

## VPC and subnet creation.

### 1.create VPC (87.70.0.0/16)

**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** [Info](#)  
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**  
87.70.0.0/16  
CIDR block size must be between /16 and /28.

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	<a href="#">Remove tag</a>
webserver	webserver	<a href="#">Remove tag</a>

[Add tag](#) [Use webserver](#)

You can add 48 more tags

[Cancel](#) [Preview code](#) [Create VPC](#)

**VPC dashboard** [EC2 Global View](#)

**Virtual private cloud**

**Your VPCs**

Subnets  
Route tables  
Internet gateways  
Egress-only internet gateways  
DHCP option sets  
Elastic IPs  
Managed prefix lists  
NAT gateways  
Peering connections

**Security**

Network ACLs

**vpc-0455c8a023bbc20b3 / demovpc** [Actions](#)

**Details** [Info](#)

<b>VPC ID</b> vpc-0455c8a023bbc20b3	<b>State</b> Available	<b>Block Public Access</b> Off	<b>DNS hostnames</b> Disabled
<b>DNS resolution</b> Enabled	<b>Tenancy</b> default	<b>DHCP option set</b> dopt-0509027cdabd70912	<b>Main route table</b> rtb-042a26f3e4fa4d3e3
<b>Main network ACL</b> acl-0226d61634271f39e	<b>Default VPC</b> No	<b>IPv4 CIDR</b> 87.70.0.0/16	<b>IPv6 pool</b> -
<b>IPv6 CIDR (Network border group)</b> -	<b>Network Address Usage metrics</b> Disabled	<b>Route 53 Resolver DNS Firewall rule groups</b> -	<b>Owner ID</b> 555786028785

[Resource map](#) [CIDRs](#) [Flow logs](#) [Tags](#) [Integrations](#)

**Resource map** [Info](#)

VPC [View details](#) Subnets (0) Route tables (1) Network connections

2. create subnet for this VPC , subnet A (87.70.0.0/18) and SubnetB (87.70.64.0/18)

**Your VPCs (1/2)**

Name	VPC ID	State	Block Public...	IPv4 CIDR	IPv6 CIDR
-	vpc-074321e9b52b24a31	Available	Off	172.31.0.0/16	-
demovpc	vpc-0455c8a023bbc20b3	Available	Off	87.70.0.0/16	-

**vpc-0455c8a023bbc20b3 / demovpc**

**Details**

- VPC ID: vpc-0455c8a023bbc20b3
- State: Available
- Block Public Access: Off
- DNS hostnames: Disabled
- DNS resolution: Enabled
- Tenancy: Default
- DHCP option set: Default
- Main route table: Main route table

2. create subnet for this VPC , subnet A (87.70.0.0/18) and SubnetB (87.70.64.0/18)

**Create subnet**

**VPC**

VPC ID  
Create subnets in this VPC.

vpc-0455c8a023bbc20b3 (demovpc)

**Associated VPC CIDRs**

IPv4 CIDRs  
87.70.0.0/16

**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.

subnetA

**Create subnet**

**Subnet name**  
The name can be up to 256 characters long.

subnetA

**Availability Zone**  
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**  
Choose the VPC's IPv4 CIDR block for the subnet. The subnet's IPv4 CIDR must lie within this block.

87.70.0.0/16

**IPv4 subnet CIDR block**

87.70.0.0/18

**Tags - optional**

Key	Value - optional
Name	subnetA
webserver	webserver

**Add new tag**  
You can add 48 more tags.

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VPC > Subnets > Create subnet

Subnet 2 of 2

**Subnet name**  
Create a tag with a key of 'Name' and a value that you specify.  
subnetB

**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.  
87.70.0.0/16

**IPv4 subnet CIDR block**  
87.70.64.0/18 16,384 IPs

Tags - optional

Key Value - optional

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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

NAT gateways

Peering connections

Security

Network ACLs

CloudShell Feedback

You have successfully created 2 subnets: subnet-004fe470e57bdda0, subnet-09e9151cb1eb34ff6

Subnets (2) Info

Find resources by attribute or tag

Subnet ID: subnet-004fe470e57bdda0 Subnet ID: subnet-09e9151cb1eb34ff6 Clear filters

<input type="checkbox"/>	Name	Subnet ID	State	VPC	Block Public...	IPv4 CIDR
<input type="checkbox"/>	subnetA	subnet-004fe470e57bdda0	Available	vpc-0455c8a023bbc20b3   dem...	Off	87.70.0.0/18
<input type="checkbox"/>	subnetB	subnet-09e9151cb1eb34ff6	Available	vpc-0455c8a023bbc20b3   dem...	Off	87.70.64.0/18

Select a subnet

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### 3.create EC2 instances, public and private

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Dashboard < EC2 Global View Events

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Reserved Instances

Dedicated Hosts

Capacity Reservations

Images

AMIs

AMI Catalog

Elastic Block Store

Volumes

Snapshots

CloudShell Feedback

Instances (2) Info

Find Instance by attribute or tag (case-sensitive)

Instance state = running Clear filters

<input type="checkbox"/>	Name	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
<input type="checkbox"/>	publicserver	i-0780cd3277abffc0	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1a	-
<input type="checkbox"/>	privateserver	i-026bc5e326d4e766e	Running	t2.micro	2/2 checks passed	View alarms +	ap-south-1b	-

Select an instance

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#### 4. create internet gateway

The screenshot shows the 'Create internet gateway' page in the AWS Management Console. The breadcrumb navigation is 'VPC > Internet gateways > Create internet gateway'. The page title is 'Create internet gateway' with an 'Info' link. A descriptive text states: '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.  
internetgateway

**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 internetgateway X Remove

Add new tag  
You can add 49 more tags.

Cancel Create internet gateway

The screenshot shows the 'Internet gateways' page in the AWS Management Console. The breadcrumb navigation is 'VPC > Internet gateways'. A green notification banner at the top states: 'The following internet gateway was created: igw-0da15489ad34fc877 - internetgateway. You can now attach to a VPC to enable the VPC to communicate with the internet.' with an 'Attach to a VPC' button.

**Internet gateways (2)** Info

Q Search

<input type="checkbox"/>	Name	Internet gateway ID	State	VPC ID	Owner
<input type="checkbox"/>	-	igw-01c2530a6b71388e4	Attached	vpc-074321e9b52b24a31	555786028785
<input type="checkbox"/>	internetgateway	igw-0da15489ad34fc877	Detached	-	555786028785

Select an internet gateway above

#### 5. attach VPC to Internet gateway

The screenshot shows the 'Attach to VPC' page in the AWS Management Console. The breadcrumb navigation is 'VPC > Internet gateways > Attach to VPC (igw-0da15489ad34fc877)'. A green notification banner at the top states: 'The following internet gateway was created: igw-0da15489ad34fc877 - internetgateway. You can now attach to a VPC to enable the VPC to communicate with the internet.' with an 'Attach to a VPC' button.

**Attach to VPC (igw-0da15489ad34fc877)** 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-0ceab5f4fb23aed7f X

AWS Command Line Interface command

Cancel Attach internet gateway

## 6. create NAT Gateway

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VPC > NAT gateways > Create NAT gateway

Elastic IP address 3.111.21.4 (eipalloc-01ba753a8e5379da0) allocated.

**Subnet**  
Select a subnet in which to create the NAT gateway.  
subnet-Od5e21e8ef6d908bf (subnetA)

**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.  
eipalloc-01ba753a8e5379da0 [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**  [Remove](#)

[Add new tag](#)

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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  
NAT gateways  
Peering connections

Security  
Network ACLs

NAT gateway nat-07eb830b032d5bf40 | natgateway 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 private I...
natgateway	<a href="#">nat-07eb830b032d5bf40</a>	Public	Pending	-	-	87.70.44.175

Select a NAT gateway

## 7. create route table for subnetA

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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.  
routetableforsubnetA

**VPC**  
The VPC to use for this route table.  
vpc-0ceab5f4fb23aed7f (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**  [Remove](#)

[Add new tag](#)  
You can add 49 more tags.

[Cancel](#) [Create route table](#)

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EC2

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

NAT gateways

Peering connections

Security

Network ACLs

Route table rtb-08072ff09f5c18ca4 | routetableforsubnetA was created successfully.

Route tables (3) info

Find resources by attribute or tag

<input type="checkbox"/>	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
<input type="checkbox"/>	-	rtb-037084e55dfa75415	-	-	Yes	vpc-074321e9b52b24a31
<input type="checkbox"/>	-	rtb-Ded5a15f858a61254	-	-	Yes	vpc-0ceab5f4fb23aed7f   demo...
<input type="checkbox"/>	routetableforsubnetA	rtb-08072ff09f5c18ca4	-	-	No	vpc-0ceab5f4fb23aed7f   demo...

Select a route table

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Search

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EC2

VPC > Route tables > rtb-08072ff09f5c18ca4

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

NAT gateways

Peering connections

Security

Network ACLs

You have successfully updated subnet associations for rtb-08072ff09f5c18ca4 / routetableforsubnetA.

rtb-08072ff09f5c18ca4 / routetableforsubnetA

Details info

Route table ID  
rtb-08072ff09f5c18ca4

Main  
No

Explicit subnet associations  
subnet-0d5e21e8ef6d908bf / subnetA

Edge associations  
-

VPC  
vpc-0ceab5f4fb23aed7f | demovpc

Owner ID  
555786028785

Routes

Subnet associations

Edge associations

Route propagation

Tags

Routes (1)

Filter routes

Destination	Target	Status	Propagated
87.70.0.0/16	local	Active	No

CloudShell

Feedback

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## 8. add subnet association and edit routes add Internet Gateway

Updated routes for rtb-08072ff09f5c18ca4 / routetableforsubnetA successfully

rtb-08072ff09f5c18ca4 / routetableforsubnetA

**Details**

Route table ID: rtb-08072ff09f5c18ca4

VPC: vpc-0ceab5f4fb23aed7f | demovpc

Main: No

Owner ID: 555786028785

Explicit subnet associations: subnet-0d5e21e8ef6d908bf / subnetA

Edge associations: -

**Subnet associations**

Explicit subnet associations (1)

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
subnetA	subnet-0d5e21e8ef6d908bf	87.70.0.0/18	-

Edit routes

Destination	Target	Status	Propagated
87.70.0.0/16	local	Active	No
0.0.0.0/0	Internet Gateway	-	No

Remove

igw-0da15489ad34fc877 (internetgateway)

Cancel Preview Save changes

CloudShell Feedback

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Amazon Linux 2023

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

## 9. check if the ec2 server in public subnet is accessible.

Amazon Linux 2023

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

```
(ec2-user@ip-87-70-10-92 ~)$ ls
(ec2-user@ip-87-70-10-92 ~)$
```

i-0780cd3277abffcf0 (publicserver)

PublicIPs: 65.2.129.51 PrivateIPs: 87.70.10.92

## 10. create the route table for the private subnetB

The screenshot shows the 'Create route table' page in the AWS Management Console. The page has a dark header with the AWS logo, search bar, and user information. The breadcrumb trail is 'VPC > Route tables > Create route table'. The main content area is titled 'Create route table' with an 'info' icon. Below the title is a description: 'A route table specifies how packets are forwarded between the subnets within your VPC, the internet, and your VPN connection.' The form is divided into two sections: 'Route table settings' and 'Tags'. In the 'Route table settings' section, the 'Name - optional' field contains 'routetableforsubnetB'. The 'VPC' dropdown menu is set to 'vpc-0ceab5f4fb23aed7f (demo)'. In the 'Tags' section, there is a table with two columns: 'Key' and 'Value - optional'. The 'Key' is 'Name' and the 'Value' is 'routetableforsubnetB'. There are buttons for 'Add new tag' and 'Remove'. At the bottom right, there are 'Cancel' and 'Create route table' buttons.

**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.

routetableforsubnetB

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

vpc-0ceab5f4fb23aed7f (demo)

**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**

Q Name X Q routetableforsubnetB X Remove

Add new tag

You can add 49 more tags.

Cancel Create route table

The screenshot shows the 'Route tables' page in the AWS Management Console. The breadcrumb trail is 'VPC > Route tables'. The page has a dark header with the AWS logo, search bar, and user information. The main content area is titled 'Route tables (1/4)' with an 'info' icon. Below the title is a description: 'Find resources by attribute or tag'. There is a table with columns: Name, Route table ID, Explicit subnet associ..., Edge associations, Main, and VPC. The table contains four rows. The first row is 'routetableforsubnetA' with ID 'rtb-08072ff09f5c18ca4' and is associated with 'subnet-0d5e21e8ef6d90...'. The second row is 'routetableforsubnetB' with ID 'rtb-0f478c458d2fd6c3f' and is not associated with any subnet. The third row is 'routetableforsubnetC' with ID 'rtb-037084e55dfa75415' and is associated with 'vpc-074321e9b52b24a31'. The fourth row is 'routetableforsubnetD' with ID 'rtb-0ed5a15f858a61254' and is associated with 'vpc-0ceab5f4fb23aed7f (demo)'. Below the table, there is a section for 'rtb-08072ff09f5c18ca4 / routetableforsubnetA' with tabs for 'Details', 'Routes', 'Subnet associations', 'Edge associations', 'Route propagation', and 'Tags'. The 'Details' tab is selected, showing the 'Route table ID' as 'rtb-08072ff09f5c18ca4', 'Main' as 'Yes', 'Explicit subnet associations' as 'subnet-0d5e21e8ef6d90...', and 'Edge associations' as 'None'.

Route table rtb-0f478c458d2fd6c3f | routetableforsubnetB was created successfully.

Last updated less than a minute ago

Actions Create route table

Find resources by attribute or tag

Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
-	rtb-037084e55dfa75415	-	-	Yes	vpc-074321e9b52b24a31
-	rtb-0ed5a15f858a61254	-	-	Yes	vpc-0ceab5f4fb23aed7f   demo...
routetableforsubnetA	rtb-08072ff09f5c18ca4	subnet-0d5e21e8ef6d90...	-	No	vpc-0ceab5f4fb23aed7f   demo...
routetableforsubnetB	rtb-0f478c458d2fd6c3f	-	-	No	vpc-0ceab5f4fb23aed7f   demo...

rtb-08072ff09f5c18ca4 / routetableforsubnetA

Details Routes Subnet associations Edge associations Route propagation Tags

**Details**

Route table ID	Main	Explicit subnet associations	Edge associations
rtb-08072ff09f5c18ca4	Yes	subnet-0d5e21e8ef6d90... / subnet...	None



## 11. associate subnet B to route table

The screenshot shows the AWS VPC console interface. At the top, a green notification bar states: "You have successfully updated subnet associations for rtb-0f478c458d2fd6c3f / routetableforsubnetB." The main heading is "rtb-0f478c458d2fd6c3f / routetableforsubnetB".

**Details:**

- Route table ID: [rtb-0f478c458d2fd6c3f](#)
- Main: ☐ No
- Explicit subnet associations: [subnet-07ac05f198c989c16 / subnetB](#)
- Edge associations: -
- VPC: [vpc-0ceab5f4fb23aed7f | demovpc](#)
- Owner ID: [555786028785](#)

**Subnet associations (1):**

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
subnetB	<a href="#">subnet-07ac05f198c989c16</a>	87.70.64.0/18	-

**Subnets without explicit associations (0):**

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

## 12. edit routes and NAT Gateway

The screenshot shows the AWS VPC console interface, specifically the "Routes" tab for route table "rtb-0f478c458d2fd6c3f / routetableforsubnetB".

**Details:**

- Route table ID: [rtb-0f478c458d2fd6c3f](#)
- Main: ☐ No
- Explicit subnet associations: [subnet-07ac05f198c989c16 / subnetB](#)
- Edge associations: -
- VPC: [vpc-0ceab5f4fb23aed7f | demovpc](#)
- Owner ID: [555786028785](#)

**Routes (2):**

Destination	Target	Status	Propagated
0.0.0.0/0	<a href="#">nat-07eb830b032d5bf40</a>	Active	No
87.70.0.0/16	local	Active	No

13 . connect the public EC2 instance and check it is getting the internet

```
[ec2-user@ip-87-70-10-92 ~]$ 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=57 time=1.83 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=57 time=1.89 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=57 time=2.03 ms
^C
--- 8.8.8.8 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 1.829/1.914/2.030/0.084 ms
[ec2-user@ip-87-70-10-92 ~]$
```

#### 14 . Take SSH of private server from public server

```

[ec2-user@ip-87-70-10-92 ~]$ 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=57 time=1.90 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=57 time=2.02 ms
^C
--- 8.8.8.8 ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1001ms
rtt min/avg/max/mdev = 1.903/1.960/2.018/0.057 ms
[ec2-user@ip-87-70-10-92 ~]$ ls
server.pem
[ec2-user@ip-87-70-10-92 ~]$ chmod 600 server.pem
[ec2-user@ip-87-70-10-92 ~]$ ssh -i "server.pem" ec2-user@87.70.91.114
,
#_
~\_ ##### Amazon Linux 2023
~~ \_#####\
~~ \###|
~~ \#/ _-- https://aws.amazon.com/linux/amazon-linux-2023
~~ V~' '->
~~~
~~~_.._/_/
~~_/_/_/
~~_/_/_/
[ec2-user@ip-87-70-91-114 ~]$

```

15 . check that private EC2 instance getting the internet access

[illegible]