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# VPC Traffic Flow and Security

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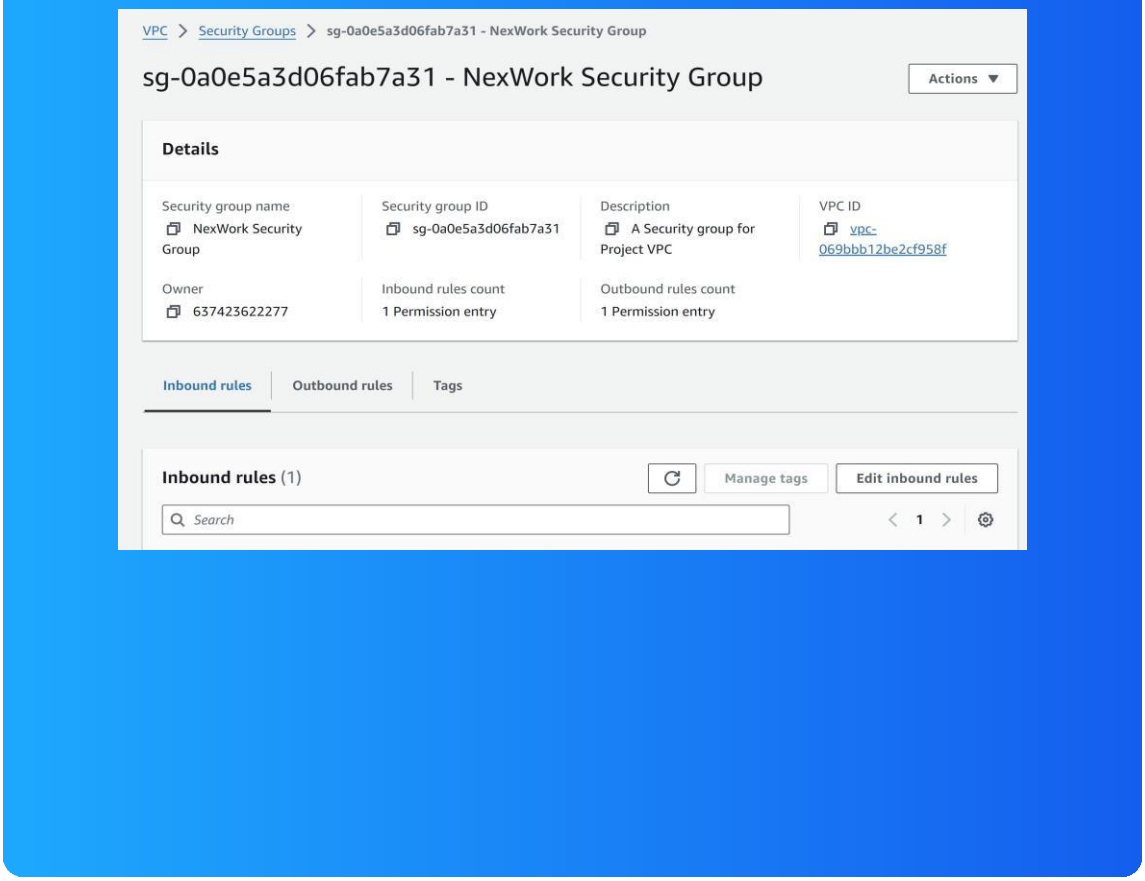

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# Introducing Today's Project!

## What is Amazon VPC?

Amazon VPC (Virtual Private Cloud) exists within an AWS region and is used to build a private and secure connection for resources in the subnets. Through an internet gateway, these resources and users can access internet to communicate each other.

## How I used Amazon VPC in this project

In today's project, I used Amazon VPC to set up the flow of processes, which included creating a VPC, subnet, route table, internet gateway, security group, and network ACL.

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

One thing I did not expect in this project was, first, learning about different kinds of protocols and port numbers, and second, understanding the inbound and outbound rules for the custom network ACL.

## This project took me...

This project took me one and a half hours, including writing the report.

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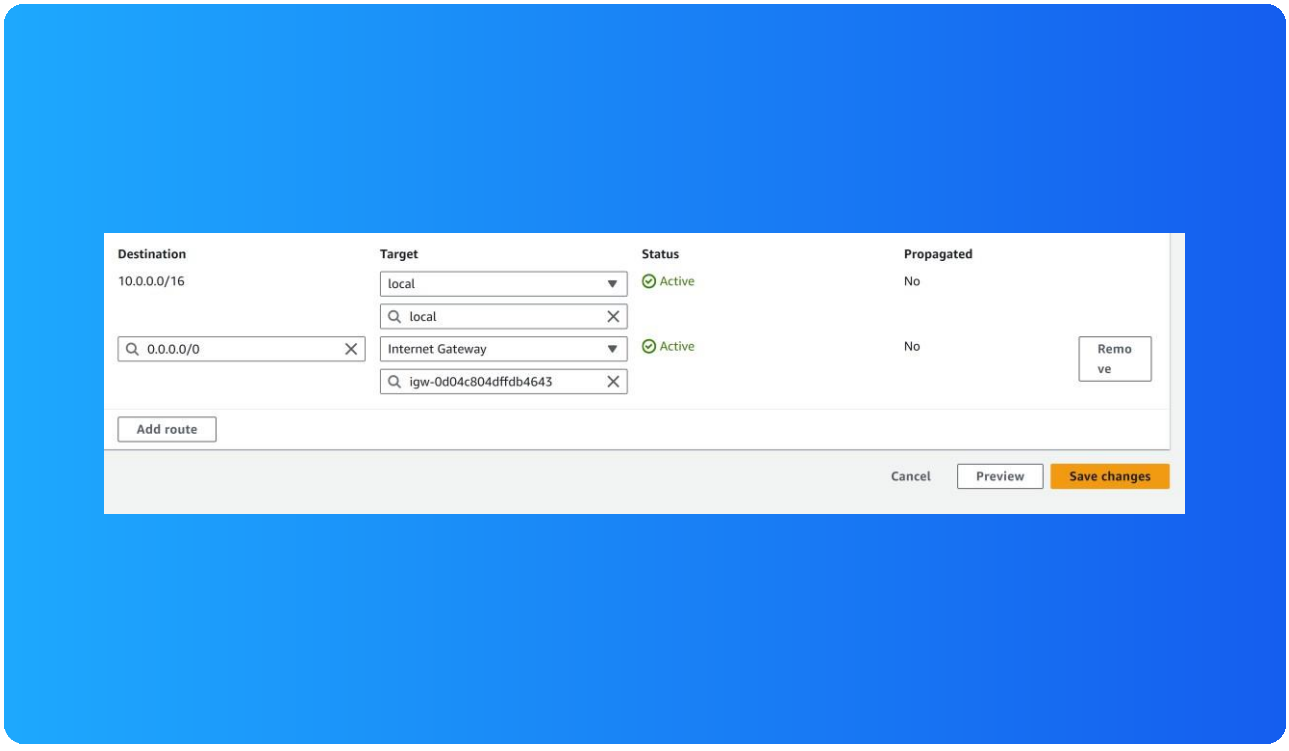
# Route tables

Route tables function like a GPS, directing traffic within my VPC to the correct destination.

Routes tables are needed to make a subnet public because a subnet needs to have a route to an internet gateway in order to be considered public. A route table is the only way to establish this connection.



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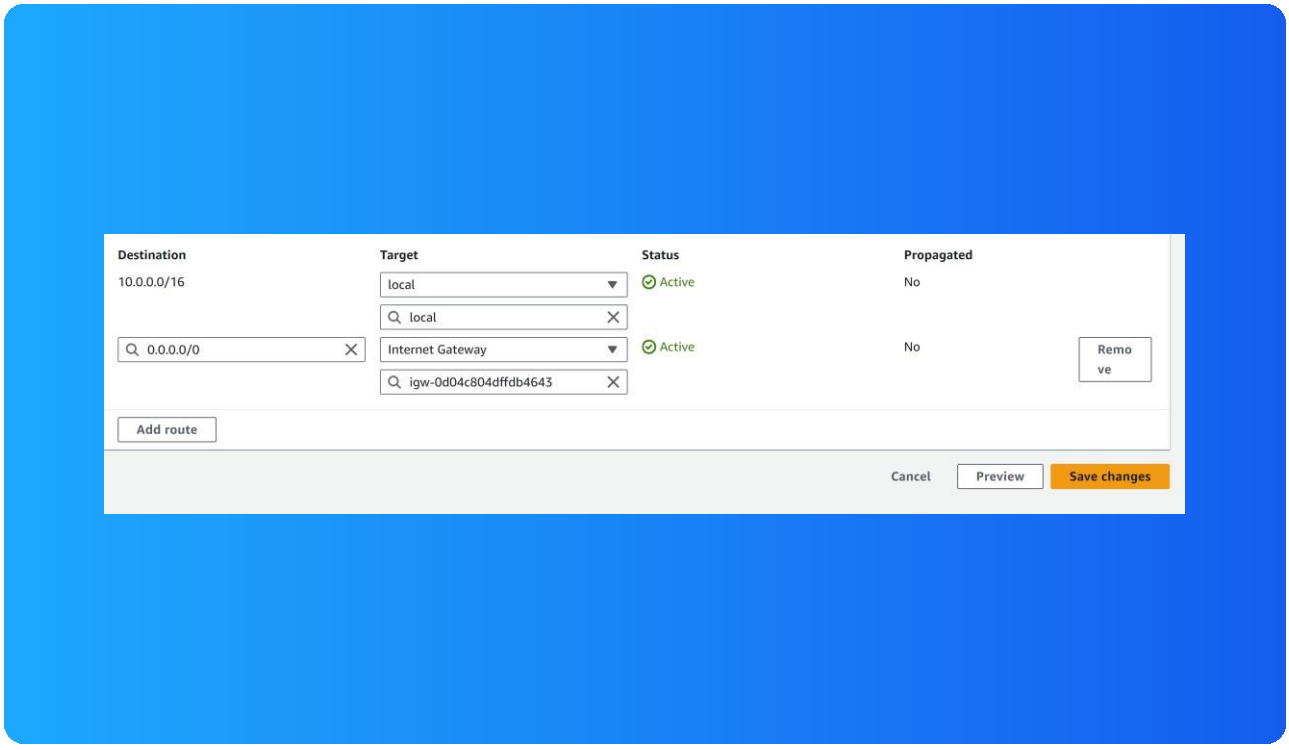
# Route destination and target

Routes are defined by their destination and target. The destination is the range of IP addresses that traffic in my VPC is trying to reach. The target is the road or path that the traffic will use to get to their destination.

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 my Project VPC IG (internet gateway)



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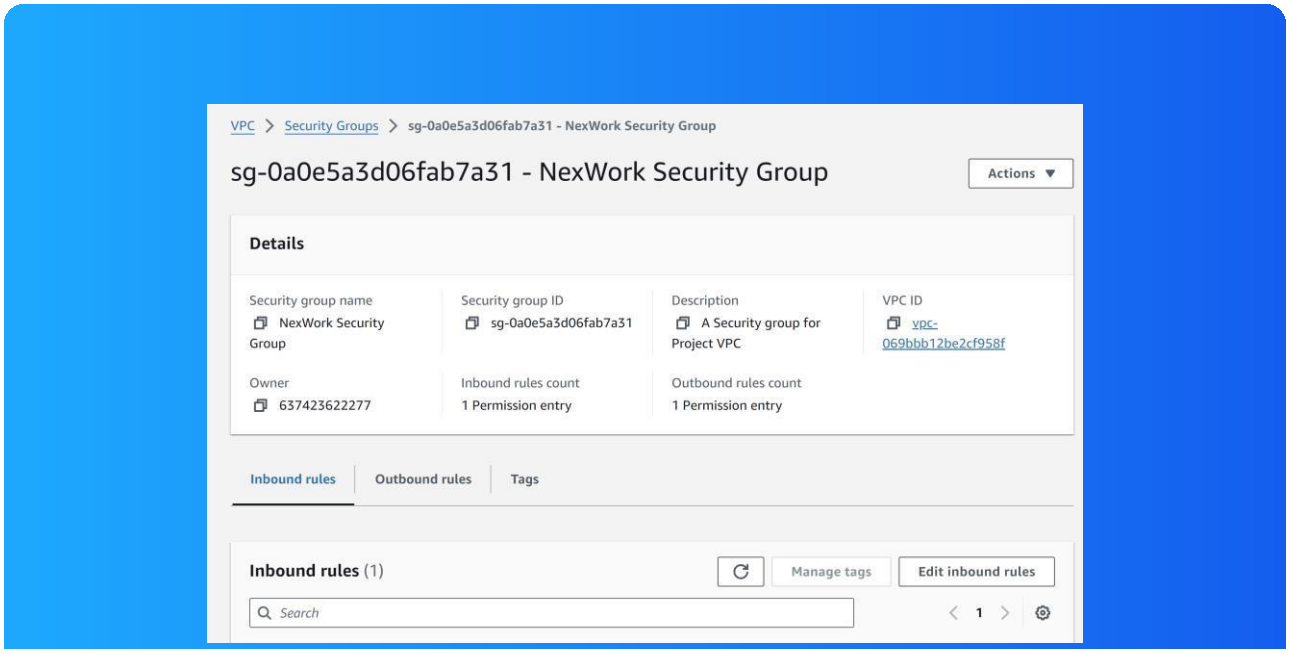
# Security groups

Security groups act like security guards that monitor both inbound and outbound traffic at the resource level. Every single resource in a subnet or VPC is associated with a security group.

## Inbound vs Outbound rules

Inbound rules are the rules that monitor or restrict inbound traffic when a user tries to visit the web app I'm hosting. I configured an inbound rule that allows all inbound HTTP traffic.

Outbound rules are the rules that monitor or restrict outbound traffic when my hosted web app requests data from a public source. By default, my security group's outbound rule allows all outbound traffic.



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# Network ACLs

Network ACLs are like community watchmen that secure my network at the subnet level.

## Security groups vs. network ACLs

The difference between a security group and a network ACL is that a security group secures my network at the resource level, which applies to all resources in a VPC, while a NACL secures my network at the subnet level, which applies to all subnets.

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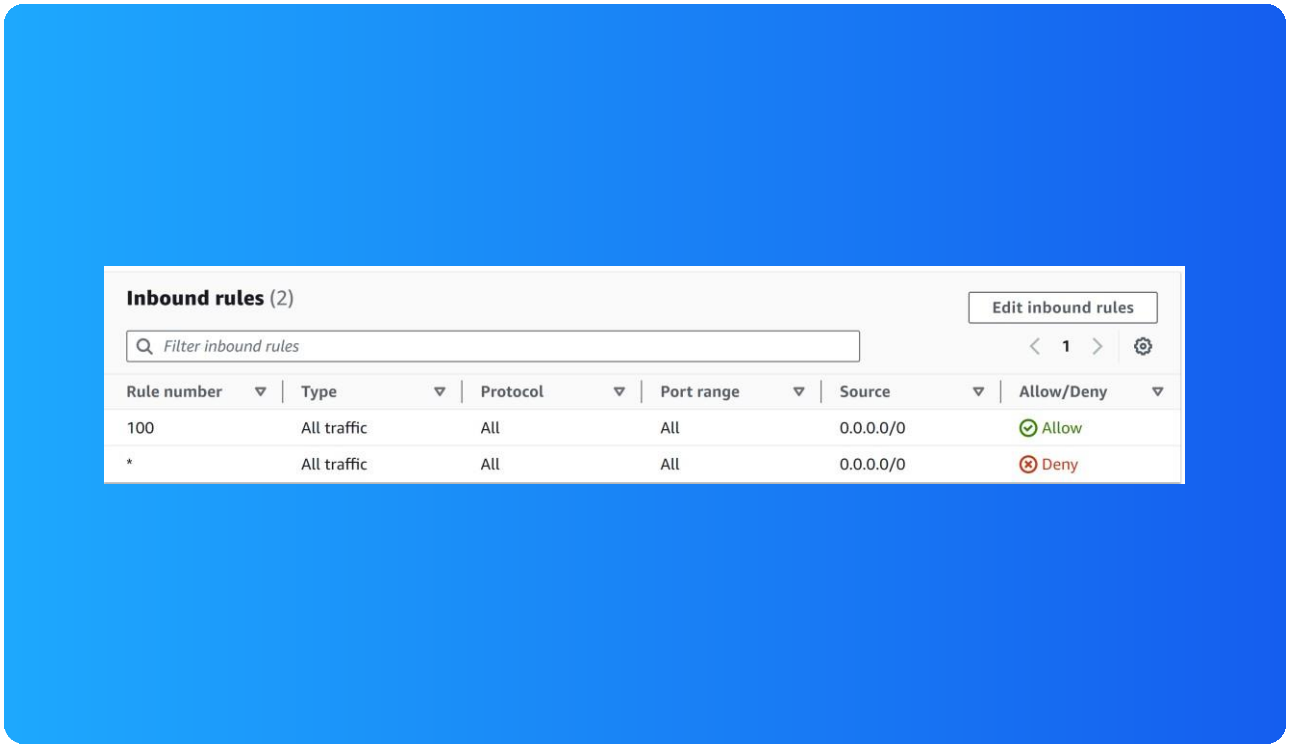
# Default vs Custom Network ACLs

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

By default, a network ACL's inbound and outbound rules allow all incoming and outgoing traffic.

In contrast, a custom ACL's inbound and outbound rules are set to deny all incoming and outgoing traffic by default.



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