



# VPC Peering



Sanjana Tripathy

## Accept VPC peering connection request Info

X

Are you sure you want to accept this VPC peering connection request? (pcx-02f6a5eef71af0efc / VPC1-VPC2)

**Requester VPC**  
vpc-07fbef807c80cd74a / NZ\_VPC1-vpc

**Acceptor VPC**  
vpc-0b64f3bfca598ed01 / NZ\_VPC2-vpc

**Requester CIDRs**  
 10.1.0.0/16

**Acceptor CIDRs**  
-

**Requester Region**  
Mumbai (ap-south-1)

**Acceptor Region**  
Mumbai (ap-south-1)

**Requester owner ID**  
 794038222820(This account)

**Acceptor owner ID**  
 794038222820(This account)

[Cancel](#)

[Accept request](#)



# Introducing Today's Project!

## What is Amazon VPC?

Amazon VPC (Virtual Private Cloud) lets you create a secure, isolated network within AWS. It gives full control over IP ranges, subnets, route tables, and gateways—enabling secure hosting of resources and communication within a virtual network.

## How I used Amazon VPC in this project

In today's project, I used Amazon VPC to set up VPC peering between two separate VPCs and tested the connection between their resources. This allowed private communication over internal IPs without using the public internet.

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

One thing I didn't expect in this project was how straightforward VPC peering turned out to be. I initially thought it would be a complex networking setup, but AWS made it simple to implement and test communication between VPCs.



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## This project took me...

This project took me about 2 hours

A circular profile picture of a young woman with dark hair, wearing a pink top and blue pants, sitting on a blue chair.

# In the first part of my project...

## Step 1 - Set up my VPC

In the first step of this project, we'll create two VPCs from scratch using the Management Console. We'll leverage the simplified VPC creation wizard that sets up the VPCs along with essential components like subnets and route tables in just minutes.

## Step 2 - Create a Peering Connection

In this step, I am establishing a connection between the two VPCs I created. I'll use a VPC peering connection to bridge them, enabling secure and private communication between resources in both VPCs without traversing the public internet.

## Step 3 - Update Route Tables

In this step, we're configuring route tables in both VPCs to enable bidirectional communication. This allows traffic from VPC 1 to reach VPC 2, and vice versa, using their private IP addresses through the established peering connection.

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## Step 4 - Launch EC2 Instances

In this step I will be launching instances in both my VPCs. This is essential step as later I will be using them to check the VPCs peering connection.

A circular profile picture of a young woman with dark hair, wearing a pink top and blue pants, sitting on a blue chair.

# Multi-VPC Architecture

I began my project by launching two separate VPCs, each with one public subnet placed in a single Availability Zone. No private subnets were created, keeping the setup simple for establishing and testing VPC peering connectivity.

The CIDR blocks for VPCs 1 and 2 are 10.1.0.0/16 and 10.2.0.0/16 respectively. They must be unique to avoid IP address overlap, which would prevent routing between VPCs. Unique CIDRs ensure successful communication during VPC peering.

## I also launched 2 EC2 instances

I didn't set up key pairs for these EC2 instances as AWS EC2 Instance Connect manages the key exchange for us. In earlier projects, we configured key pairs manually to understand how secure access to instances works.



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The screenshot shows the AWS VPC Resource Map interface. At the top, there are tabs: Resource map (which is selected), CIDRs, Flow logs, Tags, and Integrations. Below the tabs, there's a section titled "Resource map" with a "Info" button. The main area displays four resource components:

- VPC** [Show details](#)  
Your AWS virtual network  
NZ\_VPC2-vpc
- Subnets (1)**  
Subnets within this VPC  
ap-south-1a  
NZ\_VPC2-subnet-public1-ap-sout...
- Route tables (2)**  
Route network traffic to resources  
NZ\_VPC2-rtb-public  
rtb-03349adca3c893da5
- Network connections (1)**  
Connections to other networks  
NZ\_VPC2-igw

A curved arrow points from the "Subnets" section to the "Route tables" section, indicating a relationship between them.

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# VPC Peering

A VPC peering connection enables two VPCs and their resources to communicate with each other using private IP addresses. It provides a secure, low-latency way for resources in different VPCs to interact without needing public internet access.

VPCs use peering connections to securely share resources, enable cross-VPC communication, or centralize services like databases or monitoring tools—without exposing traffic to the public internet.

The difference between a Requester and an Acceptor in a peering connection is, a requestor is the VPC that initiates the peering connection by sending a request to another VPC. An acceptor is the VPC that receives the peering connection request.

Peering connection settings

Name:  (optional)  
Enter a key name for a key of 'Name' and a value that you specify.  
VPC1-VPC2

Select a local VPC to peer with

VPC ID (Requester):  
 vpc-07fbef07c80cd74a (NZ\_VPC1-vpc)

VPC CDRN for vpc-07fbef07c80cd74a (NZ\_VPC1-vpc)

CIDR	Status	Status reason
10.1.0.0/16	Associated	-

Select another VPC to peer with

Account:  
 My account  
 Another account

Region:  
 The Region (ap-south-1)  
 Another Region

VPC ID (Acceptor):  
 vpc-0b64f3bfca598ed01 (NZ\_VPC2-vpc)

VPC CDRN for vpc-0b64f3bfca598ed01 (NZ\_VPC2-vpc)

CIDR	Status	Status reason
10.2.0.0/16	Associated	-



# Updating route tables

After accepting a peering connection, my VPCs' route tables need to be updated because, although the connection is established, the resources don't yet know where to send traffic for the other VPC. Routing entries make that communication possible.

My VPCs' new routes had destinations set to the CIDR block of the opposite VPC—VPC 1 pointed to VPC 2's CIDR and vice versa. The target for each route was the established VPC peering connection, enabling seamless cross-VPC communication.

The screenshot shows the AWS Route Tables interface for a specific route table. At the top, a green banner indicates that routes have been successfully updated. Below this, the route table ID is shown as `rtb-0f3926116ffa0c052 / NZ_VPC2-rtb-public`. The main details section includes fields for Route table ID, Main status (No), Owner ID (794038222820), Explicit subnet associations (listing a single subnet), and Edge associations (empty). The **Routes** tab is selected, showing three routes:

Destination	Target	Status	Propagated
0.0.0.0/0	<code>igw-01df72c6ced4b39ff</code>	Active	No
10.1.0.0/16	<code>pcx-02f6a5ee7f1af0efc</code>	Active	No
10.2.0.0/16	local	Active	No

A circular profile picture of a woman sitting on a blue chair, smiling at the camera.

# In the second part of my project...

## Step 5 - Use EC2 Instance Connect

To test VPC peering connection, we need to get one of the instance to communicate with another instance. In this step, we will connect to one instance using "EC2 instance connect".

## Step 6 - Connect to EC2 Instance 1

In the previous step, I attempted to connect to my instance using EC2 Instance Connect but encountered an issue. After applying troubleshooting steps, I'm now using EC2 Instance Connect again to verify whether the connection issue has been resolved.

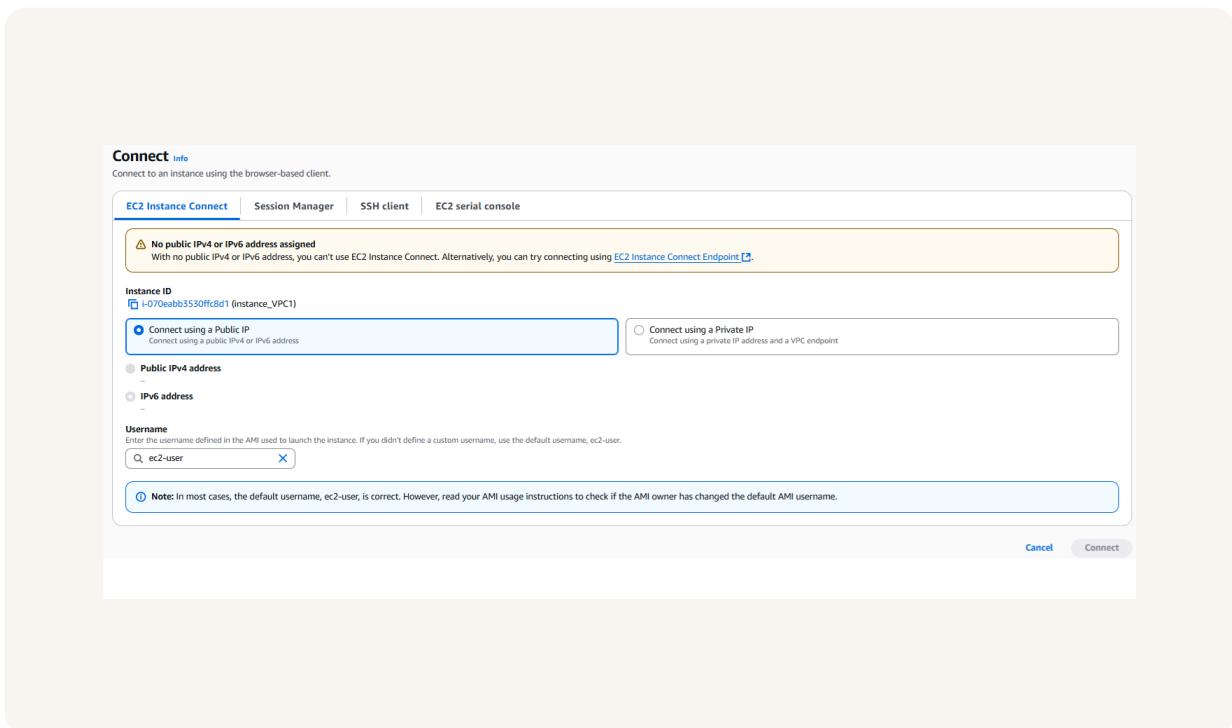
## Step 7 - Test VPC Peering

In this step, I'm testing connectivity between the two VPCs. I'll initiate communication from Instance 1 in VPC 1 to Instance 2 in VPC 2, troubleshoot any connection issues, and ensure both instances can successfully exchange messages.

# Troubleshooting Instance Connect

Next, I used EC2 Instance Connect to securely access my EC2 instance through the AWS Management Console. This provided browser-based SSH access without needing a key pair setup, simplifying connectivity for testing and configuration.

I was unable to use EC2 Instance Connect because my instance didn't have a public IP address. Since EC2 Instance Connect relies on internet-based access, a public IP is required for successful connection.





# Elastic IP addresses

To resolve this error, I set up Elastic IP addresses. Elastic IPs are static, public IPv4 addresses provided by AWS that allow instances to be reachable over the internet, even if they're stopped or restarted—ensuring consistent connectivity.

Associating an Elastic IP address resolved the error because it gave my instance a stable, public IP—making it accessible over the internet and enabling EC2 Instance Connect to work successfully for remote access.

**Allocate Elastic IP address** Info

**Elastic IP address settings** Info

Amazon's pool of IPv4 addresses

Public IPv4 address that you bring to your AWS account with BYOIP. (option disabled because no pools found) [Learn more](#)

Customer-owned pool of IPv4 addresses created from your on-premises network for use with an Outpost. (option disabled because no customer owned pools found) [Learn more](#)

Allocate using an IPv4 IPAM pool (option disabled because no public IPv4 IPAM pools with AWS service as EC2 were found)

**Network border group** Info

X

**Global static IP addresses**

AWS Global Accelerator can provide global static IP addresses that are announced worldwide using anycast from AWS edge locations. This can help improve the availability and latency for your user traffic by using the Amazon global network. [Learn more](#) [Create accelerator](#)

**Tags - optional**

A tag is a label that you assign to an AWS resource. Each tag consists of a key and an optional value. You can use tags to search and filter your resources or track your AWS costs.

No tags associated with the resource.

[Add new tag](#)

You can add up to 50 more tag

# Troubleshooting ping issues

To test the VPC peering connection, I used the ping command from Instance 1 in VPC 1 to the private IP address of Instance 2 in VPC 2. This helped verify if the peering setup and routing between the two VPCs was working correctly.

A ping test validates VPC peering by checking if an instance in one VPC can reach another instance in a peered VPC using its private IP. A successful ping confirms proper routing, peering setup, and open security/NACL rules between the VPCs.

I had to update my second EC2 instance's security group because it didn't allow SSH inbound traffic. I added a new rule that permits SSH access, enabling connections from my VPC 1 instance for testing VPC peering.

```
aws | Search [Alt+5]
Amazon Linux 2023
https://aws.amazon.com/linux/amazon-linux-2023

[ec2-user@ip-10-1-3-232 ~]$ ping 10.2.2.49
PING 10.2.2.49 (10.2.2.49) 56(84) bytes of data.
4 bytes from 10.2.2.49: icmp_seq=309 ttl=127 time=0.578 ms
4 bytes from 10.2.2.49: icmp_seq=310 ttl=127 time=0.563 ms
4 bytes from 10.2.2.49: icmp_seq=311 ttl=127 time=0.562 ms
4 bytes from 10.2.2.49: icmp_seq=312 ttl=127 time=0.568 ms
4 bytes from 10.2.2.49: icmp_seq=313 ttl=127 time=0.566 ms
4 bytes from 10.2.2.49: icmp_seq=314 ttl=127 time=0.545 ms
4 bytes from 10.2.2.49: icmp_seq=315 ttl=127 time=0.544 ms
4 bytes from 10.2.2.49: icmp_seq=316 ttl=127 time=0.547 ms
4 bytes from 10.2.2.49: icmp_seq=317 ttl=127 time=0.522 ms
4 bytes from 10.2.2.49: icmp_seq=318 ttl=127 time=0.465 ms
4 bytes from 10.2.2.49: icmp_seq=319 ttl=127 time=0.466 ms
4 bytes from 10.2.2.49: icmp_seq=320 ttl=127 time=0.467 ms
4 bytes from 10.2.2.49: icmp_seq=321 ttl=127 time=0.469 ms
4 bytes from 10.2.2.49: icmp_seq=322 ttl=127 time=0.466 ms
4 bytes from 10.2.2.49: icmp_seq=323 ttl=127 time=0.465 ms
4 bytes from 10.2.2.49: icmp_seq=324 ttl=127 time=0.509 ms
4 bytes from 10.2.2.49: icmp_seq=325 ttl=127 time=0.477 ms

-- 10.2.2.49 ping statistics --
51 packets transmitted, 51 packets received, 0.0% packet loss, time 336987ms
rtt min/avg/max/mdev = 0.365/0.302/0.588/0.046 ms
[ec2-user@ip-10-1-3-232 ~]$
```



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