



# Build a Virtual Private Cloud (VPC)



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The screenshot shows the 'Create VPC' wizard in the AWS Management Console. The 'VPC settings' step is displayed. Under 'Resources to create', the 'VPC only' option is selected. A 'Name tag - optional' field contains 'NextWork VPC'. Under 'IPv4 CIDR block', the CIDR block '10.0.0.0/16' is specified. Under 'IPv6 CIDR block', the 'No IPv6 CIDR block' option is selected. The 'Tenancy' dropdown is set to 'Default'. At the bottom, there are 'Next Step' and 'Cancel' buttons.

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# Introducing Today's Project!

## What is Amazon VPC?

Amazon VPC is a private, isolated network in AWS where you can launch and manage resources securely. It's useful because it gives control over access, traffic, and connectivity, keeping cloud resources organized, protected, and scalable.

## How I used Amazon VPC in this project

In this project, I created a VPC, added subnets, and attached an Internet Gateway. This gave me a secure, private network connected to the internet, forming the foundation for future AWS networking projects.

## One thing I didn't expect in this project was...

I didn't expect my new subnet to be private by default—it only becomes public after attaching an Internet Gateway and updating the route table.

## This project took me...

This project took me about 1–2 hours to complete, including creating the VPC, subnets, and internet gateway.



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# Virtual Private Clouds (VPCs)

A VPC (Virtual Private Cloud) is a private, isolated network in AWS where you can launch and manage resources securely. It gives control over access, traffic, and connectivity, keeping resources organized and protected.

AWS provides a default VPC so you can launch resources immediately without creating a network. It's preconfigured with subnets, routing, and internet access for convenience and quick testing.

An IPv4 CIDR block defines a range of IP addresses for a network. In a VPC, it determines how many addresses you can assign to resources and helps organize and route traffic efficiently.



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The screenshot shows the 'Create VPC' wizard on the AWS Management Console. The current step is 'VPC settings'. The configuration includes:

- Resources to create:** VPC only (selected)
- Name tag (optional):** NextWork VPC
- IPv4 CIDR block:** 10.0.0.0/16 (selected)
- IPv6 CIDR block:** No IPv6 CIDR block (selected)
- Tenancy:** Default

At the bottom of the wizard, there are buttons for 'Next Step' and 'Cancel'.



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## Subnets

Subnets are smaller sections of a VPC that organize resources by access and function. Each subnet has a unique IP range. Default subnets already exist in your account—one for each Availability Zone in the Region.

Enabling auto-assign public IPv4 gives resources in a subnet a public IP automatically, allowing them to communicate with the internet without manual IP assignment.

A subnet is only public if its resources can access the internet via an internet gateway. By default, newly created subnets are private until you attach an internet gateway and configure routing.

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The screenshot shows the AWS VPC Subnets page. A green success message at the top states: "You have successfully changed subnet settings: Enable auto-assign public IPv4 address". The main table lists one subnet:

Name	Subnet ID	State	VPC	Block Public...
Public 1	subnet-076ae96dc86a8c243	Available	vpc-08184f572569a2ba9	Off

Below the table, the details for "subnet-076ae96dc86a8c243 / Public 1" are shown:

Details		Flow logs	Route table	Network ACL	CIDR reservations	Sharing	Tags
Subnet ID	subnet-076ae96dc86a8c243	Subnet ARN	arn:aws:ec2:me-south-1:881480105972:subnet/subnet-076ae96dc86a8c243	State	Available	Block Public Access	Off
IPv4 CIDR	10.0.0.0/24	IPv6 CIDR	=	Available IPv4 addresses	251	IPv6 CIDR association ID	=
Availability Zone	mac1-az2 (me-south-1a)	VPC	arn:aws:vpc:me-south-1:881480105972:vpc/vpc-08184f572569a2ba9	Route table	-	Route table	-

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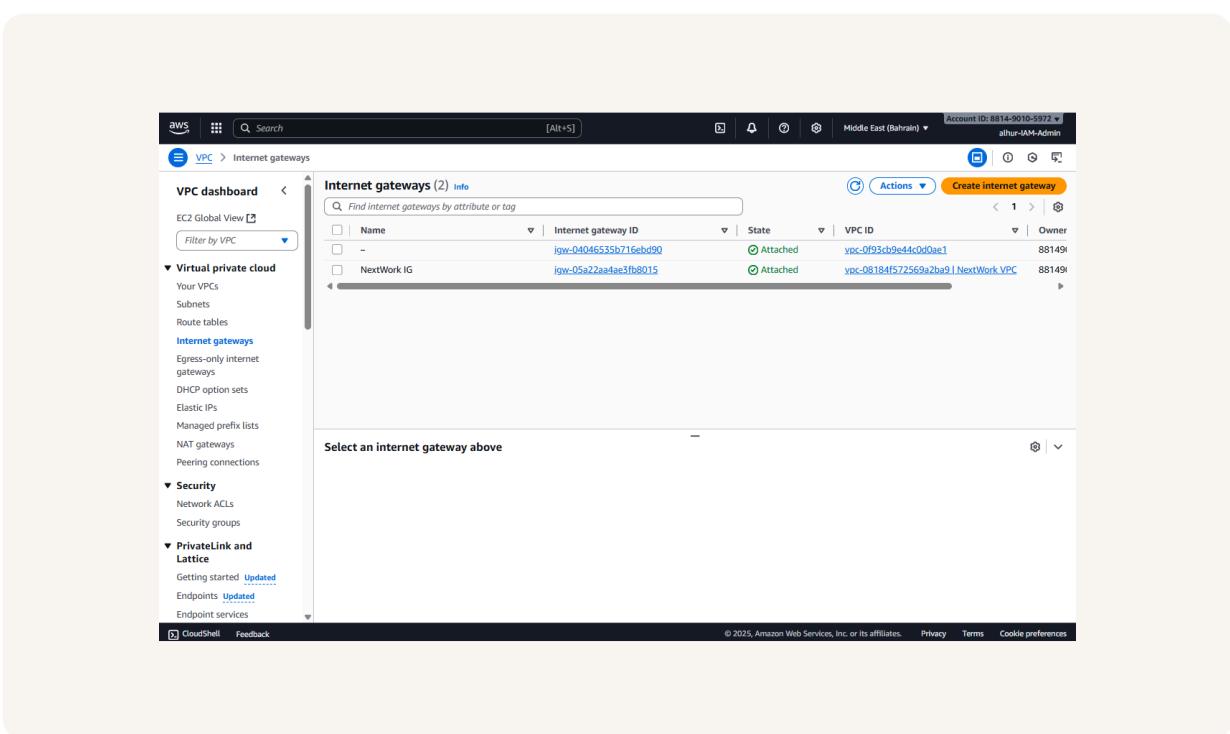
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# Internet gateways

An Internet Gateway is a bridge between a VPC and the internet. It allows resources in the VPC to communicate with the outside world while keeping the network secure and controlled.

Attaching an Internet Gateway lets resources in the VPC access the internet and be accessed externally. It turns private subnets into public ones if routing and IP settings allow.





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