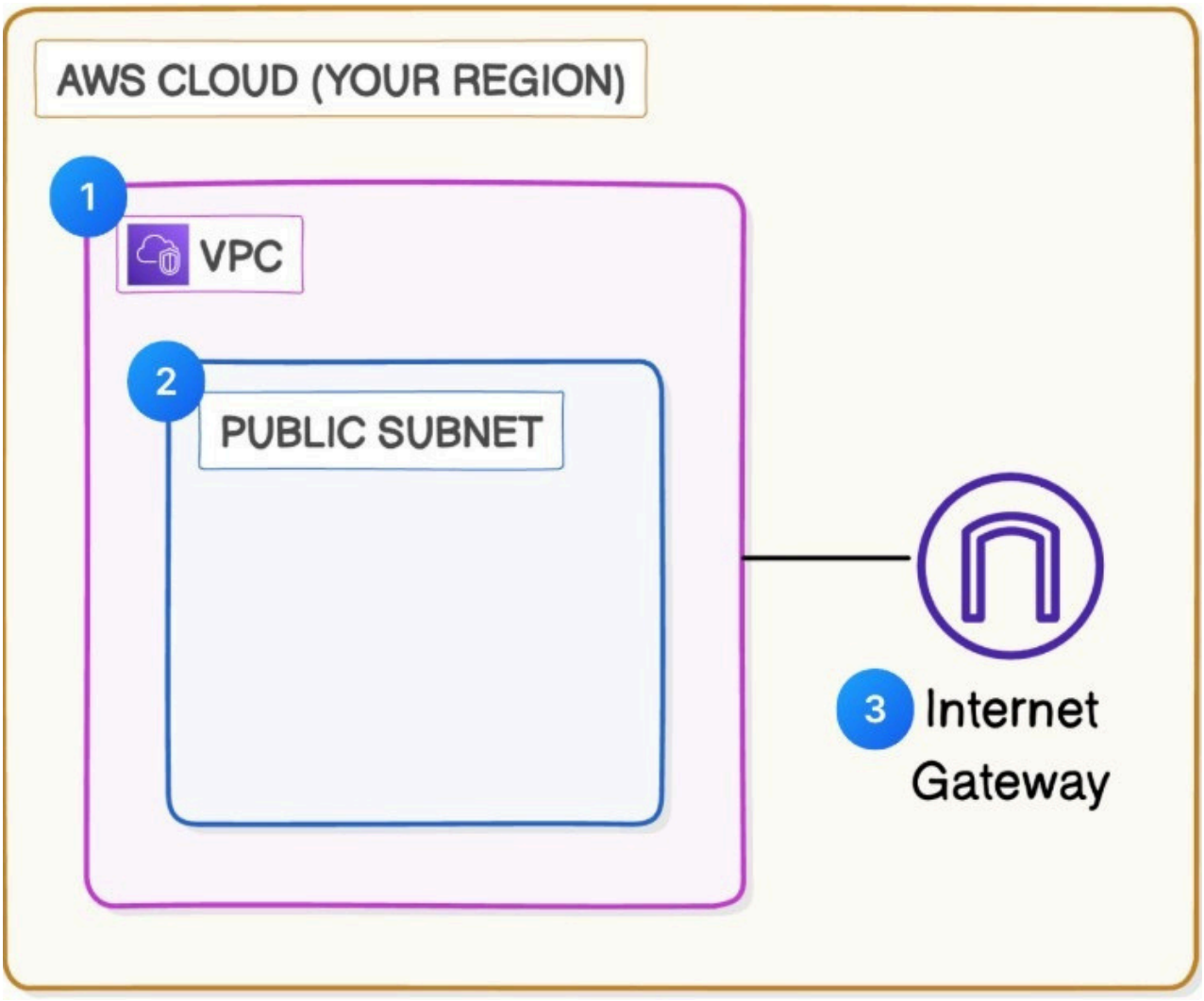
BUILD A PRIVATE VIRTUAL CLOUD



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Project Overview

In this step, i will be building a virtual private cloud which is a isolated network within the AWS cloud where you define and control your networking environment — including IP address ranges, subnets, route tables, internet gateways, and security settings.

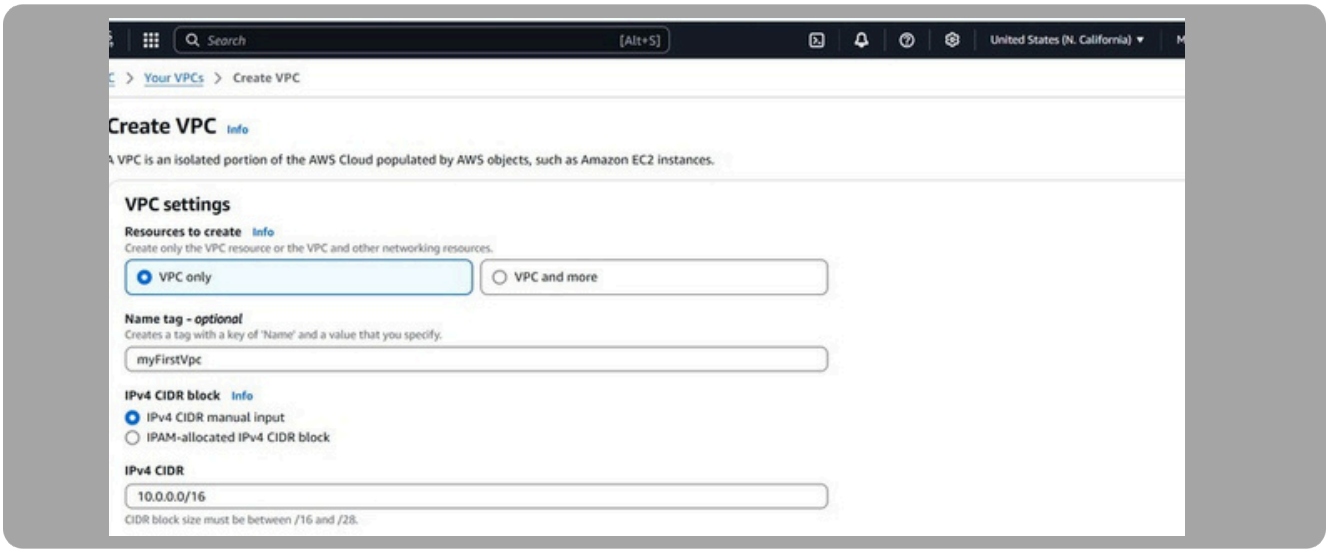
What Is Amazon Vpc ?

VPCs let you keep your AWS resources private and isolated from the public internet. You get full control over how they're organized, how they talk to each other, and whether or not they can connect to anything outside your cloud.

By default, AWS provides a default VPC in each region to allow for the quick and easy provisioning of EC2 instances, with basic networking and internet access configured by default.

How I used Amazon Vpc in this project

To setup my VPC, I had to define an IPv4 CIDR block (Classless Inter-Domain Routing). This specifies the range of IP addresses that the VPC can use to allocate to the resources deployed within it, such as EC2 instances, load balancers, and databases.

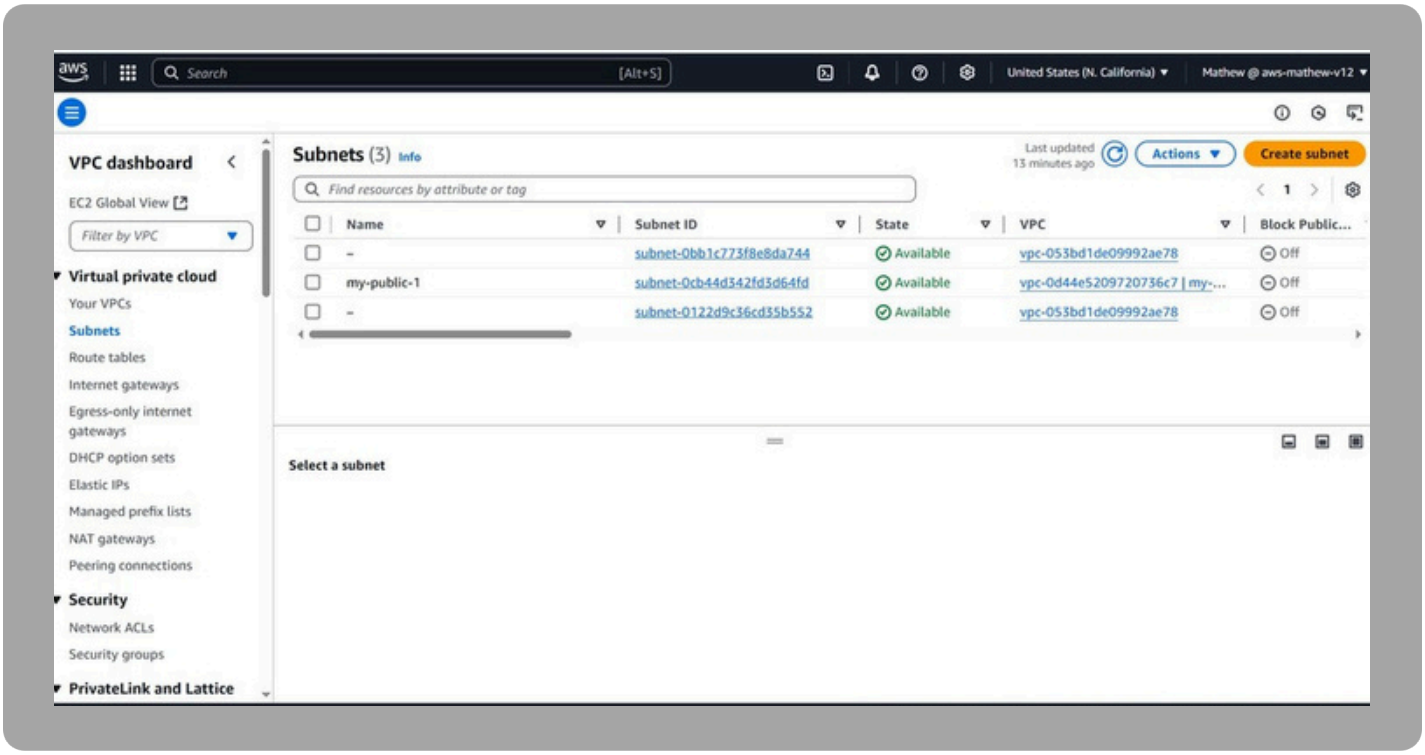


What Is Subnets ?

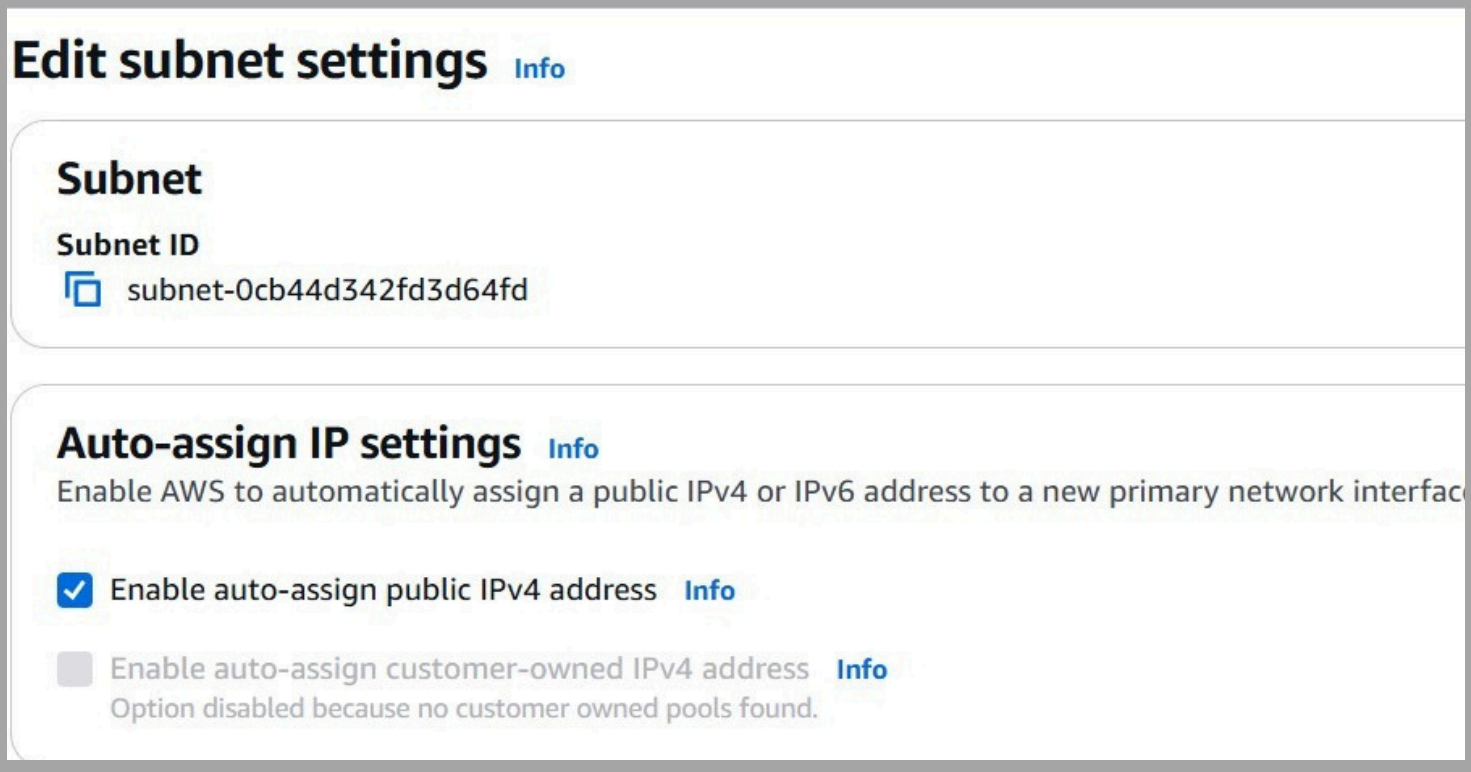
Subnets are smaller network segments within a VPC that divide the IP address range into manageable sections. They help organize resources, control traffic flow, and isolate parts of your infrastructure for better security and availability. They are two types of subnets

1. Public subnet as access to the internet through the help of internet gateway, resources like Ec2, load balancer e.t.c use Public subnet
2. Private subnet are isolated from the internet, resources like databases use private subnet

Each AWS region comes with a set of default subnets, and the number of these subnets depends on the number of Availability Zones (AZs) in that region. These default subnets are automatically created and associated with the default VPC, allowing you to quickly launch resources like EC2 instances without manual network setup. In my own region which is us-west-1 (N. California), which has two Availability zones (AZs), i have two subnets.



Once I created my subnet (my-public-1), I enabled the auto assign public ipv4. This setting makes sure that the vpc automatically assign ipv4 address to my resources e.g Ec2 instances.



Internet Gateway

An Internet Gateway is a horizontally scaled, highly available AWS component that allows resources in your VPC/subnets (like EC2 instances) to connect to the internet and receive traffic from the internet — but only if properly configured

When i created my internet gateway, the state was showing detached in other for my vpc to have access to the internet, i edited the state setting from the internet gateway panel and clicked on attach to Vpc(my-first-vpc)

After setting up and attaching the Internet Gateway to my VPC, I also needed to configure a Route Table. The route table acts like a GPS for network traffic — it tells my resources how to reach the internet. Without a route that points traffic to the Internet Gateway, even though the gateway is attached, my EC2 instances would still not be able to access the internet. The connection exists, but traffic wouldn't know where to go without the route in place..