

## Elastic Compute Cloud

Amazon EC2 provides Scalable Computing Capacity in the AWS Cloud.

- You Can Use Amazon EC2 to launch as many or as few Virtual Servers as you need, Configure Security and networking and manage Storage.
- Amazon EC2 enables you to Scale up or Scale down the instance.
- Amazon EC2 is having two Storage options i.e EBS & instance store.
- Pre Configured templates are available known as Amazon Machine Image.
- By default, when you Create an EC2 account with amazon, your account is limited to a maximum of 20 instances per EC2 Region with two default High I/O instances.

## Cloud - Part-1

### Types of EC2 Instances

```

graph TD
    EC2[Types of EC2 Instances] --> GP[General Purpose]
    EC2 --> CO[Compute Optimized]
    EC2 --> SO[Storage Optimized]
    EC2 --> MO[Memory Optimized]
    EC2 --> AC[Accelerated Computing/GPU]
    EC2 --> HM[High Memory]
    EC2 --> PG[Previous Generation]
  
```

General Purpose → Balanced Memory & CPU  
 Compute Optimized → More CPU than RAM  
 Memory Optimized → More RAM  
 Accelerated Computing/GPU → Graphics Optimized  
 Storage Optimized → Low latency  
 High Memory Optimized → High RAM, Nitro System

## Types of Instances

- General Purpose - 1
- Compute optimized - 2
- Memory Optimized - 3
- Storage Optimized - 4
- Accelerated Computing - 5
- High Memory - 6
- Previous Generation - 7

## Elastic Compute Cloud - Part-2

### General Purpose Instances

General Purpose instances provide a Balance of Compute, Memory and Networking Resources, and Can be Used for a Variety of Workloads.

#### 3 Series in General Purpose

```

graph TD
    GP[3 Series in General Purpose] --> AS[A Series]
    GP --> MS[M Series]
    GP --> TS[T Series]
    AS --> A1[A1]
    MS --> M4[M4]
    MS --> M5[M5]
    MS --> M5a[M5a]
    MS --> M5ad[M5ad]
    TS --> T2[T2]
    TS --> T3[T3]
    TS --> T3a[T3a]
    T2 --- FE[Free tier Eligible]
  
```

Instances Available in four Sizes - Nano, Small, Medium, Large

## Elastic Compute Cloud - Part-2

### General Purpose Instances

General Purpose instances provide a Balance of Compute, Memory and Networking Resources, and Can be Used for a Variety of Workloads.

#### A1 - Instances

A1 instances are ideally Suited for Scale-Out Workloads that are Supported by the Arm Ecosystem.

These instances are Well-Suited for the following Application

- ① WebServer
- ② Containerized micro Services
- ③ Caching Fleets
- ④ Distributed data Stores
- ⑤ Application that Requires Arm Instruction Set

vm

Containers

### Types of Instances

- General Purpose - 1
- Compute optimized - 2
- Memory Optimized - 3
- Storage Optimized - 4
- Accelerated Computing - 5
- High Memory - 6
- Previous Generation - 7

### Elastic Compute Cloud - Part-2

M4, M5, M5a, M5ad and M5d

#### M4 Instance

The New M4 instances features a Custom Intel Xeon E5-2676 v3 Haswell processor Optimized Specifically For EC2.

vCPU → 2 to 40 (Max.)  
RAM → 8GB to 160GB (Max.)

Instance Storage → EBS Only

M5, M5a, M5ad and M5d Instances ÷ These instances provide an ideal Cloud infra, offering a Balance of Compute, memory, and Networking Resources for a Broad Range of applications.

Used in ÷ Gaming Server, WebServer, Small and Medium databases

vCPU → 2 to 96 (max)  
RAM → 8 to 384 (Max)  
Instance Storage → EBS & NVMe SSD

### Elastic Compute Cloud - Part-2

T2, T3 and T3a Instances 5% → 40% !

These instances provide a baseline level of CPU Performance with the ability to burst to a higher level When Required by your Workload.

→ An Unlimited Instances Can Sustain high CPU Performance for any Period of time Whenever Required.

Used for :-

- 1) Website and Web App
- 2) Code Repositories
- 3) Development, build, test
- 4) Microservices

vCPU → 2 to 8  
RAM → 0.5 to 32 GB

General purpose k3 series - a, m, t.

Kis series m maximum ram multi - M5 model of M series have option for large amount of RAM

Kitne type k ec2 insatnce - 7

## Elastic Compute Cloud - Part-3

### Compute Optimized Instances (C-Series)

Compute Optimized Instances are Ideal for Compute-bound applications that benefit from high performance processors.

Three types are Available → C4, C5, C5n  
C3 → Previous Instance

C4 → C4 instances are optimized for Compute intensive Workloads and deliver Very Cost effective high performance at a low price per Compute Ratio.

VCPU → 2 to 36      RAM → 3.75 to 60 GB  
Storage → EBS Only      , Network B.W → 10 Gbps

Use Cases → Web Server, Batch Processing, MMO Gaming  
Video Encoding

VPC :

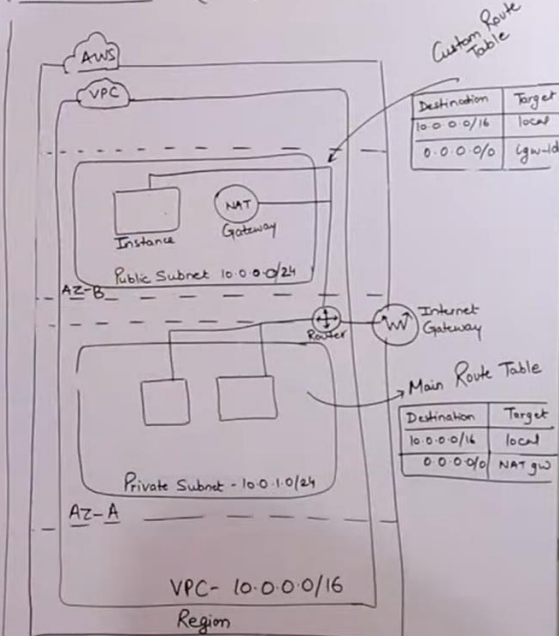
A Virtual Private Cloud is a Virtual Network that closely Resembles a traditional Networking that you Operate in your Own dataCentre, with the Benefits of Using the Scalable Infra-structure of AWS.

OR

VPC is a Virtual Network or DataCentre inside AWS for One Client.

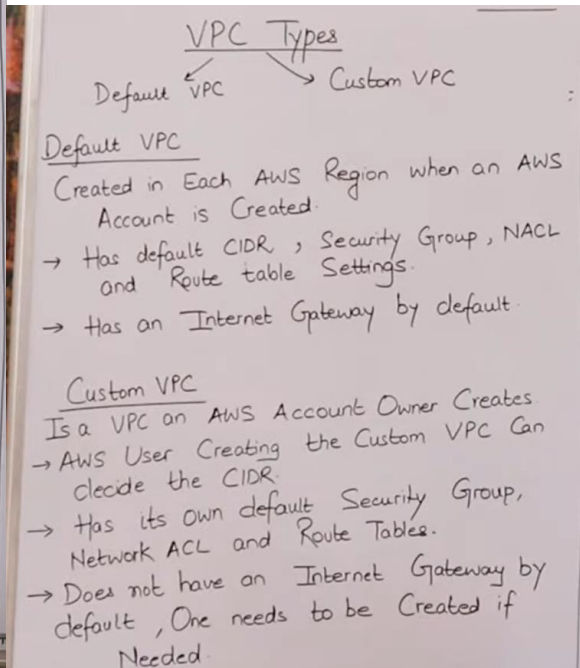
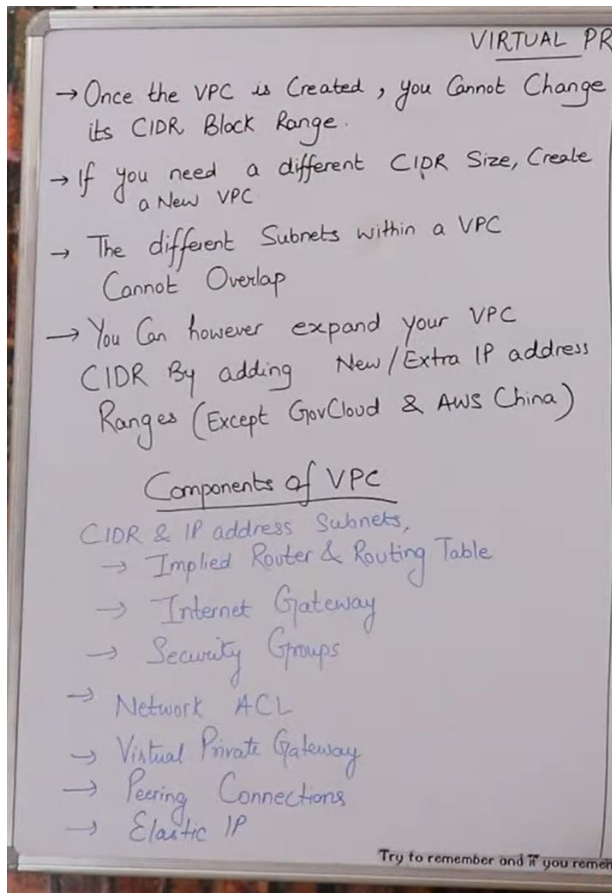
- It is logically Isolated from Other Virtual N/W in the AWS Cloud.
- Max. 5 VPC Can be Created and 200 Subnets in 1 VPC.
- We Can allocate max. 5 Elastic IP.
- Once We Created VPC, DHCP, NACL and Security Group will be automatically Created.
- A VPC is Confined to an AWS Region and does not extend Between Regions.

### PRIVATE CLOUD (VPC)



We can create 200 routing table in 1 vpc . VPC region m create hota h . subnet availability zone m create hota h . 1 subnet range 2 availability zone m ni ho sqta . subnet is availability zone specific and vpc is region specific .





NAT gateway public subnet m bnaya jata hai, but use private subnet m kia jata. Router region m hota h – router m sirf routing table bnana hota. same vpc k components communicate kr sqte, BY default 10., 198., 172. – ye 3 m he cidr range define krte hai.

How to Create vpc -> subnet -> internet gateway -> route table.

Public subnet internet gateway se connected hota, private subnet internet gateway se connect ni hota. ec2 instance ko internet se communicate krne k lie public ip ya elastic honi chiyee.

Public Subnet → If a Subnet's traffic is Routed to an Internet Gateway, the Subnet is known as a Public Subnet. If you want your instance in a Public Subnet to Communicate with the internet Over IPv4, it must have a public IPv4 address or an Elastic IP address.

Private Subnet - If a Subnet does not have a route to the internet gateway, the Subnet is known as a Private Subnet.

- When you Create a VPC, you must specify an IPv4 CIDR Block for the VPC. The allowed block size is Between /16 to /28 netmask.
- The first four & Last IP address of Subnet Cannot be assigned

10.0.0.0/16

VIRTUAL PRIVATE

For eg → 10.0.0.0 → Network address

10.0.0.1 → Reserved by AWS for the VPC Router

10.0.0.2 → Reserved by AWS: The IP address of DNS Server

10.0.0.3 → Reserved for Future Use

10.0.0.255 → Broadcast Address

Note AWS do not Support Broadcast in a VPC But Reserve this Address.

Implied Router & Route Table VIRTUAL PRIVATE

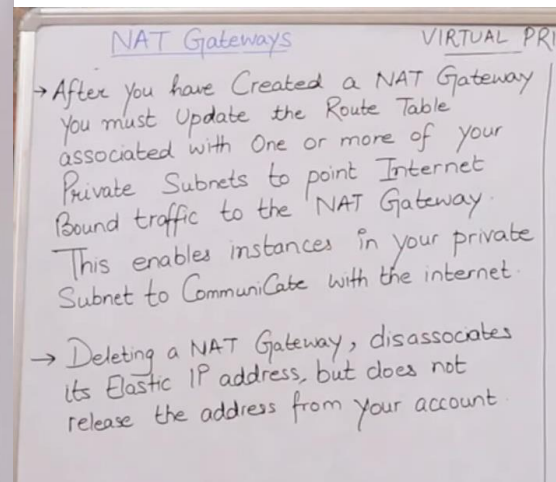
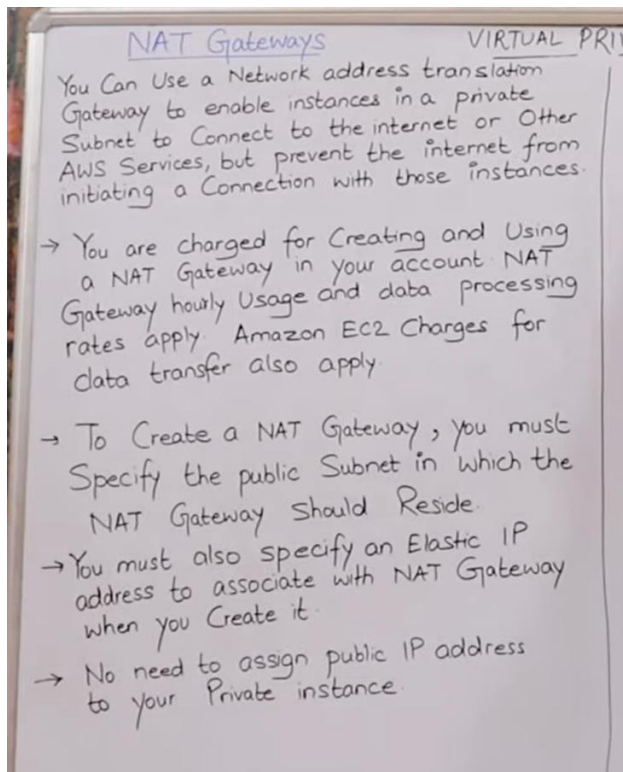
- It is the Central Routing Function
- It Connects the different AZ together and Connects the VPC to the Internet Gateway
- You Can have upto 200 Route tables per VPC
- You Can have Upto 50 Routes Entries per Route Table
- Each Subnet must be associated with Only One Route table at any Given time
- If you do not Specify a Subnet to Route table association, the Subnet will be associated with the default VPC Route table.
- You Can also edit the Main Route table if you need, but you Cannot delete main Route Table
- However you Can make a Custom Route table manually become the main Route Table then you Can delete the former main, as it is no longer a main Route table.
- You Can associate multiple Subnets with the Same Route table.

Try to remember and if you remember this

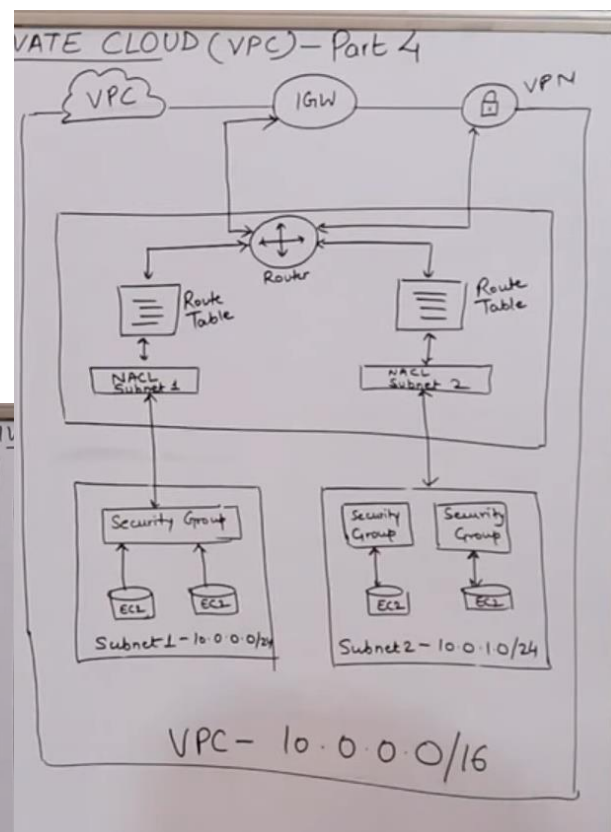
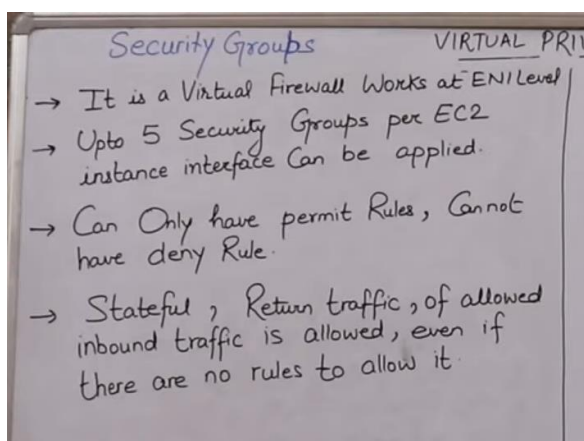
INTERNET GATEWAY

VIRTUAL PRIVATE

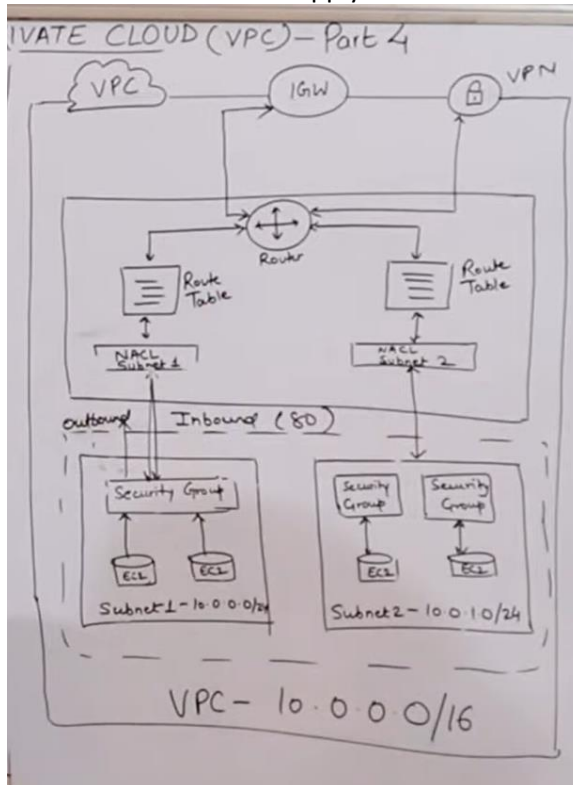
- An Internet Gateway is a Virtual Router that Connects a VPC to the internet.
- Default VPC is already attached with an Internet Gateway.
- If you Create a new VPC then you must attach the Internet Gateway in Order to access the Internet.
- Ensure that your Subnet's Route table points to the internet Gateway.
- It performs NAT Between your private and Public IPv4 address
- It Supports both IPv4 and IPv6



In nat instance we can use public ip / elastic ip ; In nat gateway – elastic ip ka use krte .  
 Nat gateway public subnet m hota , NAT gateway is used for private to public communication .  
 In organization , for web apps , we put web apps server in public subnet and db servers in private subnet so that malicious traffic cant reach server .  
 Security group instances p lge hote h its kind of firewall rule .



Security group subnet level p attach hota , nacl vpc p attach hota ,inbound m jo rule applied hai by default outbound m bhi apply hoti .



- Network ACL VIRTUAL PRIV
- It is a function performed On the Implied Router.
  - NACL is an Optional Layer of Security for your VPC that acts as a firewall for Controlling traffic in and Out of One or more Subnets.
  - Your VPC automatically Comes with a modifiable default Network ACL. By default, it allows all inbound and Outbound IPv4 traffic and if applicable, IPv6 traffic.
  - You Can Create a Custom network ACL and associate it with a Subnet. By default, Each Custom Network ACL denies all inbound and Outbound traffic untill you add rules.

- Network ACL VIRTUAL PRIV
- Each Subnet in your VPC must be associated with a Network ACL. IF you don't explicitly associate a Subnet with a Network ACL, the Subnet is automatically associated with the default Network ACL.
  - You Can associate a Network ACL with multiple Subnet, however a Subnet Can be associated with Only One network ACL at a time. When you associate a Network ACL with a Subnet, the previous association is Removed.
  - A network ACL Contains a Numbered list of Rules that we evaluate in Order, starting with the lowest numbered Rule.

- Network ACL VIRTUAL PRIV
- The highest number that you Can use for a Rule is 32766. Recommended that you Start by Creating Rules with Rule Numbers that a multiple of 100, So that you Can insert new Rules where you need later.
  - It functions at the Subnet Level
  - NACL are Stateless, Outbound traffic for an allowed inbound traffic, must be explicitly allowed too.
  - You Can have permit and deny Rules in a NACL.



## VIRTUAL PRIVATE CLOUD (VPC) - Part 4

### Security Group

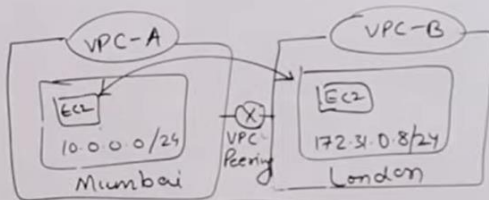
- Operate at Instance Level
- Support allows rules Only
- Stateful, Return traffic is automatically allowed.
- Applies to an instance Only

### NACL

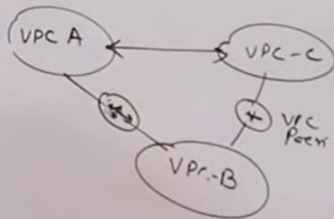
- Operate at the Subnet Level.
- It permits allow as well as Deny Rules.
- Stateless, Return traffic must be explicitly allowed by Rules.
- Applies to all instances in the Subnet.

VPC peering - 2 different vpc can communicate establish krte . Public subnet k instance without vpc peering k communicate kr sqte bit private subnet k instance ko communication k lie vpc peering krte.

## VIRTUAL PRIVATE CLOUD (VPC) - Part 4



Transitive Peering



## VIRTUAL PRIVATE CLOUD (VPC) - Part 4

### VPC Peering

A VPC Peering Connection is a Networking Connection between two VPC that enables you to route traffic between them Using Private IPv4 addresses or IPv6 addresses.

- Instances in either VPC Can Communicate with Each Other as if they are within the Same Network
- You Can Create a VPC Peering Connection Between your Own VPC, or with a VPC in another AWS Account The VPC Can be in different Region



**VPC Management Console**

Resources by Region [Refresh Resources](#)

You are using the following Amazon VPC resources

Resource Type	Count
VPCs	1
Subnets	3
Route Tables	1
Internet Gateways	1
Egress-only Internet Gateways	0
DHCP option sets	1
Elastic IPs	0
Endpoints	0
NAT Gateways	0
VPC Peering Connections	0
Network ACLs	1
Security Groups	1
Customer Gateways	0
Virtual Private Gateways	0
Site-to-Site VPN Connections	0
Running Instances	0

**Settings**

Zones

Console Experiments

**Additional Information**

VPC Documentation

All VPC Resources

Forums

Report an Issue

**AWS Network Manager**

AWS Network Manager provides tools and features to help you manage and monitor your network on AWS. Network Manager makes it easier to perform connectivity management, network monitoring and troubleshooting, IP management, and network security and governance.

Get started with Network Manager

**Site-to-Site VPN Connections**

Amazon VPC enables you to use your own isolated resources within the AWS Cloud, and then connect those resources directly to your own datacenter using industry-standard encrypted IPsec VPN connections.

Create VPN Connection

Mumbai m 3 availability zones hai to 3 subnet available h . all things are default .

## Create VPC :

**Your VPCs (1)** [Info](#)

[Filter VPCs](#)

Name	VPC ID	State	IPv4 CIDR	IPv6 CIDR	DHCP
-	vpc-049af883b522d8cd9	Available	172.31.0.0/16	-	dopt-

[Create VPC](#)

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

**IPv4 CIDR block** [Info](#)

☒ IPv4 CIDR manual input

☐ IPAM-allocated IPv4 CIDR block

IPv4 CIDR

**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](#)

**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

[Remove](#)

[Add new tag](#)

There are 2 tenancy – dedicated and default ; dedicated vpc runs on dedicated instances only .

VPC > Your VPCs > vpc-091fbeac7494413a9

## vpc-091fbeac7494413a9 / my-vpc

Actions ▼

**Details** Info

VPC ID vpc-091fbeac7494413a9	State Available	DNS hostnames Disabled	DNS resolution Enabled
Tenancy Default	DHCP option set dopt-027da5ce219570c3b	Main route table rtb-0baa6df47502399c5	Main network ACL acl-096b35e29b153736a
Default VPC No	IPv4 CIDR 10.0.0.0/16	IPv6 pool -	IPv6 CIDR (Network border group) -
Network Address Usage metrics Disabled	Route 53 Resolver DNS Firewall rule groups -	Owner ID 758845640679	

Resource map New
 CIDRs Flow logs Tags

**Resource map** Info
 

VPC Show details  
Your AWS virtual network

Subnets (0)  
Subnets within this VPC

Route tables (1)  
Route network traffic to resources

Network ACLs (1)  
Network ACLs within this VPC

Create subnet :

For cidr block we can select from 16 – 28 ranges .

Create subnets in this VPC.

vpc-091fbeac7494413a9 (my-vpc) ▼

**Associated VPC CIDRs**

IPv4 CIDRs

10.0.0.0/16

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**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.

my-subnet

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 CIDR block Info

Q 10.0.0.0/24 X

▼ Tags - optional

Key	Value - optional	
Q Name X	Q my-subnet X	Remove

## subnet-0c08213a255da1400 / my-subnet

Actions ▼

**Details**

Subnet ID subnet-0c08213a255da1400	Subnet ARN arn:aws:ec2:ap-south-1:758845640679:subnet/subnet-0c08213a255da1400	State Available	IPv4 CIDR 10.0.0.0/24
Available IPv4 addresses 251	IPv6 CIDR -	Availability Zone ap-south-1a	Availability Zone ID aps1-az1
Network border group ap-south-1	VPC vpc-091fbeac7494413a9   my-vpc	Route table rtb-0baa6df47502399c5	Network ACL acl-096b35e29b153736a
Default subnet No	Auto-assign public IPv4 address No	Auto-assign IPv6 address No	Auto-assign customer-owned IPv4 address No
Customer-owned IPv4 pool -	Outpost ID -	IPv4 CIDR reservations -	IPv6 CIDR reservations -
IPv6-only No	Hostname type IP name	Resource name DNS A record Disabled	Resource name DNS AAAA record Disabled
DNS64 Disabled	Owner 758845640679		

Create internet gateway :

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.

vpc-igw

### 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: Q Name X Value - optional: Q vpc-igw X Remove

Add new tag

You can add 49 more tags.

Cancel Create internet gateway

---

Q Filter internet gateways

<input type="checkbox"/>	Name	Internet gateway ID	State	VPC ID	Owner
<input type="checkbox"/>	vpc-igw	igw-01d9c1e0b7296e05c	Detached	-	758845640679
<input type="checkbox"/>	-	igw-04cb6e7fdf1eddc96	Attached	vpc-049af883b522d8cd9	758845640679

Status if internet gateway is detached , that means ig is not connected to vpc – internet connection wont be established .

Attach ig to VPC :

### Internet gateways (1/2) [Info](#)

Q Filter internet gateways

<input type="checkbox"/>	Name	Internet gateway ID	State	VPC ID
<input checked="" type="checkbox"/>	vpc-igw	igw-01d9c1e0b7296e05c	Detached	-
<input type="checkbox"/>	-	igw-04cb6e7fdf1eddc96	Attached	vpc-049af883b522d8cd9

Actions

- View details
- Attach to VPC
- Detach from VPC
- Manage tags
- Delete internet gateway

Create internet gateway

---

VPC > Internet gateways > Attach to VPC (igw-01d9c1e0b7296e05c)

## Attach to VPC (igw-01d9c1e0b7296e05c) [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.

Q vpc-091fbaec7494413a9 X

AWS Command Line Interface command

Cancel Attach internet gateway

Routing 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.

**VPC**  
The VPC to use for this route table.

### 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

You can add 49 more tags.

Associate our created subnet in this route table .

VPC > Route tables > rtb-0baa6df47502399c5

## rtb-0baa6df47502399c5 [Actions](#)

[You can now check network connectivity with Reachability Analyzer](#)

### Details [info](#)

Route table ID <b>rtb-0baa6df47502399c5</b>	Main <input checked="" type="checkbox"/> Yes	Explicit subnet associations -	Edge associations -
VPC <a href="#">vpc-091fbeatc7494413a9</a>   <a href="#">my-vpc</a>	Owner ID <b>758845640679</b>		

[Routes](#) | [Subnet associations](#) | [Edge associations](#) | [Route propagation](#) | [Tags](#)

### Explicit subnet associations (0)

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
No subnet associations			

You do not have any subnet associations.

## Edit subnet associations

Change which subnets are associated with this route table.

### Available subnets (1/1)

<input checked="" type="checkbox"/>	Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
<input checked="" type="checkbox"/>	my-subnet	subnet-0c08213a255da1400	10.0.0.0/24	-	Main (rtb-0baa6df47502399c5)

### Selected subnets

[Routes](#) | [Subnet associations](#) | [Edge associations](#) | [Route propagation](#) | [Tags](#)

### Routes (1)

Destination	Target	Status	Propagated
10.0.0.0/16	local	<span>Active</span>	No

Lets create route to send traffic to internet .

We will use 0.0.0.0/0 to send traffic to internet , in this case we will send traffic to internet gateway which will redirect traffic to internet gateway .

VPC > Route tables > rtb-0baa6df47502399c5 > Edit routes

### Edit routes

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No
0.0.0.0/0	igw-01d9c1e0b7296e05c	-	No

[Add route](#)

[Cancel](#) [Preview](#) [Save changes](#)

---

#### Details

Route table ID: rtb-0baa6df47502399c5  
 VPC: vpc-091fbeac7494413a9 | my-vpc  
 Main: Yes  
 Owner ID: 758845640679  
 Explicit subnet associations: subnet-0c08213a255da1400 / my-subnet  
 Edge associations: -

---

#### Routes (2)

[Filter routes](#) [Both](#) [Edit routes](#)

Destination	Target	Status	Propagated
0.0.0.0/0	igw-01d9c1e0b7296e05c	Active	No
10.0.0.0/16	local	Active	No

Now lets test whether our request will route till internet or not .  
 Create ec2 in above vpc ,

#### Network settings

VPC - required: vpc-091fbeac7494413a9 (my-vpc) 10.0.0.0/16

Subnet: subnet-0c08213a255da1400 my-subnet  
 VPC: vpc-091fbeac7494413a9 Owner: 758845640679  
 Availability Zone: ap-south-1a IP addresses available: 251 CIDR: 10.0.0.0/24

Auto-assign public IP: Enable

Firewall (security groups):  
☐ Create security group ☒ Select existing security group

Common security groups: Select security groups [Compare security group rules](#)

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

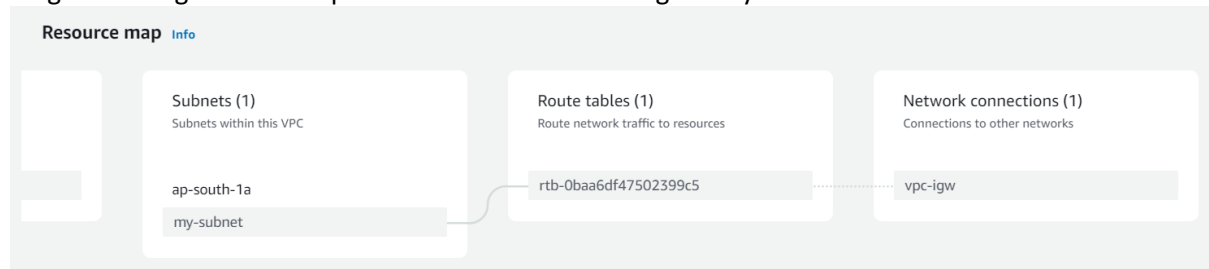
[Advanced network configuration](#)

Auto assign ip – enable – so that public ip will be assigned .

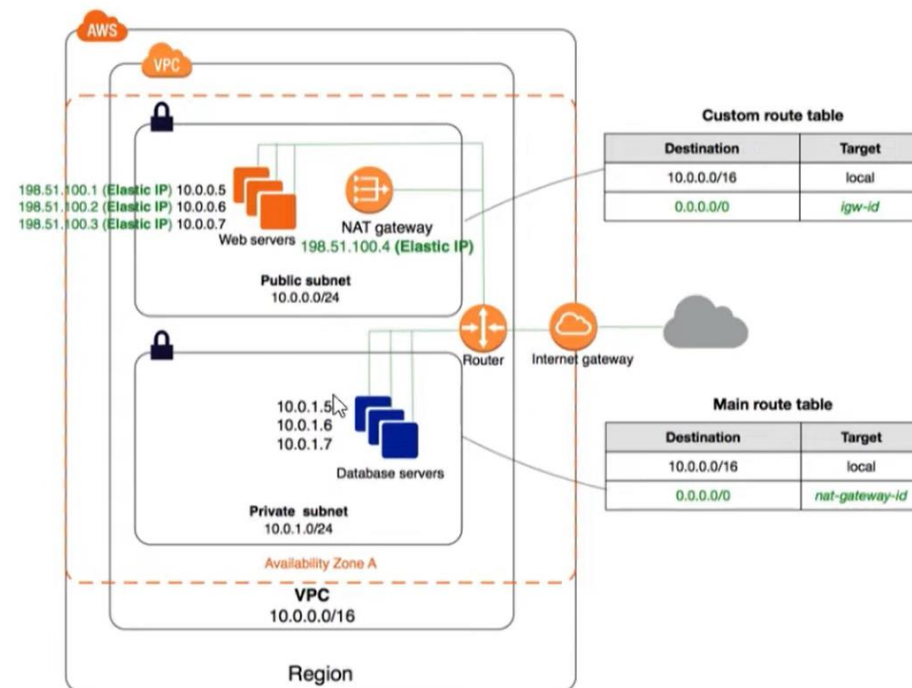
Connect to instance and check whether internet is working or not by ping on 8.8.8.8

```
[ec2-user@ip-10-0-0-128 ~]$ ls
[ec2-user@ip-10-0-0-128 ~]$ 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=51 time=1.47 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=51 time=1.41 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=51 time=1.32 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=51 time=1.35 ms
64 bytes from 8.8.8.8: icmp_seq=5 ttl=51 time=1.51 ms
64 bytes from 8.8.8.8: icmp_seq=6 ttl=51 time=1.38 ms
64 bytes from 8.8.8.8: icmp_seq=7 ttl=51 time=1.37 ms
```

Ping is working . So when vpc is connected to internet gateway it can reach internet .



How to access internet via NAT gateway ?



Create VPC , Create 2 subnets – public and private subnet .

Attach ig to your vpc ,

Internet gateways (1/1) Info					Refresh	Action
Filter internet gateways						
<input checked="" type="checkbox"/>	Name	Internet gateway ID	State	VPC ID		
<input checked="" type="checkbox"/>	-	igw-04cb6e7fdf1eddc96	Attached	vpc-091fbeac7494413a9   my-vpc		

lg tq jane ka rasta btana pdega public subnet ko .

2 rout table – 1 public , 1 private .

Name	Route table ID	Explicit subnet associat...	Edge associations	Main	VPC
public-route	rtb-0baa6df47502399c5	subnet-0c08213a255da...	-	Yes	vpc-091fbeac7494413a9   my-...
private-route	rtb-0f23a92e1248d3f1a	-	-	No	vpc-091fbeac7494413a9   my-...
-	rtb-06599804deec4be8	-	-	Yes	vpc-049af883b522d8cd9

Associatae public subnet to public route table and private subnet to private route table ,




## rtb-0baa6df47502399c5 / public-route

 You can now check network connectivity with Reachability Analyzer

[Run Reachability](#)

### Details [Info](#)


Route table ID  
 rtb-0baa6df47502399c5

Main  
 Yes

Explicit subnet associations  
[subnet-0c08213a255da1400 / public-subnet](#)

Edge associations  
–

VPC  
[vpc-091fbeac7494413a9 | my-vpc](#)

Owner ID  
 758845640679

[Routes](#) | [Subnet associations](#) | [Edge associations](#) | [Route propagation](#) | [Tags](#)


### Explicit subnet associations (1)

[Edit subnet](#)

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
public-subnet	<a href="#">subnet-0c08213a255da1400</a>	10.0.0.0/24	–

Add route for internet till internet gateway in public route table ,  
rtb-0baa6df47502399c5 / public-route


[Actions](#) ▼

 You can now check network connectivity with Reachability Analyzer

[Run Reachability Analyzer](#)

✕

### Details [Info](#)


Route table ID  
 rtb-0baa6df47502399c5

Main  
 Yes

Explicit subnet associations  
[subnet-0c08213a255da1400 / public-subnet](#)

Edge associations  
–

VPC  
[vpc-091fbeac7494413a9 | my-vpc](#)

Owner ID  
 758845640679

[Routes](#) | [Subnet associations](#) | [Edge associations](#) | [Route propagation](#) | [Tags](#)

### Routes (2)

[Edit routes](#)

Both ▼

< 1 > 

Destination	Target	Status	Propagated
0.0.0.0/0	<a href="#">igw-04cb6e7fdf1eddc96</a>	✔ Active	No
10.0.0.0/16	local	✔ Active	No

Let associate for private route and private subnet ,  
We will not route private subnet to ig ,

VPC > Route tables > rtb-0f23a92e1248d3f1a

## rtb-0f23a92e1248d3f1a / private-route

Details Info

Route table ID rtb-0f23a92e1248d3f1a	Main No	Explicit subnet associations subnet-0a6945cea8a121725 / private-subnet	Edge associations -
VPC vpc-091fbeac7494413a9   my-vpc	Owner ID 758845640679		

Routes Subnet associations Edge associations Route propagation Tags

Explicit subnet associations (1)

Find subnet association

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
private-subnet	subnet-0a6945cea8a121725	10.0.1.0/24	-

Edit subnet association

Lets create instance in public and private subnet . for private subnet diable auto assign public ip .  
Connect to public vm and connect to private vm using ssh .  
Chck whether private ec2 is able to connect to internet or not . : it will not be able to connect to internet .

Create NAT gateway :

Elastic ip necessary hoti nat gateway ko dene ,

VPC dashboard

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

NAT gateways Info

Filter NAT gateways

Name	NAT gateway ID	Connectivit...	State	State message	Primary public I...	Primary pr
No NAT gatev						

Select a 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

#### 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.

#### 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](#)

Create nat gateway in public subnet .

Add route for private subnet to redirect to nat gateway .

[VPC](#) > [Route tables](#) > [rtb-0f23a92e1248d3f1a](#) > [Edit routes](#)

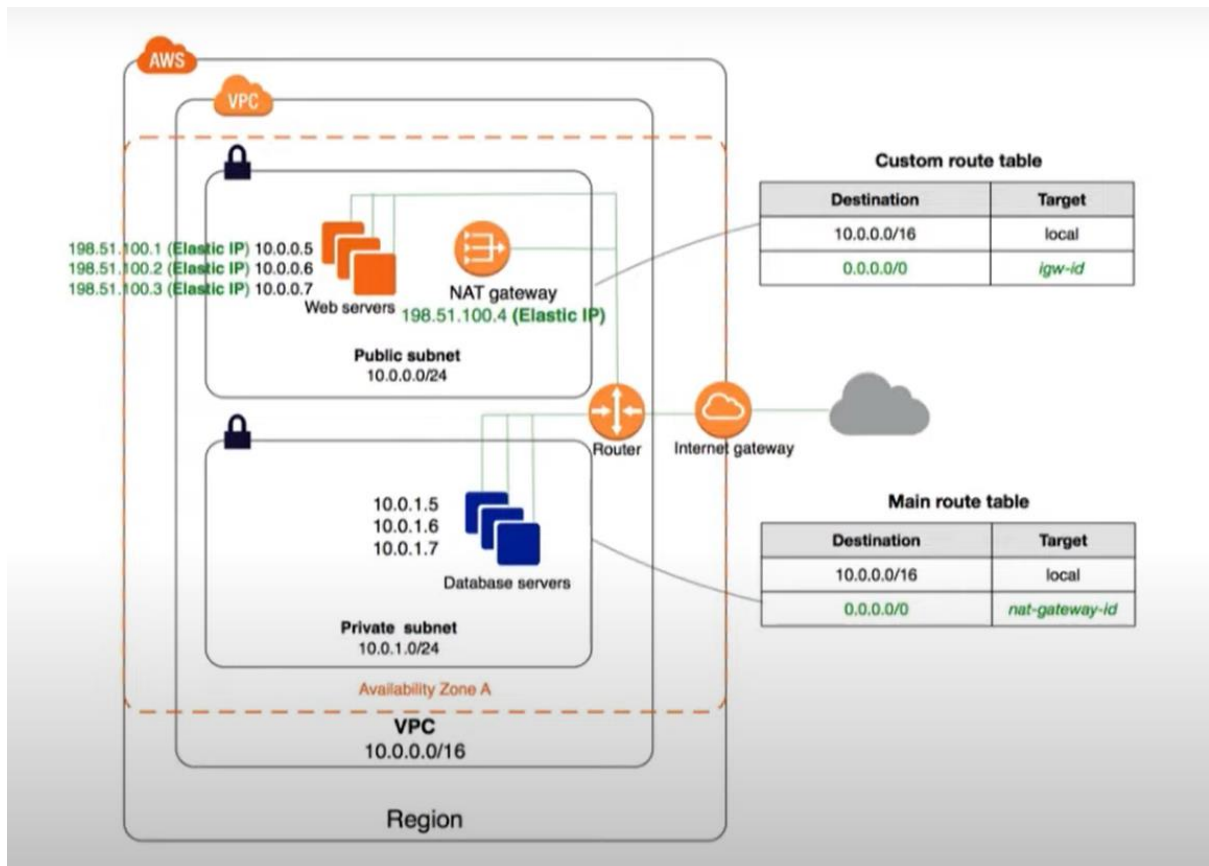
### Edit routes

Destination	Target	Status	Propagated
10.0.0.0/16	<input type="text" value="local"/>	Active	No
<input type="text" value="0.0.0.0/0"/>	<input type="text" value="nat-"/>	-	No

Now private ec2 will be able to connect to internet , ping will happen .

As route is created in route table associated with private subnet to nat gateway , nat gateway is in public subnet . Nat gateway will help private subnet to communicate over internet .





Public subnet ko internet p jana h to – internet gateway  
 Private subnet ko internet p jana h to – nat gateway .