**VCC Assignment 2: Use GCP cloud to create a VM to leverage auto scaling and security**

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**Table of content:**

Creation of a VM instance on GCP.

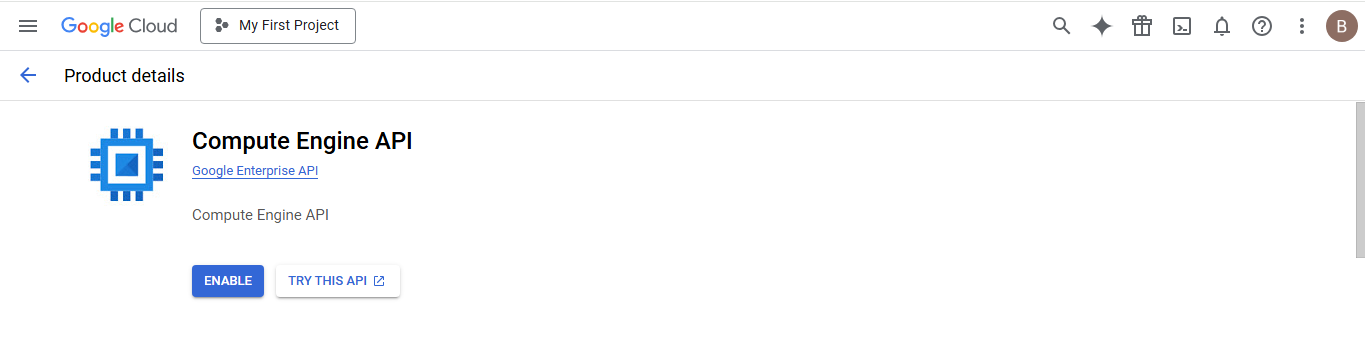
 Configuration of auto-scaling policies

 Implementation of security measures

* VPC network
* Subnet
* Configuring firewall rules to allow/deny traffic.
* IAM-Manage access and permissons

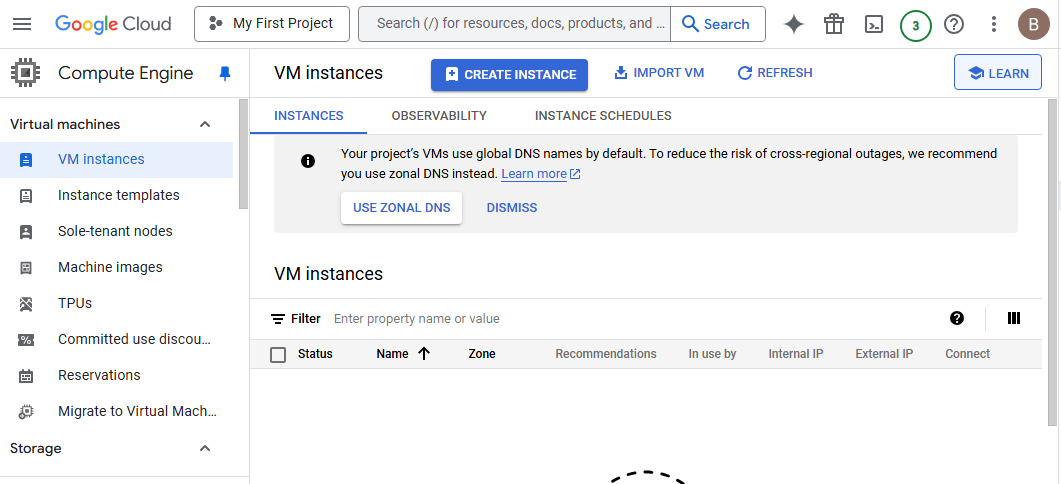
**Creation of a VM instance on GCP:**

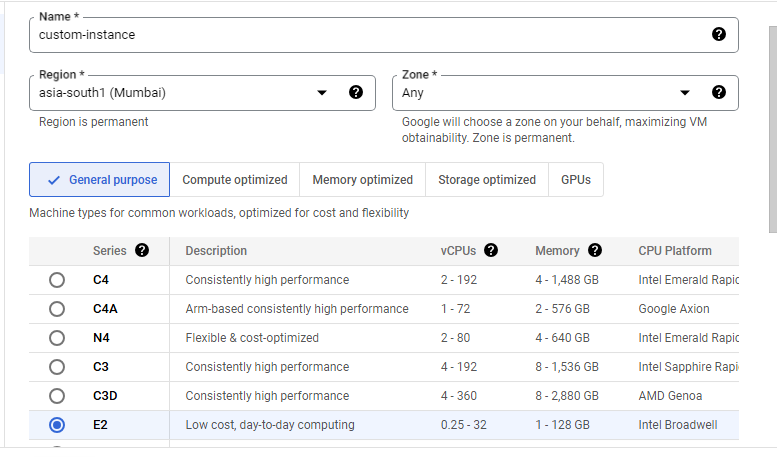
Enable Compute Engine API and set billing account

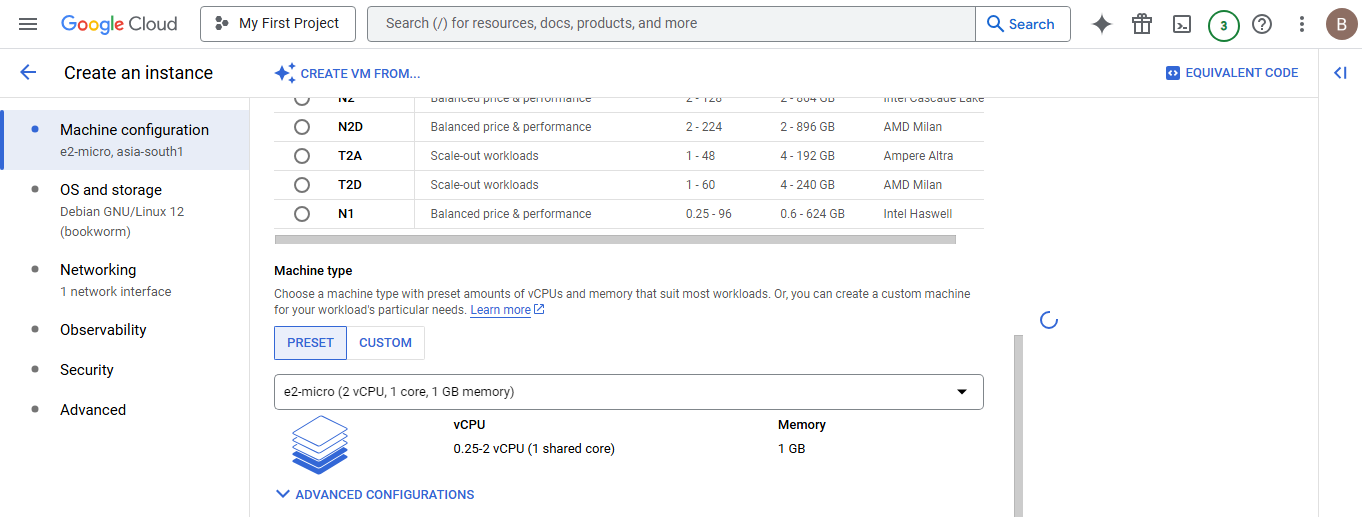


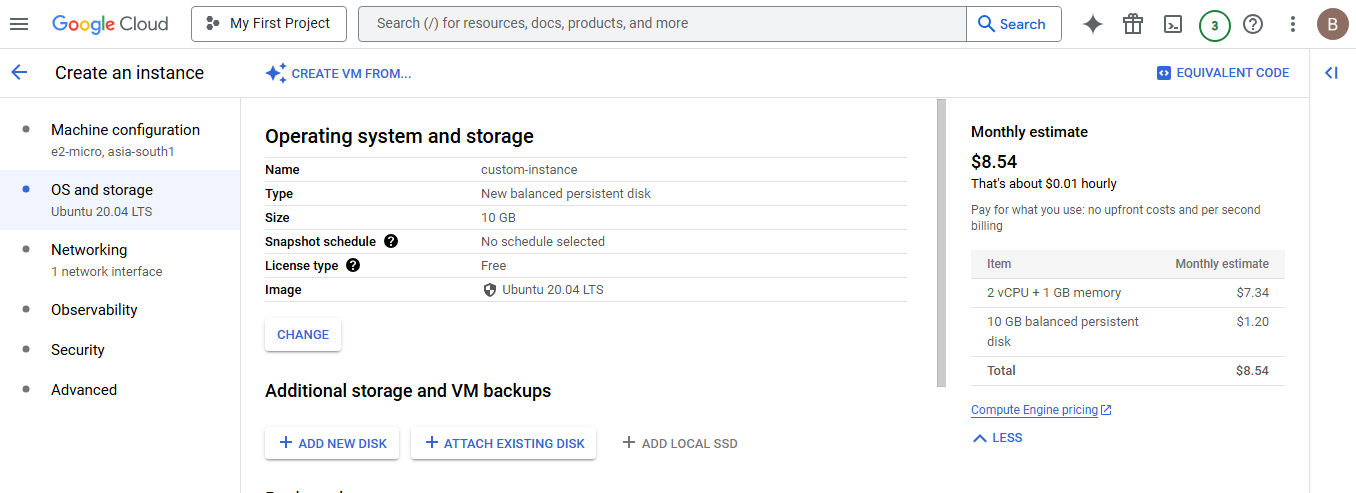
Navigate to compute engine->VM Instances

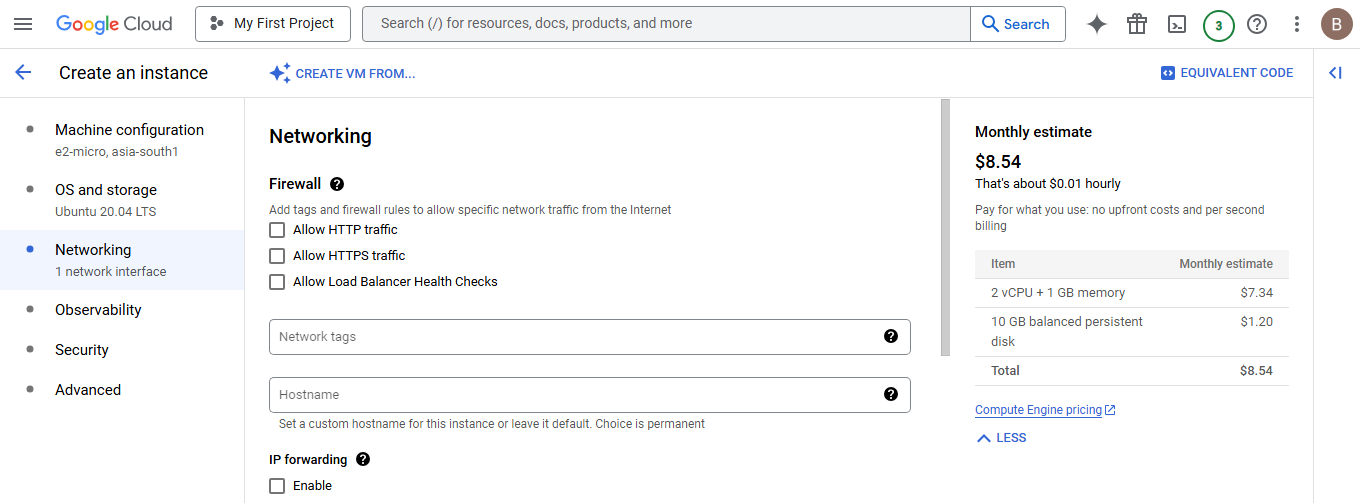
Click on create instance

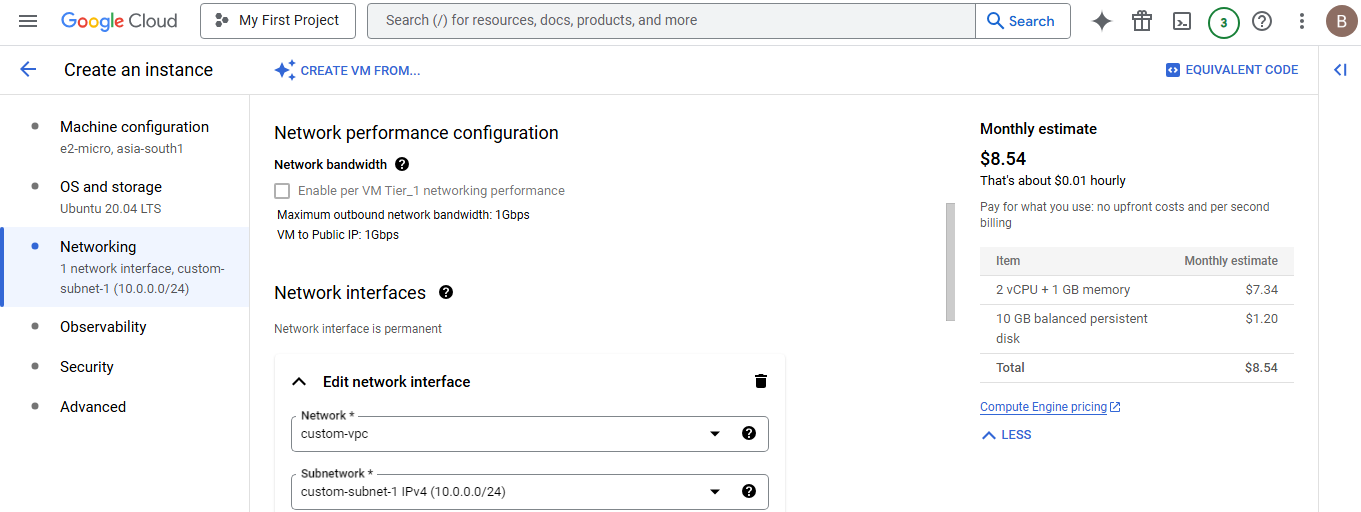


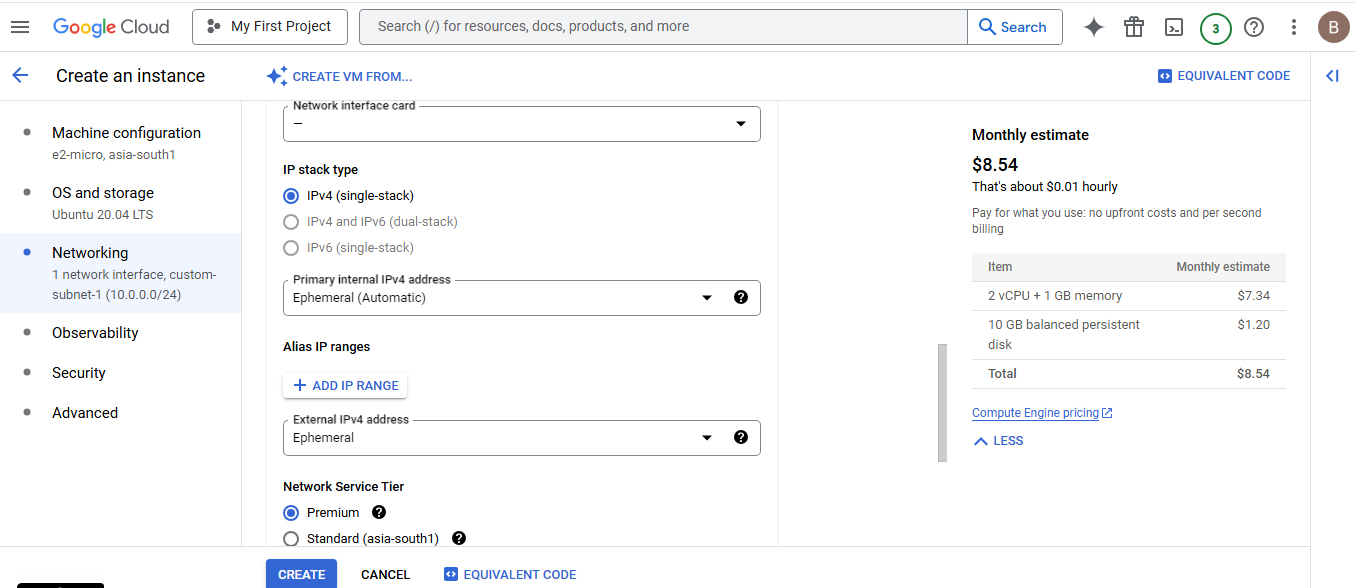




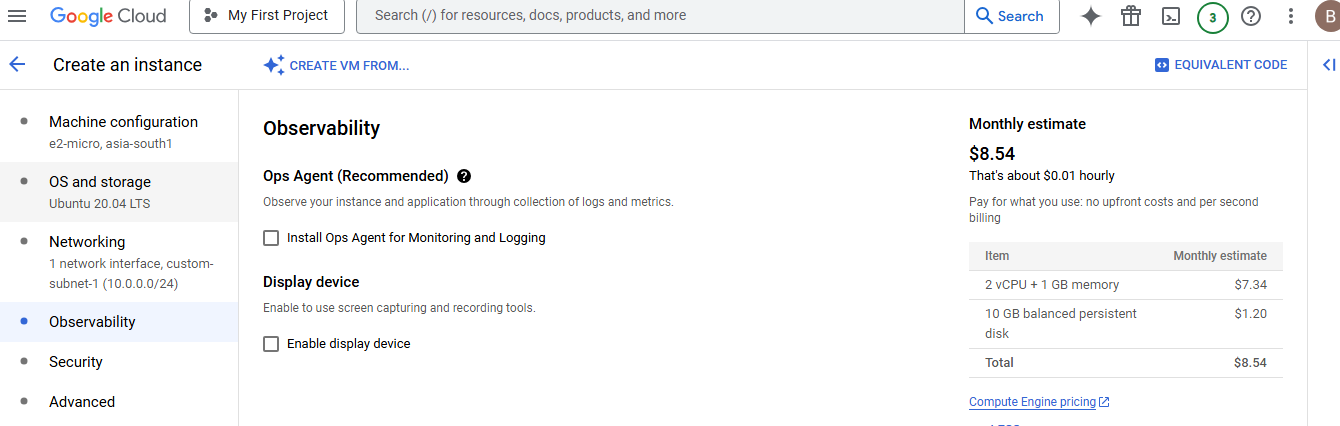


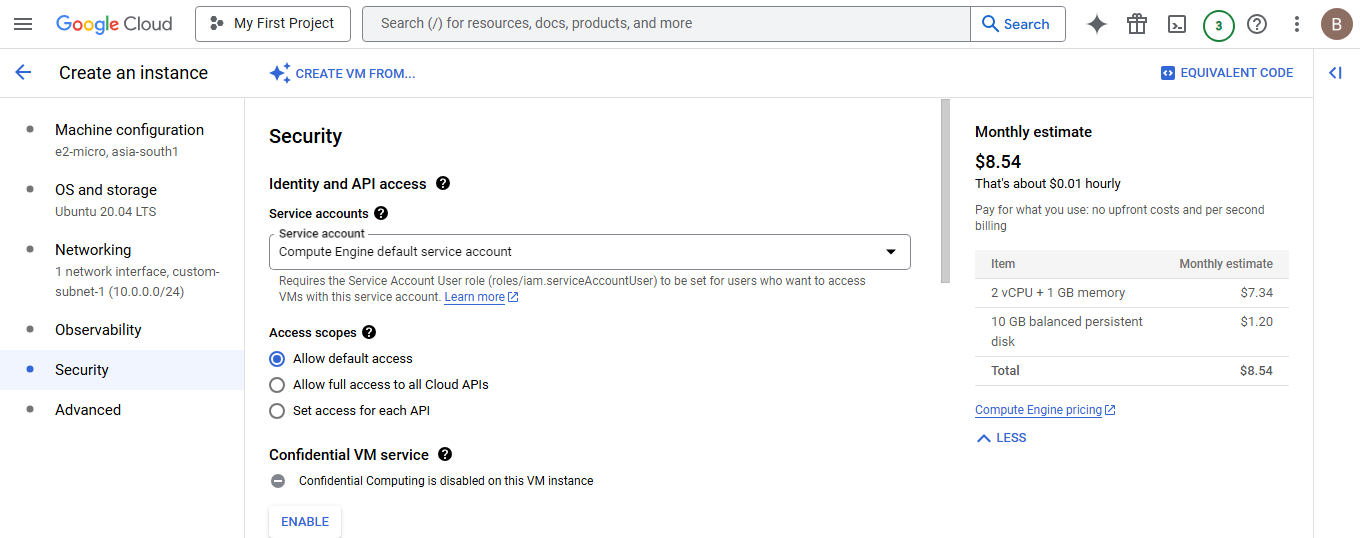


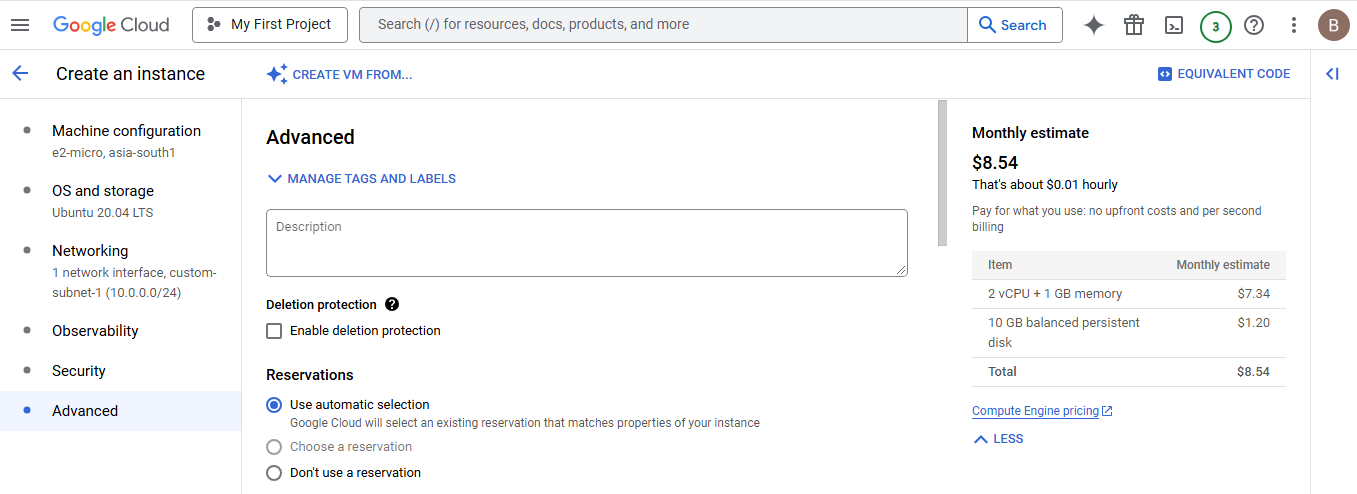




Click on done







Add below Start-up Script in automation:

#!/bin/bash

# Update package list

sudo apt update -y

# Install Apache2

sudo apt install apache2 -y

# Start Apache2 service

sudo systemctl start apache2

# Enable Apache2 to start on boot

sudo systemctl enable apache2

# Get the private IP address

PRIVATE\_IP=$(hostname -I | awk '{print $1}')

# Get the public IP address (if available)

PUBLIC\_IP=$(curl -s ifconfig.me || echo "Not Available")

# Create a simple webpage displaying the IP addresses

cat <<EOF | sudo tee /var/www/html/index.html

<html>

<head>

<title>GCP VM IP Addresses</title>

</head>

<body>

<h1>GCP VM IP Addresses</h1>

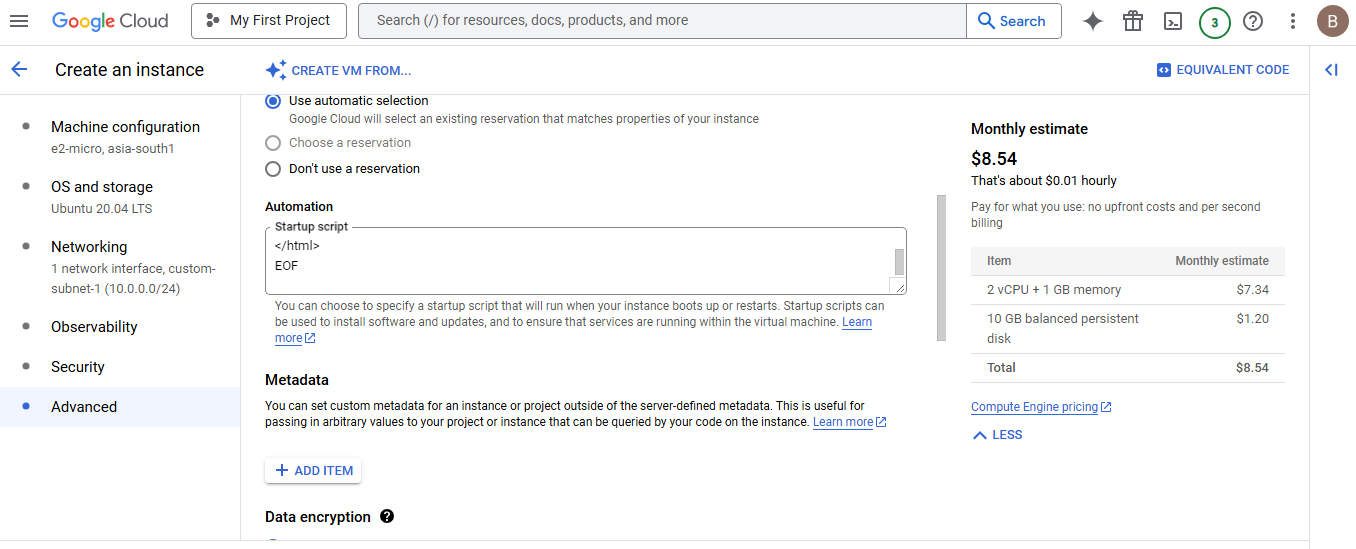
<p><strong>Private IP:</strong> $PRIVATE\_IP</p>

<p><strong>Public IP:</strong> $PUBLIC\_IP</p>

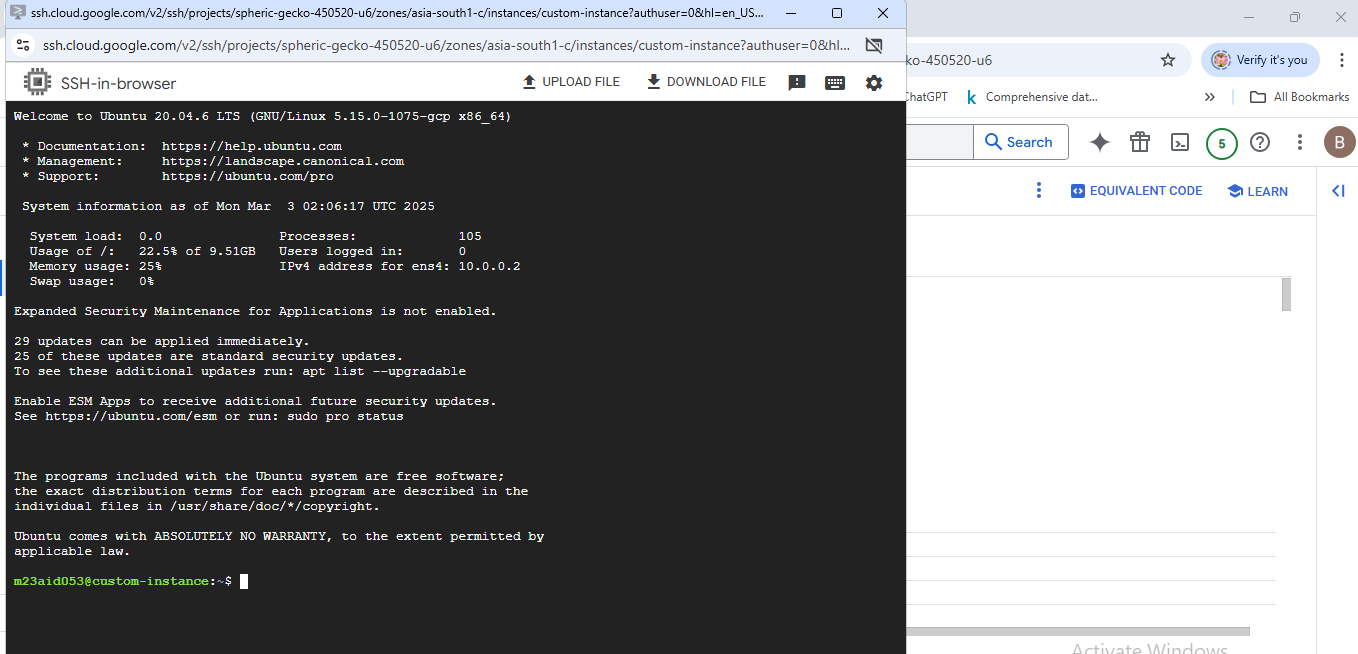
</body>

</html>

EOF



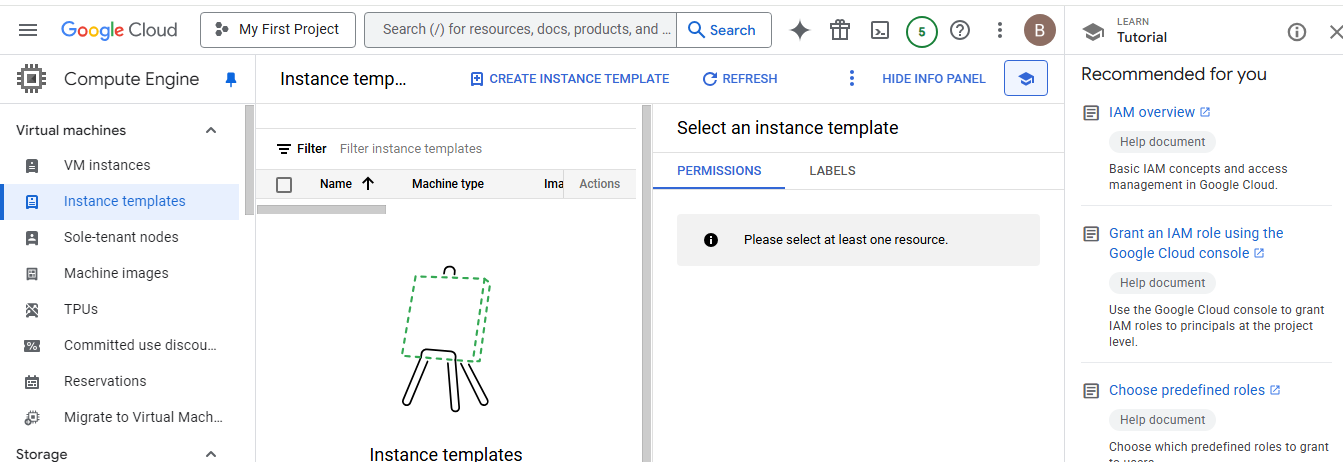
Click on create.

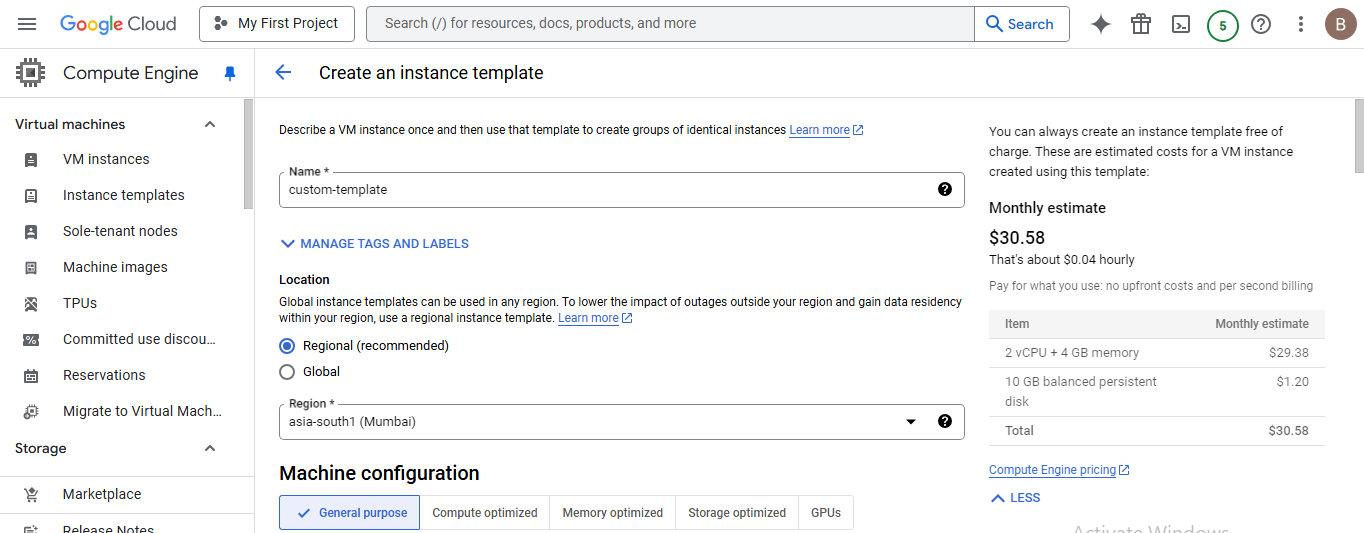


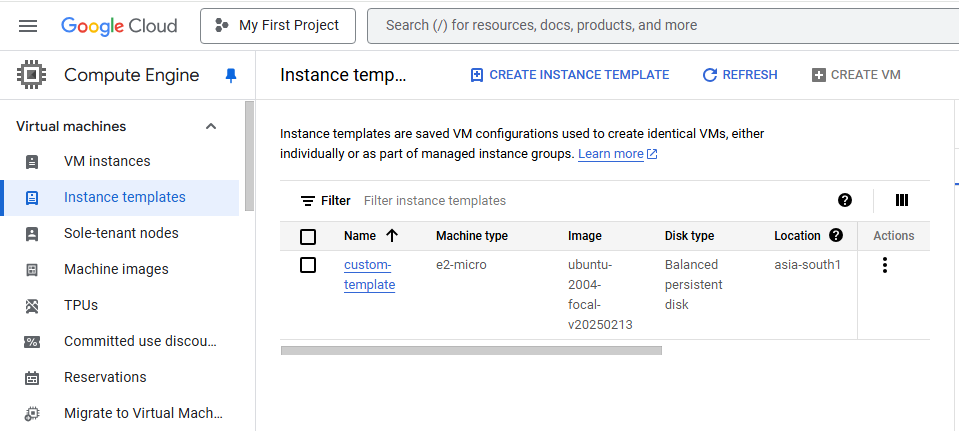


**Auto scaling**

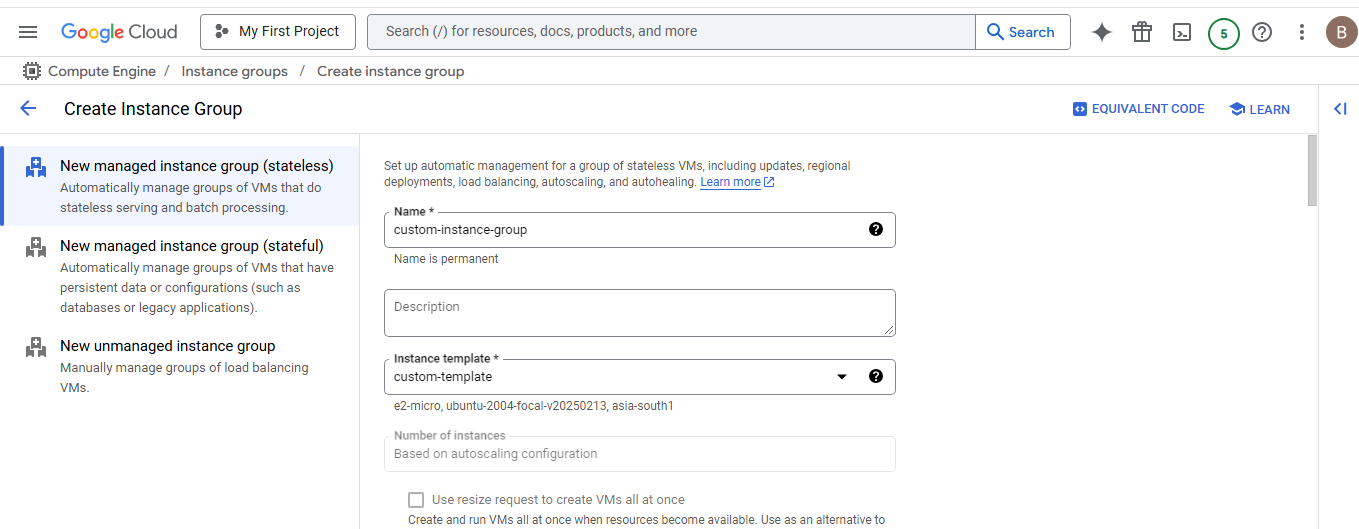
Create instance template

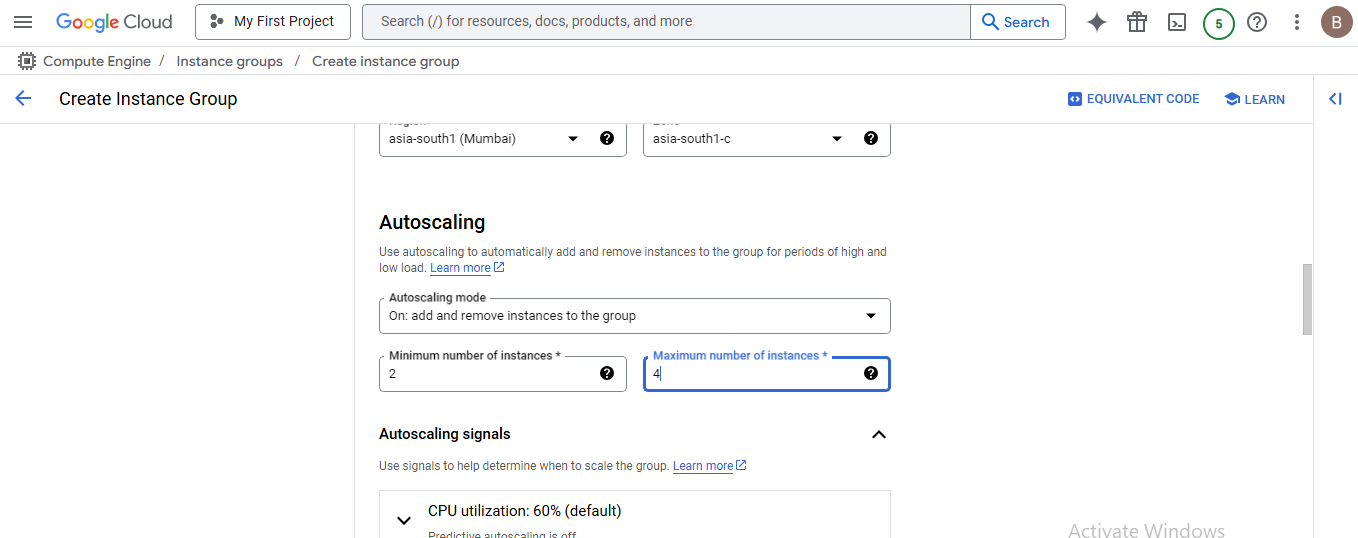


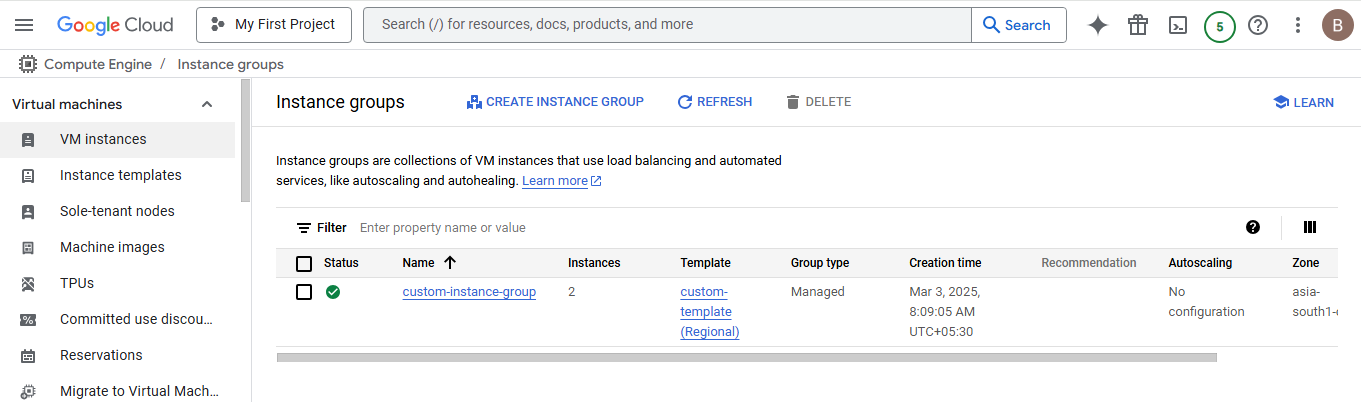




Create instance group

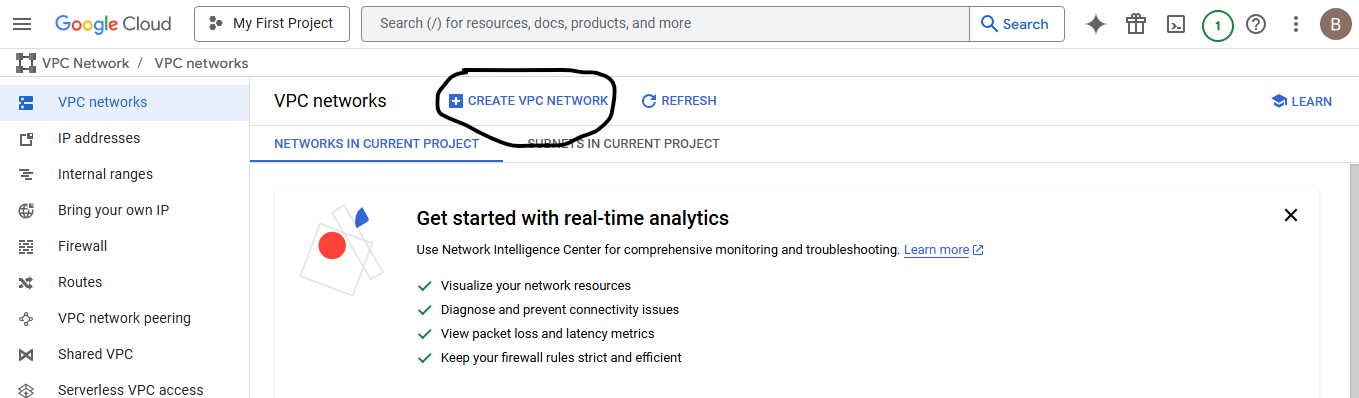


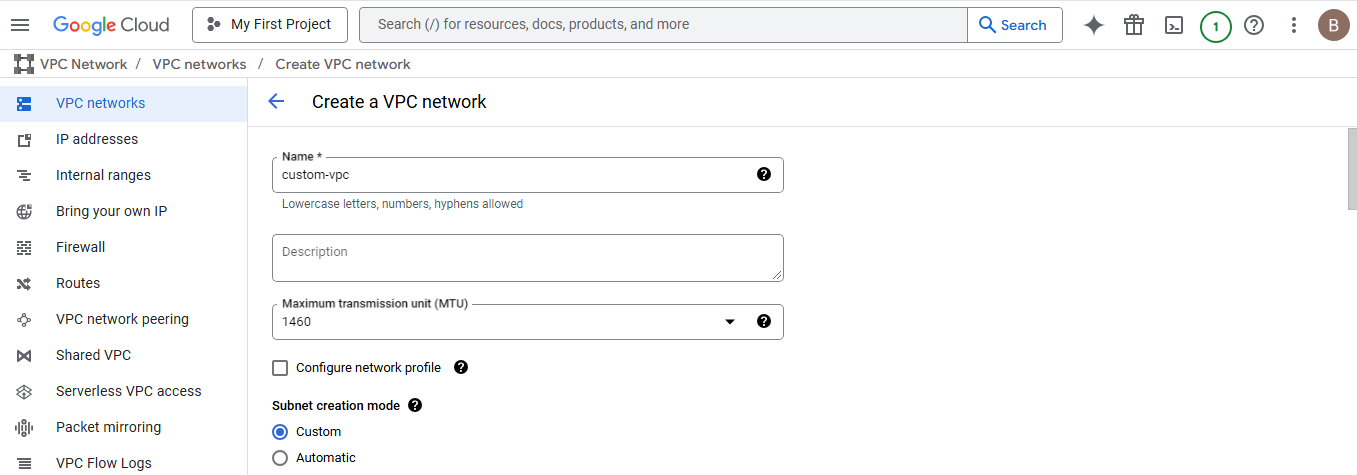


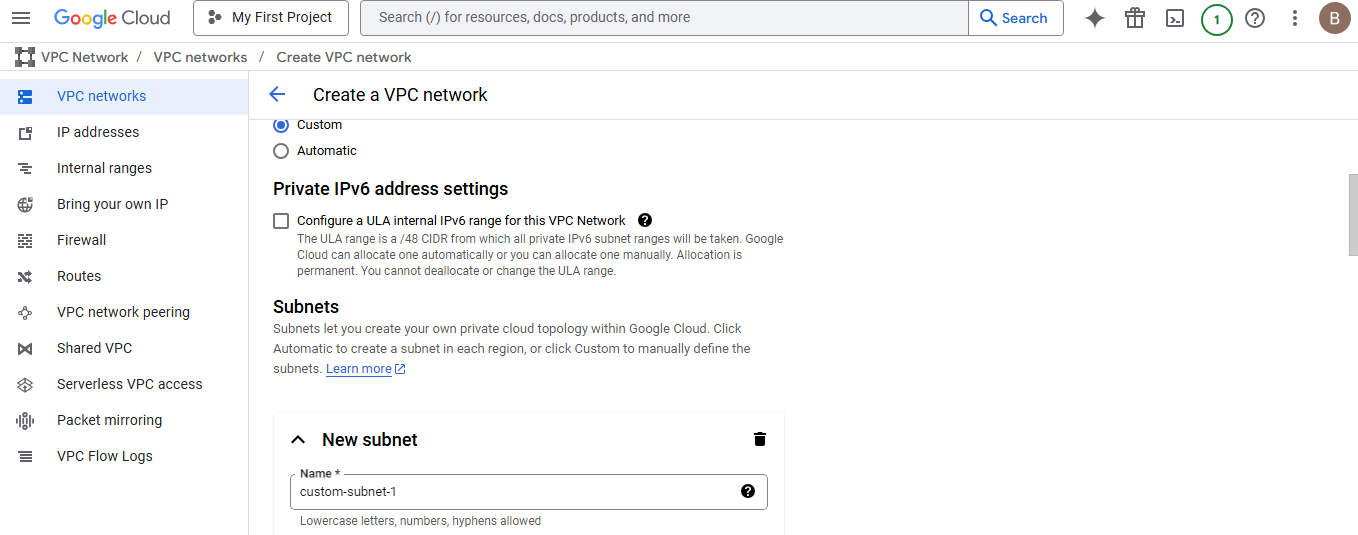


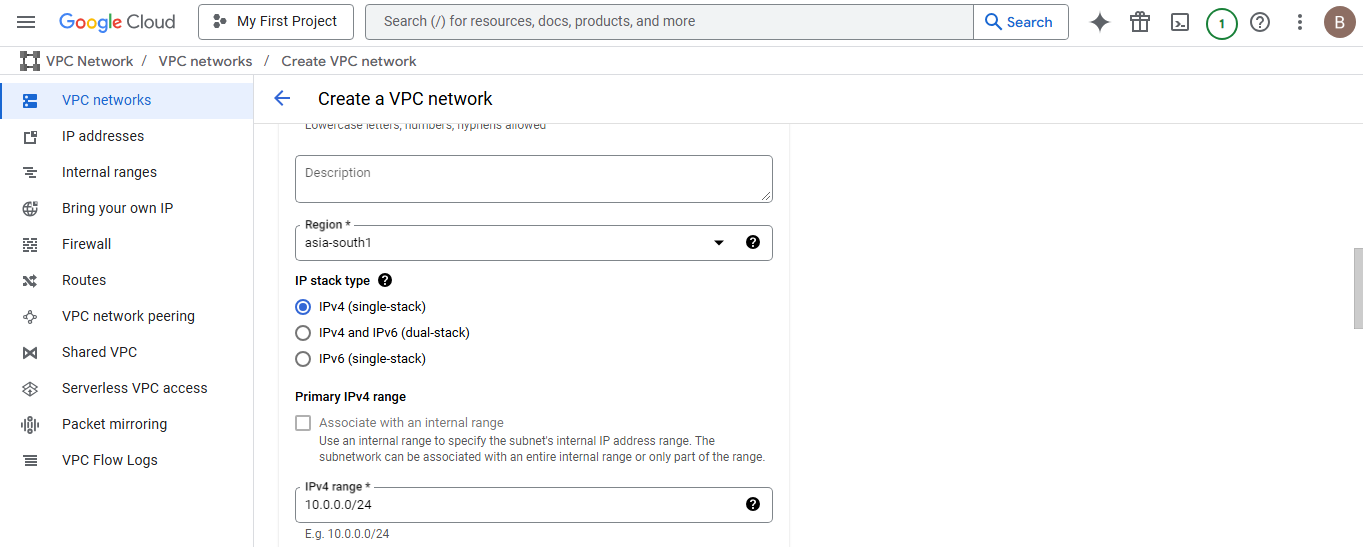
**Create VPC Network:**

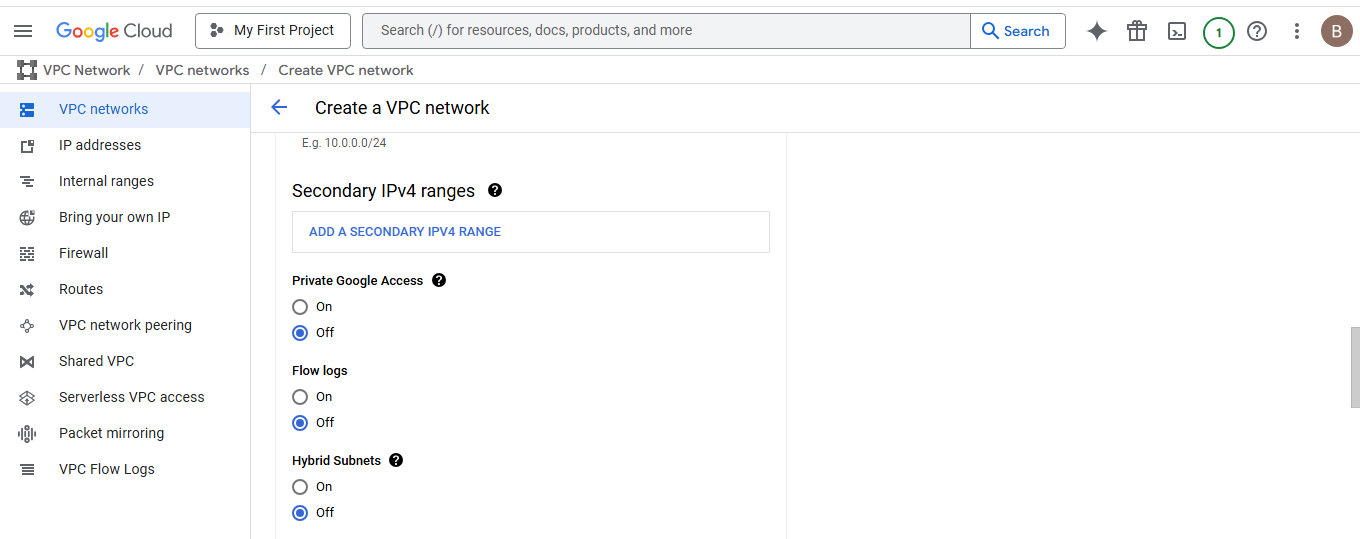
Navigate to VPC network and click on create VPC network

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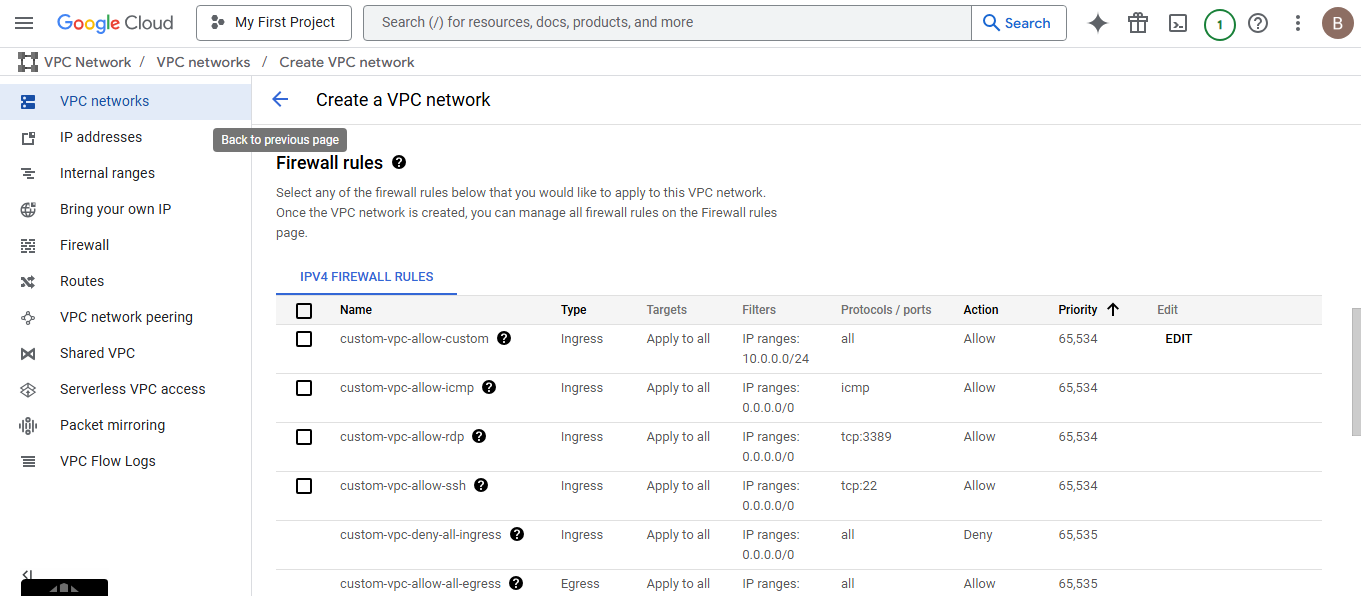
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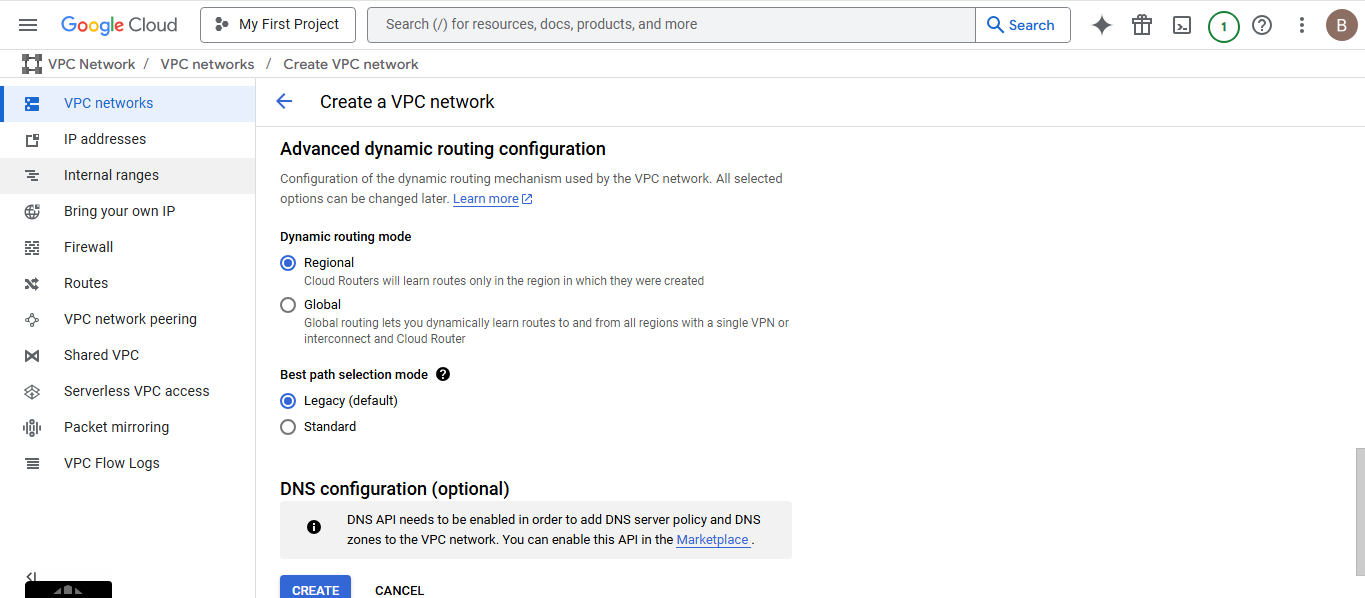
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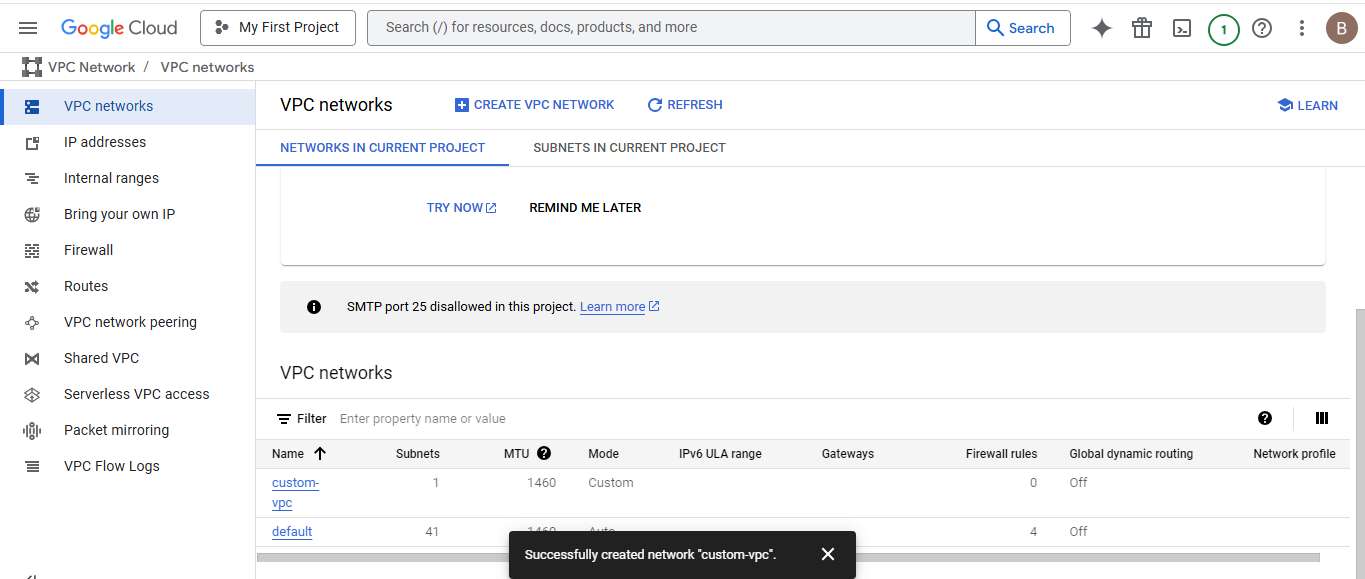
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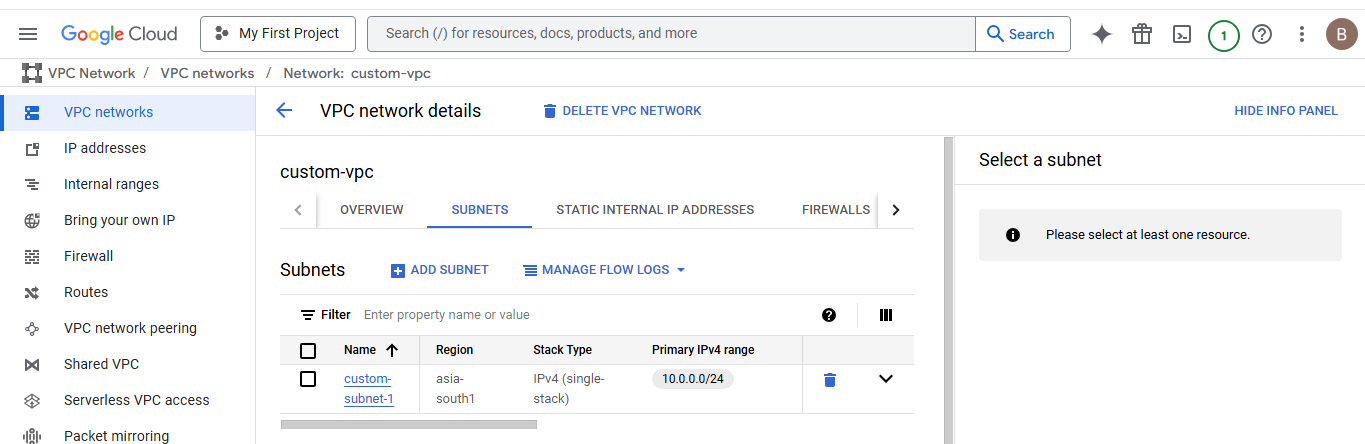
**Click on done**

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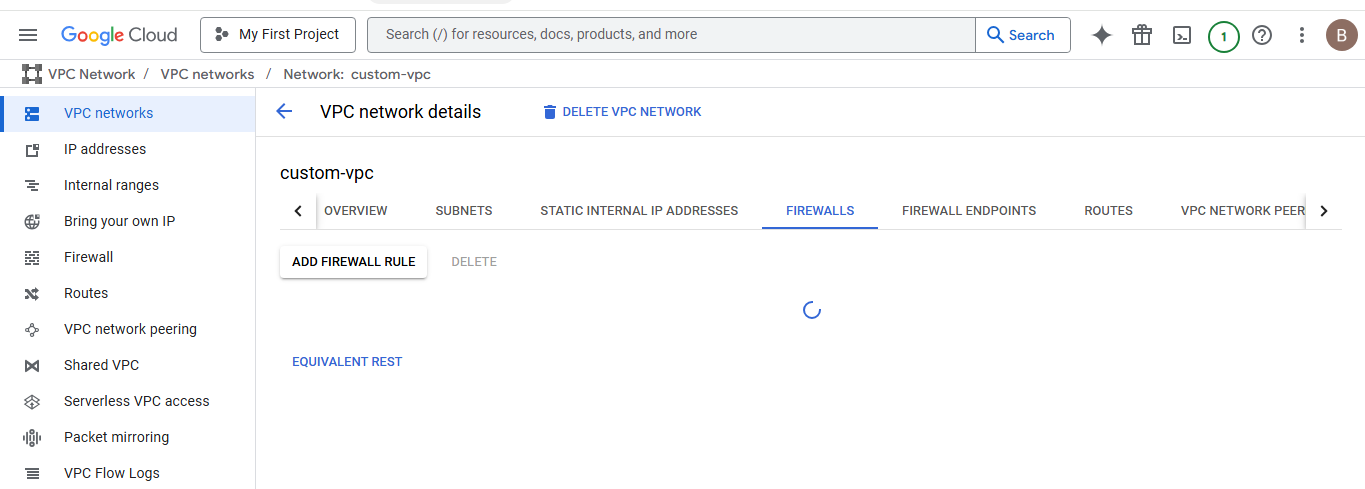
**Select create.**

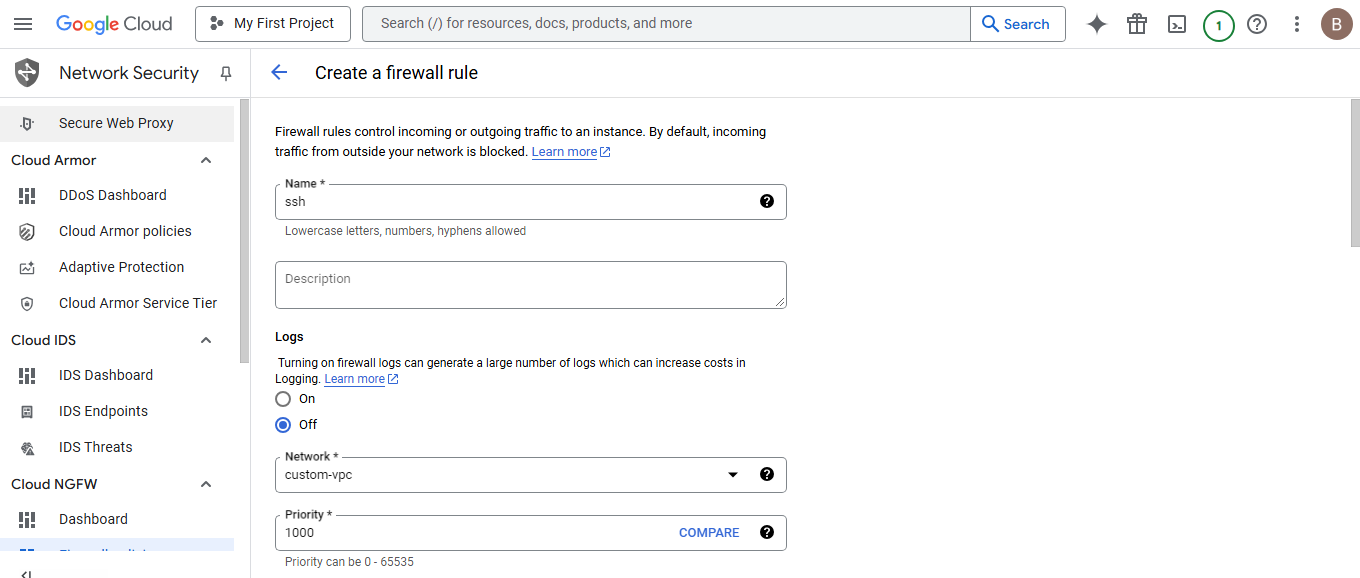
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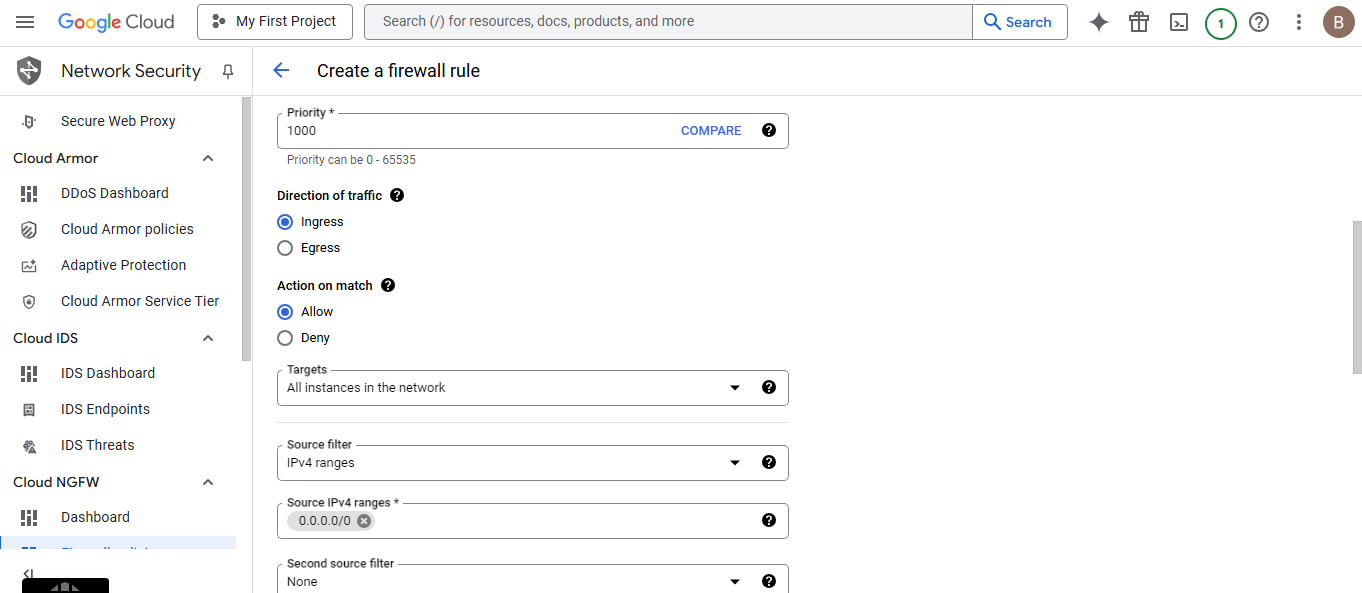
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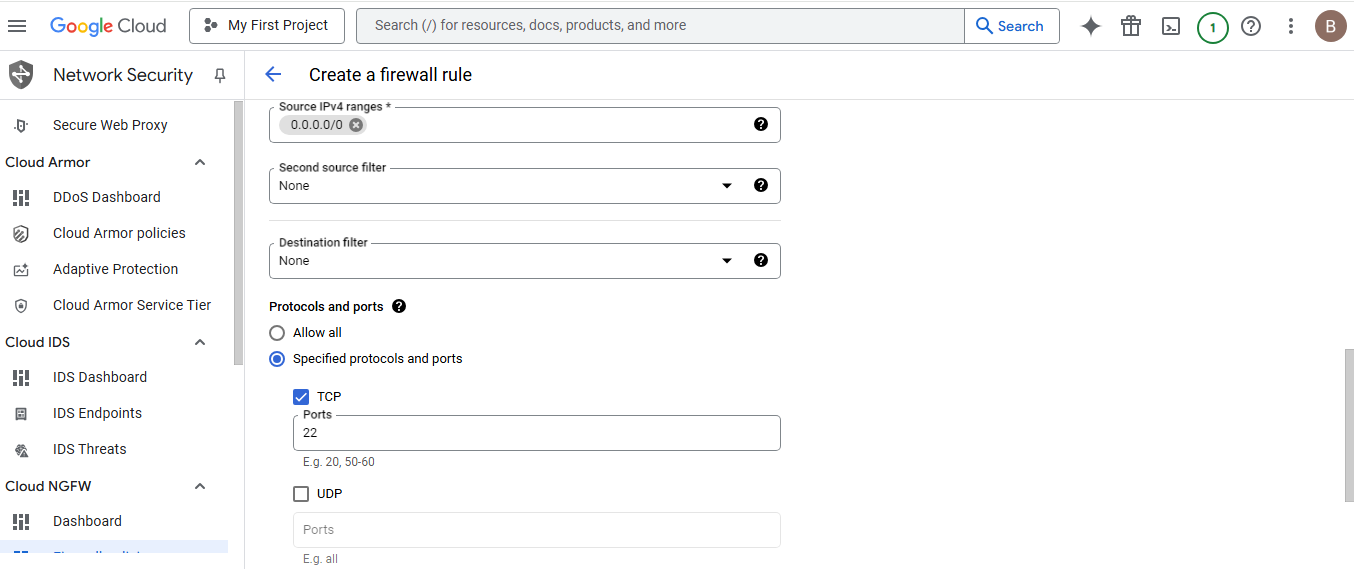
**Create Firewall:**

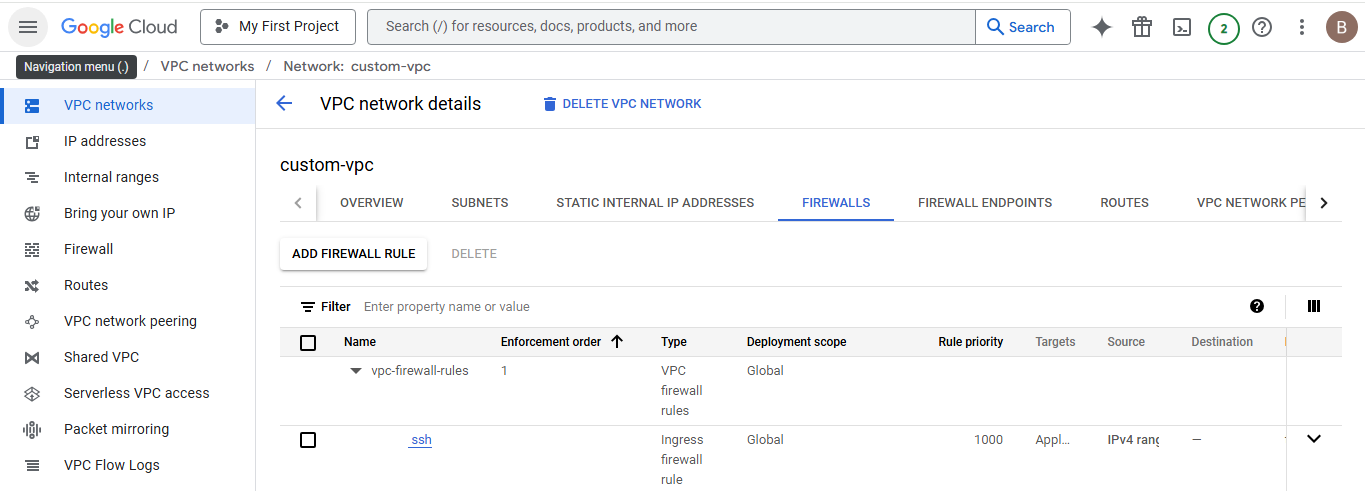
Click on add firewall rule and create firewall rule for ssh access

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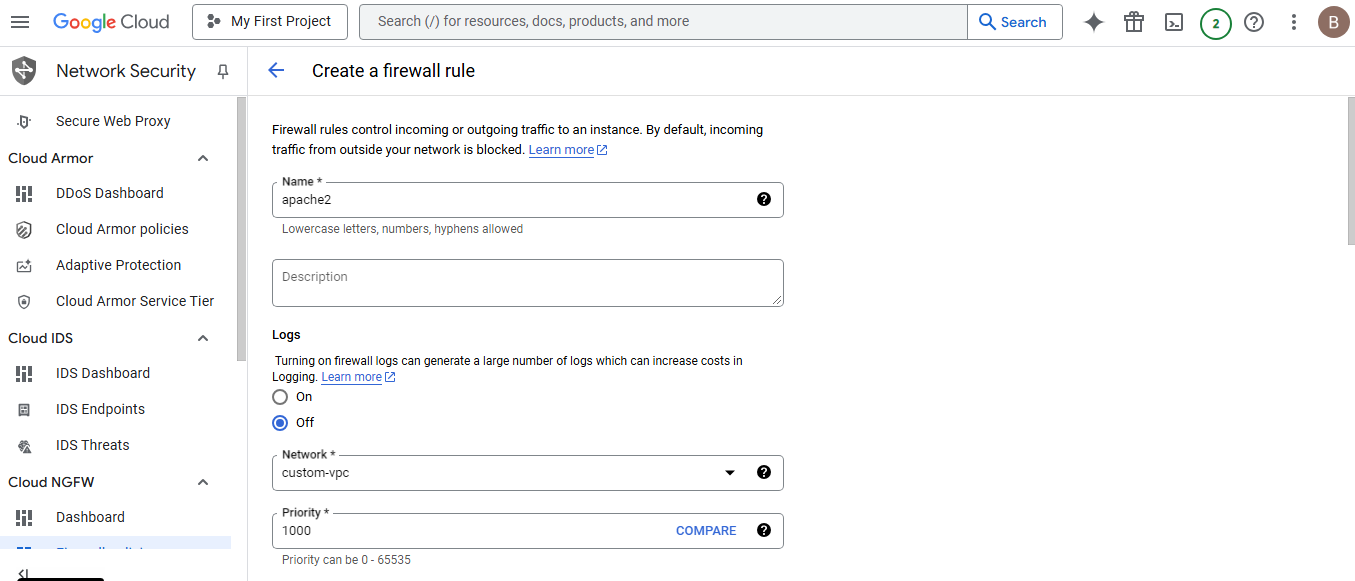
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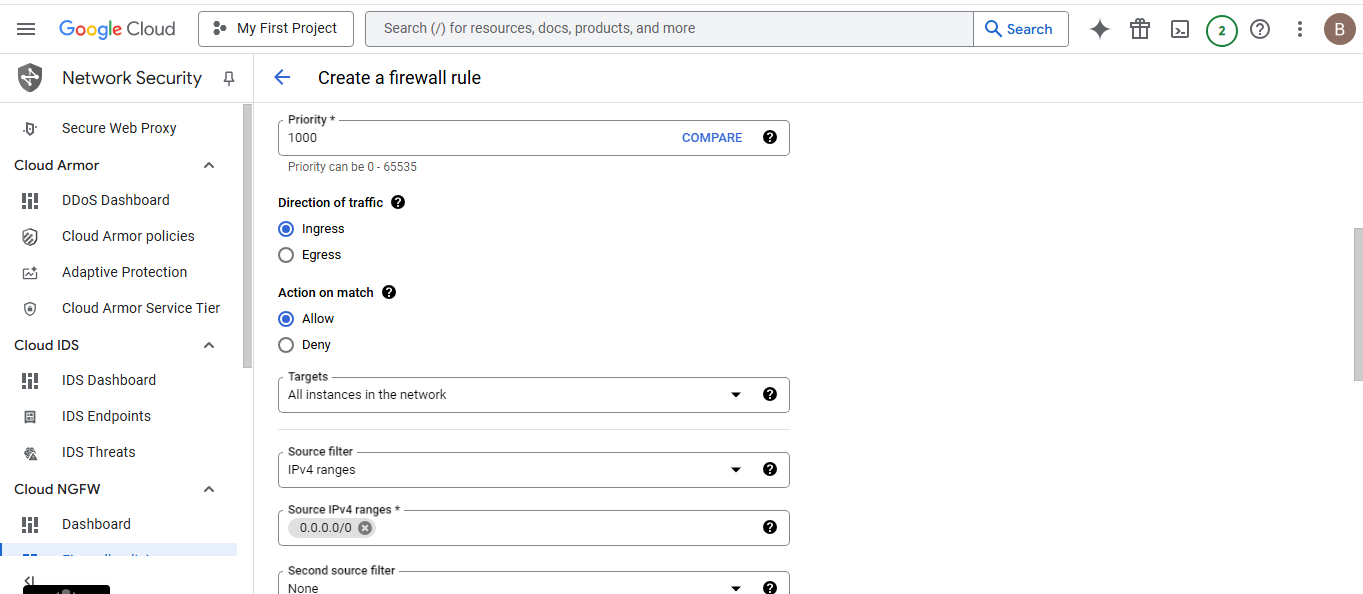
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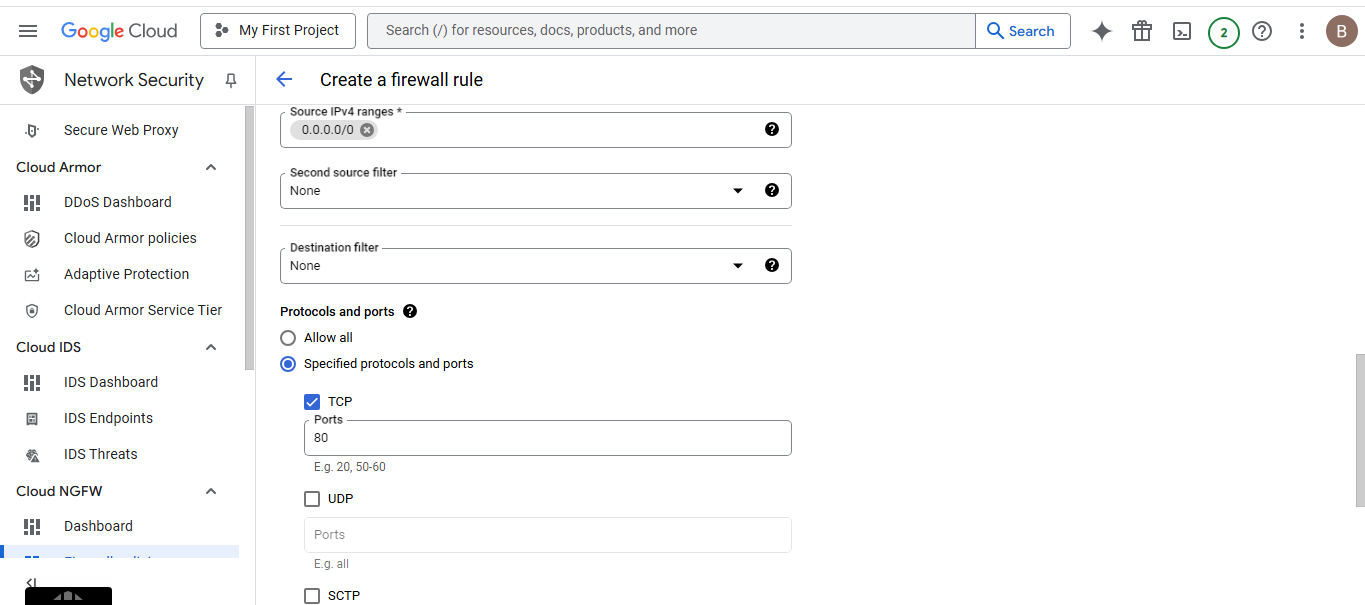
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**Then click on create**

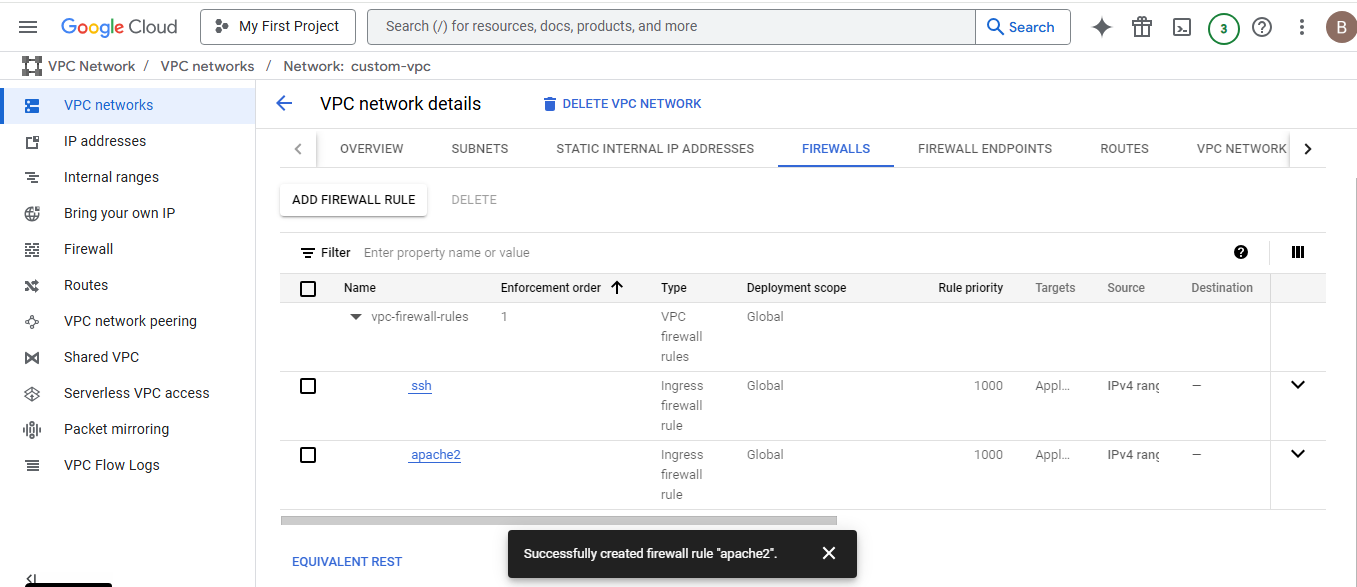
Click on add firewall rule and create firewall rule for apache2 access







Then click on create



IAM –Access and permission

