

AWS Region:

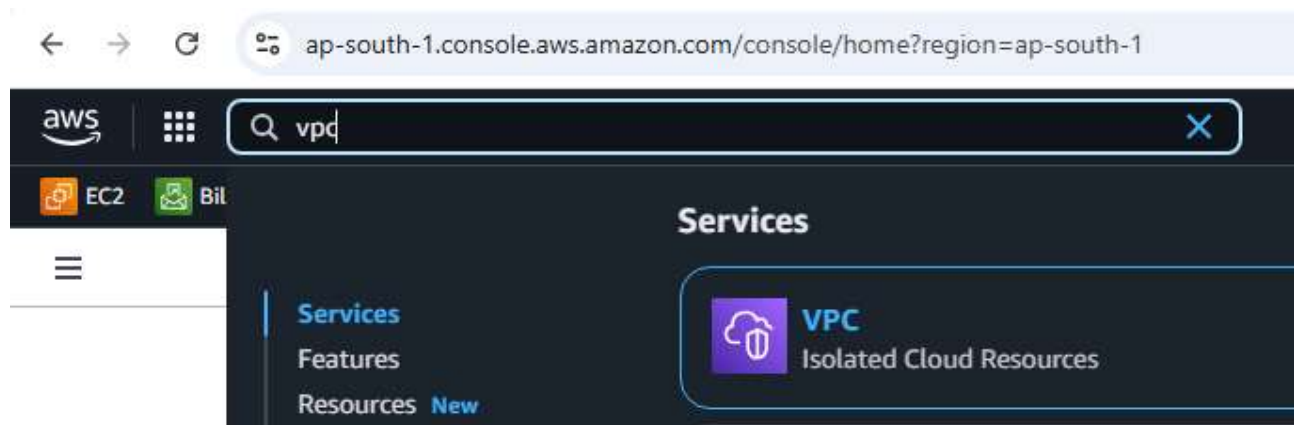
- An AWS Region is a group of data centers in a specific geographic area. When choosing a Region, it's best to select one that's geographically close to your users to reduce latency.
- Regions are isolated from each other, so if a service failure occurs in one Region, it won't affect other Regions. Ex: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





Services

Search

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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

See all regions

Asia Pacific 1

Your VPCs (1) Info

Search

	Name	VPC ID	State	Block Public...	IPv4 CIDR	IPv6 CIDR
<input type="checkbox"/>	-	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

Manage tags

Delete VPC

	Name	VPC ID	State	Block Public...	IPv4 CIDR	IPv6 CIDR	DHCP
<input checked="" type="checkbox"/>	-	vpc-0ae7fd134c8d2696c	Available	Off	172.31.0.0/16	-	dopt-0...

Delete VPC



✔ Will be deleted

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

Name

–

VPC ID



vpc-0ae7fd134c8d2696c

State

✔ Available

✔ Will also be deleted

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

< 1 2 >

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

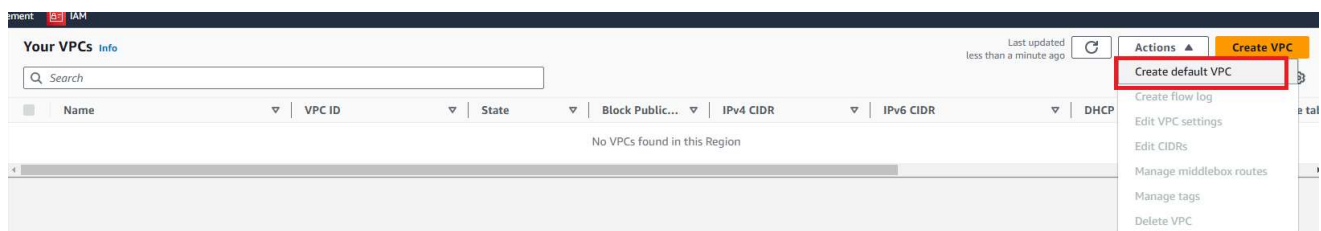
⚠ Warning: If you delete this default VPC, you can't launch instances in this Region unless you specify a subnet in another VPC or create a new default VPC.

☒ I acknowledge that I want to delete my default VPC.

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

Cancel

Delete



The screenshot shows the AWS IAM console interface. At the top, there's a search bar and a 'Your VPCs' section. Below this, a table lists VPCs with columns for Name, VPC ID, State, Block Public..., IPv4 CIDR, IPv6 CIDR, and DHCP. The table is currently empty, showing 'No VPCs found in this Region'. On the right side, there's an 'Actions' dropdown menu with options like 'Create default VPC', 'Create flow log', 'Edit VPC settings', 'Edit CIDRs', 'Manage middlebox routes', 'Manage tags', and 'Delete VPC'. The 'Create default VPC' option is highlighted with a red box.

Your VPCs [Info](#)

Last updated
less than a minute ago



Actions

Create VPC

Search

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

Name

Value - optional

vpc-south-1

Remove tag

Add tag

You can add 49 more tags.

Cancel

Preview code

Create VPC

VPC > Your VPCs > vpc-0b959acc9ad5eaf1c

vpc-0b959acc9ad5eaf1c / vpc-south-1

Details Info

VPC ID vpc-0b959acc9ad5eaf1c	State Available	Block Public Access Off	DNS hostnames Disabled
DNS resolution Enabled	Tenancy Default	DHCP option set dopt-06e35263deeddefd4	Main route table rtb-0b0a8374d7c5f559f
Main network ACL acl-09f28ae38bace97fe	Default VPC No	IPv4 CIDR 192.168.0.0/24	IPv6 pool -
IPv6 CIDR (Network border group) -	Network Address Usage metrics Disabled	Route 53 Resolver DNS Firewall rule groups -	Owner ID 834362069350

Resource map | CIDRs | Flow logs | Tags | Integrations

Resource map Info

VPC Show details

Your AWS virtual network

vpc-south-1

Subnets (0)

Subnets within this VPC

Route tables (1)

Route network traffic to resources

rtb-0b0a8374d7c5f559f

Network connections (0)

Connections to other networks

VPC > Your VPCs > vpc-0b959acc9ad5eaf1c

vpc-0b959acc9ad5eaf1c / vpc-south-1

Actions ▾

Details Info

VPC ID vpc-0b959acc9ad5eaf1c	State Available	Block Public Access Off	DNS hostnames Disabled
DNS resolution Enabled	Tenancy Default	DHCP option set dopt-06e35263deeddefd4	Main route table rtb-0b0a8374d7c5f559f
Main network ACL acl-09f28ae38bace97fe	Default VPC No	IPv4 CIDR 192.168.0.0/24	IPv6 pool -
IPv6 CIDR (Network border group) -	Network Address Usage metrics Disabled	Route 53 Resolver DNS Firewall rule groups -	Owner ID 834362069350

Resource map | CIDRs | Flow logs | Tags | Integrations

IPv4 CIDRs Info

Address family	CIDR	Status
IPv4	192.168.0.0/24	Associated

Edit CIDRs

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.

VPC > Your VPCs > [vpc-0b959acc9ad5eaf1c / vpc-south-1](#) > Edit CIDRs

Edit CIDRs [Info](#)

Add or remove CIDR blocks for your VPC.

IPv4 CIDRs [Info](#)

CIDR	Status	
192.168.0.0/24	✓ Associated	<button>Remove</button>

Add new IPv4 CIDR

IPv6 CIDRs [Info](#)

CIDR (Network border group)	Pool	Address attribute	Status
You have no IPv6 CIDR blocks associated with your VPC.			

Add new IPv6 CIDR

Close

Add new IPV4 CIDR:

Add IPv4 CIDR



IPv4 CIDR block

- ☒ IPv4 CIDR manual input
☐ IPAM-allocated IPv4 CIDR

IPv4 CIDR

192.168.1.0/24

CIDR block size must be between /16 and /28.

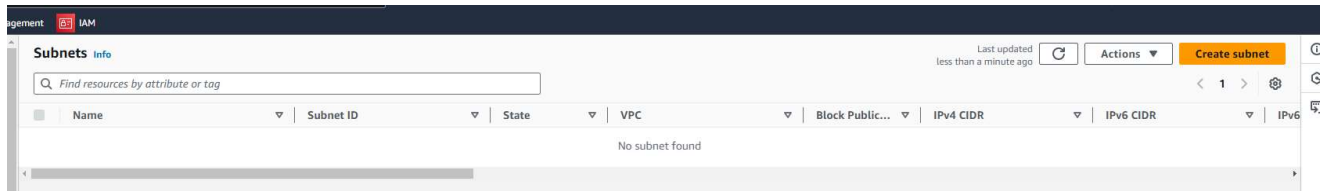
Cancel

Save

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.



[VPC](#) > [Subnets](#) > Create subnet

Create subnet [Info](#)

VPC

VPC ID

Create subnets in this VPC.

vpc-0b959acc9ad5eaf1c (vpc-south-1) ▼

Associated VPC CIDRs

IPv4 CIDRs

192.168.0.0/24

192.168.1.0/24

192.168.2.0/24

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-1a

The name can be up to 256 characters long.

Subnet 1 of 1

Subnet name

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

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.

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.

IPv4 subnet CIDR block

256 IPs

▼ Tags - optional

Key



Value - optional



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.

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.

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.

IPv4 subnet CIDR block

256 IPs

▼ Tags - optional

Key



Value - optional



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.

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.

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.

IPv4 subnet CIDR block

256 IPs

▼ Tags - optional

Key



Value - optional



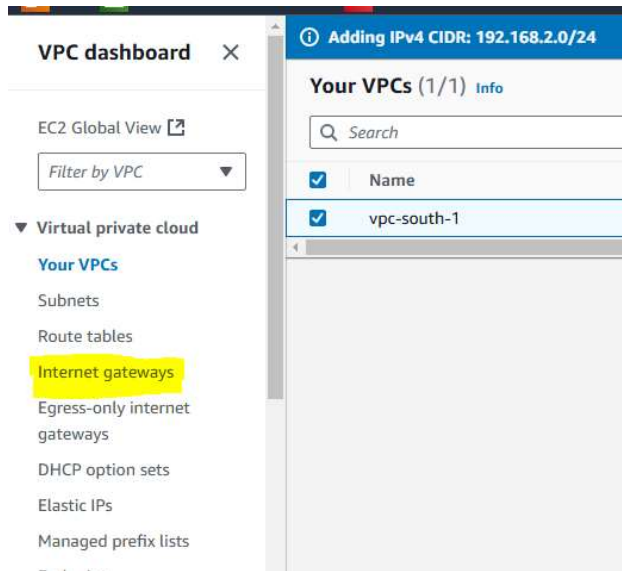
You can add 49 more tags.

Subnets (3) [Info](#)

<input type="checkbox"/>	Name ▾	Subnet ID ▾	State ▾	VPC ▾
<input type="checkbox"/>	for-1c	subnet-092c4a9fa28208548	✓ Available	vpc-0b959acc9ad5eaf1c vpc-s...
<input type="checkbox"/>	for-1a	subnet-03eb492b6be5c0019	✓ Available	vpc-0b959acc9ad5eaf1c vpc-s...
<input type="checkbox"/>	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:

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.

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	Value - optional	
Q Name X	Q IG X	Remove

Add new tag

You can add 49 more tags.

Cancel Create internet gateway

The following internet gateway was created: igw-0aa5d731e6903ad8a - IG. You can now attach to a VPC to enable the VPC to communicate with the internet. [Attach to a VPC](#)

VPC > Internet gateways > igw-0aa5d731e6903ad8a

igw-0aa5d731e6903ad8a / IG

Actions

Details Info			
Internet gateway ID igw-0aa5d731e6903ad8a	State Detached	VPC ID -	Owner 834362069350

Tags

Search tags

Key	Value
-----	-------

Manage tags

Attach to VPC (igw-0aa5d731e6903ad8a) 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.

Search: vpc-0b959acc9ad5eaf1c

Use: "vpc-0b959acc9ad5eaf1c"

vpc-0b959acc9ad5eaf1c - vpc-south-1

Cancel [Attach internet gateway](#)

Route tables:

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

Virtual private cloud

- Your VPCs
- Subnets
- Route tables
- Internet gateways
- Egress-only internet gateways
- DHCP option sets
- Elastic IPs
- Managed prefix lists
- Endpoints

Internet gateways

Tag

Search

Key

Name

VPC > Route tables > rtb-0b0a8374d7c5f559f

rtb-0b0a8374d7c5f559f

Actions ▾

Details Info

Route table ID

rtb-0b0a8374d7c5f559f

VPC

vpc-0b959acc9ad5eaf1c | vpc-south-1

Main

Yes

Owner ID

834362069350

Explicit subnet associations

-

Edge associations

-

Routes

Subnet associations

Edge associations

Route propagation

Tags

Routes (3)

Both ▾

Edit routes

Filter routes

< 1 > ⚙

Destination ▾	Target ▾	Status ▾	Propagated ▾
192.168.0.0/24	local	Active	No
192.168.1.0/24	local	Active	No
192.168.2.0/24	local	Active	No

Edit Routes:

VPC > Route tables > rtb-0b0a8374d7c5f559f > Edit routes

Edit routes

Destination	Target	Status	Propagated
192.168.2.0/24	local	Active	No
192.168.1.0/24	local	Active	No
192.168.0.0/24	local	Active	No
0.0.0.0/0	Internet Gateway	-	No
	lgw-0aa5d731e6903ad8a		

Add route

Remove

Cancel

Preview

Save changes

Launch EC2 instance and access it.