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# Build a Virtual Private Cloud (VPC)



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

- VPC settings:** A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.
- Resources to create:** Options include 'VPC only' (selected) and 'VPC and more'.
- Name tag - optional:** A tag with key 'Name' and value 'my-vpc' is added.
- IPv4 CIDR block:** IPv4 CIDR manual input is selected, with the range '10.0.0.0/16' specified.
- IPv6 CIDR block:** Options include 'No IPv6 CIDR block', 'IPv6-allocated IPv6 CIDR block', 'Amazon-provided IPv6 CIDR block', and 'IPv6 CIDR owned by me'. 'No IPv6 CIDR block' is selected.
- Tenancy:** Default is selected.

At the bottom, there are links for CloudShell, Feedback, Privacy, Terms, and Cookie preferences.

A circular profile picture of a young man with short hair, wearing a dark t-shirt. He is looking slightly to his left.

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# Introducing Today's Project!

## What is Amazon VPC?

Amazon VPC is a service offered by AWS that allows users to create a VPC inside the AWS Cloud. VPC is useful to isolate your network from others who are using the cloud just like you. VPC is a private network within the cloud.

## How I used Amazon VPC in this project

I used Amazon VPC to create my own network within the cloud and controlled the traffic that can access the applications inside the network.

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

Nothing.

## This project took me...

Around 30 minutes.

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# Virtual Private Clouds (VPCs)

VPC stands for Virtual Private Cloud. VPC is a private space that you create inside a cloud and keep it isolated from others. You can control the IP ranges and subnets, as well as the users who can access your application sitting inside your VPC.

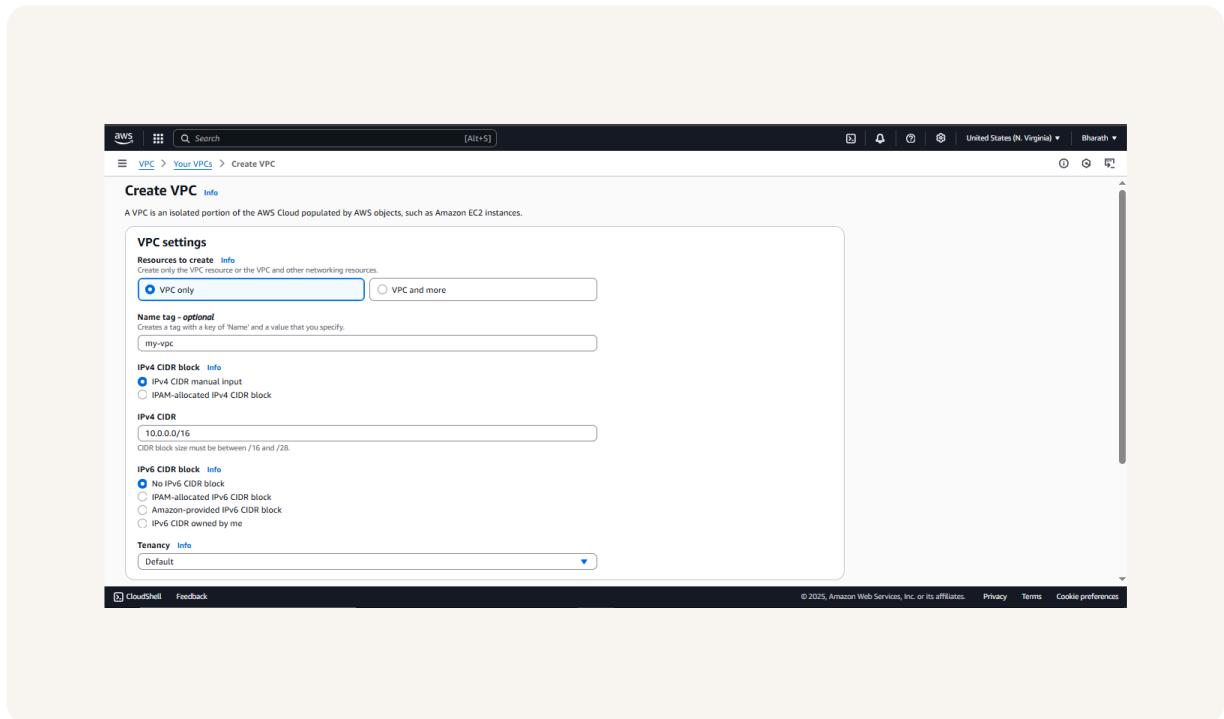
There was already a default VPC in my account ever since my AWS account was created. This is because AWS by default creates a VPC in every account so that users don't have to create a VPC and to make it handy for beginners.

To set up my VPC, I had to define an IPv4 CIDR block, which is 10.0.0.0/16. Means the first 16 bits of my IP address (10.0) are fixed, but the remaining 16 bits (i.e. the second half of the IP address) can be anything.



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# Subnets

Subnets are like sub-networks inside a VPC. Subnets can be private and public. Usually, public subnets can be accessed by anyone with an internet connection. While the private subnet can only be accessed with some permissions.

This setting makes sure a Public IP is assigned automatically to every EC2 instance that is created in this subnet so that we don't need to create an IP address manually.

For a subnet to be considered public, it has to be connected to the internet gateway. Without the internet gateway, the data inside that subnet cannot be accessed, hence it's not a public subnet without an internet gateway.

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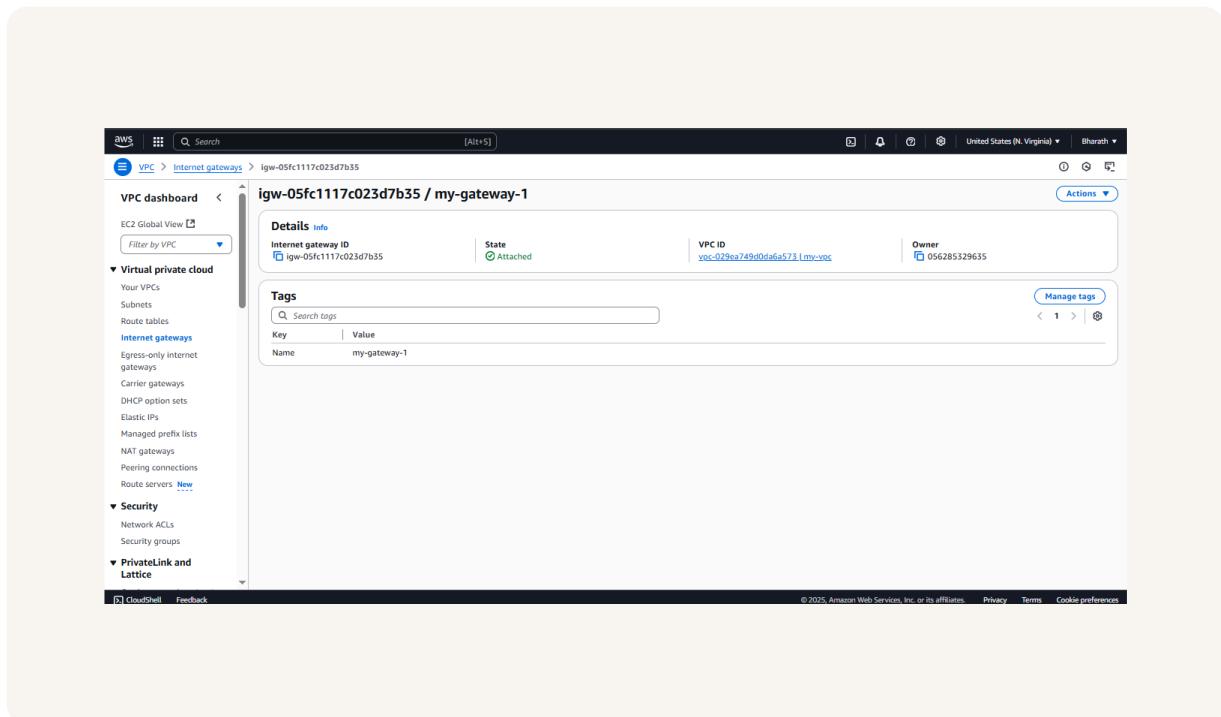
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The screenshot shows the AWS VPC Subnets page. On the left, there's a navigation sidebar with sections like EC2 Global View, Virtual private cloud (selected), Subnets, Security, and PrivateLink and Lattice. The main content area displays a table of subnets. One row is selected, showing details for 'Public-subnet-1'. The table includes columns for Name, Subnet ID, State, VPC, Block Public Access, and IPv4 CIDR. Below the table, a detailed view of 'Public-subnet-1' is shown with tabs for Details, Flow logs, Route table, Network ACL, CIDR reservations, Sharing, and Tags. The 'Details' tab is active, displaying information such as Subnet ID (subnet-0755d7622633af521), IPv4 CIDR (10.0.0.0/24), Availability Zone (us-east-1a), Route table (None), and Auto-assign IPv6 address (No). The 'State' section shows it's Available. The 'Block Public Access' section has 'Off' selected. Other tabs show network border group (us-east-1), default subnet (None), customer-owned IPv4 pool (None), and various association IDs.

# Internet gateways

Internet gateways are like bridges that connect your application with the internet and can be accessed by the users around the world, hence making the application public.

Attaching an internet gateway to a VPC means resources in the VPC can now access the internet. So the applications inside the EC2 instance in that subnet can now be accessed by the users publicly.





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