



nextwork.org

Build a Virtual Private Cloud (VPC)



Tawanda Nigel Chitapi

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



Tawanda Nigel Chitapi

NextWork Student

nextwork.org

Introducing Today's Project!

In this project, I will demonstrate how to create VPC, create Subnets and attach an Internet Gateway to my VPC. I'm doing this project to learn to learn about AWS networking and traffic rules, and security measures to control how resources, like EC2 instances and databases, connect and work together

What is Amazon VPC?

Amazon VPCs are isolated sections of the AWS Cloud that help to keep my AWS resources private and secure

In today's project, I used Amazon VPC to host a Public Subnet that contain my AWS Resources

Personal reflection

This project took me 30 minutes



Tawanda Nigel Chitapi

NextWork Student

nextwork.org

One thing I didn't expect in this project was the ability to automatically assign public IPV4 addresses to instances. I thought I would have to manually create one for each and every instance I wish to be public.



Tawanda Nigel Chitapi

NextWork Student

nextwork.org

Virtual Private Clouds (VPCs)

What I did in this step

In this step, I will create a VPC because it is important to isolate my AWS resources from being accessible to the whole of AWS. My resources need to be private and secure and live within a specific network that is unique to me or my organization only.

How VPCs work

VPCs are isolated sections of the AWS Cloud that help to keep my AWS resources private and secure

Why there is a default VPC in AWS accounts

There was already a default VPC in my account ever since my AWS account was created. This is because AWS has setup a default VPC to allow me to create and deploy EC2 instances or RDS databases right away without having to create my own VPC from scratch.

Tawanda Nigel Chitapi

NextWork Student

nextwork.org

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

Defining IPv4 CIDR blocks

To set up my VPC, I had to define an IPv4 CIDR block, which is a way to assign a whole block/range of IP addresses, kind of like creating a zone/area in a city that my VPC can allocate IP addresses to the resources within my VPC.

Tawanda Nigel Chitapi

NextWork Student

nextwork.org

Subnets

What I did in this step

In this step, I will create a public subnet within my VPC because I need to separate resources that can and need to be accessed publicly from those that need to remain private for internal access only.

Creating and configuring subnets

Subnets are sub-sections of my VPC akin to neighborhoods in a City. There are already subnets existing in my account, one for every Availability Zone in the Region that my VPC is set up in.

Public vs private subnets

The difference between public and private subnets is their accessibility to the public or the internet. Resources within a private subnet are meant to be private and for internal use and access only. Public subnets contain resources that are designed to be accessible to the public. For example, if you're running a web app, the public-facing website needs to be accessible from the internet - so an EC2 instance hosting the website should be launched in the public subnet. On the other hand, the web app's database that's storing sensitive data shouldn't be directly accessible from the internet.

Tawanda Nigel Chitapi

NextWork Student

nextwork.org

It only needs to communicate with the EC2 instance, so it can sit in the private subnet. For a subnet to be considered public, it has to be routed to an Internet Gateway

Subnets (1/5) [Info](#)

Last updated 3 minutes ago [Actions](#) [Create subnet](#)

Name	Subnet ID	State	VPC	Block Public...	IPv4 CIDR
-	subnet-071b33301f5befdf98	Available	vpc-08971eb0f4fd63609	Off	172.31.32.0/20
-	subnet-0590dd44061bd0cb4	Available	vpc-08971eb0f4fd63609	Off	172.31.16.0/20
-	subnet-03674ca4e631471e1	Available	vpc-08971eb0f4fd63609	Off	172.31.0.0/20
-	subnet-0fc320664b2b7447f	Available	vpc-08971eb0f4fd63609	Off	172.31.48.0/24
<input checked="" type="checkbox"/> Public 1	subnet-06ca0598adcc6272	Available	vpc-0c7126f9ffbd88929 Next...	Off	10.0.0/24



Tawanda Nigel Chitapi

NextWork Student

nextwork.org

Auto-assigning public IPv4 addresses

Once I created my subnet, I enabled auto-assign public IPv4 addresses. This setting makes sure each EC2 instance that I launch in that particular subnet will be automatically assigned a Public IP Address so that resources being hosted by the instance can be accessed publicly.



Tawanda Nigel Chitapi

NextWork Student

nextwork.org

Internet gateways

What I did in this step

In this step, I will create an Internet Gateway and attach the Internet Gateway to my VPC because i would like to enable resources within my VPC to be able to connect to the internet.

Setting up internet gateways

Internet gateways are a key VPC component that allows or enables internet access to the resources within my VPC.

Attaching an internet gateway to a VPC means resources within the VPC are able to access the internet. EC2 instances with a Public IPV4 address would still not be able to connect to the internet, even though their IP Address is public. If I missed this step, resources within the VPC would not be able to connect to the internet as well as users on the internet, they would not be able to connect to the internet. While I have setup an internet gateway and attached it to my VPC, I still need to setup route tables. Route Tables will help EC2 instances resources within my VPC to find their way to the internet gateway attached to my VPC.



Tawanda Nigel Chitapi

NextWork Student

nextwork.org

Internet gateways (1/2) Info					
<input type="text"/> Find internet gateways by attribute or tag					
	Name	Internet gateway ID	State	VPC ID	Owner
<input type="checkbox"/>	-	igw-0de4bc4f926804bbe	Attached	vpc-08971e6bf4fd63609	609604398881
<input checked="" type="checkbox"/>	NextWork IG	igw-012044f72ea291900	Attached	vpc-0c7126f9ffb9d8929 NextWork VPC	609604398881



nextwork.org

The place to learn & showcase your skills

Check out nextwork.org for more projects

