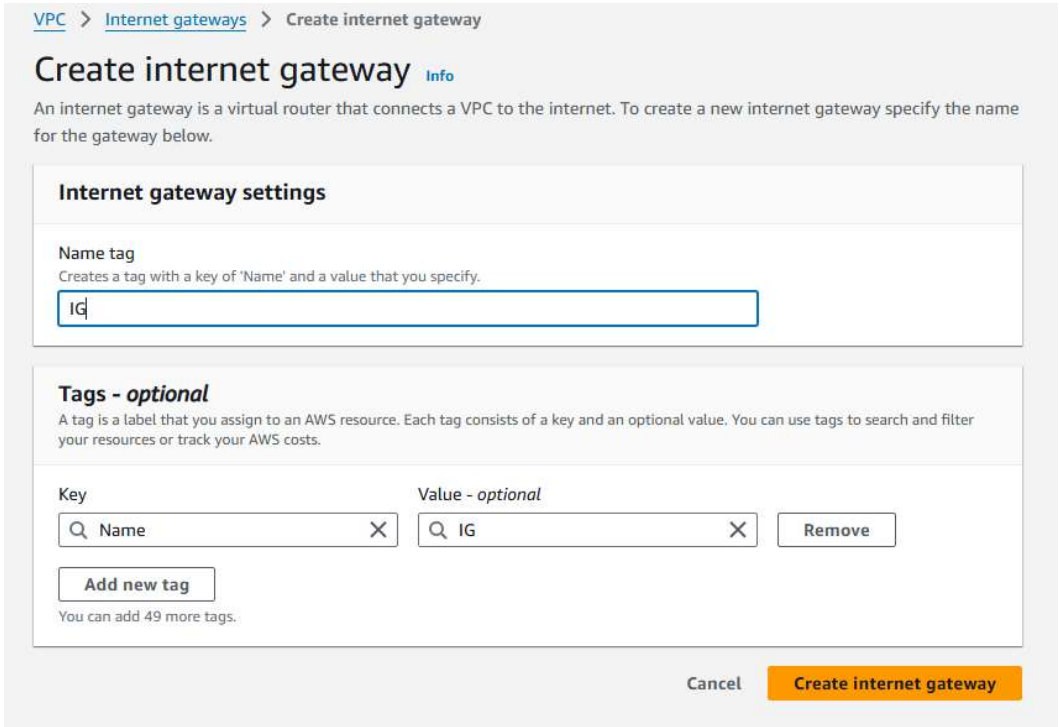

Subnets (3) Info
Find resources by attribute or tag
Name
Subnet ID
State
VPC
for-1c
subnet-092c4a9fa28208548
Available
vpc-0b959acc9ad5eaf1c | vpc-s...
for-1a
subnet-03eb492b6be5c0019
Available
vpc-0b959acc9ad5eaf1c | vpc-s...
for-1b
subnet-0555399024b0583f1
Available
vpc-0b959acc9ad5eaf1c | vpc-s...

Internet Gateway:

- An internet gateway (IGW) in AWS is a component that allows communication between a Virtual Private Cloud (VPC) and the internet.

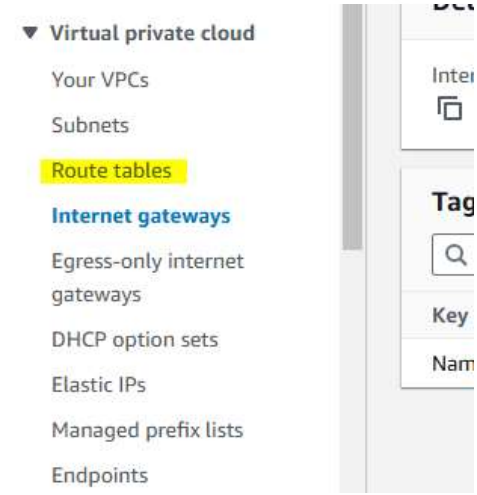


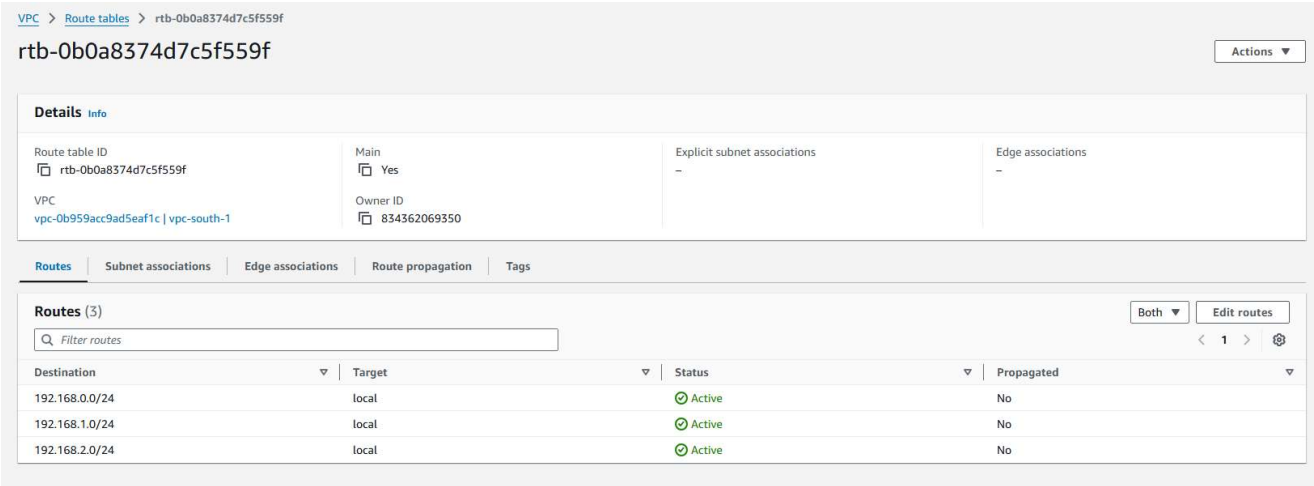
Create IG:



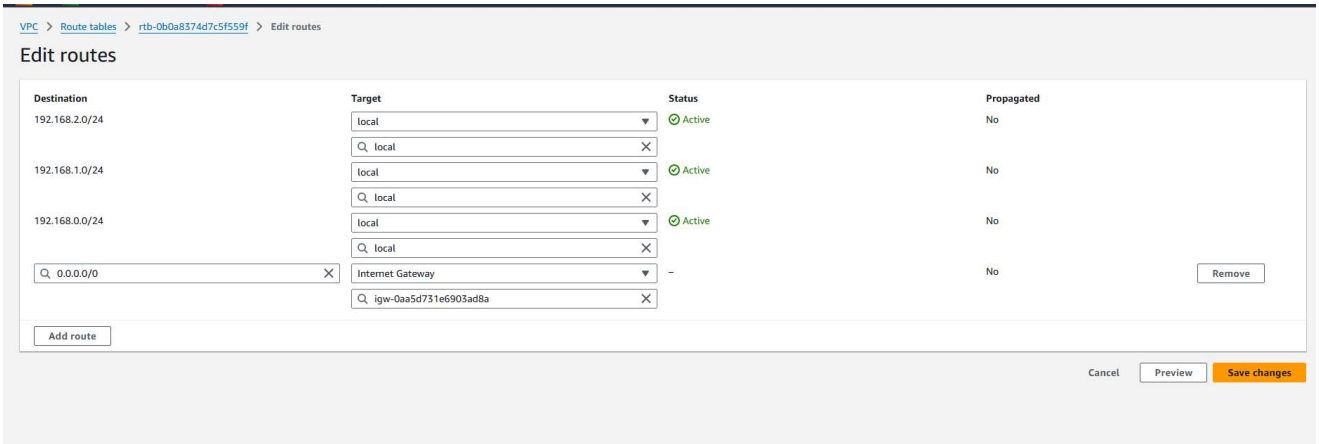
Route tables:

- A route table in Amazon Web Services (AWS) is a set of rules that determines how network traffic is directed.





Edit Routes:



Launch EC2 instance and access it.