

# VPC Peering & Cross-VPC Connectivity

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## Introduction

In this project, I learned how to connect two separate VPCs using **VPC Peering**. Each VPC is normally isolated and cannot communicate with other networks unless we explicitly allow it. By setting up VPC peering, I enabled private, secure communication between two VPCs without sending any data over the public internet.

This project helped me understand multi-VPC architectures, private routing, and how cloud resources communicate across isolated networks safely.

In this project, I completed the following tasks:

- **Set up multiple VPCs** – I created two different VPCs, each with its own CIDR range, subnets, route tables, and resources.
- **Created a VPC Peering connection** – I established a private network link between both VPCs so they could communicate.
- **Tested VPC peering with connectivity checks** – I verified communication using private IP addresses, confirming that traffic stayed inside AWS's private backbone network.

VPC peering ensures that data travels **privately**, directly between VPCs.

Without peering, traffic would need to go through the **public internet**, which is less secure and not ideal for internal workloads.

## Creating the First VPC

- First, I created a new VPC using the **VPC and More** option.
- I named this VPC **My\_Network\_VPC1** so it's easy to identify later.

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances. Mouse over a resource to highlight the related resources.

**VPC settings**

**Resources to create** [Info](#)  
Create only the VPC resource or the VPC and other networking resources.  
 VPC only  VPC and more

**Name tag auto-generation** [Info](#)  
Enter a value for the Name tag. This value will be used to auto-generate Name tags for all resources in the VPC.  
 Auto-generate  
My\_Network\_VPC\_1

**IPv4 CIDR block** [Info](#)  
Determine the starting IP and the size of your VPC using CIDR notation.  
10.1.0.0/16 65,536 IPs  
CIDR block size must be between /16 and /28.

**IPv6 CIDR block** [Info](#)  
 No IPv6 CIDR block  
 Amazon-provided IPv6 CIDR block

**Tenancy** [Info](#)  
Default

**Encryption settings - optional**

**Preview**

**VPC** [Show details](#)  
Your AWS virtual network  
My\_Network\_VPC\_1-vpc

**Subnets (1)**  
Subnets within this VPC  
eu-north-1a  
My\_Network\_VPC\_1-subnet-1

**Route tables (1)**  
Route network traffic to resources  
My\_Network\_VPC\_1-rtb-public

- I declared the IPv4 CIDR block as **10.1.0.0/16**, giving the VPC plenty of private IP space.
- I chose **No IPv6**, since this project focuses only on IPv4 connectivity.
- I set **Tenancy to Default**, as I did not need dedicated hardware for this setup.

The screenshot shows the AWS VPC configuration wizard in progress. On the left, there are several configuration sections: 'Number of Availability Zones (AZs)', 'Number of public subnets', 'Number of private subnets', 'NAT gateways (\$ - updated)', 'VPC endpoints', and 'Customize subnets CIDR blocks'. On the right, the 'Preview' section shows the resulting VPC structure. It includes a 'VPC Show details' box, a 'Subnets (1)' box containing 'My\_Network\_VPC\_1-subnet-1' in 'eu-north-1a', and a 'Route tables (1)' box containing 'My\_Network\_VPC\_1-rtb-public'.

- I selected **1 Availability Zone** with **one public subnet** and **no private subnet**. This is because this VPC will only be used for testing VPC peering, and I only needed a simple network structure with one public subnet.
- I selected **No NAT Gateway**. NAT gateways are only needed when *private subnets* require outbound internet access. Since I did not create a private subnet and didn't need internet access from inside the VPC, a NAT gateway wasn't necessary.
- I also selected **No VPC Endpoints**. VPC endpoints are used when you want to privately connect your VPC to AWS services like S3 or DynamoDB. Since this project focuses only on VPC-to-VPC connectivity, and not on private access to AWS services, VPC endpoints were not required.

Your VPCs (3) <a href="#">Info</a>								Last updated <a href="#">less than a minute ago</a>	<a href="#">Actions</a>	<a href="#">Create VPC</a>
<input type="checkbox"/>	Name	VPC ID	State	Encryption c...	Encryption control ...	Block Public...	IPv4 CIDR			
<input type="checkbox"/>	My_Network_VPC	vpc-0e69c4b80354b0e63	<span>Available</span>	-	-	<input type="radio"/> Off	10.0.0.0/16	-		
<input type="checkbox"/>	My_Network_VPC_1-vpc	vpc-0d207d25eff661a9c	<span>Available</span>	-	-	<input type="radio"/> Off	10.1.0.0/16	-		

- After I created both VPCs, I verified their CIDR ranges:
  - **My\_Network\_VPC1:** 10.1.0.0/16
  - **My\_Network\_VPC:** 10.0.0.0/16
- Each VPC had its own unique CIDR block, which is required for VPC peering. VPCs **cannot** overlap in IP ranges if they need to communicate, so using different CIDR blocks made them compatible for peering.
- With both VPCs fully created and isolated from each other, it was now time to **connect them using a VPC peering connection** so they could communicate privately.

## Creating the VPC Peering Connection

- Next, I went to **Peering Connections** from the left-side panel of the VPC console.
- I clicked on **Create Peering Connection** to start setting up the link between my two VPCs.

The screenshot shows the 'Create peering connection' wizard. Step 1: 'Select a local VPC to peer with'. It shows 'My\_VPC' as the requester VPC with CIDR 10.1.0.0/16. Step 2: 'Select another VPC to peer with'. It shows 'My\_Network\_VPC' as the acceptor VPC with CIDR 10.0.0.0/16. Both VPCs are listed as 'Associated'.

- I named the peering connection **My\_VPC < My\_VPC1** so it was easy to recognize.
- First, I selected the **Requestor VPC**, which was **My\_Network\_VPC1**.  
The *requestor* is simply the VPC that **initiates** the peering request.
- Then I selected the **Acceptor VPC**, which was **My\_Network\_VPC**.  
The *acceptor* is the VPC that **receives** the request and must approve it.
- In the acceptor settings, I noticed AWS allows peering with **other accounts** and even **other regions**, making cross-account or cross-region peering possible.  
But for this project, I selected my second VPC in the **same region**.
- After selecting both sides, I clicked **Create Peering Connection** to create the request.

The screenshot shows the 'pcx-084a2f471c694f98b / My\_VPC < My\_VPC1' details page. The status is 'Pending acceptance'. The 'Actions' menu is open, showing options: 'Accept request' (highlighted), 'Reject request', 'Edit DNS settings', 'Manage tags', and 'Delete peering connection'. The 'Details' section includes information like Requester owner ID (377721963177), Acceptor owner ID (377721963177), Requester VPC (vpc-0d207d25eff661a9c / My\_Network\_VPC\_1-vpc), Requester CIDRs (10.1.0.0/16), Requester Region (Stockholm (eu-north-1)), Acceptor VPC (vpc-0e69c4b80354b0e63 / My\_Network\_VPC), Acceptor CIDRs (—), and Acceptor Region (Stockholm (eu-north-1)).

## Accepting the Peering Request

- After creating the peering connection, it was still in the **Pending Acceptance** state.

- Because both VPCs are in the **same AWS account**, I had full permission to approve the request myself.
- I selected the peering connection, went to **Actions**, and clicked **Accept Request**.
- Once accepted, the peering status changed to **Active**, meaning both VPCs were now allowed to communicate privately.

Your VPC peering connection (pcx-084a2f471c694f98b | My\_VPC < My\_VPC\_1) has been established.  
To send and receive traffic across this VPC peering connection, you must add a route to the peered VPC in one or more of your VPC route tables. [Info](#)

**pcx-084a2f471c694f98b / My\_VPC < My\_VPC\_1**

Details <a href="#">Info</a>		VPC Peering connection ARN <a href="#">arn:aws:ec2:eu-north-1:377721963177:vpc-peering-connection/pcx-084a2f471c694f98b</a>	
Requester owner ID <a href="#">377721963177</a>	Acceptor owner ID <a href="#">377721963177</a>	Requester VPC <a href="#">vpc-0d207d25eff661a9c / My_Network_VPC_1-vpc</a>	Acceptor VPC <a href="#">vpc-0e69c4b80354b0e63 / My_Network_VPC</a>
Peering connection ID <a href="#">pcx-084a2f471c694f98b</a>	Requester CIDRs <a href="#">10.1.0.0/16</a>	Requester Region Stockholm (eu-north-1)	Acceptor CIDRs <a href="#">10.0.0.0/16</a>
Status <a href="#">Active</a>	Requester Region Stockholm (eu-north-1)	Acceptor Region Stockholm (eu-north-1)	
Expiration time -			

[DNS](#) | [Route tables](#) | [Tags](#)

## Updating Route Tables for VPC Peering

- After activating the peering connection, the two VPCs were *allowed* to communicate — but they still **could not send traffic to each other yet**.
- This is because **VPC peering does NOT automatically update route tables**. Each VPC must be told *where* to send traffic intended for the other VPC.
- In simple words:  
**Peering creates the link.**  
**Route tables decide the path.**  
Without adding routes, the instances inside the VPCs do not know how to reach each other's IP ranges.
- To fix this, I opened **Route Tables** in the VPC console and selected the route table for my first VPC.
- Then I clicked **Edit Routes** to add a new entry pointing to the peering connection.

Route tables (2/5) [Info](#)

Last updated: less than a minute ago

Name	Route table ID	Explicit subnet associ...	Edge associations	Main	VPC	Owner ID
My_Private_RTable	rtb-0650e5a316b4c94bd	subnet-09751e0e45a3b4...	-	No	vpc-0e69c4b80354b0e63   My...	377721963177
-	rtb-0c36ddf84a1f65c88	-	-	Yes	vpc-0d207d25eff661a9c   My...	377721963177
<input checked="" type="checkbox"/> My_Public_RTable_1	rtb-044ca0465245c2040	subnet-074fc2844543fe...	-	No	vpc-0d207d25eff661a9c   My...	377721963177
<input checked="" type="checkbox"/> My_Public_RTable	rtb-05b130f2f43879211	subnet-024df28332ec19...	-	Yes	vpc-0e69c4b80354b0e63   My...	377721963177
-	rtb-06655d504ed416bba	-	-	Yes	vpc-0b5621f1aac817a13	377721963177

## Setting Routes for Cross-VPC Communication

- Each route table belongs to a different VPC, which means they control traffic **inside** their own VPC only.
- To make both VPCs talk to each other, I had to **manually create a path** in each route table that points to the peering connection.
- Without these routes, even though the peering link exists, the instances won't know how to reach the other VPC's IP range.

- So I opened the route table for the first VPC and prepared to add a route that sends traffic to the **other VPC's CIDR block** through the **peering connection**.

The screenshot shows the 'Edit routes' page for a route table. A new route is being added for destination 10.0.0.0/16, target Peering Connection, via PCX-084a2f471c694f98b. The 'Add route' button is highlighted.

Destination	Target	Status	Propagated	Route Origin
10.1.0.0/16	local	Active	No	CreateRouteTable
0.0.0.0/0	Internet Gateway	Active	No	CreateRoute
10.0.0.0/16	Peering Connection	-	No	CreateRoute
	pcx-084a2f471c694f98b			

## Adding Routes to Both VPCs

- My **My\_Public\_RTable1** belonged to **My\_Network\_VPC1**, which uses the CIDR block **10.1.0.0/16**.
- My **My\_Public\_RTable** belonged to **My\_Network\_VPC**, which uses the CIDR block **10.0.0.0/16**.
- I opened **My\_Public\_RTable1** first and added a new route.
  - **Destination:** 10.0.0.0/16 (the CIDR block of the second VPC)
  - **Target:** the VPC peering connection  
This tells VPC1 that any traffic meant for 10.0.0.0/16 should be sent through the peering link.
- Then I opened **My\_Public\_RTable** and did the exact same thing in reverse.
  - **Destination:** 10.1.0.0/16 (the CIDR block of the first VPC)
  - **Target:** the same peering connection  
This allows VPC2 to send traffic back to VPC1.
- After adding these routes, both VPCs now had a **two-way private path** for communication through the peering connection.

The screenshot shows the details page for route table rtb-044ca0465245c2040. It displays three routes: 0.0.0.0/0 (target igw-021d9da9d707b28e0), 10.0.0.0/16 (target pcx-084a2f471c694f98b), and 10.1.0.0/16 (target local).

Destination	Target	Status	Propagated	Route Origin
0.0.0.0/0	igw-021d9da9d707b28e0	Active	No	Create Route
10.0.0.0/16	pcx-084a2f471c694f98b	Active	No	Create Route
10.1.0.0/16	local	Active	No	Create Route Table

## Why We Must Add the Other VPC's CIDR Block (Even Though the Route Table Already Has 0.0.0.0/0)

- Even though the public route table already had the route **0.0.0.0/0 → Internet Gateway**, that only sends traffic **to the internet**, not to another VPC.

- The CIDR block **0.0.0.0/0** means “send all *unknown* traffic to the internet,” but the other VPC’s IP range (10.x.x.x) is *not* on the public internet.  
It exists **inside AWS’s private network**, not outside.
- Because of this, the route table needs a **specific rule** telling it:  
**“If the destination is the *other* VPC’s private CIDR block, send it through the peering connection, not the Internet Gateway.”**
- Without adding the other VPC’s CIDR block, the instance would try to send that traffic to the **Internet Gateway**, which cannot reach private AWS networks.  
The traffic would simply get lost.
- By adding the correct CIDR block and pointing it to the **peering connection**, we are telling AWS:  
**“This traffic is meant for another private network — send it through the private link, not the internet.”**
- This is why **every VPC peering setup requires explicit route entries** for both VPCs, even when using public route tables.

**Network settings** Info

**VPC - required** Info

vpc-0d207d25eff661a9c (My\_Network\_VPC\_1-vpc)  
10.1.0.0/16

**Subnet** Info

subnet-074f0c2844543fec My\_Network\_VPC\_1-subnet-public1-eu-north-1a  
VPC: vpc-0d207d25eff661a9c Owner: 377721963177 Availability Zone: eu-north-1a (eun1-az1)  
Zone type: Availability Zone IP addresses available: 4091 CIDR: 10.1.0.0/20

**Create new subnet**

**Auto-assign public IP** Info

Disable

**Firewall (security groups)** Info

A security group is a set of firewall rules that control the traffic for your instance. Add rules to allow specific traffic to reach your instance.

Create security group  Select existing security group

**Common security groups** Info

Select security groups

default sg-08c97f68f6676e1d7 X  
VPC: vpc-0d207d25eff661a9c

Compare security group rules

**Advanced network configuration**

The sidebar on the right lists: Nu, So, Ar, am, Vir, t3, Fir, def, St, 1 v.

## Creating EC2 Instances in Both VPCs for Peering Tests

- To test VPC peering, I needed to run an EC2 instance **inside each VPC**.  
This allows me to send traffic from one VPC to the other using private IP addresses.
- First, I created an EC2 instance and named it **My\_EC2\_1**.
  - I selected **My\_Network\_VPC1** as the VPC.
  - I chose the **public subnet** of that VPC.
  - I **disabled Auto-assign Public IP**, because for peering tests we only want **private-to-private** communication.
  - For the security group, I selected the **default SG** that was automatically created when the VPC was created.
- Then I created another EC2 instance in the **second VPC** and named it **My\_EC2**.
  - I placed it inside **My\_Network\_VPC**.
  - I used the public subnet of this VPC as well.

- I applied the **same settings**: no public IP and the **default Security Group** of its VPC.
- At this point, each VPC had its own EC2 instance, ready to test **cross-VPC communication** through the peering connection.

Instances (2) <a href="#">Info</a>								
Last updated less than a minute ago <a href="#">Connect</a> <a href="#">Instance state</a> <a href="#">Actions</a> <a href="#">Launch instances</a>								
	Name <a href="#">Filter</a>	Instance ID	Instance state	Instance type	Status check	Alarm status	Availability Zone	Public IPv4 DNS
<input type="checkbox"/>	My_EC2_1	i-0159eb3f5df6b86db	<span>Running</span> <a href="#">View details</a> <a href="#">Logs</a>	t3.micro	<span>Initializing</span>	<a href="#">View alarms +</a>	eu-north-1a	-
<input type="checkbox"/>	My_EC2	i-0f8c774560fae2c49	<span>Running</span> <a href="#">View details</a> <a href="#">Logs</a>	t3.micro	<span>3/3 checks passed</span>	<a href="#">View alarms +</a>	eu-north-1a	-

## Connection Error – No Public IP

- After both instances were created, I selected one of them and tried to connect using the **AWS Connect** button.
- However, I received an error saying that the instance has **no public IP address**.

= [EC2](#) > [Instances](#) > [i-0159eb3f5df6b86db](#) > [Connect to instance](#)

### Connect [Info](#)

Connect to an instance using the browser-based client.

[EC2 Instance Connect](#) [Session Manager](#) [SSH client](#) [EC2 serial console](#)

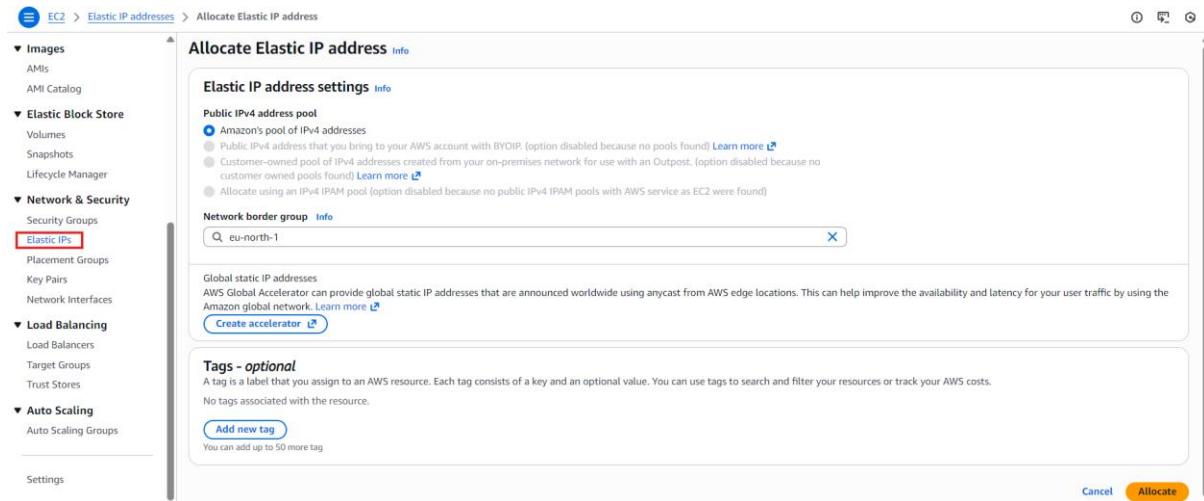
⚠ **No public IPv4 or IPv6 address assigned**  
With no public IPv4 or IPv6 address, you can't use EC2 Instance Connect. Alternatively, you can try connecting using [EC2 Instance Connect Endpoint](#).

**Instance ID**  
[i-0159eb3f5df6b86db](#) (My\_EC2\_1)

- The reason is simple:  
The AWS browser-based **EC2 Connect** method requires a **public IP** so AWS can reach the instance over the internet.  
Without a public IP, the instance cannot be accessed directly from the AWS console or the outside world.
- Since I purposely **disabled Auto-assign Public IP** on both instances (because peering tests use only private IPs), the console connection method could not work.

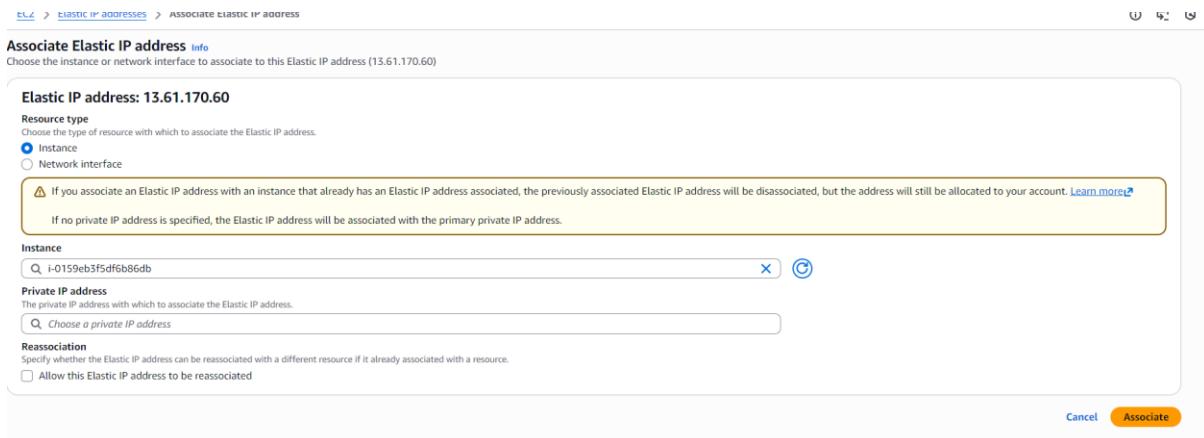
## What Are Elastic IPs?

- **Elastic IPs are static IPv4 addresses** that AWS allocates to your account.
- “Static” means the IP stays the **same**, unlike the **dynamic public IPs** that EC2 instances normally get.
- When an EC2 instance restarts, its normal public IP changes — but an Elastic IP **does not**.
- Having an Elastic IP is like having a **permanent address**, instead of moving to a new house every time the instance restarts.



## Allocating an Elastic IP

- In the EC2 console, under **Network & Security**, I selected **Elastic IPs**.
- Then I clicked **Allocate Elastic IP address**.
- I confirmed the **correct border group** (this ensures the IP is allocated in the right AWS network location).
- Finally, I selected **Amazon's IPv4 address pool** and allocated the IP.

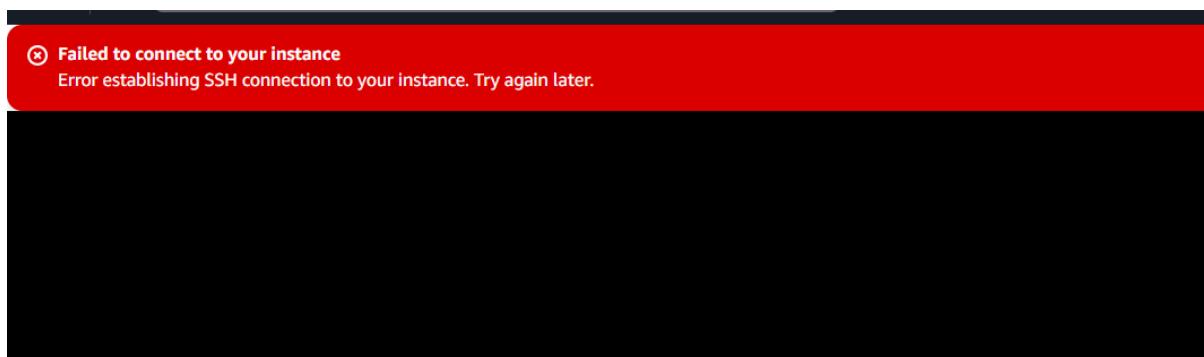


## Associating the Elastic IP

- After allocating the Elastic IP, the next step was to **associate** it with the EC2 instance I wanted to connect to.
- I selected the Elastic IP from the list and clicked **Actions → Associate Elastic IP address**.
- In the association window, I chose the instance **My\_Instance\_VPC1**, which was the instance that needed a public, static IP for connection.
- I confirmed the settings and completed the association.
- Once associated, **My\_Instance\_VPC1** instantly received the Elastic IP, making it reachable from the internet.

## Elastic IP Successfully Assigned

- After associating the Elastic IP with **My\_Instance\_VPC1**, I checked the instance details.
- I could clearly see that the instance had now received a **public IP address**.
- This public IP is the **Elastic IP** that was assigned to me from the Amazon IP pool.
- Because it is an Elastic IP, it will **remain the same** even if the instance is stopped or restarted.
- With this public IP in place, the instance became fully reachable from the internet.



## SSH Connection Issue

- After assigning the Elastic IP, I tried connecting to the instance again.
- This time, instead of the “no public IP” error, I ran into a **new SSH error**.
- The browser-based terminal couldn’t establish an SSH connection with the instance.
- This meant the issue was no longer about the public IP — it was now related to **security group settings, firewall rules, or SSH ports** not being open.
- So I had to troubleshoot the SSH configuration to understand what was blocking the connection.

## Fixing the SSH Connection Issue

- First, I checked the **Network ACL**, and everything looked correct. Both inbound and outbound rules allowed the traffic that SSH needs.
  - Then I checked the **Security Group** attached to the instance. By default, the SG allowed all traffic **only from a specific security group**, not from the internet.
  - Because of this, SSH (port 22) was **not accessible from my public IP** or from anywhere outside that SG.
  - To fix it, I added a new **Inbound Rule**:
    - **Type:** SSH
    - **Port:** 22
    - **Source:** 0.0.0.0/0 (allows connection from anywhere for testing)
  - After saving the rule, the instance became reachable again through SSH using the Elastic IP.
- 

```
'`#`          Amazon Linux 2023
`~\`####` 
`~\###` 
`~\##` 
`~\#` /      https://aws.amazon.com/linux/amazon-linux-2023
`~\` V~' '-->
`~~` /` 
`~~` /` /` 
`~~` /` /` /` 
`~~` /` /` /` /` 
`~~` /` /` /` /` /` 
`~~` /` /` /` /` /` /` 
`~~` /` /` /` /` /` /` /` 
[ec2-user@ip-10-1-14-101 ~]$
```

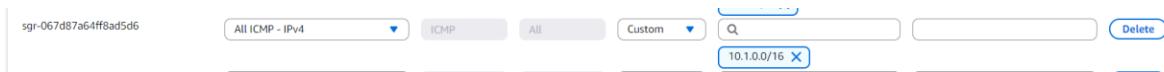
## Connection Successfully Established

- After updating the security group and allowing SSH from anywhere, I retried the connection.
  - This time, the SSH session opened successfully on **My\_EC2\_1**.
  - The Elastic IP, route settings, NACL, and security group were now correctly configured, allowing the instance to be accessed without any issues.
- 

```
'`#`          Amazon Linux 2023
`~\`####` 
`~\###` 
`~\##` 
`~\#` /      https://aws.amazon.com/linux/amazon-linux-2023
`~\` V~' '-->
`~~` /` 
`~~` /` /` 
`~~` /` /` /` 
`~~` /` /` /` /` 
`~~` /` /` /` /` /` 
`~~` /` /` /` /` /` /` 
`~~` /` /` /` /` /` /` /` 
[ec2-user@ip-10-1-14-101 ~]$ ping 10.0.0.28
PING 10.0.0.28 (10.0.0.28) 56(84) bytes of data.
```

## Initial VPC Peering Ping Test

- After successfully connecting to **My\_EC2\_1**, I tested cross-VPC connectivity.
- I tried to **ping the private IP** of the second instance (**My\_EC2**) located in the other VPC.
- Only **one ping was delivered**, and then the replies stopped completely.
- This meant that although the VPC peering connection existed, something was still **blocking the return traffic** between the two instances.
- I had to troubleshoot the security layers (SG + NACL) to find out what was preventing full communication across the VPCs.



## Fixing the ICMP Issue in the Second VPC

- After checking the setup, I discovered that the **Security Group** of the EC2 instance in the second VPC had **no ICMP rules** at all.
- This meant the instance was **not allowing ping (ICMP) traffic in or out**, which explained why only one ping was delivered and no replies were sent back.
- To fix this, I added a new **Inbound Rule**:
  - **Type:** ICMP – IPv4
  - **Source:** **10.1.0.0/16** (the CIDR block of VPC1)
- This ensured that only traffic **coming from the first VPC** was allowed, keeping the setup secure while still enabling cross-VPC communication.
- After saving the changes, the instance in the second VPC was now able to receive and respond to ICMP traffic from the first VPC.

```
64 bytes from 10.0.0.28: icmp_seq=326 ttl=127 time=0.184 ms
64 bytes from 10.0.0.28: icmp_seq=327 ttl=127 time=0.182 ms
64 bytes from 10.0.0.28: icmp_seq=328 ttl=127 time=0.174 ms
64 bytes from 10.0.0.28: icmp_seq=329 ttl=127 time=0.155 ms
64 bytes from 10.0.0.28: icmp_seq=330 ttl=127 time=0.181 ms
64 bytes from 10.0.0.28: icmp_seq=331 ttl=127 time=0.190 ms
64 bytes from 10.0.0.28: icmp_seq=332 ttl=127 time=0.174 ms
64 bytes from 10.0.0.28: icmp_seq=333 ttl=127 time=0.180 ms
64 bytes from 10.0.0.28: icmp_seq=334 ttl=127 time=0.223 ms
64 bytes from 10.0.0.28: icmp_seq=335 ttl=127 time=0.175 ms
64 bytes from 10.0.0.28: icmp_seq=336 ttl=127 time=0.194 ms
64 bytes from 10.0.0.28: icmp_seq=337 ttl=127 time=0.172 ms
64 bytes from 10.0.0.28: icmp_seq=338 ttl=127 time=0.158 ms
64 bytes from 10.0.0.28: icmp_seq=339 ttl=127 time=0.174 ms
64 bytes from 10.0.0.28: icmp_seq=340 ttl=127 time=0.181 ms
64 bytes from 10.0.0.28: icmp_seq=341 ttl=127 time=0.171 ms
64 bytes from 10.0.0.28: icmp_seq=342 ttl=127 time=0.186 ms
64 bytes from 10.0.0.28: icmp_seq=343 ttl=127 time=0.177 ms
64 bytes from 10.0.0.28: icmp_seq=344 ttl=127 time=0.186 ms
64 bytes from 10.0.0.28: icmp_seq=345 ttl=127 time=0.175 ms
64 bytes from 10.0.0.28: icmp_seq=346 ttl=127 time=0.168 ms
64 bytes from 10.0.0.28: icmp_seq=347 ttl=127 time=0.239 ms
64 bytes from 10.0.0.28: icmp_seq=348 ttl=127 time=0.168 ms
64 bytes from 10.0.0.28: icmp_seq=349 ttl=127 time=0.167 ms
64 bytes from 10.0.0.28: icmp_seq=350 ttl=127 time=0.170 ms
64 bytes from 10.0.0.28: icmp_seq=351 ttl=127 time=0.161 ms
64 bytes from 10.0.0.28: icmp_seq=352 ttl=127 time=0.191 ms
64 bytes from 10.0.0.28: icmp_seq=353 ttl=127 time=0.202 ms
64 bytes from 10.0.0.28: icmp_seq=354 ttl=127 time=0.167 ms
64 bytes from 10.0.0.28: icmp_seq=355 ttl=127 time=0.180 ms
64 bytes from 10.0.0.28: icmp_seq=356 ttl=127 time=0.170 ms
64 bytes from 10.0.0.28: icmp_seq=357 ttl=127 time=0.169 ms
```

**i-0159eb3f5df6b86db (My\_EC2\_1)**

Public IPs: 13.61.170.60 Private IPs: 10.1.14.101

## Successful VPC Peering Connectivity

- After updating the Security Group in the second VPC to allow ICMP traffic from **10.1.0.0/16**, I tested the ping again from **My\_EC2\_1**.
- This time, the ping replies started coming through continuously without stopping.
- This confirmed that the instances in both VPCs were now able to **communicate privately** using the VPC peering connection.
- With this, the cross-VPC connectivity was successfully established and verified.

## Conclusion

This project helped me understand how to design and troubleshoot communication between multiple VPCs using **VPC Peering**. I learned how to set up two isolated VPCs, connect them through a private peering link, configure routing paths, and adjust security layers like NACLs and Security Groups to allow cross-VPC traffic.

By launching EC2 instances in each VPC and testing connectivity with private IPs, I saw first-hand how traffic flows through the peering connection and how AWS keeps this communication entirely **private**, without using the public internet.

Overall, this project strengthened my understanding of:

- Multi-VPC architectures
- Route table configuration for private paths
- Security controls that affect cross-VPC traffic
- Troubleshooting network issues across isolated environments

This hands-on experience gave me a deeper understanding of how real-world cloud networks communicate securely inside AWS.