



# Testing VPC Connectivity

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# Introducing Today's Project!

## What is Amazon VPC?

Amazon VPC lets you create a private, isolated network in AWS. It's useful for controlling IP ranges, subnets, and security, helping you securely connect and manage cloud resources.

## How I used Amazon VPC in this project

I used VPC to connect to my Nextwork public server, test EC2-to-EC2 connectivity within subnets, and verify internet access from the instances.

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

I didn't expect setting up route tables and security groups to be so detailed; it really showed how much control VPC gives over network traffic and security.

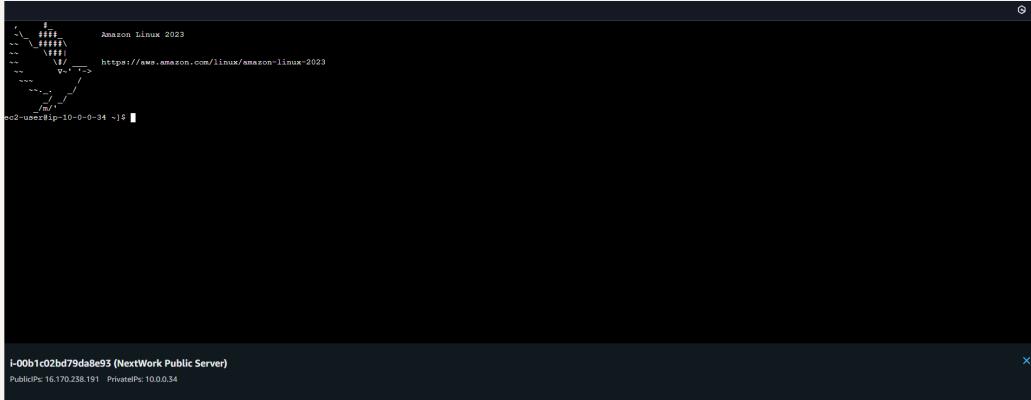
## This project took me...

It took me about 1 hour to complete this project

# Connecting to an EC2 Instance

Connectivity means the ability of AWS services, resources, or applications to communicate with each other, on-premises systems, or the internet via networks, APIs, or integrations, ensuring seamless data flow and interaction.

My first connectivity test was whether I could connect to an AWS EC2 instance from a local machine using its public IP, ensuring the instance's security group allows inbound traffic on the required port and the public IP is correctly configured.



# EC2 Instance Connect

I connected to my EC2 instance using EC2 Instance Connect, which is an AWS feature that enables secure, browser-based SSH connections to EC2 instances without managing SSH keys, using temporary credentials for enhanced security.

My first attempt at getting direct access to my public server resulted in an error because the EC2 instance's security group did not allow inbound SSH traffic on port 22, blocking the connection attempt.

I fixed this error by adding an inbound rule to the EC2 instance's security group, allowing SSH traffic on port 22 from my IP address, enabling successful connection to the public server.



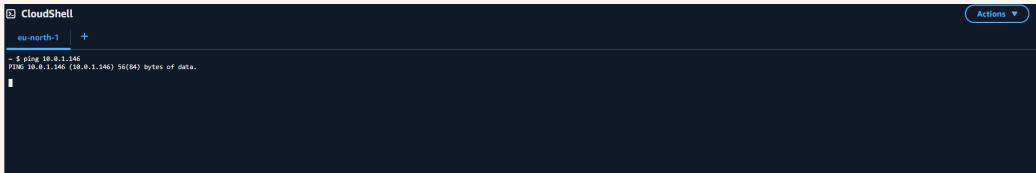
⌚ Failed to connect to your instance  
Error establishing SSH connection to your instance. Try again later.

# Connectivity Between Servers

Ping is a network diagnostic tool that sends ICMP packets to test if a target host is reachable and measures response time. I used ping to test the connectivity between my local machine and the EC2 instance's public IP to verify network availability.

The ping command I ran was ping 10.0.0.0/146

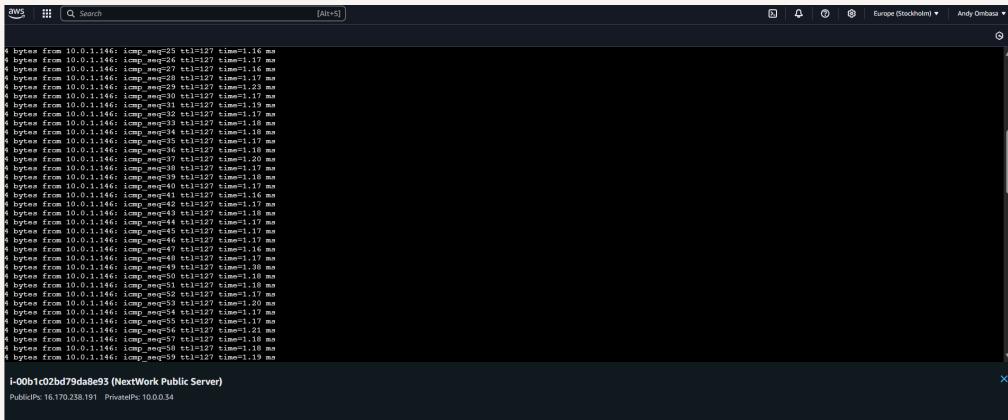
The first ping returned the ping itself and its size. This meant that the public server has sent out a connectivity message



A screenshot of a CloudShell terminal window. The title bar says "CloudShell" and "eu-north-1". The terminal shows the command \$ ping 10.0.1.146 and its output: PING 10.0.1.146 (10.0.1.146) 56(54) bytes of data. There is a cursor at the end of the line.

# Troubleshooting Connectivity

I troubleshooted this by checking the EC2 instance's security group and adding an inbound rule to allow ICMP traffic for ping from my IP address, ensuring the network configuration permitted the connection test to the public IP.



A screenshot of a terminal window titled "aws" showing a ping session between two AWS instances. The terminal output shows multiple ICMP echo requests (ping) being sent from one instance to another. The logs include details such as the source IP (10.0.1.146), destination IP (10.0.1.146), ICMP type (8), sequence number (t1), time taken (time=1.16 ms to 1.20 ms), and the number of bytes (64). The session is identified by the ID i-00b1c2b2bd79da8e93 (NextWork Public Server).

```
i-00b1c2b2bd79da8e93 (NextWork Public Server)
PublicIPs: 16.170.238.191 PrivateIPs: 10.0.0.54
4 bytes from 10.0.1.146: icmp_seq=25 t1=127 time=1.16 ms
4 bytes from 10.0.1.146: icmp_seq=26 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=27 t1=127 time=1.16 ms
4 bytes from 10.0.1.146: icmp_seq=28 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=29 t1=127 time=1.23 ms
4 bytes from 10.0.1.146: icmp_seq=30 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=31 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=32 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=33 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=34 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=35 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=36 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=37 t1=127 time=1.20 ms
4 bytes from 10.0.1.146: icmp_seq=38 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=39 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=40 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=41 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=42 t1=127 time=1.16 ms
4 bytes from 10.0.1.146: icmp_seq=43 t1=127 time=1.18 ms
4 bytes from 10.0.1.146: icmp_seq=44 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=45 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=46 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=47 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=48 t1=127 time=1.16 ms
4 bytes from 10.0.1.146: icmp_seq=49 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=50 t1=127 time=1.18 ms
4 bytes from 10.0.1.146: icmp_seq=51 t1=127 time=1.18 ms
4 bytes from 10.0.1.146: icmp_seq=52 t1=127 time=1.17 ms
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4 bytes from 10.0.1.146: icmp_seq=54 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=55 t1=127 time=1.17 ms
4 bytes from 10.0.1.146: icmp_seq=56 t1=127 time=1.18 ms
4 bytes from 10.0.1.146: icmp_seq=57 t1=127 time=1.18 ms
4 bytes from 10.0.1.146: icmp_seq=58 t1=127 time=1.18 ms
4 bytes from 10.0.1.146: icmp_seq=59 t1=127 time=1.19 ms
```

# Connectivity to the Internet

Curl is a command-line tool for transferring data to or from a server, supporting protocols like HTTP, HTTPS, FTP, and more, used to test connectivity, make API requests, or download files in AWS environments.

I used curl to test the connectivity between my local machine and the server at example.com, verifying if the server was accessible over HTTP/HTTPS and checking the response to ensure proper network and service availability.

## Ping vs Curl

Ping and curl are different because ping tests network reachability using ICMP packets to check if a host is online and measure response time, while curl transfers data over protocols like HTTP/HTTPS to test server connectivity and retrieve content.

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## NextWork Student

[nextwork.org](http://nextwork.org)

# Connectivity to the Internet

I ran the curl command `curl curl https://learn.nextwork.org/projects/aws-host-a-website-on-s3`, which returned raw HTTP response body from that Nextwork page for hosting a website on S3.



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