

# Build a Virtual Private Cloud (VPC)

RA

Ranjith D B

**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.  
NextWork VPC

**IPv4 CIDR block** Info  
 IPv4 CIDR manual input  IPAM-allocated IPv4 CIDR block

**IPv4 CIDR**  
10.0.0.0/16  
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

# Introducing Today's Project!

## What is Amazon VPC?

Amazon VPC is a private, isolated network in AWS that lets you control networking for your resources. It's useful for securing applications, defining access rules, and ensuring efficient communication between services.

## How I used Amazon VPC in this project

I created a custom VPC, divided it into subnets, enabled public IPs, and attached an internet gateway. This setup allows EC2 instances in the public subnet to access and be accessed from the internet.

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

I didn't expect my AWS account to already have a default VPC, subnets, and an internet gateway, making initial setup easier. Also, I learned that subnets are tied to specific Availability Zones.

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## This project took me...

The project took around 30–45 minutes, including reading explanations and configuring each step carefully. Understanding CIDR blocks and subnetting took the most time.

# Virtual Private Clouds (VPCs)

VPCs are isolated virtual networks within AWS that allow you to securely organize and control cloud resources. They enable private networking, segmentation, and secure communication between instances while restricting public access.

There was already a default VPC in my account ever since my AWS account was created. This is because AWS provides a default VPC to let users quickly launch resources like EC2 without manual networking setup, ensuring basic connectivity from the start

To set up my VPC, I had to define an IPv4 CIDR block, which is a range of IP addresses used to allocate resources within the VPC. I used 10.0.0.0/16, meaning 65,536 possible IPs, allowing flexibility for subnets while keeping the network organized.

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IPAM-allocated IPv6 CIDR block

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IPv6 CIDR owned by me

# Subnets

Subnets are subdivisions within a VPC that help organize resources into isolated groups for better access control and security. There are already subnets existing in my account, one for every Availability Zone in my selected AWS Region.

Once I created my subnet, I enabled auto-assign public IPv4 addresses. This setting makes sure that any EC2 instance launched in this subnet gets a public IP address automatically so that it can connect to or be accessed from the internet.

The difference between public and private subnets are internet accessibility. For a subnet to be considered public, it has to be associated with an internet gateway and have a route allowing external traffic.

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You have successfully changed subnet settings:  
Enable auto-assign public IPv4 address

Last updated 1 minute ago Actions Create subnet

Subnets (1/1) info

Find resources by attribute or tag Subnet ID : subnet-0999439c0a567042d Clear filters

Name	Subnet ID	State	VPC	Block Public...	IPv4 CIDR	IPv6 CIDR
Public 1	subnet-0999439c0a567042d	Available	vpc-0d7c78557333df095   Next... Off	10.0.0.0/24	-	-

subnet-0999439c0a567042d / Public 1

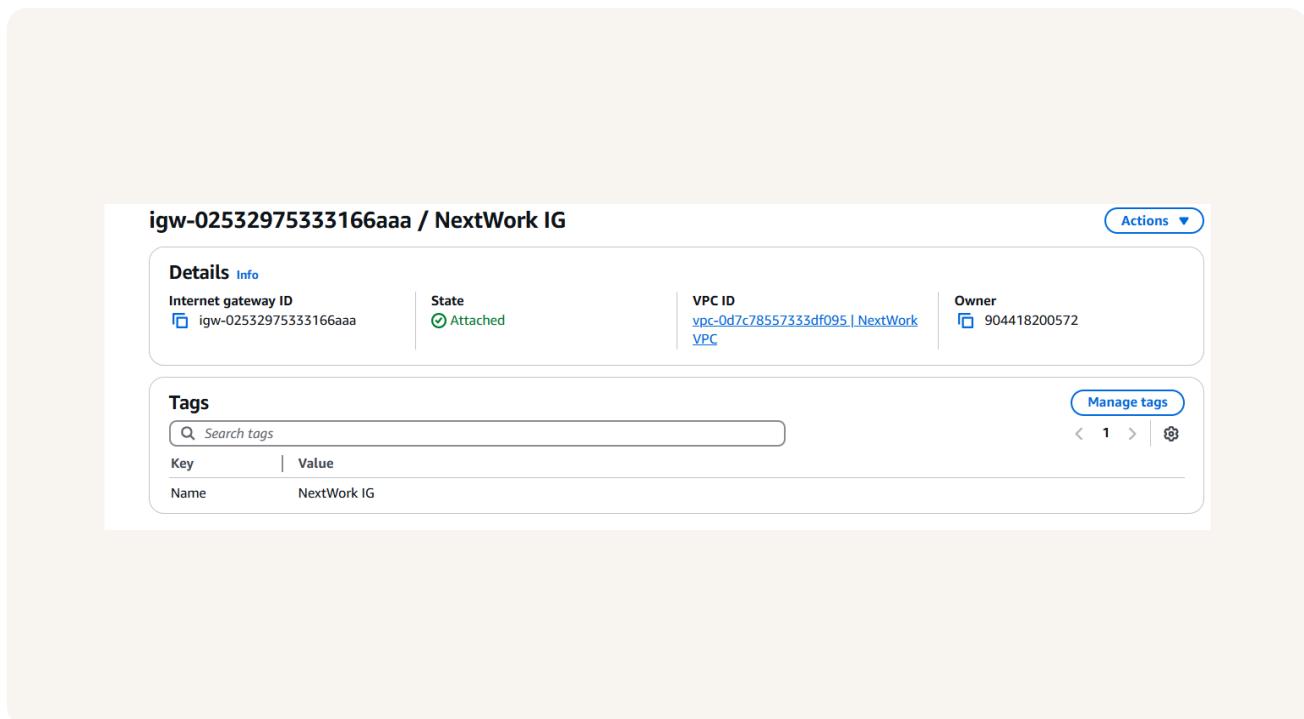
Details Flow logs Route table Network ACL CIDR reservations Sharing Tags

Details	Subnet ARN	State	Block Public Access
Subnet ID subnet-0999439c0a567042d	arn:aws:ec2:ap-south-1:904418200572:subnet-0999439c0a567042d	Available	Off
IPv4 CIDR 10.0.0.0/24	Available IPv4 addresses 251	IPv6 CIDR -	IPv6 CIDR association ID -
Availability Zone ap-south-1a	Availability Zone ID aps1-az1	Network border group ap-south-1	VPC vpc-0d7c78557333df095   NextWork VPC
Route table -		Default subnet No	Auto-assign public IPv4 address Yes

# Internet gateways

Internet gateways are components that connect a VPC to the internet, allowing resources inside the VPC to communicate with external networks. They enable public access to instances in public subnets while ensuring private subnets remain isolated.

Attaching an internet gateway to a VPC means resources with public IPs can access the internet. If I missed this step, resources in the public subnet wouldn't reach external networks, making hosted applications inaccessible.





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