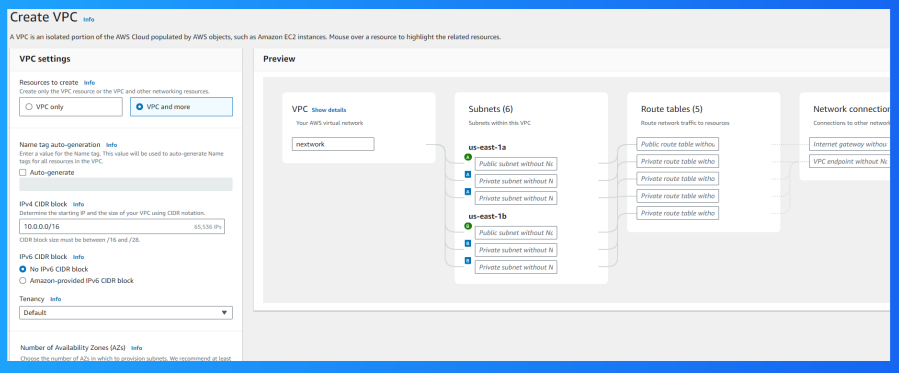
NextWork.org

Launching VPC Resources

Sai Prasanth Reddy



Sai Prasanth Reddy
NextWork Student

Introducing Today's Project!

What is Amazon VPC?

Amazon VPC is a service that lets you create isolated cloud networks in AWS. It’s useful because it provides control over networking, including IP ranges, subnets, and security, enabling secure, scalable, and customizable cloud infrastructure.

How I used Amazon VPC in this project

I used Amazon VPC in today's project to create a new VPC, set up public and private subnets, configured route tables, and attached an internet gateway for the public subnet, ensuring secure and isolated network communication for my EC2 instances.

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

One thing I didn't expect in this project was the need to configure different security groups for my public and private subnets to manage traffic rules, ensuring secure communication between instances while maintaining isolation.

This project took me...

This project took me about an hour, mainly due to setting up the VPC, configuring the subnets, route tables, and adjusting security groups for proper network and instance access control.

Sai Prasanth Reddy
NextWork Student

Setting Up Direct VM Access

Directly accessing a virtual machine means connecting to your EC2 instance via SSH or RDP using a key pair, allowing you to interact with the instance, manage software, and perform configurations as if you were physically on the machine.

SSH is a key method for directly accessing a VM

SSH traffic means secure communication between a client and a server over the internet using the Secure Shell protocol. It enables encrypted remote access to EC2 instances or other servers for managing and configuring them securely.

To enable direct access, I set up key pairs

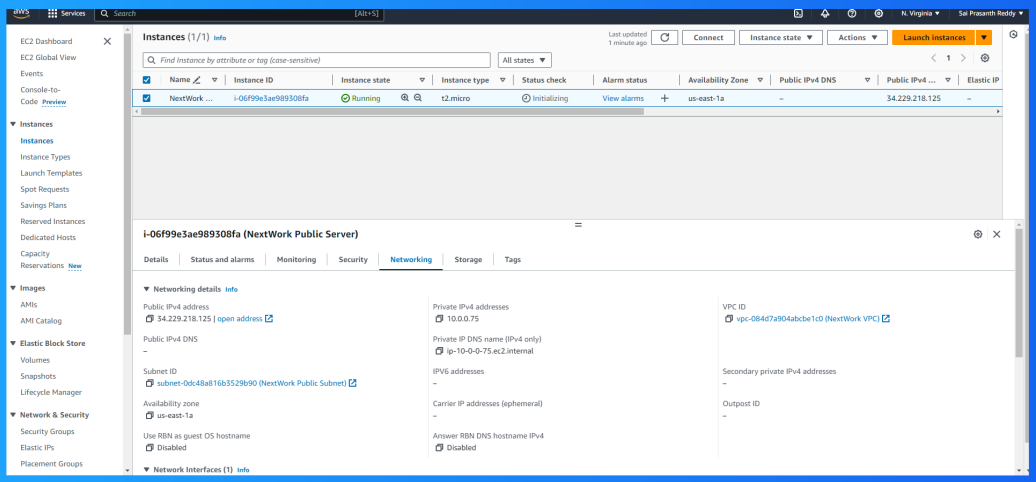
Key pairs are cryptographic security credentials used to authenticate access to instances. They consist of a public key stored by AWS and a private key that you download, which allows secure SSH access to your EC2 instances.

A private key's file format means the type of encoding used for the key, typically for secure access. My private key's file format was .pem, which is commonly used for SSH access to EC2 instances in AWS.

Sai Prasanth Reddy
NextWork Student

Launching a public server

I had to change my EC2 instance's networking settings by editing it to be part of my VPC and assigning it to the public subnet, allowing it to connect to the internet through the VPC's internet gateway.

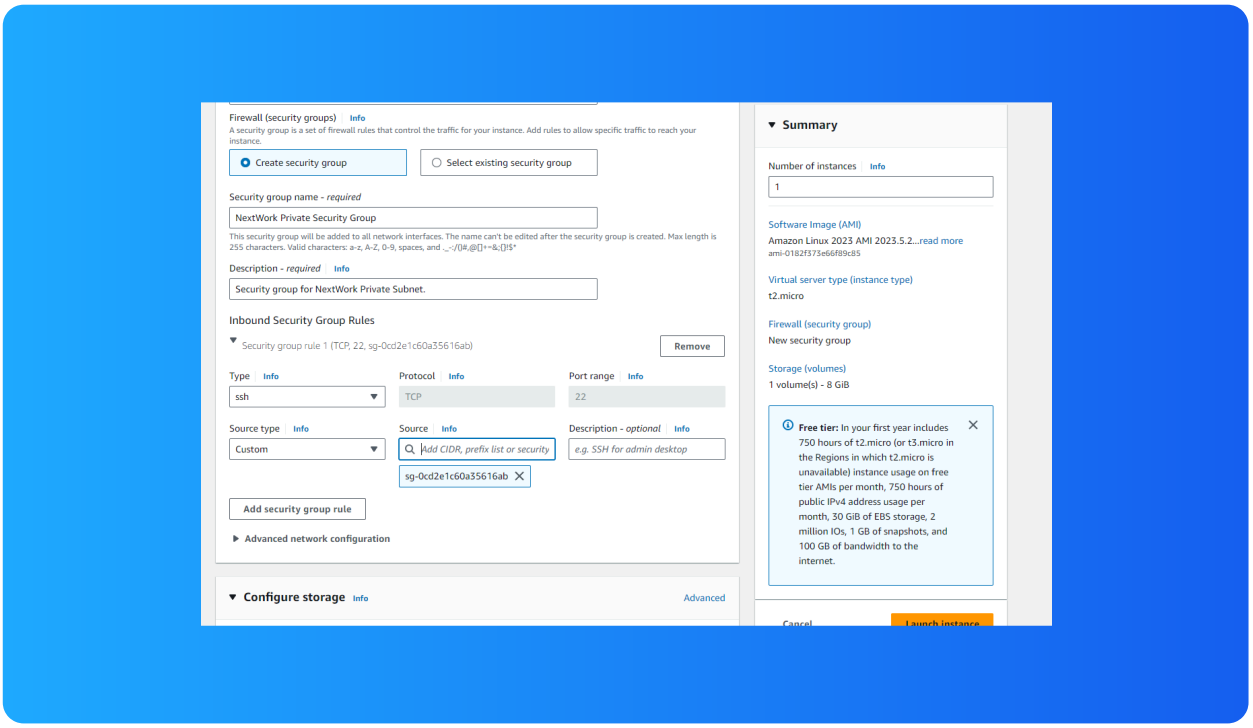


Sai Prasanth Reddy
NextWork Student

Launching a private server

My private server has its own dedicated security group because it needs stricter access controls, allowing only internal VPC traffic and preventing direct internet access, unlike the public server, which requires broader external access.

My private server's security group's source is my public security group, which means only instances in the public subnet with that security group can communicate with the private server, ensuring secure internal communication.



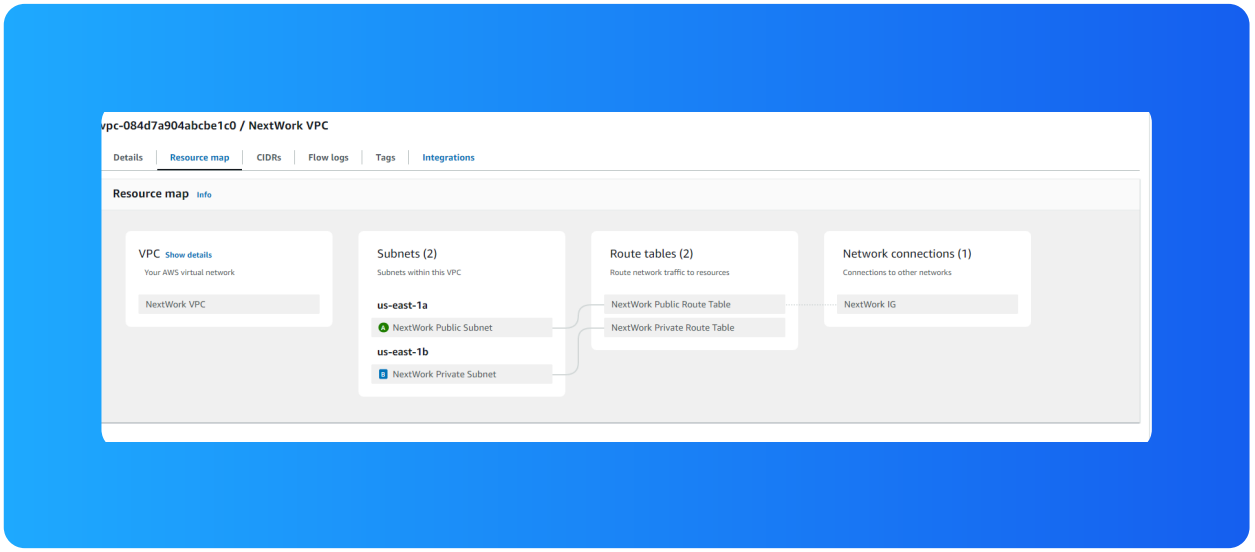
Sai Prasanth Reddy
NextWork Student

Speeding up VPC creation

I used an alternative way to set up an Amazon VPC! This time, I used the "VPC and more" option in the AWS VPC dashboard to create a new VPC, along with subnets, route tables, and an internet gateway for better network management.

A VPC resource map is a visual representation of all the resources within your VPC, such as subnets, route tables, internet gateways, and instances, helping you understand and manage the relationships and configurations of your network components.

My new VPC has a CIDR block of 10.0.0.0/16. It is possible for my new VPC to have the same IPv4 CIDR block as my existing VPC because they are isolated from each other and do not share routes, preventing any IP address conflicts.



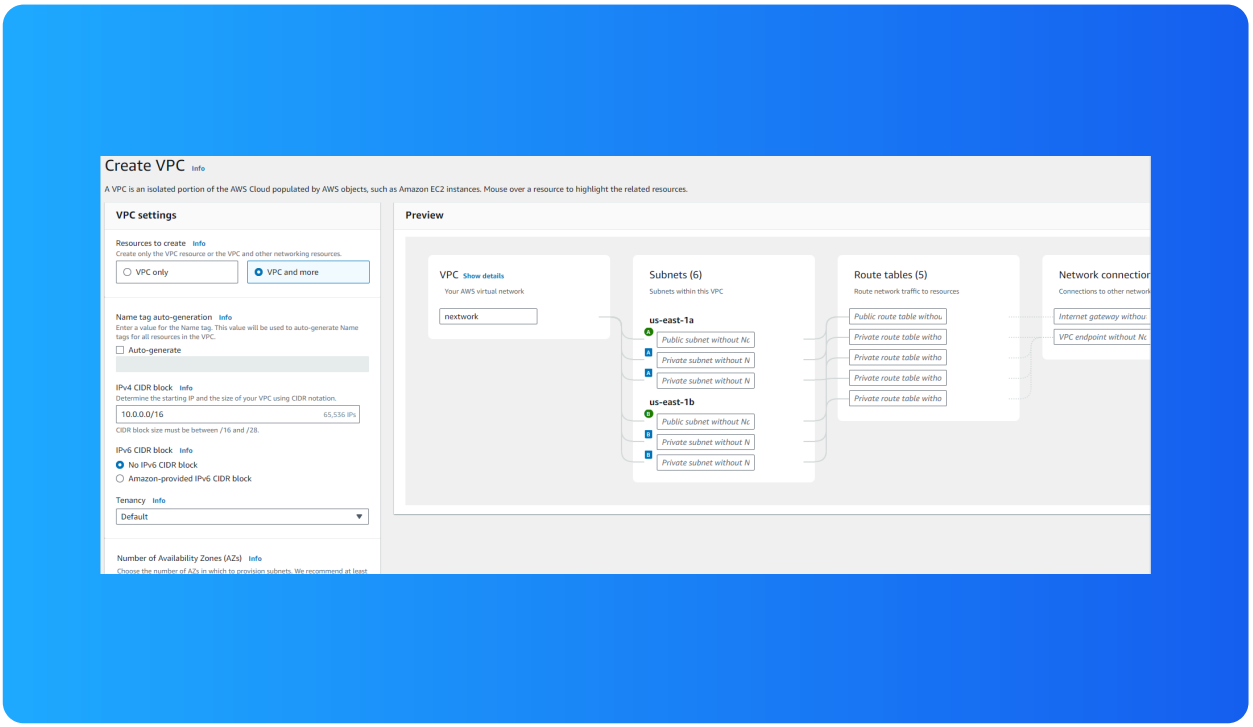
Sai Prasanth Reddy
NextWork Student

Speeding up VPC creation

Tips for using the VPC resource map

When determining the number of public subnets in my VPC, I only had two options: one for each Availability Zone. This was because each public subnet must map to a distinct AZ to ensure high availability and fault tolerance across the VPC.

The setup page also offered to create NAT gateways, which are services that enable instances in private subnets to connect to the internet for outbound traffic while preventing inbound traffic from the internet, maintaining security.



Everyone should be in a job they love.

Check out nextwork.org for more projects