



Testing VPC Connectivity



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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 set up a new VPC with public and private subnets, configured security groups, attached an internet gateway, and tested connectivity between the public server and the internet as well as the private server.

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

One thing I didn't expect in this project was the need to adjust ICMP rules in the security group and subnet for successful ping tests between the public and private servers.

This project took me...

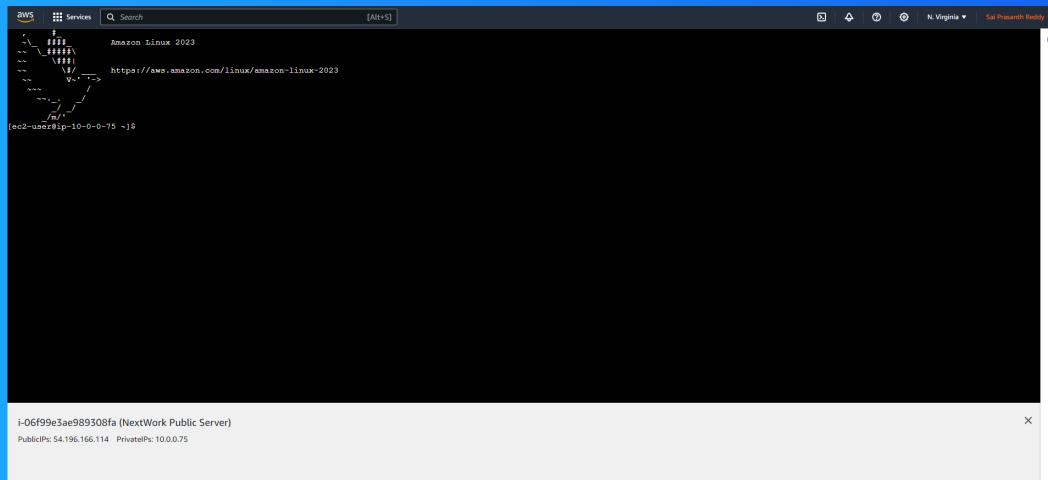
This project took me about an hour, including setting up the VPC, configuring subnets, security groups, and testing connectivity using ping and curl commands.



Connecting to an EC2 Instance

Connectivity means the ability of systems, networks, or devices to communicate with each other, either within a private network or over the internet, enabling the exchange of data and services between them.

My first connectivity test was whether I could connect to the NextWork public server, ensuring that the public subnet and internet gateway were properly configured for external access.





EC2 Instance Connect

I connected to my EC2 instance using EC2 Instance Connect, which is a browser-based SSH tool provided by AWS. It allows you to securely access and manage EC2 instances without needing to configure an SSH client on your local machine.

My first attempt at getting direct access to my public server resulted in an error because I hadn't properly updated the security group's inbound rules to allow SSH traffic on port 22 from my IP address.

I fixed this error by adding an inbound rule to the security group that allows SSH traffic on port 22 from anywhere (IPv4), ensuring that I could securely connect to the EC2 instance.





Connectivity Between Servers

Ping is a network utility that checks the reachability of a host by sending ICMP echo requests and measuring response times. I used ping to test the connectivity between my local machine and the public server in my VPC.

The ping command I ran was `ping 10.0.1.229`, which tested the connection to the private server from the public server within my VPC using its private IP address.

The first ping returned "PING 10.0.1.229 (10.0.1.229) 56(84) bytes of data." This meant that the private server was reachable, and the network was successfully sending but not receiving data between my public and private server.

```
aws | Services | Search [Alt+S]
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023
[ec2-user@ip-10-0-0-75 ~]$ ping 10.0.1.229
PING 10.0.1.229 (10.0.1.229) 56(84) bytes of data.
```



Troubleshooting Connectivity

I troubleshooted this by updating the rules of the private subnet and security group to accept ICMP IPv4 traffic for the 10.0.0.0/24 range, allowing successful ping requests and resolving the connectivity issue.

```
aws Services Search [Alt+S]                                                                                                                                                                                                                                                                                                                                                                                                                               <img alt="AWS Lambda icon" data-bbox="8395
```

Connectivity to the Internet

Curl is a command-line tool used to transfer data from or to a server using various protocols, such as HTTP, HTTPS, FTP, and more. It allows testing and interacting with APIs, web services, and network connectivity.

I used curl to test the connectivity between the public server and the internet, ensuring that the public server could successfully send and receive HTTP requests to and from external websites.

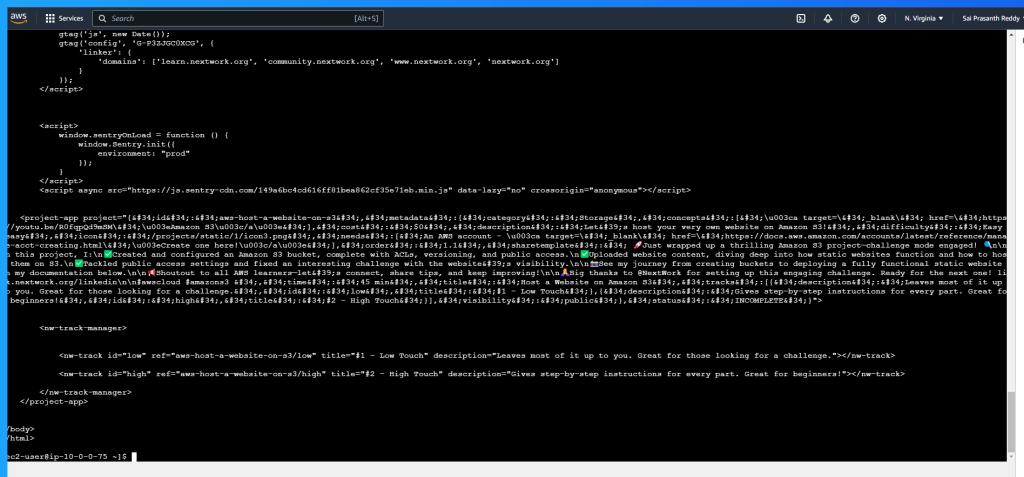
Ping vs Curl

Ping and curl are different because ping checks basic network connectivity by sending ICMP packets, while curl sends HTTP or other protocol requests to test web services or data transfer, verifying not just connectivity but also app level responses.



Connectivity to the Internet

I ran the curl command `curl example.com`, which returned the HTML content of the webpage, confirming successful connectivity between my public server and the internet.



```
aws Services Search [Alt+S]
curl -s https://www.example.com
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <title>Example Domain</title>
  </head>
  <body>
    You've successfully connected to www.example.com!
  </body>
</html>
```



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