

Practice :- 9

Objective:- To understand how to design and create a Virtual Private Cloud (VPC) in AWS.

Step1. Open VPC Dashboard

- Sign in to AWS Console.
- Search **VPC** in the services search bar.
- Click **VPC Dashboard**.

The screenshot shows the AWS VPC Dashboard. On the left, there's a sidebar with options like 'Your VPCs', 'Subnets', 'Route tables', etc. The main area is titled 'Resources by Region' and lists various VPC components across the Sydney region. It includes sections for VPCs (1), Subnets (3), Route Tables (1), Internet Gateways (1), NAT Gateways (0), VPC Peering Connections (0), Network ACLs (1), and Security Groups (1). Each resource has a 'See all regions' link. On the right, there are three boxes: 'Service Health' (with a note about viewing complete service health details), 'Settings' (with links to Block Public Access, Zones, and Console Experiments), and 'Additional Information' (with links to VPC Documentation, All VPC Resources, and Activation Windows).

Step2. Start Creating a VPC

- On the left menu, select **Your VPCs**.
- Click **Create VPC**.

The screenshot shows the 'Your VPCs' section of the VPC dashboard. A blue banner at the top introduces VPC encryption control, stating it helps manage and enforce encryption settings across resources. Below this, there's a table for 'Your VPCs (1)'. The table has columns for 'Actions' (with a 'Create VPC' button) and 'Last updated' (1 minute ago). At the bottom of the table, there's a note to 'Activate Windows' with a link to go to Settings to activate Windows. The sidebar on the left remains the same as in the previous screenshot.

Step3. Select VPC Creation Method

You will get two options:

1. **VPC Only** → Create VPC manually
2. **VPC and more** → Automatically create VPC with subnets, IGW, route tables, etc.

Choose **VPC Only** for full control.

The screenshot shows the 'Create VPC' configuration page. Under 'Resources to create', the 'VPC only' option is selected. In the 'Name tag - optional' field, 'my-vpc-01' is entered. The 'IPv4 CIDR' field contains '10.0.0.0/24'. The 'IPv6 CIDR block' field is empty. A note on the right side of the screen says 'Activate Windows' and 'Go to Settings to activate Windows.'

Step 4. Configure VPC Settings

Fill the form:

(a) Name tag

- Example: MyVPC

(b) IPv4 CIDR Block

- Example: 10.0.0.0/16

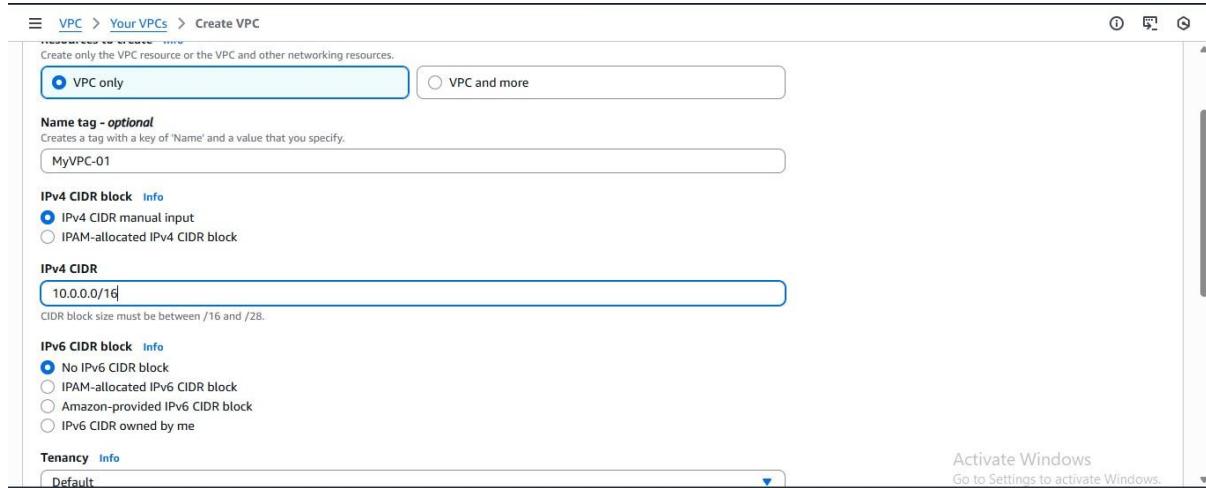
(c) IPv6 CIDR Block

- Choose **No IPv6 CIDR block** (optional)

(d) Tenancy

- Default (recommended)

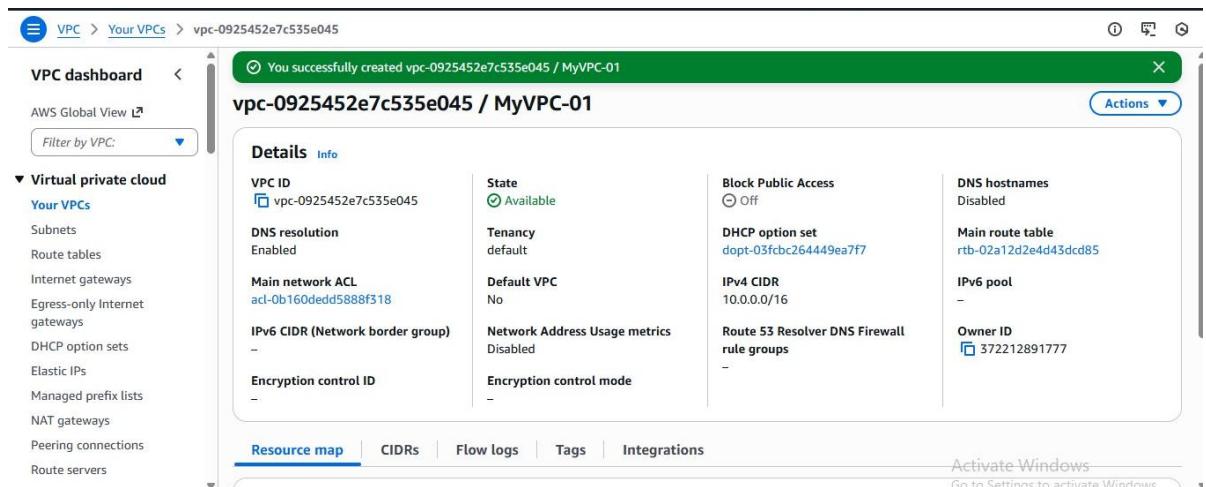
Click **Create VPC**.



Step 5. Create Subnets

- On the left side, click **Subnets** → **Create subnet**.
- Select your **VPC**.
- Add at least **two subnets**:
 - Public → 10.0.1.0/24
 - Private → 10.0.2.0/24
- Choose different **Availability Zones**.

Click **Create Subnet**.



VPC dashboard < VPC > Subnets

AWS 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
- Route servers

Last updated 4 minutes ago Actions ▾ Create subnet < 1 > Block Public. ▾

Subnets (3) Info Find subnets by attribute or tag

Name	Subnet ID	State	VPC	Block Public.
-	subnet-0057615ee956d818b	Available	vpc-0ae9d224226e0276c	Off
-	subnet-0ea64217160c2987f	Available	vpc-0ae9d224226e0276c	Off
-	subnet-0a34a59bacb6712ca	Available	vpc-0ae9d224226e0276c	Off

Select a subnet

Activate Windows Go to Settings to activate Windows.

VPC > Subnets > Create subnet

Create subnet Info

VPC

VPC ID Create subnets in this VPC.

Associated VPC CIDRs

IPv4 CIDRs 10.0.0.0/16

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.

Activate Windows Go to Settings to activate Windows.

VPC > Subnets > Create 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.

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
<input style="width: 150px; height: 20px; border: 1px solid #ccc; border-radius: 5px;" type="text" value="Name"/>	<input style="width: 150px; height: 20px; border: 1px solid #ccc; border-radius: 5px;" type="text" value="10.0.1.0/24"/> Remove

Add new tag You can add 49 more tags. Remove

Activate Windows Go to Settings to activate Windows.

The screenshot shows the AWS VPC Subnets page. At the top, a green banner says "You have successfully created 1 subnet: subnet-0080bde77fecbd40e". Below it, the "Subnets (1)" section has a table with one row. The table columns are Name, Subnet ID, State, and VPC. The data row is: 10.0.1.0/24, subnet-0080bde77fecbd40e, Available, vpc-0925452e7c535e045 | MyV... (with a dropdown arrow). There is also a "Block Public" checkbox which is off. A "Select a subnet" button is at the bottom. On the left sidebar, under "Virtual private cloud", "Subnets" is selected. On the right, there is a "Activate Windows" message: "Activate Windows Go to Settings to activate Windows."

Step 6. Create an Internet Gateway (IGW)

- Click **Internet Gateways** → **Create IGW**.
- Name it e.g., **MyIGW**.
- After creation, select it → click **Attach to VPC** → choose your **VPC**.

The screenshot shows the AWS Internet Gateways page. At the top, a green banner says "You have successfully created 1 internet gateway: igw-0bf42d972282b3010". Below it, the "Internet gateways (1)" section has a table with one row. The table columns are Name, Internet gateway ID, State, and VPC ID. The data row is: -, igw-0bf42d972282b3010, Attached, vpc-0ae9d224226e0276c. There is also a "Select an internet gateway above" button. On the left sidebar, under "Virtual private cloud", "Internet gateways" is selected. On the right, there is a "Activate Windows" message: "Activate Windows Go to Settings to activate Windows."

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.

myIGW

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	Q myIGW X Remove

Add new tag

You can add 49 more tags.

Create internet gateway

Cancel Activate Windows
Go to Settings to activate Windows

VPC > Internet gateways > igw-07fa3de1b909a857b

The following internet gateway was created: igw-07fa3de1b909a857b - myIGW. You can now attach to a VPC to enable the VPC to communicate with the internet.

igw-07fa3de1b909a857b / myIGW

Actions

Details Info

Internet gateway ID igw-07fa3de1b909a857b	State Detached	VPC ID -	Owner 372212891777
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Tags (1)

Key	Value
Name	myIGW

Manage tags

Activate Windows
Go to Settings to activate Windows

VPC > Internet gateways > Attach to VPC (igw-07fa3de1b909a857b)

The following internet gateway was created: igw-07fa3de1b909a857b - myIGW. You can now attach to a VPC to enable the VPC to communicate with the internet.

Attach to VPC (igw-07fa3de1b909a857b) 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-0925452e7c535e045 X

AWS Command Line Interface command

Cancel **Attach internet gateway**

Activate Windows
Go to Settings to activate Windows

The screenshot shows the AWS VPC dashboard with the path: VPC > Internet gateways > igw-07fa3de1b909a857b. A green notification bar at the top indicates that the Internet gateway has successfully attached to the VPC. The main pane displays the details for the Internet gateway 'igw-07fa3de1b909a857b / myIGW'. It shows the Internet gateway ID, state (Attached), VPC ID (vpc-0925452e7c535e045 | MyVPC-01), and owner (372212891777). A 'Tags (1)' section shows a single tag named 'myIGW'. The sidebar on the left lists various VPC components, and a message at the bottom right encourages activating Windows.

Step 7. Configure Route Tables

Public Route Table

- Go to **Route Tables** → Create route table.
- Name: **PublicRT**.
- Select your VPC and create.
- Go to **Routes** → Edit → Add route:
 - Destination: **0.0.0.0/0**
 - Target: **Internet Gateway**
- Go to **Subnet Associations** → Associate with **public subnet**.

Private Route Table

- Create another route table named **PrivateRT**.
- Associate it with **private subnet** (no internet route).

The screenshot shows the AWS VPC dashboard with the path: VPC > Route tables. A green notification bar at the top indicates that a route table was created 9 minutes ago. The main pane displays the 'Route tables (1)' section, showing a single route table with the ID 'rtb-0f1c80c26377786fe'. The table has an explicit subnet association and is the main route table for the VPC. The sidebar on the left lists various VPC components, and a message at the bottom right encourages activating Windows.

VPC > Route tables > Create route table

Route table settings

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

PublicRT

VPC
The VPC to use for this route table.

vpc-0925452e7c535e045 (MyVPC-01)

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
<input type="text" value="Name"/>	<input type="text" value="PublicRT"/> X

Add new tag

You can add 49 more tags.

Activate Windows Cancel Create route table
Go to Settings to activate Windows.

VPC > Route tables > rtb-09ba49df9266e0b46 > Edit routes

Edit routes

Destination	Target	Status	Propagated	Route Origin
10.0.0.0/16	local	Active	No	CreateRouteTable
	<input type="text" value="local"/> X			

Add route

Cancel Preview Save changes

Activate Windows
Go to Settings to activate Windows.

VPC > Route tables > rtb-09ba49df9266e0b46 > Edit routes

Edit routes

Destination	Target	Status	Propagated	Route Origin
10.0.0.0/16	local	Active	No	CreateRouteTable
	<input type="text" value="local"/> X			
<input type="text" value="0.0.0.0"/> X	Internet Gateway	-	No	CreateRoute
	<input type="text" value="igw"/> X			

Add route

Cancel Preview Save changes

Activate Windows
Go to Settings to activate Windows.

VPC > Route tables > rtb-09ba49df9266e0b46

VPC dashboard

AWS Global View

Virtual private cloud

- Your VPCs
- Subnets
- Route tables**
- Internet gateways
- Egress-only Internet gateways
- DHCP option sets
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- Managed prefix lists
- NAT gateways
- Peering connections
- Route servers

rtb-09ba49df9266e0b46 / PublicRT

Details

Route table ID: rtb-09ba49df9266e0b46
Owner ID: vpc-0925452e7c535e045 | MyVPC-01

Main: No
Explicit subnet associations: -
Edge associations: -

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

Routes (2)

Destination	Target	Status	Propagated
0.0.0.0/0	internet gateway	Active	No

Both Go to Settings to activate Windows.

VPC > Route tables > Create route table

Create route table

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.
PrivateRT.

VPC
The VPC to use for this route table.
vpc-0925452e7c535e045 (MyVPC-01)

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	Q PrivateRT.

You can add 49 more tags. Go to Settings to activate Windows.

VPC > Route tables > rtb-0be11292457caa67a

VPC dashboard

AWS Global View

Virtual private cloud

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rtb-0be11292457caa67a / PrivateRT.

Details

Route table ID: rtb-0be11292457caa67a
Owner ID: vpc-0925452e7c535e045 | MyVPC-01

Main: No
Explicit subnet associations: -
Edge associations: -

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

Routes (2)

Destination	Target	Status	Propagated
0.0.0.0/0	internet gateway	Active	No

Both Go to Settings to activate Windows.

Step 8. Create a NAT Gateway (Optional for private subnet internet)

- Go to **NAT Gateways** → Create NAT Gateway.
- Select:
 - Subnet: **Public subnet**
 - Allocate Elastic IP
- Update **PrivateRT** → Routes to:
 - Destination: `0.0.0.0/0`
 - Target: **NAT Gateway**

No NAT gateways found

Select a NAT gateway

Activate Windows
Go to Settings to activate Windows.

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.

Availability mode Info
Choose whether to deploy across all zones in the region or restrict to a single availability zone.

Regional - new
Scales automatically across all regional AZs, simplifying management for multi AZ deployments.

Zonal
Provides granular control within a specific availability zone, adhering to subnet level settings.

VPC
Select a VPC in which to create the regional NAT gateway.

Connectivity type
Select a connectivity type for the NAT gateway.

Public

Activate Windows
Go to Settings to activate Windows.

VPC > NAT gateways > nat-16393136b172bc8d9

NAT gateway nat-16393136b172bc8d9 | my-nat-01 was created successfully.

nat-16393136b172bc8d9 / my-nat-01

Actions

Details

NAT gateway ID nat-16393136b172bc8d9	Availability mode Regional	State Pending	State message -
NAT gateway ARN arn:aws:ec2:ap-southeast-2:372 212891777:natgateway/nat-163931 36b172bc8d9	Connectivity type Public	Created Thursday 27 November 2025 at 19:37:21 GMT+5:30	Deleted -
Method of EIP allocation Automatic			

IP addresses | Monitoring | Flow logs | Tags

Associated IP addresses

Search

Edit IP address associations (Create, Edit, Delete)

Go to Settings to activate Windows Firewall