

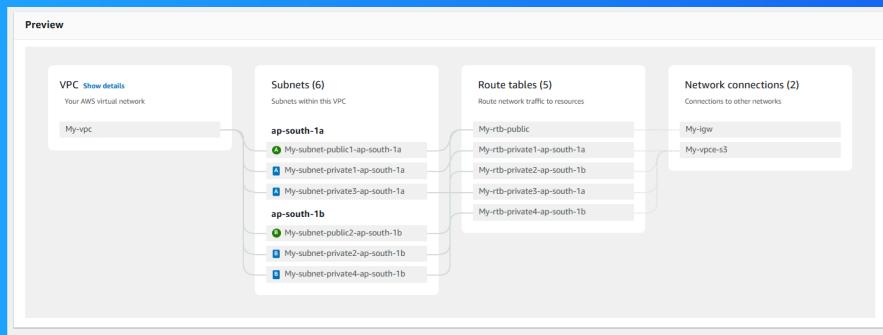


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# Launching VPC Resources



RAJARSHI VERMA





# Introducing Today's Project!

## What is Amazon VPC?

Amazon VPC (Virtual Private Cloud) allows you to create a private, isolated network within the AWS cloud. It's useful for controlling network settings, enhancing security, and ensuring your resources are accessible only to authorized users.

## How I used Amazon VPC in this project

Today we have created the VPC and respective private and public subnets, Route Table, NACL and security group. Further we associated the EC2 instance server for both private and public network.

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

It was greatly easy to associate the private and public EC2 with public and private network.

## This project took me...

It hardly took total of 60 minutes but once created you can easily create new VPC using VPC and more option is less than 5 munites.



# Setting Up Direct VM Access

Directly accessing a virtual machine means logging into and managing the operating system or software of the machine as if you were using it in front of you, but over the internet. Essential for deeper administrative tasks or specific troubleshooting

## SSH is a key method for directly accessing a VM

SSH traffic means using the Secure Shell protocol to securely access a remote machine. It verifies correct private key matches the public key on the server, ensuring authorized access. All data transmitted is encrypted, ideal for secure communication

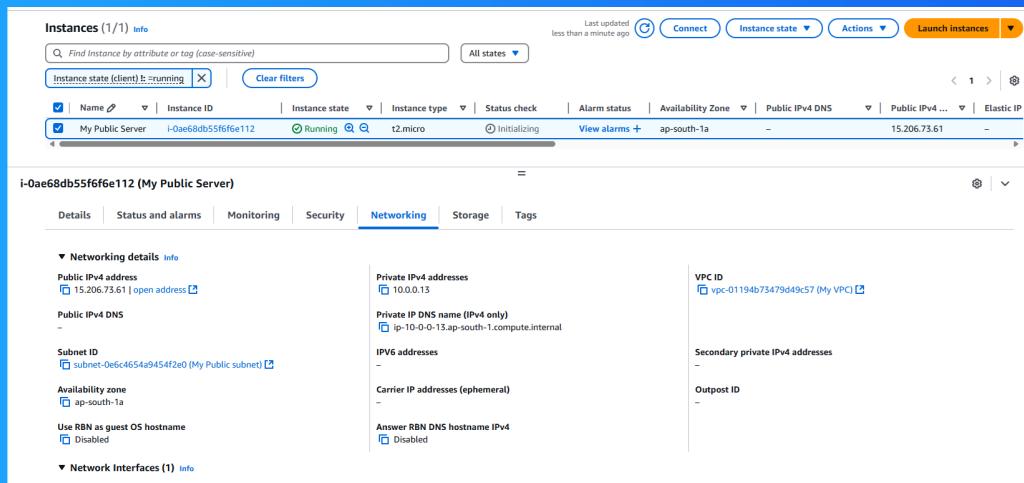
## To enable direct access, I set up key pairs

Key pairs are cryptographic keys used in secure communications. They consist of a public key and a private key. The public key encrypts data, while the private key decrypts it. This ensures that only the intended recipient can access the information.

A private key's file format means the specific way the key is saved, like PDF or DOCX for documents. My private key's file format was .pem, which stands for Privacy Enhanced Mail, commonly used for managing cryptographic keys on servers.

# Launching a public server

I had to change my EC2 instance's network settings by clicking on edit icon. Then further selecting the My VPC, then selecting the Public subnet and lastly selecting the public security group.





# Launching a private server

My private server has its own dedicated security group because it requires stricter access controls to ensure sensitive data remains secure. This separation minimizes the risk of unauthorized access and enhances overall network security.

My private server's security group's source is my public security group, which means only resources within the public security group can communicate with the private server. This setup enhances security by restricting access to trusted resources only.

The screenshot shows a CloudWatch Metrics dashboard with a single metric named "AWS Lambda Function Invocations". The value is 1, and the timestamp is "1 minute ago". The metric is plotted against time from "1 hour ago" to "1 minute ago". The chart is set to a 1-minute interval. The background of the dashboard is blue.

# Speeding up VPC creation

I used an alternative way to set up an Amazon VPC! This time, I used VPC and more option in create VPC option.

A VPC resource map is a visual representation of the components within a Virtual Private Cloud (VPC). It shows the layout of subnets, route tables, and their associations, helping users understand and manage their network architecture efficiently.

My new VPC has a CIDR block of 10.0.0.0/16. It is possible for my new VPC to have the same IPv4 CIDR block as my existing VPC because AWS VPCs are isolated from each other by default.

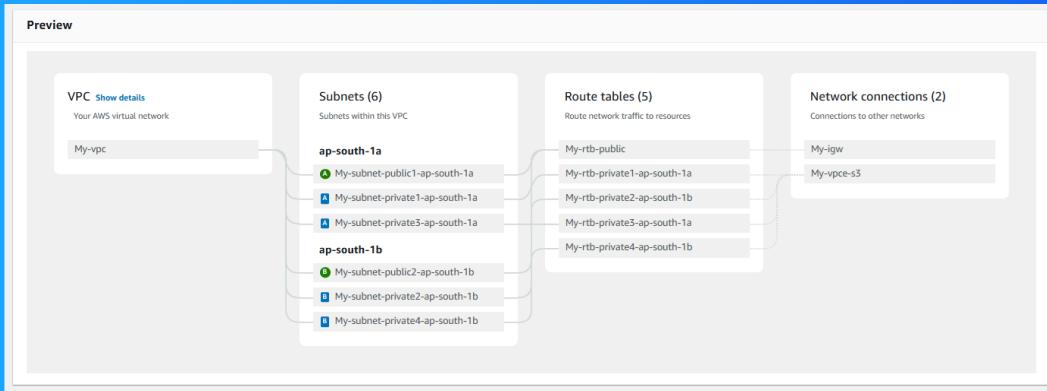


# Speeding up VPC creation

## Tips for using the VPC resource map

When determining the number of public subnets in my VPC, I only had two options: 0 or 2. This was because AWS best practices recommend having a public subnet in each Availability Zone for redundancy and high availability, ensuring reliability.

The set up page also offered to create NAT gateways, which are devices that allow instances in private subnets to access the internet for updates and patches while blocking inbound traffic, ensuring secure outbound communication.





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