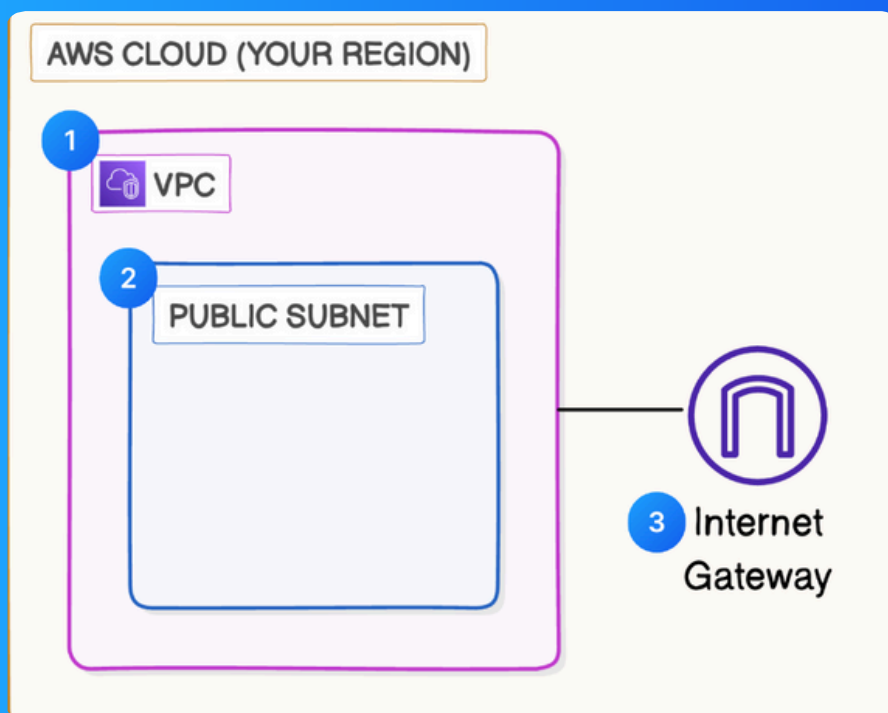


# Build a Virtual Private Cloud

 Praveen Bandara





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# Introducing Today's Project!

## What is Amazon VPC?

Amazon Virtual PrivateCloud(VPC) is a service that allows you to create a logically isolated network in the AWS cloud. It gives you full control over your virtual networking environment, including the selection of your IP address range.

## How I used Amazon VPC in this project

In today's project, I used Amazon VPC to create a secure, isolated network environment, setting up public subnets for web servers and private subnets for databases. I configured security groups and routing tables to manage traffic.

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

One thing I didn't expect in this project was the complexity of managing network traffic between multiple subnets. Configuring the routing tables and security groups to ensure seamless communication.



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# Virtual Private Clouds VPCs

VPCs are isolated section of the AWS Cloud that help to keep my AWS resources private and secure.

There was already a default VPC in my account ever since my AWS account was created. This is because AWS has set up a default VPC to allow me to deploy resources like EC2 instances/RDS databases right away.

To set up my VPC, I had to define an IPv4 CIDR, which means a range of IP addresses that my VPC can allocate to the resources deployed into my VPC.

VPC > Your VPCs > Create VPC

## Create VPC Info

A VPC is an isolated portion of the AWS Cloud populated by AWS objects, such as Amazon EC2 instances.

### VPC settings

**Resources to create** Info  
Create only the VPC resource or the VPC and other networking resources.

☒ VPC only ☐ VPC and more

**Name tag - optional**  
Creates a tag with a key of 'Name' and a value that you specify.

PraveenDev VPC

**IPv4 CIDR block** Info  
☒ IPv4 CIDR manual input  
☐ IPAM-allocated IPv4 CIDR block

IPv4 CIDR  
10.0.0.0/16  
CIDR block size must be between /16 and /28.

**IPv6 CIDR block** Info  
☒ No IPv6 CIDR block  
☐ IPAM-allocated IPv6 CIDR block  
☐ Amazon-provided IPv6 CIDR block



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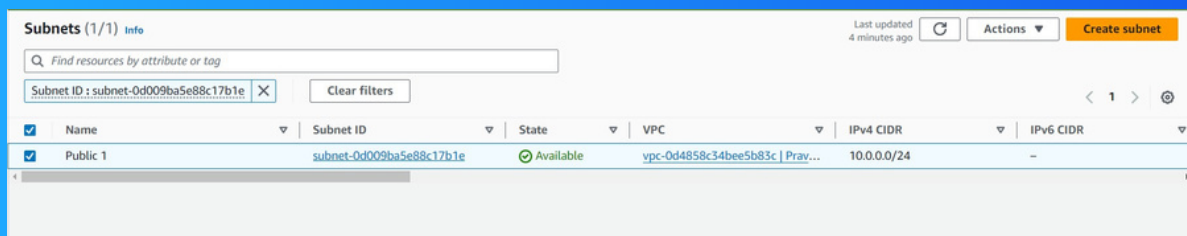
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# Subnets

Subnets are subsections of my VPC, just like how neighbourhoods are subsections of a city.

There are already subnets existing in my account, one for every Availability Zone in the Region that I've set up my VPC in. Since my region is Mumbai (ap-south-1), which has 3 Availability Zones, I have three default subnets already.

I named my subnet Public 1, but that doesn't automatically make my subnet a public subnet. For a subnet to be considered public, it has to have a router to an internet gateway.



The screenshot shows the AWS Subnets console. At the top, it says 'Subnets (1/1) Info'. Below this is a search bar and a filter for 'Subnet ID: subnet-Od009ba5e88c17b1e'. A table lists the subnets with columns: Name, Subnet ID, State, VPC, IPv4 CIDR, and IPv6 CIDR. One subnet is listed: 'Public 1' with Subnet ID 'subnet-Od009ba5e88c17b1e', State 'Available', VPC 'vpc-Od4858c34bee5b83c | Prav...', IPv4 CIDR '10.0.0.0/24', and IPv6 CIDR '-'. The table is on a blue background.

<input checked="" type="checkbox"/>	Name	Subnet ID	State	VPC	IPv4 CIDR	IPv6 CIDR
<input checked="" type="checkbox"/>	Public 1	<a href="#">subnet-Od009ba5e88c17b1e</a>	Available	<a href="#">vpc-Od4858c34bee5b83c   Prav...</a>	10.0.0.0/24	-



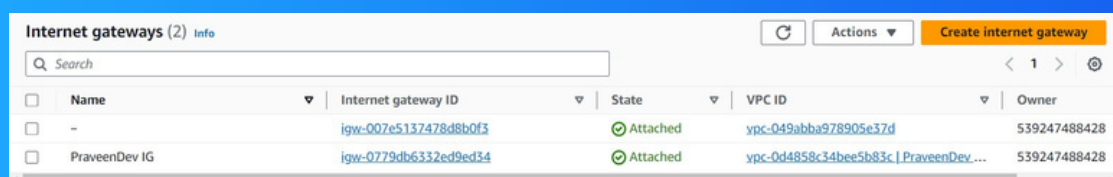
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# Internet gateways

Internet gateways are the key VPC components that allows internet access for the resources in my VPC/subnet. An internet gateway is also how users in the public can access my resources in a public subnet.

Attaching an internet gateway means resources in your VPC can now access the internet. The EC2 instances with public IP addresses also become accessible to users, so your applications hosted on those servers become public too.



The screenshot shows the AWS Internet Gateways console. At the top, there's a header 'Internet gateways (2)' with an 'Info' link, a search bar, and buttons for 'Refresh', 'Actions', and 'Create internet gateway'. Below the header is a table with the following data:

<input type="checkbox"/>	Name	Internet gateway ID	State	VPC ID	Owner
<input type="checkbox"/>	-	<a href="#">igw-007e5137478d8b0f3</a>	Attached	<a href="#">vpc-049abba978905e37d</a>	539247488428
<input type="checkbox"/>	PraveenDev IG	<a href="#">igw-0779db6332ed9ed34</a>	Attached	<a href="#">vpc-0d4858c34bee5b83c   PraveenDev ...</a>	539247488428