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Build a Virtual Private Cloud (VPC)



Nikhila Reddy

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.

IPv4 CIDR block [Info](#)
 IPv4 CIDR manual input IPAM-allocated IPv4 CIDR block
IPv4 CIDR
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

Tenancy [Info](#)

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** [Remove tag](#)

[Add tag](#)
You can add 49 more tags

Introducing Today's Project!

What is Amazon VPC?

Amazon VPC is a virtual network dedicated to your AWS account. It lets you define IP ranges, subnets, and security settings. It's useful because it gives full control over networking, isolation, and secure access to your cloud resources.

How I used Amazon VPC in this project

In today's project, I used Amazon VPC to create a secure network for my resources. I defined an IPv4 CIDR block, created subnets, enabled public IP assignment, and attached an internet gateway to allow internet access for my instances and application

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

One thing I didn't expect in this project was that even after enabling auto-assign public IPs for my subnet, the instance couldn't access the internet until I attached an internet gateway to the VPC. That step was essential for external connectivity.

This project took me...

This project took me approximately 60 minutes in total, including setting up the VPC, configuring subnets, enabling public IPs, attaching the internet gateway, and completing the documentation and explanations.

Virtual Private Clouds (VPCs)

VPCs are Virtual Private Clouds, isolated networks within a cloud. They allow users to define IP ranges, subnets, and routing rules while providing control over security settings. VPC offer secure, scalable infrastructure for deploying cloud resource

There was already a default VPC in my account ever since my AWS account was created. This is because AWS automatically provisions a default VPC for each region, allowing me to easily deploy resources without manually configuring network settings.

To set up my VPC, I had to define an IPv4 CIDR block, which is a range of IP addresses represented in a format like "192.168.0.0/16". It defines the address space for resources in the VPC, ensuring proper network segmentation and routing.

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NextWork VPC

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Default

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Subnets

Subnets are segments of a VPC's IP address range, used to organize resources for efficient networking. There are already subnets existing in my account, one for every availability zone, ensuring high availability and fault tolerance across the region.

Once I created my subnet, I enabled auto-assign public IPv4 addresses. This setting makes sure that any instance launched in the subnet gets a public IP automatically, so that it can communicate with the internet without needing manual IP assignment.

The difference between public and private subnets are their access to the internet. For a subnet to be considered public, it has to be associated with a route table that directs traffic to an internet gateway, which my subnet doesn't have yet.

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Subnets (1/7) Info						
<input type="checkbox"/>	Name	Subnet ID	State	VPC	Block Public...	IPv4 C...
<input type="checkbox"/>	-	subnet-0180ae9652211186c	Available	vpc-036674e08f1497029	<input type="radio"/> Off	172.3
<input type="checkbox"/>	-	subnet-0d2792196f3a49b0a	Available	vpc-036674e08f1497029	<input type="radio"/> Off	172.3
<input type="checkbox"/>	-	subnet-08707668514dd0677	Available	vpc-036674e08f1497029	<input type="radio"/> Off	172.3
<input checked="" type="checkbox"/>	Public 1	subnet-05c7bbdff10734254	Available	vpc-0ec5deb4944c2315b Next... 	<input type="radio"/> Off	10.0.0
<input type="checkbox"/>	-	subnet-067775f5d636bf93	Available	vpc-036674e08f1497029	<input type="radio"/> Off	172.3
<input type="checkbox"/>	-	subnet-054dbb1525637d7ce	Available	vpc-036674e08f1497029	<input type="radio"/> Off	172.3
<input type="checkbox"/>	-	subnet-02e304f68e5a1c9e7	Available	vpc-036674e08f1497029	<input type="radio"/> Off	172.3

Internet gateways

Internet gateways are like bridges connecting your VPC (our cloud city) to the internet (the outside world). They enable your instances to access the internet and allow external users to reach your applications, making them publicly available.

Attaching an internet gateway to a VPC means instances can send and receive traffic from the internet. If I missed this step, even with public IPs and route tables set, my resources wouldn't have internet access, preventing updates or external use.

The screenshot shows the AWS CloudFormation console interface. At the top, there's a search bar labeled "Find internet gateways by attribute or tag". Below it is a table titled "Internet gateways (1/2)" with columns: Name, Internet gateway ID, State, VPC ID, and Owner. The table contains two rows: one for a gateway named "igw-0d88292ef5436ffff" and another for "NextWork IG" (which is selected, indicated by a checked checkbox). The "NextWork IG" row has the Internet gateway ID "igw-055c8221b707fcff5", State "Attached", VPC ID "vpc-0ec5deb4944c2315b | NextWork VPC", and Owner "814871542098". Below the table, a modal window is open for the selected "igw-055c8221b707fcff5 / NextWork IG". The modal has tabs for "Details" and "Tags", with "Details" being active. It displays the following information:

Internet gateway ID	State	VPC ID	Owner
igw-055c8221b707fcff5	Attached	vpc-0ec5deb4944c2315b NextWork VPC	814871542098



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