



Testing VPC Connectivity

Honesty Dogunro

```
[ec2-user@ip-10-0-0-147 ~]$ curl example.com
<!DOCTYPE html>
<html>
<head>
<title>Example Domain</title>

<meta charset="utf-8" />
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<meta name="viewport" content="width=device-width, initial-scale=1" />
<style type="text/css">
body {
    background-color: #f0f0f2;
    margin: 0;
    padding: 0;
    font-family: -apple-system, system-ui, BlinkMacSystemFont, "Segoe Ur", "Open Sans", Helvetica Neue, Arial, sans-serif;
}

div {
    width: 600px;
    margin: 5em auto;
    padding: 2em;
    background-color: #fdfdff;
    border-radius: 0.5em;
    box-shadow: 2px 3px 7px 2px rgba(0,0,0,.02);
}
a:link, a:visited {
    color: #00aaff;
    text-decoration: none;
}
```



Introducing Today's Project!

What is Amazon VPC?

Amazon VPC is a service that lets users create isolated, private networks within AWS. It's useful because it provides control over network configuration, security, and resource communication, ensuring a secure and scalable infrastructure.

How I used Amazon VPC in this project

In today's project, I used Amazon VPC to create a secure network for my EC2 instances. I configured subnets, security groups, and route tables to control traffic flow and ensure proper communication while maintaining security.

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

I was expecting everything, including the complexity.

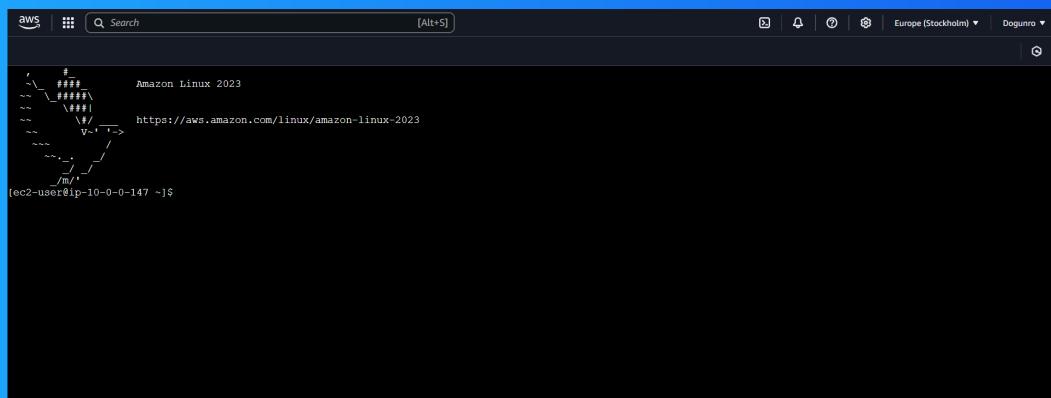
This project took me...

Long enough, About 2 hours.

Connecting to an EC2 Instance

Connectivity means resources together in our network, without connecting resources can't communicate. e.g users can't login

My first connectivity test was whether I could connect to my network's public server



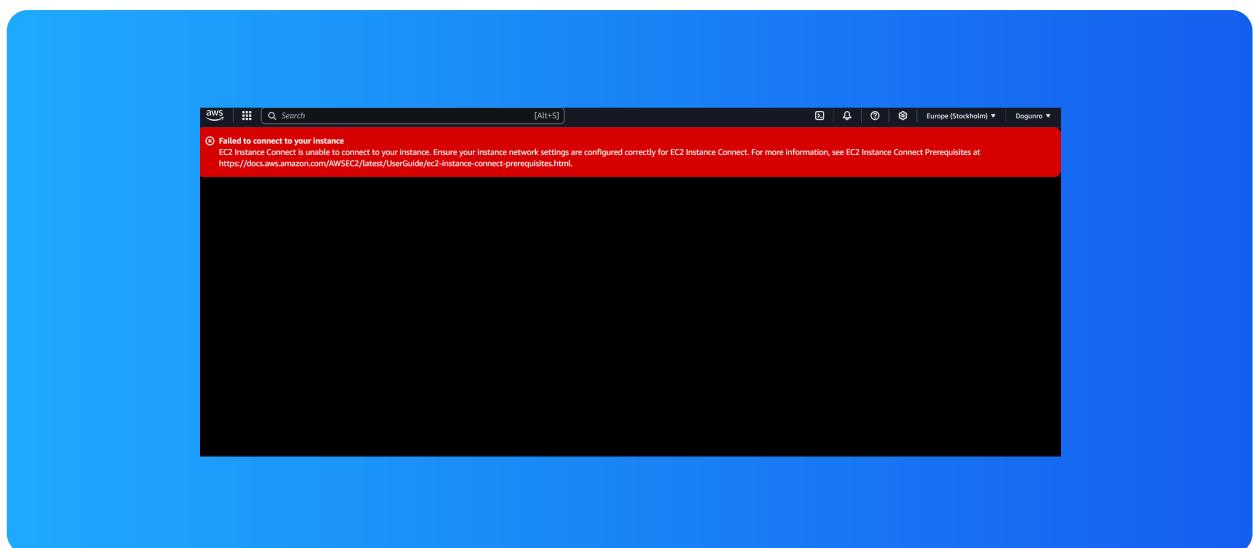


EC2 Instance Connect

I connected to my EC2 instance using EC2 Instance Connect, which is a browser-based SSH tool provided by AWS that allows secure and direct access to Amazon EC2 instances without needing an external SSH client or key pair configuration.

My first attempt at getting direct access to my public server resulted in an error, because the security group rules were not configured to allow inbound SSH traffic, blocking the connection request.

I fixed this error by updating the security group rules to allow inbound SSH traffic on port 22 from my IP address, ensuring secure and authorized access to the server.





Connectivity Between Servers

Ping is a network diagnostic tool used to test the reachability of a host and measure the round-trip time of data packets. I used ping to test the connectivity between my local machine and the public server.

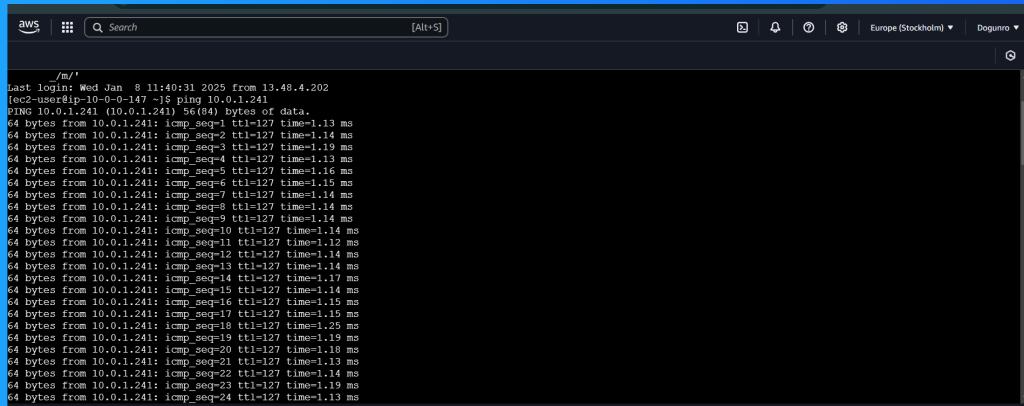
The ping command I ran was ping 10.0.1.241,

The first ping returned a timeout error. This meant that the server was unreachable

A screenshot of a terminal window titled "aws" on an Amazon Linux 2023 system. The window shows a welcome ASCII art logo and the URL <https://aws.amazon.com/linux/amazon-linux-2023>. Below the logo, the terminal prompt shows the user's last login information: "Last login: Wed Jan 8 11:18:21 2025 from 13.48.4.203 [ec2-user@ip-10-0-0-147 ~]\$". The user then runs the command "ping 10.0.1.241", which returns the message "PING 10.0.1.241 (10.0.1.241) 56(84) bytes of data." A small portion of the terminal window is obscured by a black rectangle.

Troubleshooting Connectivity

I troubleshoot this by checking the network configuration and updating the security group rules to allow inbound ICMP traffic for ping requests.



The screenshot shows a terminal window with a blue background. At the top, there's a header bar with the AWS logo, a search bar, and some icons. Below the header, the terminal prompt is shown as '/m/'. The main content of the terminal is the output of a 'ping' command. The output shows a series of ICMP echo requests being sent to the IP address 10.0.1.241. Each line shows the sequence number (seq), TTL (ttl), and round-trip time (time) for each packet. The sequence numbers range from 1 to 24, and the times are consistently around 1.13 ms.

```
/m/
Last login: Wed Jan  8 11:40:31 2025 from 13.48.4.202
[ec2-user@ip-10-0-0-147 ~]$ ping 10.0.1.241
PING 10.0.1.241 (10.0.1.241) 56(84) bytes of data.
64 bytes from 10.0.1.241: icmp_seq=1 ttl=127 time=1.13 ms
64 bytes from 10.0.1.241: icmp_seq=2 ttl=127 time=1.14 ms
64 bytes from 10.0.1.241: icmp_seq=3 ttl=127 time=1.13 ms
64 bytes from 10.0.1.241: icmp_seq=4 ttl=127 time=1.13 ms
64 bytes from 10.0.1.241: icmp_seq=5 ttl=127 time=1.16 ms
64 bytes from 10.0.1.241: icmp_seq=6 ttl=127 time=1.15 ms
64 bytes from 10.0.1.241: icmp_seq=7 ttl=127 time=1.14 ms
64 bytes from 10.0.1.241: icmp_seq=8 ttl=127 time=1.14 ms
64 bytes from 10.0.1.241: icmp_seq=9 ttl=127 time=1.14 ms
64 bytes from 10.0.1.241: icmp_seq=10 ttl=127 time=1.14 ms
64 bytes from 10.0.1.241: icmp_seq=11 ttl=127 time=1.12 ms
64 bytes from 10.0.1.241: icmp_seq=12 ttl=127 time=1.14 ms
64 bytes from 10.0.1.241: icmp_seq=13 ttl=127 time=1.14 ms
64 bytes from 10.0.1.241: icmp_seq=14 ttl=127 time=1.17 ms
64 bytes from 10.0.1.241: icmp_seq=15 ttl=127 time=1.14 ms
64 bytes from 10.0.1.241: icmp_seq=16 ttl=127 time=1.15 ms
64 bytes from 10.0.1.241: icmp_seq=17 ttl=127 time=1.15 ms
64 bytes from 10.0.1.241: icmp_seq=18 ttl=127 time=1.25 ms
64 bytes from 10.0.1.241: icmp_seq=19 ttl=127 time=1.19 ms
64 bytes from 10.0.1.241: icmp_seq=20 ttl=127 time=1.18 ms
64 bytes from 10.0.1.241: icmp_seq=21 ttl=127 time=1.13 ms
64 bytes from 10.0.1.241: icmp_seq=22 ttl=127 time=1.14 ms
64 bytes from 10.0.1.241: icmp_seq=23 ttl=127 time=1.19 ms
64 bytes from 10.0.1.241: icmp_seq=24 ttl=127 time=1.13 ms
```



Connectivity to the Internet

Curl is a command-line tool used for transferring data to or from a server, supporting various protocols such as HTTP, HTTPS, FTP, and more. It allows users to test and interact with APIs, download files, and perform web requests.

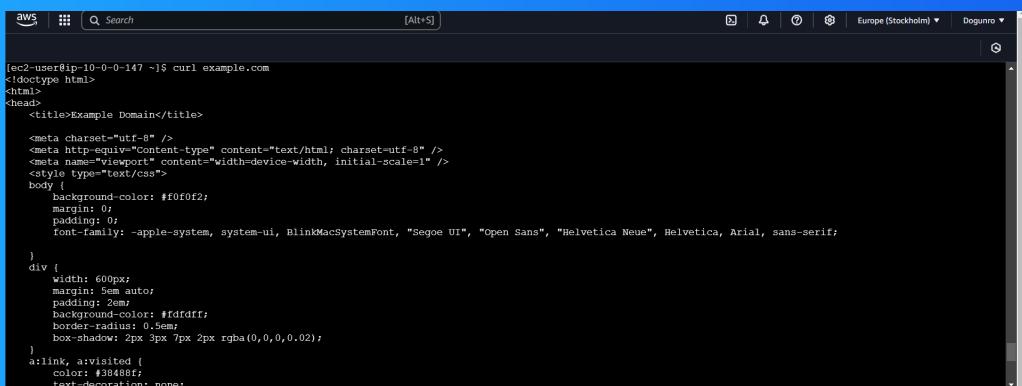
I used curl to test the connectivity between my local machine and the server by sending an HTTP request to verify if the server was responding and accessible through the specified protocol.

Ping vs Curl

Ping and curl are different because ping is used to test basic network connectivity by sending ICMP echo requests, while curl is used to interact with web servers by sending HTTP(S) requests, retrieving data, and testing API responses.

Connectivity to the Internet

I ran the curl command `curl example.com`, which returned the HTML content of the website, indicating that the server was responding and accessible via HTTP.



```
[ec2-user@ip-10-0-0-147 ~]$ curl example.com
<!DOCTYPE html>
<html>
<head>
<title>example Domain</title>
<meta charset="utf-8" />
<meta http-equiv="Content-type" content="text/html; charset=utf-8" />
<meta name="viewport" content="width=device-width, initial-scale=1" />
<style type="text/css">
body {
    background-color: #f0f0f2;
    margin: 0;
    padding: 0;
    font-family: -apple-system, system-ui, BlinkMacSystemFont, "Segoe UI", "Open Sans", "Helvetica Neue", Helvetica, Arial, sans-serif;
}
div {
    width: 600px;
    margin: 5em auto;
    background-color: #f3f3f3;
    border-radius: 0.5em;
    box-shadow: 2px 3px 7px 2px rgba(0,0,0,0.02);
}
a:link, a:visited {
    color: #38488f;
    text-decoration: none;
}
```



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