

VPC

07 January 2025 10:25

Host id

Network id

NACL

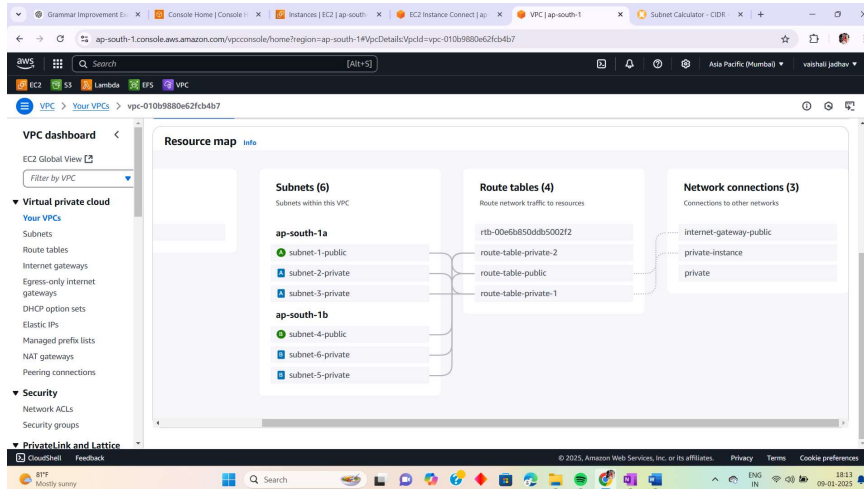
IGW (internet gateway)

Private subnet

NAT gateway

Difference between NACL and security group

Create this Architecture



Step 1:

- Go to VPC Dashboard
- Select your VPC and click 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 Info
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

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

Tags Info
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.

No tags associated with the resource

You can add 50 more tags

- fill out all the details
- Give the IPV 4 CIDR block (CIDR- Classless Inter-Domain Routing)
- Click the create VPC

Your VPCs (1/2) Info

Last updated 34 minutes ago

Name	VPC ID	State	Block Public...	IPv4 CIDR	IPv6 CIDR
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Your VPCs (1/2) [Info](#)

Last updated 34 minutes ago [Actions](#) [Create VPC](#)

Search

	Name	VPC ID	State	Block Public...	IPv4 CIDR	IPv6 CIDR
<input type="checkbox"/>	-	vpc-0dbedb7f0da5df8f8	Available	Off	172.31.0.0/16	-
<input checked="" type="checkbox"/>	My-VPC	vpc-010b9880e62fcb4b7	Available	Off	10.0.0.0/16	-

- **Step 2:**
- Go to Subnets and click Create subnet.
- Make the **2 Public subnet** and **4 private subnet** in **2 different availability zone**.

- Provide the VPC ID in Step 1 created
- Give the subnet tag and name
- Choose an **availability zone** (e.g., ap-south-1a).

Availability Zone [Info](#)

Choose the zone in which your subnet will reside, or let Amazon choose one for you.

No preference

Search

No preference ☒

Asia Pacific (Mumbai) / ap-south-1a
ID: ap-s1-az1 Network border group: ap-south-1 ap-south-1

Asia Pacific (Mumbai) / ap-south-1b
ID: ap-s1-az3 Network border group: ap-south-1 ap-south-1

Asia Pacific (Mumbai) / ap-south-1c
ID: ap-s1-az2 Network border group: ap-south-1 ap-south-1

Tags - optional

- Give the CIDR block
- And click the create subnet

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

Subnets (11) [Info](#)

Last updated 30 minutes ago [Actions](#) [Create subnet](#)

Find resources by attribute or tag

	Name	Subnet ID	State	VPC	Block Public...	IPv4 CIDR
<input type="checkbox"/>	subnet-4-public	subnet-0913eba1528772dd3	Available	vpc-010b9880e62fcb4b7 My-...	Off	10.0.12.0/
<input type="checkbox"/>	-	subnet-06e2a50f4cdf4def0	Available	vpc-0dbedb7f0da5df8f8	Off	172.31.16
<input type="checkbox"/>	subnet-2-private	subnet-0a2d27e2a60cc9def	Available	vpc-010b9880e62fcb4b7 My-...	Off	10.0.4.0/2
<input type="checkbox"/>	subnet-1-public	subnet-0948f6065bc06f30c	Available	vpc-010b9880e62fcb4b7 My-...	Off	10.0.0.0/2
<input type="checkbox"/>	-	subnet-0b7461d1307a51f95	Available	vpc-0dbedb7f0da5df8f8	Off	172.31.0.0
<input type="checkbox"/>	subnet-3-private	subnet-0778313079377872c	Available	vpc-010b9880e62fcb4b7 My-...	Off	10.0.8.0/2
<input type="checkbox"/>	subnet-6-private	subnet-057375da7f3b9f18c	Available	vpc-010b9880e62fcb4b7 My-...	Off	10.0.20.0/
<input type="checkbox"/>	-	subnet-0dc07331126b21945	Available	vpc-0dbedb7f0da5df8f8	Off	172.31.32
<input type="checkbox"/>	subnet-5-private	subnet-0a512e4232dab6ed8	Available	vpc-010b9880e62fcb4b7 My-...	Off	10.0.16.0/

Step 3:

- Create an 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.

my-internet-gateway

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.
No tags associated with the resource.

[Add new tag](#)

You can add 50 more tags.

[Cancel](#) [Create internet gateway](#)

- Go to **Internet Gateways** and click **Create internet gateway**.

VPC dashboard [EC2 Global View](#)

Filter by VPC

Internet gateways (2) [Info](#)

Search

	Name	Internet gateway ID	State	VPC ID	Owner
<input type="checkbox"/>	-	ingw-02a3af6a6b0b0c771	Attached	vpc-0dbedb7f0da5df8f8	7776AE501629

VPC dashboard < Internet gateways (2) info

EC2 Global View [Filter by VPC](#)

Virtual private cloud

- Your VPCs
- Subnets
- Route tables
- Internet gateways**

Search

<input type="checkbox"/>	Name	Internet gateway ID	State	VPC ID	Owner
<input type="checkbox"/>	-	igw-024acfe5bedb05271	Attached	vpc-0dbed7f0da5df8f8	727646501629
<input type="checkbox"/>	internet-gateway-public	igw-0c036b338d829306d	Attached	vpc-010b9880e62fcb4b7 My-VPC	727646501629

Actions Create internet gateway

- Select the newly created Internet Gateway.
- Click **Actions** > **Attach to VPC**.

Step 4:

- Go to the **Route Table**
- and make the 3 Route Table 2 for Private Subnet and 1 for the Public Subnet

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:

(default)

☒ AWS costs.

No tags associated with the resource.

[Add new tag](#)
You can add 50 more tags.

Cancel [Create route table](#)

- Select the VPC they are created
- And click the create route table

VPC dashboard < Route tables (1/5) info

EC2 Global View [Filter by VPC](#)

Virtual private cloud

- Your VPCs
- Subnets
- Route tables**
- Internet gateways
- Egress-only internet gateways

Find resources by attribute or tag

<input type="checkbox"/>	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
<input type="checkbox"/>	-	rtb-00e6b850ddb5002f2	-	-	Yes	vpc-010b9880e62fcb4b7 V
<input checked="" type="checkbox"/>	route-table-private-2	rtb-043747cbf785e5bce	3 subnets	-	No	vpc-010b9880e62fcb4b7 V
<input type="checkbox"/>	-	rtb-0f021707079fddc53	-	-	Yes	vpc-0dbed7f0da5df8f8
<input type="checkbox"/>	route-table-public	rtb-04772cebd9fa0e7dd	3 subnets	-	No	vpc-010b9880e62fcb4b7 V
<input type="checkbox"/>	route-table-private-1	rtb-0fa6c1610337081c0	2 subnets	-	No	vpc-010b9880e62fcb4b7 V

Last updated 43 minutes ago Actions Create route table

- Click the route table ID
- After click Scroll the cursor to downward
- The more option are available

VPC dashboard < Route tables > rtb-04772cebd9fa0e7dd

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

rtb-04772cebd9fa0e7dd / route-table-public Actions

Details info

Route table ID [rtb-04772cebd9fa0e7dd](#)

VPC [vpc-010b9880e62fcb4b7 | My-VPC](#)

Main ☐ No

Owner ID [727646501629](#)

Explicit subnet associations [3 subnets](#)

Edge associations -

Routes Subnet associations Edge associations Route propagation Tags

Routes (2) Both Edit routes

Filter routes

Destination	Target	Status	Propagated
0.0.0.0/0	igw-0c036b338d829306d	Active	No
10.0.0.0/16	local	Active	No

- Click the Subnet Associations

Routes **Subnet associations** Edge associations Route propagation Tags

Explicit subnet associations (3) Edit subnet associations

Find subnet association

Name	Subnet ID	IPv4 CIDR	IPv6 CIDR
------	-----------	-----------	-----------

- Click **Subnet associations** > **Edit subnet associations**.

Edit subnet associations

Change which subnets are associated with this route table.

<input type="checkbox"/>	Name	Subnet ID	IPv4 CIDR	IPv6 CIDR	Route table ID
<input checked="" type="checkbox"/>	subnet-4-public	subnet-0913eba1528772dd3	10.0.12.0/22	-	rtb-04772cebd9fa0e7dd / route-table-...
<input type="checkbox"/>	subnet-2-private	subnet-0a2d27e2a60cc9def	10.0.4.0/22	-	rtb-0fa6c1610337081c0 / route-table-...
<input checked="" type="checkbox"/>	subnet-1-public	subnet-0948f6065bc06f30c	10.0.0.0/22	-	rtb-04772cebd9fa0e7dd / route-table-...
<input type="checkbox"/>	subnet-8-private	subnet-04912203d2bd77e86	10.0.48.0/20	-	rtb-043747cbf785e5bce / route-table-...
<input type="checkbox"/>	subnet-3-private	subnet-0778315079377872c	10.0.8.0/22	-	rtb-0fa6c1610337081c0 / route-table-...
<input checked="" type="checkbox"/>	subnet-7-public	subnet-006917f78ac20921b	10.0.32.0/20	-	rtb-04772cebd9fa0e7dd / route-table-...
<input type="checkbox"/>	subnet-6-private	subnet-057375da7f3b9f18c	10.0.20.0/22	-	rtb-043747cbf785e5bce / route-table-...
<input type="checkbox"/>	subnet-5-private	subnet-0a512e4232dab6ed8	10.0.16.0/22	-	rtb-043747cbf785e5bce / route-table-...

- Select your Public Subnet and click **Save associations**.
- And click the save associations

<input type="checkbox"/>	Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC
<input type="checkbox"/>	-	rtb-00e6b850ddb5002f2	-	-	Yes	vpc-010b9880e62fcb4b7 My-
<input type="checkbox"/>	route-table-private-2	rtb-043747cbf785e5bce	3 subnets	-	No	vpc-010b9880e62fcb4b7 My-
<input type="checkbox"/>	-	rtb-0f021707079fddc53	-	-	Yes	vpc-0dbeddb7f0da5df8f8
<input checked="" type="checkbox"/>	route-table-public	rtb-04772cebd9fa0e7dd	3 subnets	-	No	vpc-010b9880e62fcb4b7 My-
<input type="checkbox"/>	route-table-private-1	rtb-0fa6c1610337081c0	2 subnets	-	No	vpc-010b9880e62fcb4b7 My-

- Click the route of public route table

Details		Main	Explicit subnet associations	Edge associations
Route table ID	rtb-04772cebd9fa0e7dd	No	3 subnets	-
VPC	vpc-010b9880e62fcb4b7 My-VPC	Owner ID	727646501629	

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No

- Routes > Edit routes

Edit routes

Destination 10.0.0.0/16	Target local	Status Active	Propagated No
	local		
Add route			
Cancel Preview Save changes			

- Click Add route

Destination 10.0.0.0/16	Target local	Status Active	Propagated No
	local		
0.0.0.0/0	Internet Gateway	-	No
	igw-		
Add route			
Use: "igw-" igw-0c036b338d829306d (internet-gateway-public)			

VPC > Route tables > rtb-04772cebd9fa0e7dd > Edit routes

Edit routes

Destination	Target	Status	Propagated
10.0.0.0/16	local	Active	No
0.0.0.0/0	Internet Gateway	-	No

Use: "igw-"
igw-0c036b338d829306d (internet-gateway-public)

Buttons: Add route, Cancel, Preview, Save changes, Remove

- Click the save change
- **Private Route Table (Optional):**
 - Repeat the above steps but do not add a route for 0.0.0.0/0.
 - Associate it with the private subnet.

Step 5:

- Launch EC2 Instances
- And create the 2 type of instance private and public
- To launch the instance in the network setting select the Subnet to launch public instance select the public Subnet and private instance to select the private subnet

Launch an instance [Info](#)

Amazon EC2 allows you to create virtual machines, or instances, that run on the AWS Cloud. Quickly get started by following the simple steps below.

Name and tags [Info](#)

Name: ubuntu-public [Add additional tags](#)

▼ Application and OS Images (Amazon Machine Image) [Info](#)

An AMI is a template that contains the software configuration (operating system, application server, and applications) required to launch your instance. Search or Browse for AMIs if you don't see what you are looking for below

Search: Search our full catalog including 1000s of application and OS images

Recents Quick Start

Amazon Linux

macOS

Ubuntu

Windows

Red Hat

SUSE Linux

Debian

Amazon Machine Image (AMI)

▼ Instance type [Info](#) | [Get advice](#)

Instance type: t2.micro Free tier eligible

Family: t2 1 vCPU 1 GiB Memory Current generation: true On-Demand Linux base pricing: 0.0124 USD per Hour On-Demand Windows base pricing: 0.017 USD per Hour On-Demand RHEL base pricing: 0.0268 USD per Hour On-Demand Ubuntu Pro base pricing: 0.0142 USD per Hour On-Demand SUSE base pricing: 0.0124 USD per Hour

[Additional costs apply for AMIs with pre-installed software](#)

☒ All generations [Compare instance types](#)

▼ Key pair (login) [Info](#)

You can use a key pair to securely connect to your instance. Ensure that you have access to the selected key pair before you launch the instance.

Key pair name - required: ubuntukey [Create new key pair](#)

▼ Network settings [Info](#)

VPC - required [Info](#): vpc-010b9880e62fcb4b7 (My-VPC) [10.0.0.0/16](#)

Subnet [Info](#): subnet-0913eba1528772dd3 [subnet-4-public](#)

vpc-010b9880e62fcb4b7 (My-VPC)

10.0.0.0/16

Subnet

Info

subnet-0913eba1528772dd3

subnet-4-public

VPC: vpc-010b9880e62fcb4b7

Owner: 727646501629

Availability Zone: ap-south-1b

Zone type: Availability Zone

IP addresses available: 1018

CIDR: 10.0.12.0/22

Create new subnet

Auto-assign public IP

Info

Enable

Additional charges apply when outside of free tier allowance

Firewall (security groups)

Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group

Select existing security group

Security group name - required

launch-wizard-59

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and _-./!@,.[*+=&(){}\$*

Description - required

Info

launch-wizard-59 created 2025-01-09T19:33:59.803Z

Inbound Security Group Rules

▼ Security group rule 1 (TCP, 22, 0.0.0.0/0)

Remove

Type

Info

ssh

Protocol

Info

TCP

Port range

Info

22

Source type

Info

Anywhere

Source

Info

Q Add CIDR, prefix list or security group

0.0.0.0/0 X

Description - optional

Info

e.g. SSH for admin desktop

▼ Security group rule 2 (TCP, 80, 0.0.0.0/0)

Remove

Type

Info

HTTP

Protocol

Info

TCP

Port range

Info

80

Source type

Info

Anywhere

Source

Info

Q Add CIDR, prefix list or security group

0.0.0.0/0 X

Description - optional

Info

e.g. SSH for admin desktop

Rules with source of 0.0.0.0/0 allow all IP addresses to access your instance. We recommend setting security group rules to allow access from known IP addresses only.

X

Add security group rule

► Advanced network configuration

▼ Configure storage

Info

Advanced

1x 8 GiB gp3

Root volume 3000 IOPS (Not encrypted)

Free tier eligible customers can get up to 30 GB of EBS General Purpose (SSD) or Magnetic storage

X

Add new volume

The selected AMI contains more instance store volumes than the instance allows. Only the first 0 instance store volumes from the AMI will be accessible from the instance

Click refresh to view backup information

Refresh

The tags that you assign determine whether the instance will be backed up by any Data Lifecycle Manager policies.

0 x File systems

Edit

► Advanced details

Info

- Click the Launch Instances
- After click the view all instances
-

Dashboard

EC2 Global View

Events

Instances

Instances

Instance Types

Launch Templates

Spot Requests

Savings Plans

Instances (3)

Info

Last updated 19 minutes ago

Connect

Instance state

Actions

Launch instances

Find Instance by attribute or tag (case-sensitive)

All states

< 1 >

Name

Instance ID

Instance state

Instance type

Status check

Alarm status

ubuntu-private

i-09b88ca2f48182a9d

Running

t2.micro

2/2 checks passed

View alarms

ubuntu

i-003047e7e2e023f2e

Running

t2.micro

2/2 checks passed

View alarms

ubuntu-public

i-0e0a7558e834b32bc

Running

t2.micro

2/2 checks passed

View alarms

Instance Types	ubuntu	t-00000000000000000000	Running	4/4 checks passed	view alarms +
Launch Templates	ubuntu-public	i-0e0a7558e834b32bc	Running	2/2 checks passed	View alarms +
Spot Requests					
Savings Plans					

- Select the public instance and connect the public instance
- To the console
- And connect the private instance to instance are not connect to the console because they are not connect with the internet gateway
- To solve the problem connect to public instance
- The key pair of private instance provide are locate in download folder they are open in the notepad
- And after same name of key pair create a empty file with the same name
 - Command
 - touch linuxfile
- After create the file
 - Command
 - vim linuxfile
 - i -----(go to insert mode)
- In this insert mode paste the key they are open in the notepad
- After click ESC to exit the insert mode
 - SHIFT + :wq! [Enter]
 - The file are to be save
- After run the ssh command
 - Command
 - ssh -i "file_name" ubuntu@privateIPv4_address
- Run the command
- They are connect with the private instance
- But they are not connect with the internet

Step 6:

Provide the public IP to subnet NAT

In route table

Go to route

And click the edit route of private instance

Provide the NAT gateway