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VPC Peering

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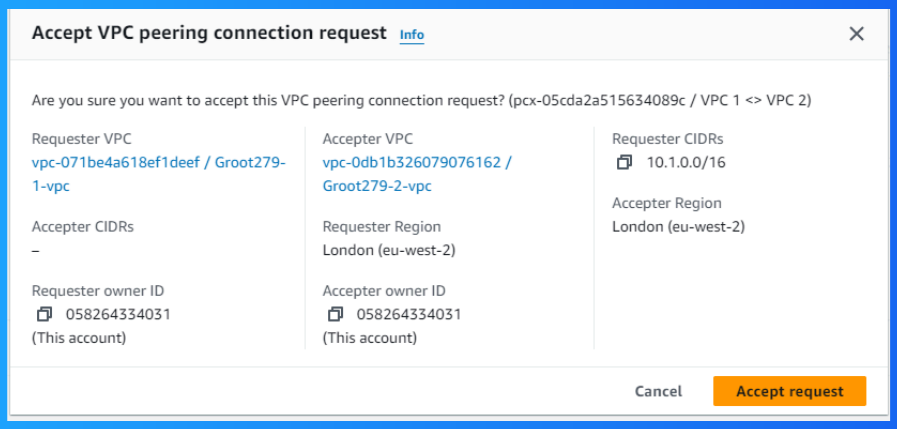

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Introducing Today's Project!

What is Amazon VPC?

AWS (VPC) is aws foundational networking service that lets us create our own networks, control traffic flow and security and organize our resources into public/private subnet

How I used Amazon VPC in this project

We used amazon vpc to setup a multi-vpc architecture(we set up two vpcs), create a peering connection between them and update security group rules to run a successfully connectivity test to validate our vpc peering setup.

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

n/a

This project took me...

50 minutes

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In the first part of my project...

Step 1 - Set up my VPC

I'll create two isolated virtual networks (VPCs) using AWS's vpc resourcemap/launch wizard to create TWO VPCs and their components in minutes.

Step 2 - Create a Peering Connection

We are setting up a VPC peering Connection, which is a VPC component designed to directly connect two VPCs together. VPC peering connects two isolated VPCs, allowing resources in each to communicate as if they were on the same network.

Step 3 - Update Route Tables

I'm about to configure route tables in both VPCs. This will instruct network traffic how to reach the other VPC through the peering connection we just established. Essentially, we're creating a pathway for communication between the 2 isolated network

Step 4 - Launch EC2 Instances

we are Launching an EC2 instance in each VPC (VPC1 and VPC2), so that we can directly connect with our instances later and test our VPC peering connection.

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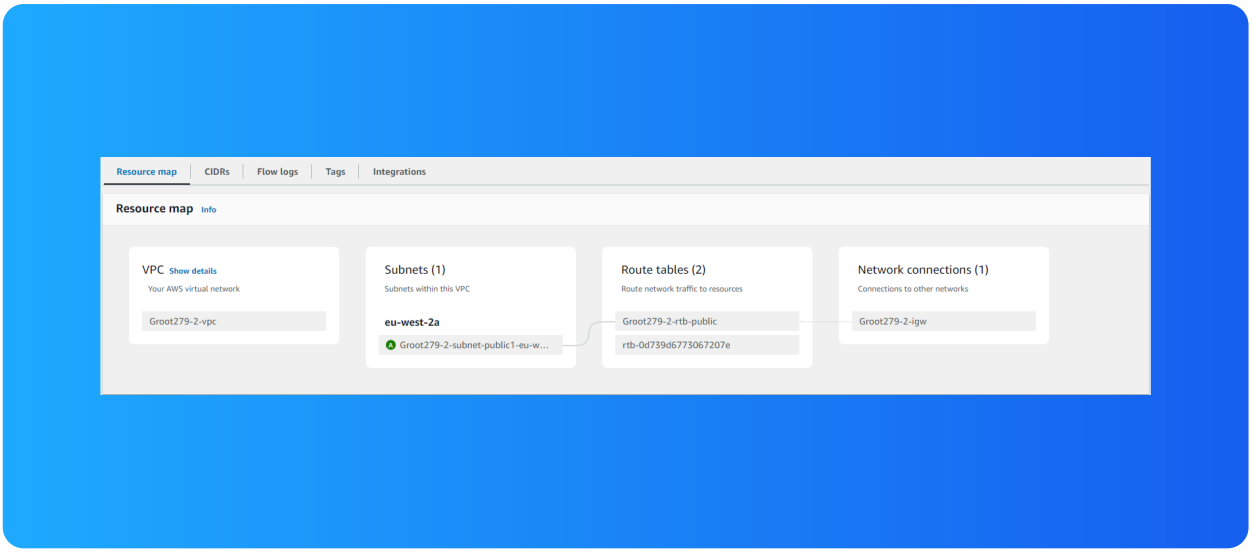
Multi-VPC Architecture

I started my project by launching two VPCs - they have unique CIDR blocks and they each have one public subnet

The CIDR blocks for VPCs 1 and 2 are 10.1.0.0/16 and 10.2.0.0/16 respectively. They have to be unique because once you set up a vpc peering connection, route tables need unique addresses for correct routing across VPCs.

I also launched 2 EC2 instances

I didn't set up key pairs for these EC2 instances because i am using EC2 instance connect to directly connect with our EC2 instance later in this project, which handles key pair creation and management for us.



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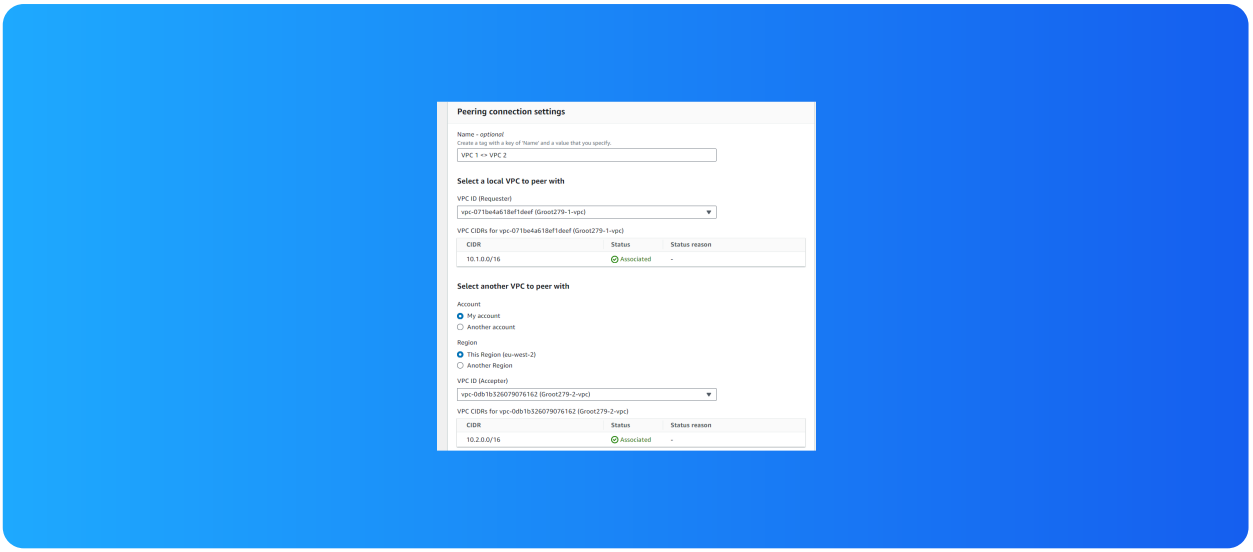
VPC Peering

A VPC peering connection is a networking connection between two VPCs that allows resources in each to communicate as if they were on the same network, using private IP addresses.

VPCs would use peering connections to establish private communication channels between isolated networks, allowing resource sharing, load balancing across regions, and creating complex network architectures.

The difference between a Requester and an Accepter in a peering connection is: the Requester initiates the connection by sending a request to the Accepter. The Accepter then reviews and either accepts or rejects the peering request



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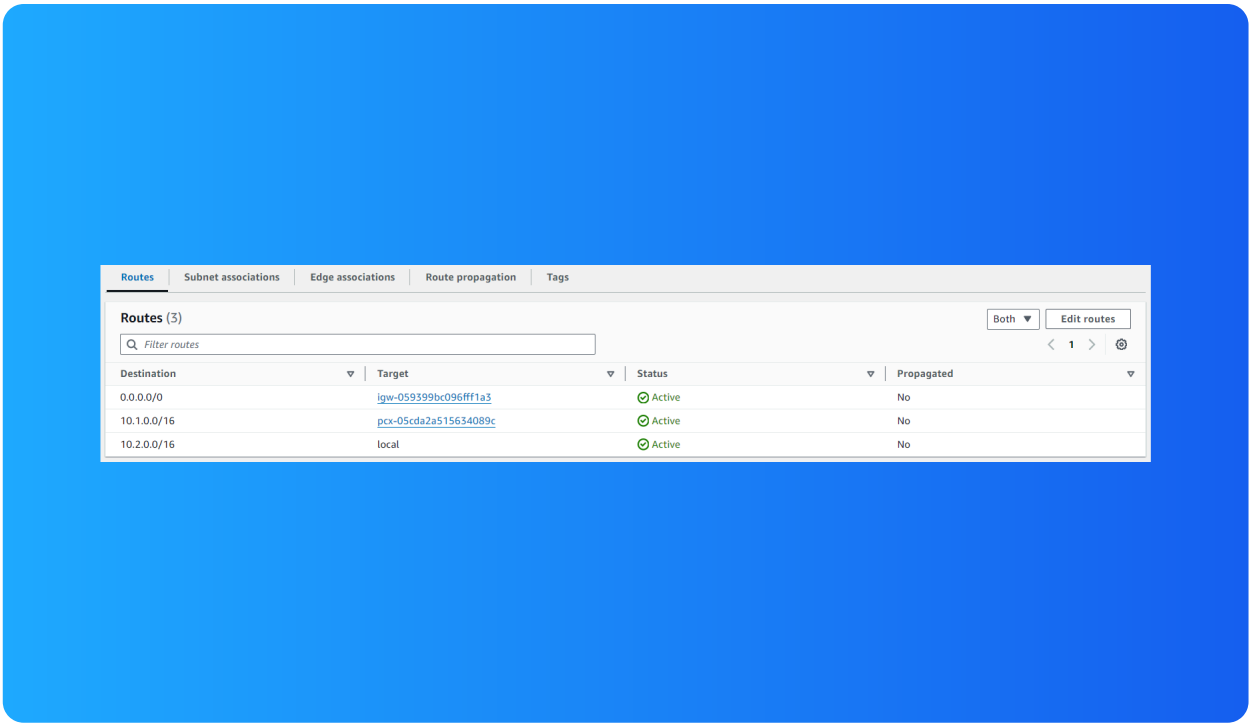
Updating route tables

my VPCs route tables need 2 be updated bcos traffic between D default route table doesnt have a route using D peering connection yet-this needs 2 be setup so that resources can be directed to D peering connections when trying 2 reach the other vpc

My VPCs new routes have a destination of the other vpc's CIDR block. The routes' target was' the peering connection i set up



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In the second part of my project...

Step 5 - Use EC2 Instance Connect

I am using EC2 instance connect to connect directly with our first EC2 instance. We need to do this because we need to use our EC2 instance for connectivity tests later in this project.

Step 6 - Connect to EC2 Instance 1

i am re attempting my connection to instance-Groot279 and resolving another error preventing us from using EC2 instance connect to directly connect with the instance.

Step 7 - Test VPC Peering

we are going to use instance - Groot279 VPC1 to attempt a direct connection with instance - Groot279 Vpc2 so that we can validate our peering connection is setup properly

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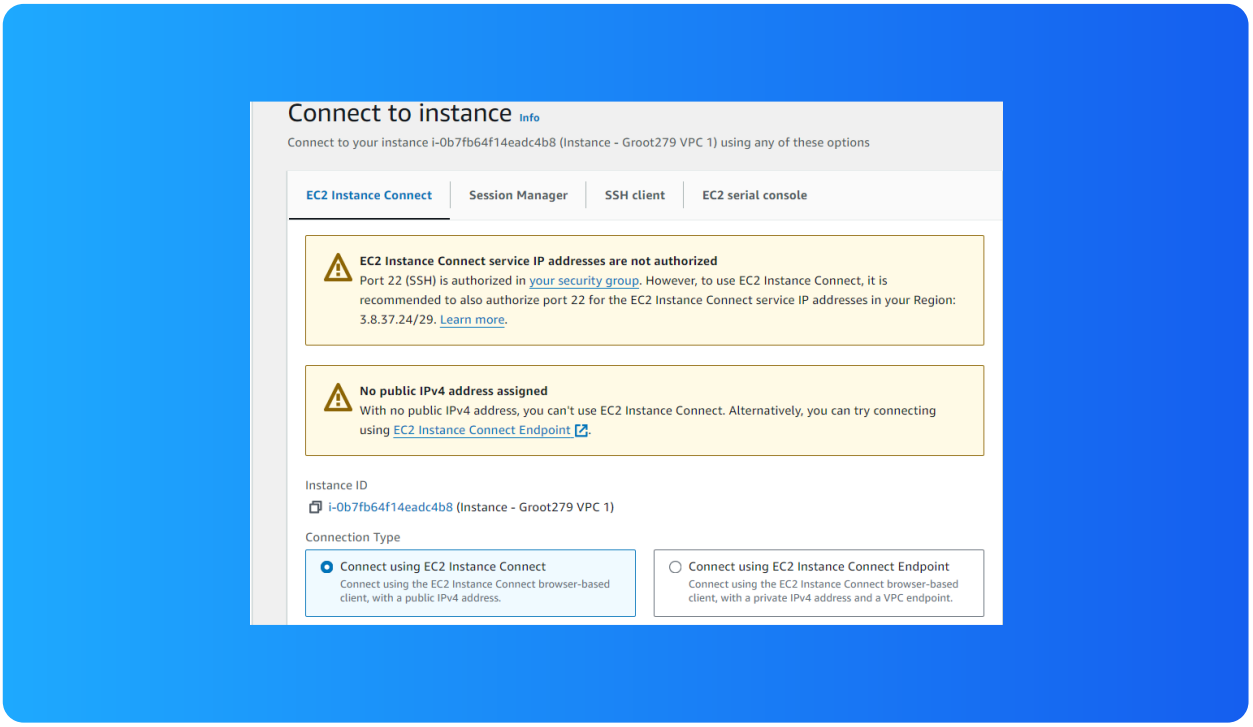
Troubleshooting Instance Connect

Next, I used EC2 Instance Connect to directly connect with instance-Groot279 VPC 1 just by using the AWS Management console

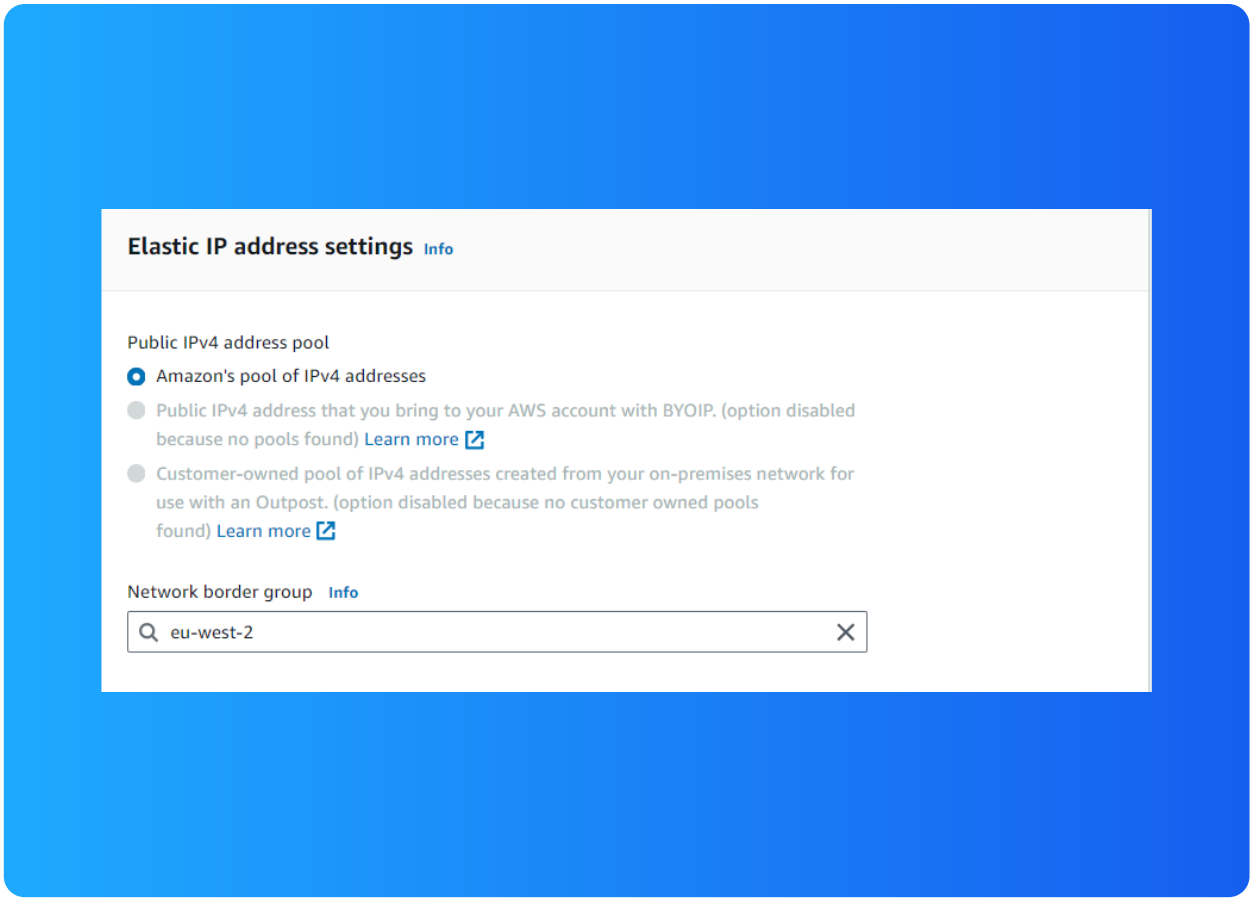
I was stopped from using EC2 Instance Connect as our instance did not have a public ipv4 address. in order for EC2 instance connect to work, the EC2 instance must have a public IPV4 address.



Elastic IP addresses

To resolve this error, I set up Elastic IP addresses. Elastic IP addresses are static public ipv4 addresses that we can request for our AWS Account, and then delegate to sepcific resource.

Associating an Elastic IP address resolved the error because it gives our EC2 instance a public IP address, fulfilling the requirements for instance coonect to work.

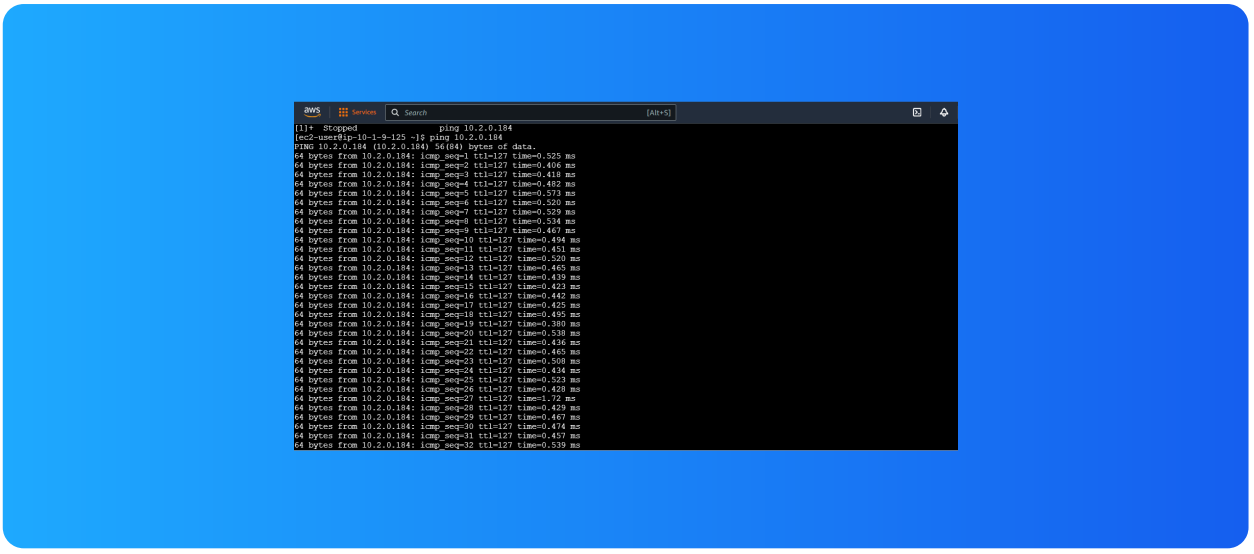


Troubleshooting ping issues

To test VPC peering, I ran the command ping 10.2.xx.xx.xx i.e the private ipv4 address of the other EC2 instance in VPC 2

A successful ping test would validate my VPC peering connection because it confirms that network packets can travel between the two VPCs. A successful ping indicates that the route tables are configured correctly, the peering connection is active.

I had to update my second EC2 instance's security group because it needed to allow incoming traffic from the first instance. I added a new rule that permits inbound traffic on port 22 (SSH) from the security group of the first instance.



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