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Build a Virtual Private Cloud (VPC)

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The screenshot shows the 'Create VPC' step in the AWS VPC wizard. The 'Resources to create' section is set to 'VPC only'. A 'Name tag - optional' field contains 'NextWork VPC'. Under 'IPv4 CIDR block', the value '10.0.0.0/16' is entered. Under 'IPv6 CIDR block', there are two options: 'No IPv6 CIDR block' (selected) and 'IPAM-allocated IPv6 CIDR block'.

Introducing Today's Project!

What is Amazon VPC?

Amazon VPC lets me create an isolated AWS network. It's useful for controlling traffic, segmenting resources, and customizing IP ranges. With VPC, I can run applications securely while ensuring scalability and flexibility for my infrastructure needs.

How I used Amazon VPC in this project

I set up an Amazon VPC, created a public subnet, and attached an internet gateway. This setup allows resources in the subnet to access the internet and be publicly reachable, enabling external communication and hosting internet-facing applications.

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

One thing I didn't expect was my VPC name looking weird. I might have forgotten to name it, so AWS suggested one. When attaching my internet gateway, I couldn't identify my VPC at first but later figured it out.

This project took me...

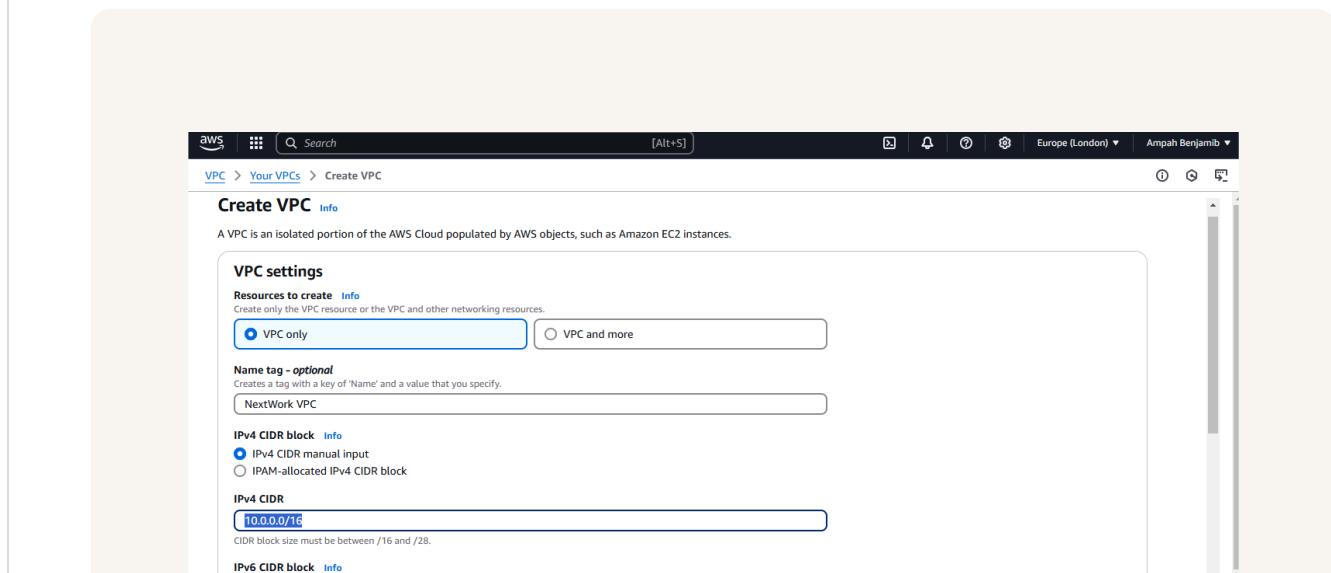
This project took me less than 45 minutes. I've noticed that some concepts are transferable, and as I build more projects, I become more familiar with certain processes, making implementation faster and more efficient.

Virtual Private Clouds (VPCs)

VPCs are Virtual Private Clouds that enable isolated networks in the cloud for secure resource management. They support both public and private access using subnets, route tables, and security groups, offering controlled traffic flow, scalability.

There was already a default VPC in my account ever since my AWS account was created. This is because AWS provides it in every region by default, allowing users to launch resources quickly with pre-configured networking settings, ensuring easy connect

To set up my VPC, I had to define an IPv4 CIDR block, which is 10.0.0.0/16. This provides 65,536 IPs (10.0.0.0–10.0.255.255), allowing subnet allocation and efficient network management. The `/16` prefix defines the address range within my VPC.

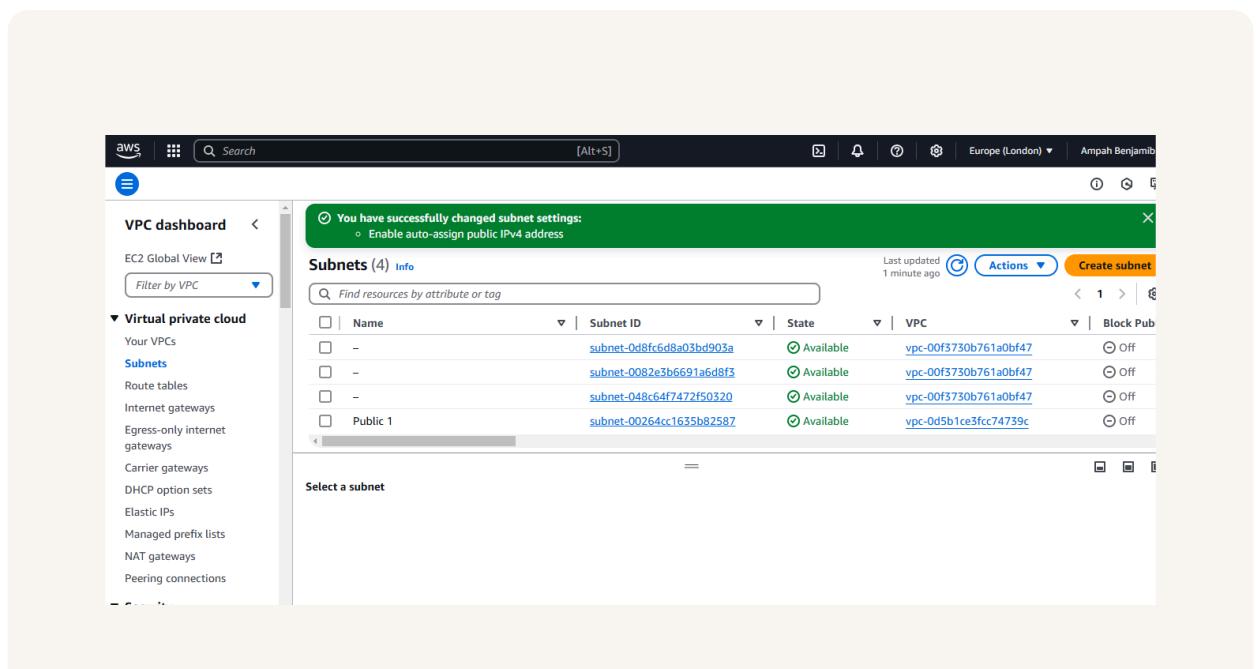


Subnets

Subnets are network segments within a VPC. There are already subnets existing in my account, one for every AZ. They group resources with similar access rules and restrictions, enhancing security, traffic flow, and efficient resource management.

Once I created my subnet, I enabled auto-assign public IPv4 addresses. This setting makes sure instances get a public IP instantly so that they can access or be accessed from the internet, saving time by avoiding manual IP assignment.

The difference between public and private subnets are access rules. For a subnet to be considered public, it has to connect to the internet. Mine isn't public yet because it lacks an internet gateway, restricting external access.



The screenshot shows the AWS VPC dashboard with the Subnets section selected. A green success message at the top states: "You have successfully changed subnet settings: Enable auto-assign public IPv4 address". The Subnets table lists four subnets:

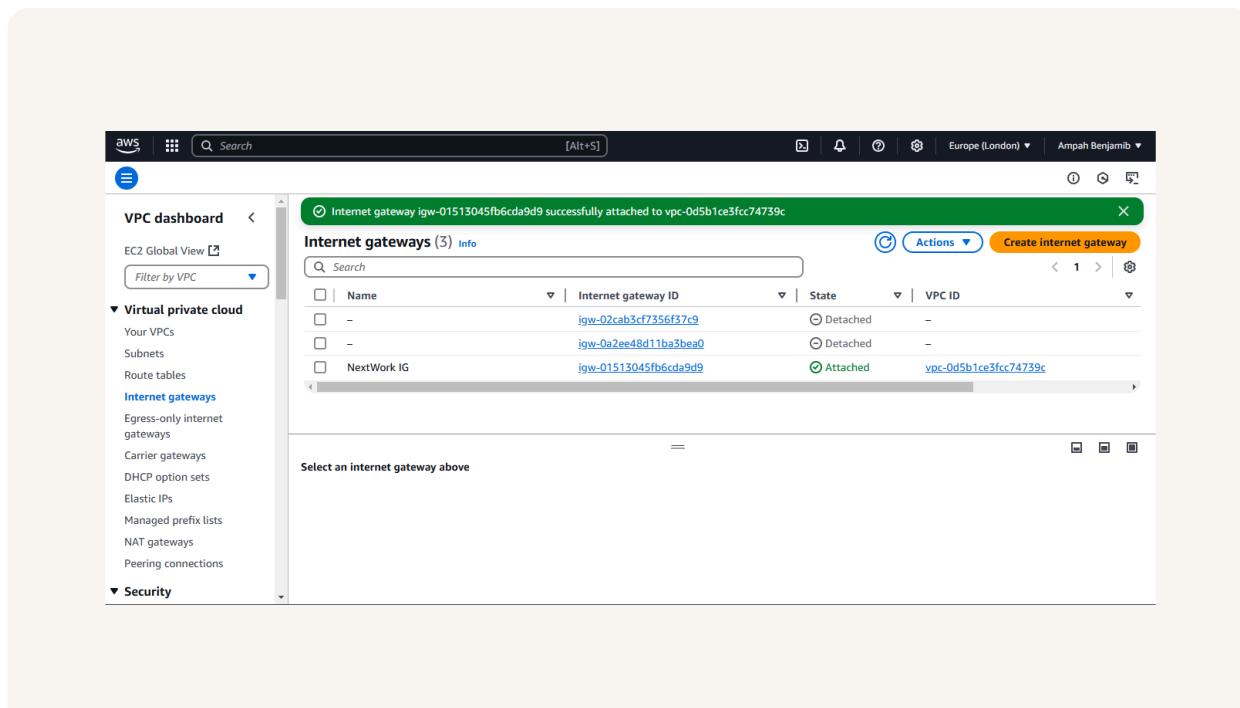
| Name | Subnet ID | State | VPC | Action |
|----------|--------------------------|-----------|-----------------------|---------------------------|
| - | subnet-0d8fc6d8a03bd903a | Available | vpc-00f3730b761a0bf47 | <input type="radio"/> Off |
| - | subnet-0082e3b6691a6d8f5 | Available | vpc-00f3730b761a0bf47 | <input type="radio"/> Off |
| - | subnet-048c64f7472f50320 | Available | vpc-00f3730b761a0bf47 | <input type="radio"/> Off |
| Public 1 | subnet-00264cc1635b82587 | Available | vpc-0d5b1ce3fc74739c | <input type="radio"/> Off |

A message at the bottom says "Select a subnet".

Internet gateways

Internet gateways are VPC (Virtual Private Cloud) components that connect to the internet. They let instances access the internet and be reached by external users. Without one, resources stay isolated and can't communicate externally.

Attaching an internet gateway to a VPC means resources can access the internet. If I missed this step, my EC2 instances with public IPs wouldn't be reachable, and applications hosted on them wouldn't be accessible to users, keeping my VPC isolated.





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