



Testing VPC Connectivity

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[AWS] Services Q Search [Alt+5] D A E F C G H I J K L M N O P R S T V W X Y Z

curl -sS --max-time 10 -o 0-67 -j $ curl https://learn.newtwerk.org/projects/aws-host-a-website-on-s3
<html lang="en">
<head>
<meta charset="UTF-8" />
<title>NextWork - Host a Website on Amazon S3</title>
<meta content="Let'sWork! host your very own website on Amazon S3!" name="description" />
<meta content="NextWork - Host a Website on Amazon S3" property="og:title" />
</head>
<meta content="Let'sWork! host your very own website on Amazon S3" property="og:description" />
</meta>
<meta content="https://cdn.prod.websitewebfiles.com/e47460114e0547694bfad16/e50bb837078ace7d6d3904eee_newtwerk-opengraph-image.png" property="og:image" />
</meta>
<meta content="NextWork - Host a Website on Amazon S3" property="twitter:title" />
</meta>
<meta content="Let'sWork! host your very own website on Amazon S3" property="twitter:description" />
</meta>
<meta content="https://cdn.prod.websitewebfiles.com/e47460114e0547694bfad16/e50bb837078ace7d6d3904eee_newtwerk-opengraph-image.png" property="twitter:image" />
</meta>
<meta property="og:type" content="website" />
<meta property="og:site_name" content="NextWork" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
<link rel="icon" href="/favicon.ico" sizes="32x32" />
<link rel="icon" href="/static/nextwork-icon-egg.svg" type="image/svg+xml" />
<link rel="preconnect" href="https://fonts.googleapis.com" />
<link rel="preconnect" href="https://fonts.gstatic.com" crossorigin="anonymous" />
<link href="https://fonts.googleapis.com/css2?family=Inter:wght@100..900&family=Just+Me+Again+Down+here&display=swap" rel="stylesheet" />
```

Introducing Today's Project!

What is Amazon VPC?

Amazon VPC (Virtual Private Cloud) allows users to create a private and isolated network in their AWS account. They can manage and organize resources as well as configure permissions and access to those resources.

How I used Amazon VPC in this project

In this project I used Amazon VPC to set up a connection to my public EC2 instance; I modified the Security Groups and Network ACLs so my instances could communicate. I also verified that my public instance could communicate on the Internet.

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

I wasn't expecting to use some basic networking commands like ping and curl, but it was good to review basic networking concepts and it will help me build efficient and secure AWS environments as I grow my knowledge.

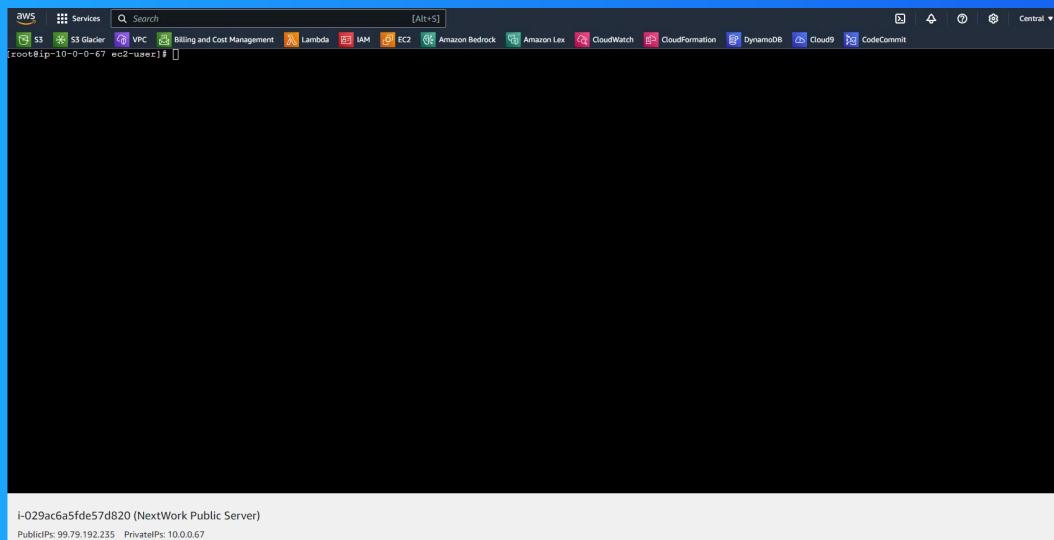
This project took me...

This project took me 1 hour and 30 minutes. I also took another 20 minutes to write my documentation.

Connecting to an EC2 Instance

Connectivity means the setup of the different components of a network and how well they're able to communicate with each other; it's important that internal networks can communicate efficiently and with networks outside of the AWS environment.

My first connectivity test was whether I could connect to my NextWork Public Server, which is the EC2 instance I created. I was connecting from the AWS environment using the EC2 Instance Connect.

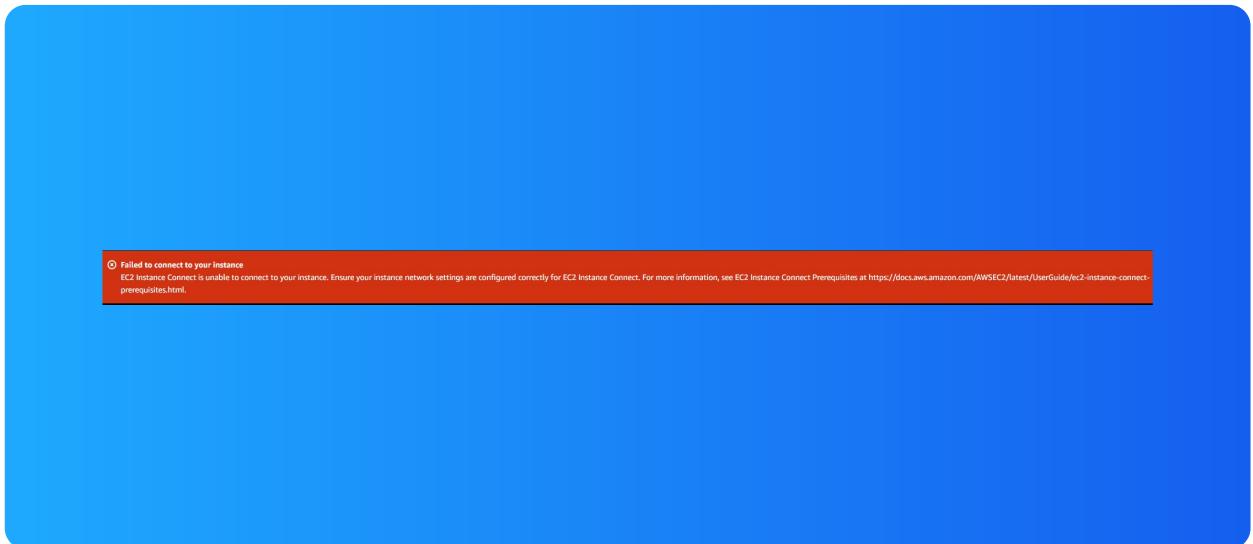


EC2 Instance Connect

I connected to my EC2 instance using EC2 Instance Connect, which is a convenient way to directly connect to an EC2 instance through SSH on the AWS Management Console. In this case, AWS handles the key management for secure connections.

My first attempt at getting direct access to my public server resulted in an error, because I was using an SSH connection and the security group settings didn't have a rule to allow those type of connections to the server.

I fixed this error by reviewing the NextWork Security Group that's attached to my public server. I added a rule in the Inbound Rules that allowed SSH connections on port 22; therefore my SSH connection was successful after I made this modification.

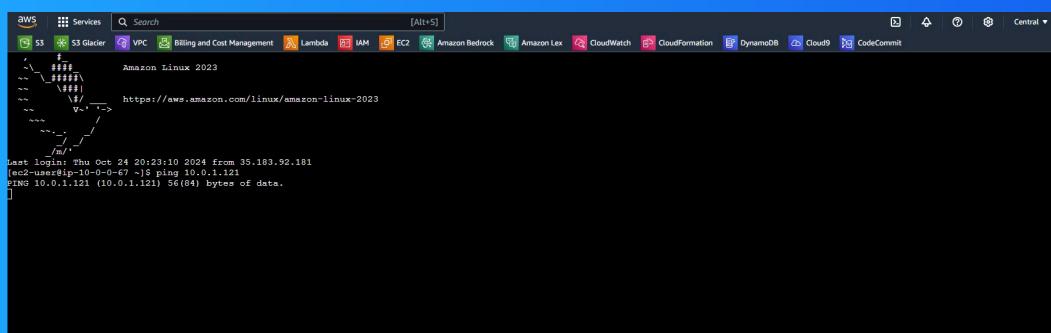


Connectivity Between Servers

Ping is a common computer networking tool; it allows you to verify that your computer can communicate with another computer or device on the network. I used ping to test the connectivity between my public server and private server.

The ping command I ran was: ping 10.0.1.121 This is my private server's IP address and I attempted communication from my public server to verify connectivity.

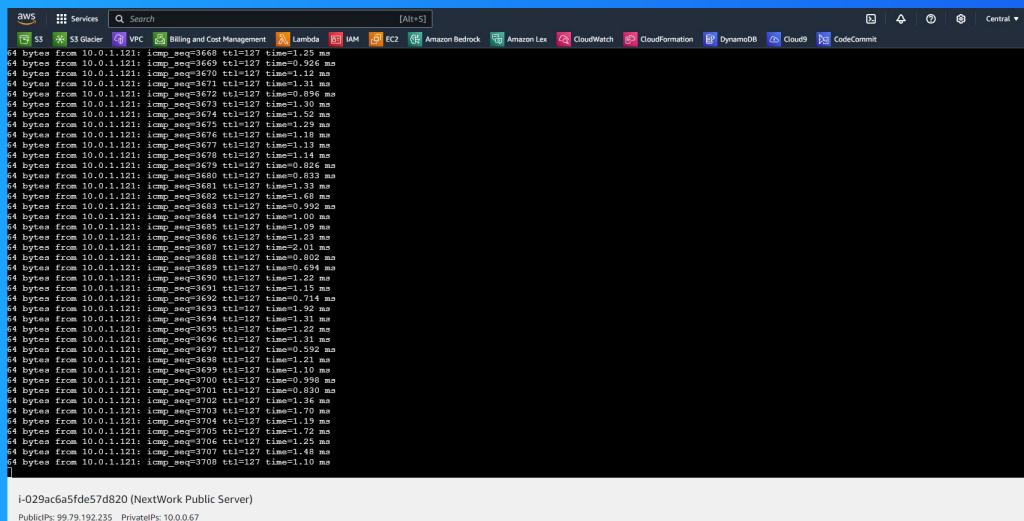
The first ping returned a line stating that it executed my command to reach the private server; however there's no response. This meant that the private server never got the ping and the request from my server is still waiting for a response.



```
Last log: Thu Oct 24 20:23:10 2024 from 35.183.92.181
[ec2-user@ip-10-0-0-67 ~]$ ping 10.0.1.121
PING 10.0.1.121 (10.0.1.121) 56(84) bytes of data.
```

Troubleshooting Connectivity

I troubleshooted this by adding a rule in the private Network ACL; I used my public subnet's IPv4 CIDR Block as the source and allowed ICMP traffic to enter and leave the private subnet. I also had the private security group accept ICMP as well.



A screenshot of the AWS CloudWatch Logs interface. The log stream shows numerous ICMP sequence (seq) numbers and their corresponding details. The logs are as follows:

```
i-029ac6a5fde570820 (NextWork Public Server)
PublicIP: 99.79.192.235 PrivateIP: 10.0.0.67
[...]
i4 bytes from 10.0.1.121: icmp_seq=3660 ttl=127 time=1.09 ms
i4 bytes from 10.0.1.121: icmp_seq=3669 ttl=127 time=0.926 ms
i4 bytes from 10.0.1.121: icmp_seq=3670 ttl=127 time=1.12 ms
i4 bytes from 10.0.1.121: icmp_seq=3671 ttl=127 time=1.31 ms
i4 bytes from 10.0.1.121: icmp_seq=3672 ttl=127 time=1.09 ms
i4 bytes from 10.0.1.121: icmp_seq=3673 ttl=127 time=1.30 ms
i4 bytes from 10.0.1.121: icmp_seq=3674 ttl=127 time=1.52 ms
i4 bytes from 10.0.1.121: icmp_seq=3675 ttl=127 time=1.09 ms
i4 bytes from 10.0.1.121: icmp_seq=3676 ttl=127 time=1.18 ms
i4 bytes from 10.0.1.121: icmp_seq=3677 ttl=127 time=1.13 ms
i4 bytes from 10.0.1.121: icmp_seq=3678 ttl=127 time=1.14 ms
i4 bytes from 10.0.1.121: icmp_seq=3679 ttl=127 time=0.95 ms
i4 bytes from 10.0.1.121: icmp_seq=3680 ttl=127 time=0.833 ms
i4 bytes from 10.0.1.121: icmp_seq=3681 ttl=127 time=1.33 ms
i4 bytes from 10.0.1.121: icmp_seq=3682 ttl=127 time=1.68 ms
i4 bytes from 10.0.1.121: icmp_seq=3683 ttl=127 time=1.09 ms
i4 bytes from 10.0.1.121: icmp_seq=3684 ttl=127 time=1.00 ms
i4 bytes from 10.0.1.121: icmp_seq=3685 ttl=127 time=1.09 ms
i4 bytes from 10.0.1.121: icmp_seq=3686 ttl=127 time=1.04 ms
i4 bytes from 10.0.1.121: icmp_seq=3687 ttl=127 time=2.01 ms
i4 bytes from 10.0.1.121: icmp_seq=3688 ttl=127 time=0.802 ms
i4 bytes from 10.0.1.121: icmp_seq=3689 ttl=127 time=0.694 ms
i4 bytes from 10.0.1.121: icmp_seq=3690 ttl=127 time=0.803 ms
i4 bytes from 10.0.1.121: icmp_seq=3691 ttl=127 time=1.15 ms
i4 bytes from 10.0.1.121: icmp_seq=3692 ttl=127 time=0.714 ms
i4 bytes from 10.0.1.121: icmp_seq=3693 ttl=127 time=1.92 ms
i4 bytes from 10.0.1.121: icmp_seq=3694 ttl=127 time=1.13 ms
i4 bytes from 10.0.1.121: icmp_seq=3695 ttl=127 time=1.22 ms
i4 bytes from 10.0.1.121: icmp_seq=3696 ttl=127 time=1.31 ms
i4 bytes from 10.0.1.121: icmp_seq=3697 ttl=127 time=0.992 ms
i4 bytes from 10.0.1.121: icmp_seq=3698 ttl=127 time=1.21 ms
i4 bytes from 10.0.1.121: icmp_seq=3699 ttl=127 time=1.10 ms
i4 bytes from 10.0.1.121: icmp_seq=3700 ttl=127 time=0.998 ms
i4 bytes from 10.0.1.121: icmp_seq=3701 ttl=127 time=1.09 ms
i4 bytes from 10.0.1.121: icmp_seq=3702 ttl=127 time=1.36 ms
i4 bytes from 10.0.1.121: icmp_seq=3703 ttl=127 time=1.70 ms
i4 bytes from 10.0.1.121: icmp_seq=3704 ttl=127 time=1.19 ms
i4 bytes from 10.0.1.121: icmp_seq=3705 ttl=127 time=1.03 ms
i4 bytes from 10.0.1.121: icmp_seq=3706 ttl=127 time=1.25 ms
i4 bytes from 10.0.1.121: icmp_seq=3707 ttl=127 time=1.48 ms
i4 bytes from 10.0.1.121: icmp_seq=3708 ttl=127 time=1.10 ms
[...]
```



Connectivity to the Internet

Curl is a networking tool that tests connectivity for a computer in a network; this command can be used to retrieve data from servers as well as upload data to them.

I used curl to test the connectivity between my public server and websites on the Internet. I was able to view the website source code from example.com, but with nextwork.org I got a "Found" message. This meant that the website had been moved.

Ping vs Curl

Ping and curl are different because the ping command can verify that computers and devices are able to communicate with each other. The curl command can check connectivity for a computer, upload data to servers as well as download data from them.



Connectivity to the Internet

I ran the curl command on the NextWork project website, which returned the source code for that website and it was displayed on my terminal. This is an example of how I was able to pull data from a server and view it on my public EC2 instance.

```
[ec2-user@ip-10-0-0-67 ~]$ curl https://learn.nextwork.org/projects/aws-host-a-website-on-s3
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8" />
    <title>NextWork - Host a Website on Amazon S3</title>
    <meta content="Let's host your very own website on Amazon S3!" name="description" />
    <meta content="NextWork - Host a Website on Amazon S3" property="og:title" />
    <meta content="Let's host your very own website on Amazon S3!" property="og:description" />
    <meta content="https://cdn.prod.website-files.com/647460114a0547e94b4af16/650b837078ace7d663904eee_nextwork-opengraph-image.png" property="og:image" />
    <meta content="NextWork - Host a Website on Amazon S3" property="twitter:title" />
    <meta content="Let's host your very own website on Amazon S3!" property="twitter:description" />
    <meta content="https://cdn.prod.website-files.com/647460114a0547e94b4af16/650b837078ace7d663904eee_nextwork-opengraph-image.png" property="twitter:image" />
    <meta property="og:type" content="website" />
    <meta content="summary_large_image" name="twitter:card" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <link rel="icon" href="/icon.ico" size="32x32" />
    <link rel="icon" href="/static/assets/icon/icon-192x192.png" type="image/png" />
    <link rel="preconnect" href="https://fonts.googleapis.com" />
    <link rel="preconnect" href="https://fonts.gstatic.com" crossorigin />
    <link href="https://fonts.googleapis.com/css2?family=Inter:wght@100..900&family=Just+Me+Again+Down+Here&display=swap" rel="stylesheet" />
```



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