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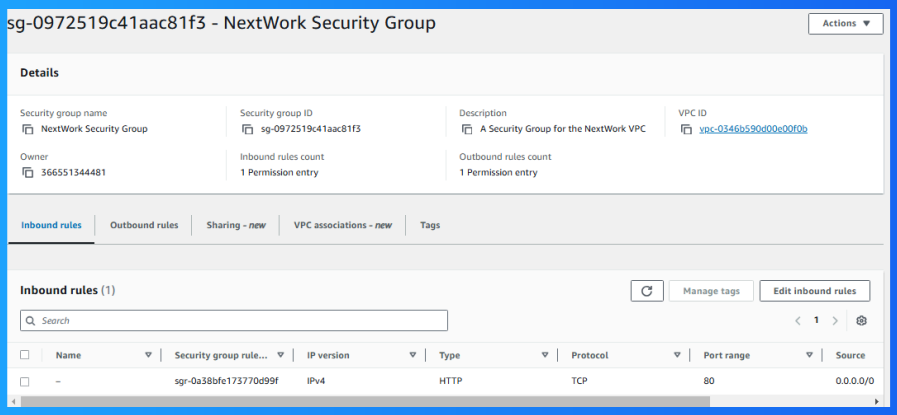
VPC Traffic Flow and Security

Gloria



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Introducing Today's Project!

What is Amazon VPC?

Amazon VPC (Virtual Private Cloud) is a secure, isolated network in AWS where you can launch resources like EC2 instances. It’s useful because it gives control over networking, such as IP ranges, subnets and security.

How I used Amazon VPC in this project

I used Amazon VPC to create a secure and isolated virtual network for my resources. I configured subnets, set up internet gateways, defined security groups, and managed network ACLs to control traffic, ensuring secure connectivity for my project.

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

One thing I didn't expect in this project is how connected everything is and how seamlessly AWS services work together, like VPC, subnets, internet gateways, security groups, and ACLs, to create a cohesive and secure network environment.

This project took me...

This project took me only 15 minutes since I had already set up some of the necessary resources in my previous project. The process was easy and beginner-friendly, making it smooth to complete efficiently.

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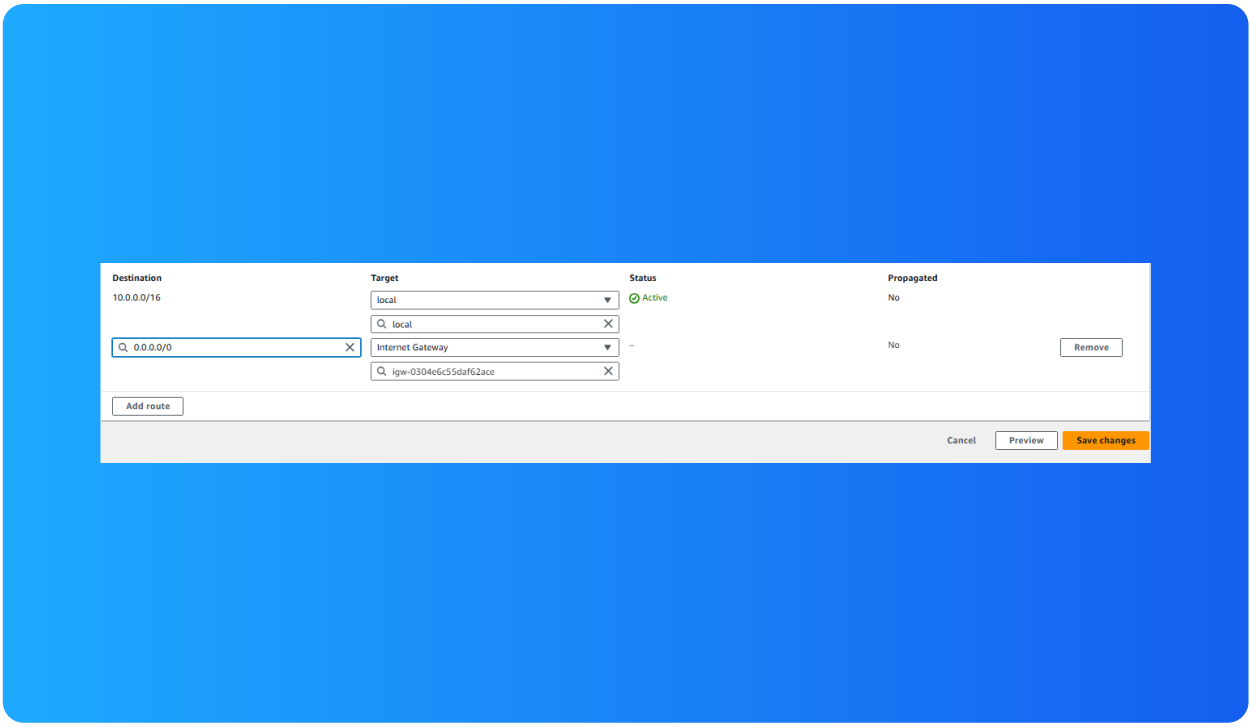
Route tables

Route tables are configurations in a VPC that determine how network traffic is directed. They define rules (routes) that guide data to destinations, like the internet or other subnets, ensuring resources can communicate as needed.

Route tables are needed to make a subnet public because they define the path for traffic to reach the internet. To make a subnet public, the route table must include a rule directing internet-bound traffic to an internet gateway.



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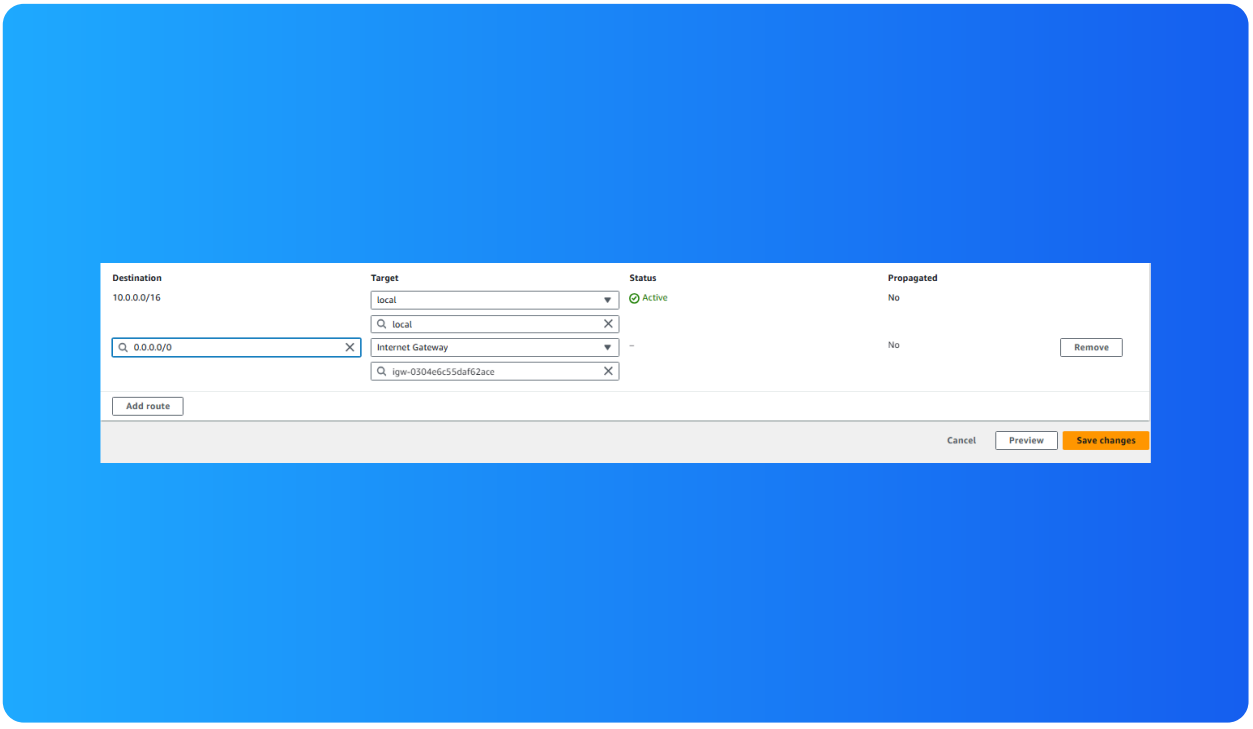
Route destination and target

Routes are defined by their destination and target, which mean the following: the destination specifies where the traffic is going 0.0.0.0/0 for the internet), and the target indicates how to get there (an internet gateway).

The route in my route table that directed internet-bound traffic to my internet gateway had a destination of `0.0.0.0/0` and a target of `igw-0304e6c55daf62ace`, enabling all internet-bound traffic from my VPC to flow through the associated internet.



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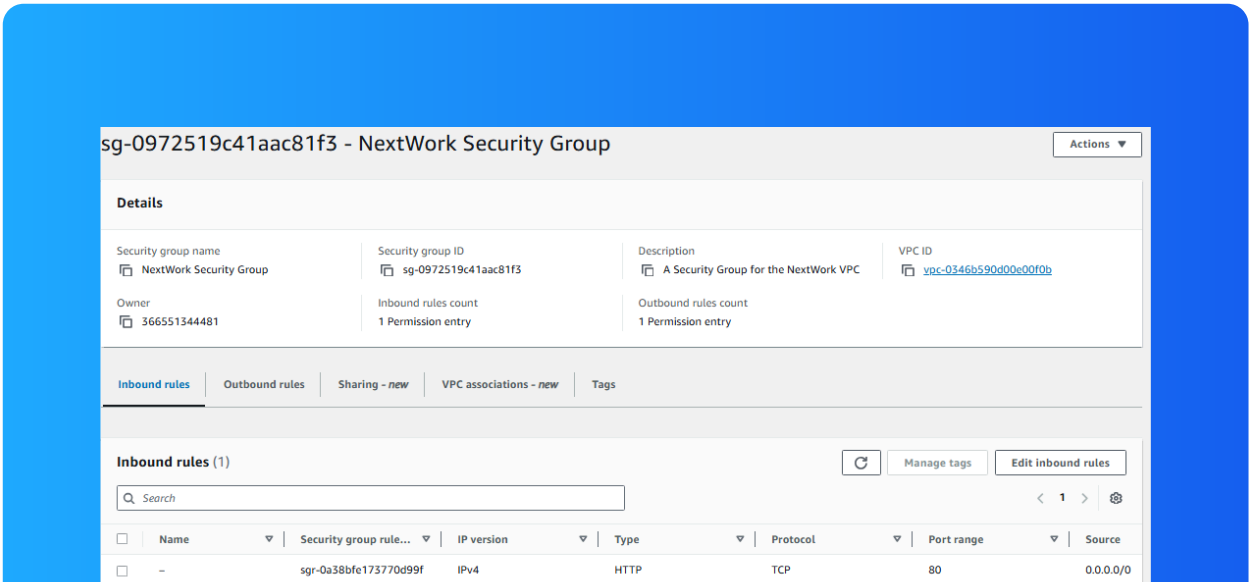
Security groups

Security groups are virtual firewalls in AWS that control inbound and outbound traffic to resources in a VPC. They use rules to allow or deny traffic based on protocol, port, and IP range, ensuring secure communication between instances and internet

Inbound vs Outbound rules

Inbound rules are settings in a security group that control incoming traffic to your resources. I configured an inbound rule that allows HTTP(port 80) from anywhere, enabling unrestricted web access.

Outbound rules are settings in a security group that control outgoing traffic from your resources. By default, my security group's outbound rule allows all traffic to any destination, ensuring unrestricted outbound connectivity.



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Network ACLs

Network ACLs are like a security guard for a subnet in AWS. They control what kind of traffic can come in or go out of the subnet by using rules that allow or block specific types of traffic.

Security groups vs. network ACLs

The difference between a security group and a network ACL is that a security group acts as a firewall for controlling traffic at the instance level, while a network ACL controls traffic at the subnet level and applies to allesources in the subnet.

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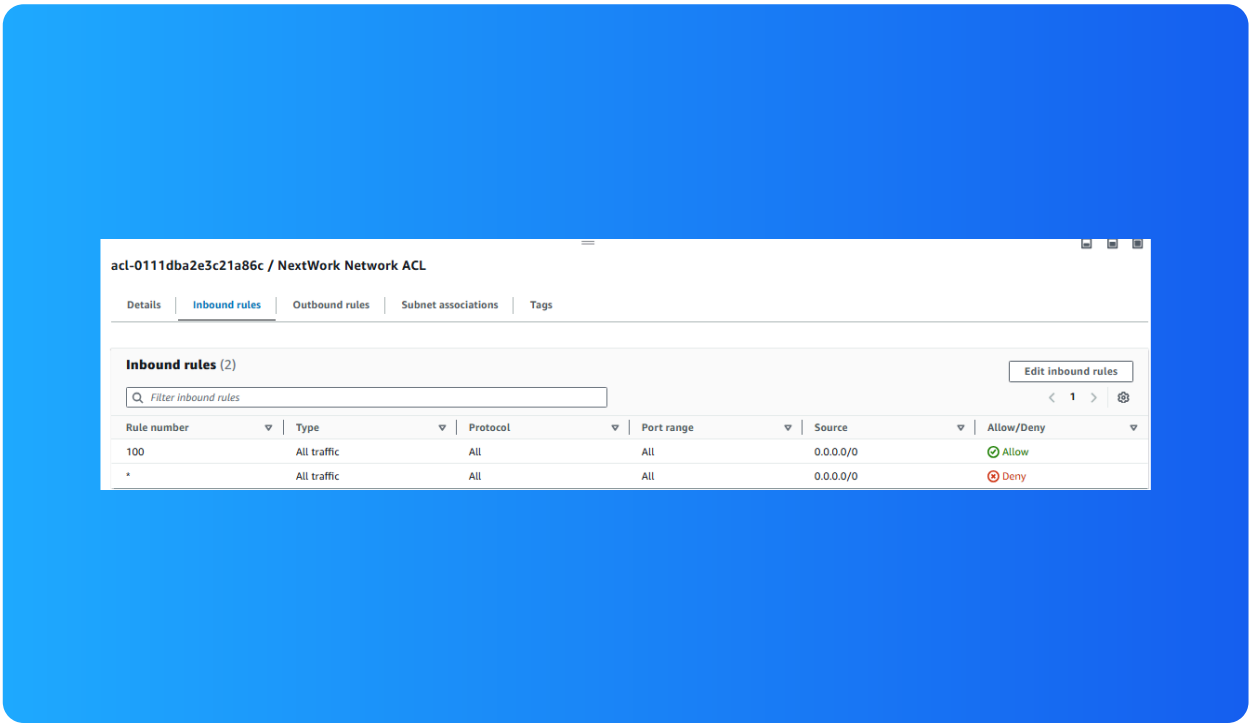
Default vs Custom Network ACLs

Similar to security groups, network ACLs use inbound and outbound rules

By default, a network ACL's inbound and outbound rules will allow all traffic. This means all IP addresses and protocols are permitted unless specific rules are added to explicitly allow or deny traffic.

In contrast, a custom ACL's inbound and outbound rules are automatically set to deny all traffic by default. You must create specific rules to allow desired traffic for protocols, ports, and IP ranges to enable communication.



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