



NextWork.org

Launching VPC Resources



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Create VPC Info

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances. Mouse over a resource to highlight the related resources.

VPC Settings

Resources to create Info
Creating only the VPC resources in the VPC and other networking resources

VPC only VPC and more

Name tag auto-generation Info
Name tag for all resources in the VPC. This value will be used to auto-generate Name tags for all resources in the VPC.

Auto-generate
nextwork

IPv4 CIDR block Info
The IP range assigned to your VPC. You can change or edit the list of your VPC using CIDR notation.

10.0.0.0/16 65,536 IP's

CIDR block size must be between /16 and /25.

IPv6 CIDR block Info
 No IPv6 CIDR block Amazon-provided IPv6 CIDR block

Tenancy Info
Default

Number of Availability Zones (AZ) Info
Choose the number of AZs in which to provision subnets. We recommend at least two AZs for high availability.

1 2 3

Preview

Your AWS virtual network

VPC Show details

Subnets within this VPC

Subnets (6)

- nextwork-vpc
- ap-south-1a
 - nextwork-subnet-public1-ap-south-1a
 - nextwork-subnet-private1-ap-south-1a
 - nextwork-subnet-private2-ap-south-1a
- ap-south-1b
 - nextwork-subnet-public2-ap-south-1b
 - nextwork-subnet-private2-ap-south-1b
 - nextwork-subnet-private4-ap-south-1b

Route tables (5)

Route network traffic to resources

- nextwork-rb-public
- nextwork-rb-private1-ap-south-1a
- nextwork-rb-private2-ap-south-1b
- nextwork-rb-private3-ap-south-1a
- nextwork-rb-private4-ap-south-1b

Network connections (2)

Connections to other networks

- nextwork-igw
- nextwork-vpc>s3

Introducing Today's Project!

What is Amazon VPC?

Amazon VPC is AWS's foundational networking service that helps us create our own networks and configure the security traffic rules and connectivity with the internet.

How I used Amazon VPC in this project

I used Amazon VPC to create my own VPC with different resources / components (e.g. security groups, network ACLs), private resources (e.g. a private subnet) and EC2 instances in both my public and private subnets.

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

I did not expect the resource map to be so visual and interactive. It provided an intuitive and efficient way to set up the entire VPC architecture and simplified the process significantly.

This project took me...

This project took me 1.5 hours to complete.

Setting Up Direct VM Access

Directly accessing a VM means "logging into" the EC2 instance (instead of just managing it at a higher level with the AWS Management Console). This includes operations like installing software and changing my EC2 instance's configurations.

SSH is a key method for directly accessing a VM

SSH means Secure Shell, and it is both a protocol and a traffic type. It is the protocol that matches key pairs, and enables direct VM access, and once a connection is set up, it is a traffic type that encrypts communication/data being transferred.

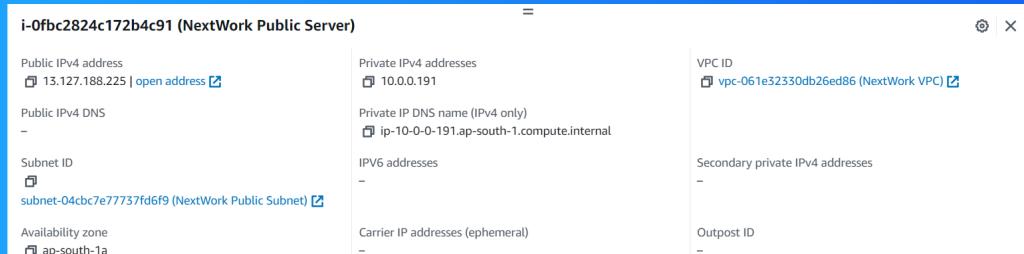
To enable direct access, I set up key pairs

Key pairs are tools that help engineers authenticate themselves when getting access to a virtual machine e.g. EC2 instance. Key pairs work by having two keys - a key for the virtual machine, and a matching private key for the resource/user.

A private key's file format means the file type in which a key is stored. My private key's file format was ".pem" which is a widely accepted file format that most servers will be able to read/use.

Launching a public server

I had to change my EC2 instance's networking settings by changing the VPC and the subnet where my EC2 instance was going to be launched. I updated both to my NextWork VPC and Public Subnet respectively. I also used my existing Public security group.



Launching a private server

My private server has its own dedicated security group because the NextWork Public security group allows in all HTTP traffic which would leave our private server much more vulnerable to security attacks/risks.

My private server's security group's source is my NextWork Public Security Group which means only SSH traffic coming from resources associated with that security group would be allowed.

Firewall (security groups) | [Info](#)
A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group Select existing security group

Security group name - required

This security group will be added to all network interfaces. The name can't be edited after the security group is created. Max length is 255 characters. Valid characters: a-z, A-Z, 0-9, spaces, and _-:/()#,@[]+=&;!\$*

Description - required | [Info](#)

Inbound Security Group Rules

▼ Security group rule 1 (TCP, 22, sg-09084a4c43223d4fd) [Remove](#)

Type Info	Protocol Info	Port range Info
ssh	TCP	22

Source type | [Info](#) Source | [Info](#) Description - optional | [Info](#)
 e.g. SSH for admin desktop

Speeding up VPC creation

I used an alternative way to set up an Amazon VPC! This approach provided a VPC resource map, enabling me to create the VPC along with its components, such as security groups, route tables, and internet gateways.

A VPC resource map is an interactive visual diagram that outlines the components of a VPC and their connections. It highlights relevant connections when a specific resource is hovered over, providing a clear overview of the VPC's structure.

My new VPC has a CIDR block of 10.0.0.0/16. While it is technically possible for this VPC to share the same IPv4 CIDR block as an existing VPC (NextWork VPC) due to inherent isolation, it is not best practice if VPC peering is required in the future.

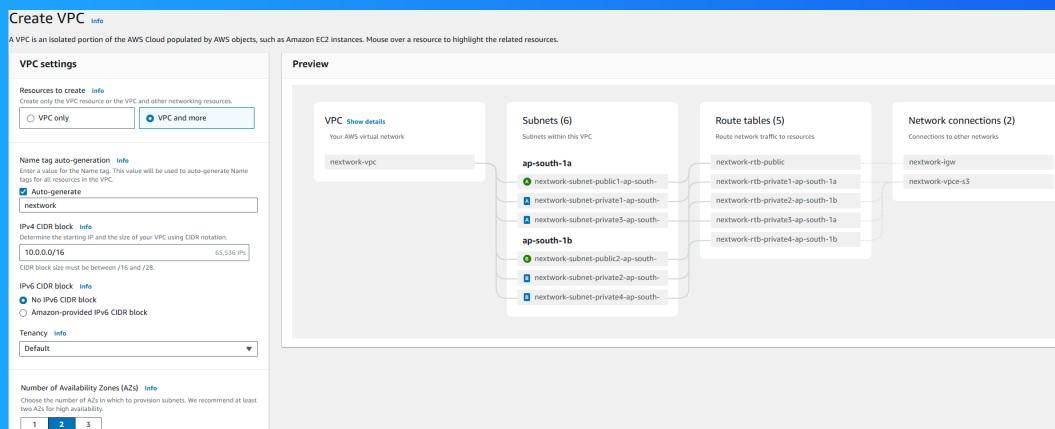


Speeding up VPC creation

Tips for using the VPC resource map

When determining the number of public subnets in my VPC, I had two options: either None or one per Availability Zone. This follows best practices, ensuring redundancy and high availability by distributing subnets across multiple AZs within the VPC.

The set up page also offered to create NAT gateways, which are connectors/gateways that will let resources in my private subnet get access to the internet (e.g. for security updates) while still blocking off incoming traffic from the internet.





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