VPC

A **VPC (Virtual Private Cloud)** in GCP is a **global, scalable, and flexible private network** that provides **connectivity for your GCP resources**, such as **VMs, containers, databases**, and **serverless services**.

Since GCP is a public cloud we need to create a security for our resources and GCP VPC is the service which helps us in doing that

A VPC is global and spans all regions. Subnets, however, are **regional**.

VPCs are divided into **subnets**, each associated with a **single region** and a **CIDR range**.

IP Ranges

Supports both **internal** (RFC1918) and **external IPs**.

Internal IPs (RFC1918)

These are **private IP addresses**, used for internal communication **within** the VPC. They **aren't routable from the internet**, which improves security.

📌 **Examples:**

- 10.0.0.0/8
- 172.16.0.0/12
- 192.168.0.0/16

Used For:

- Internal VM-to-VM communication
- Databases and internal load balancers
- Services that don't need internet access

External IPs

These are **public IP addresses**, routable over the internet. GCP allows assigning external IPs to:

- **VM instances**
- **Forwarding rules (load balancers)**
- **Cloud NAT gateways**

🔐 **Used For:**

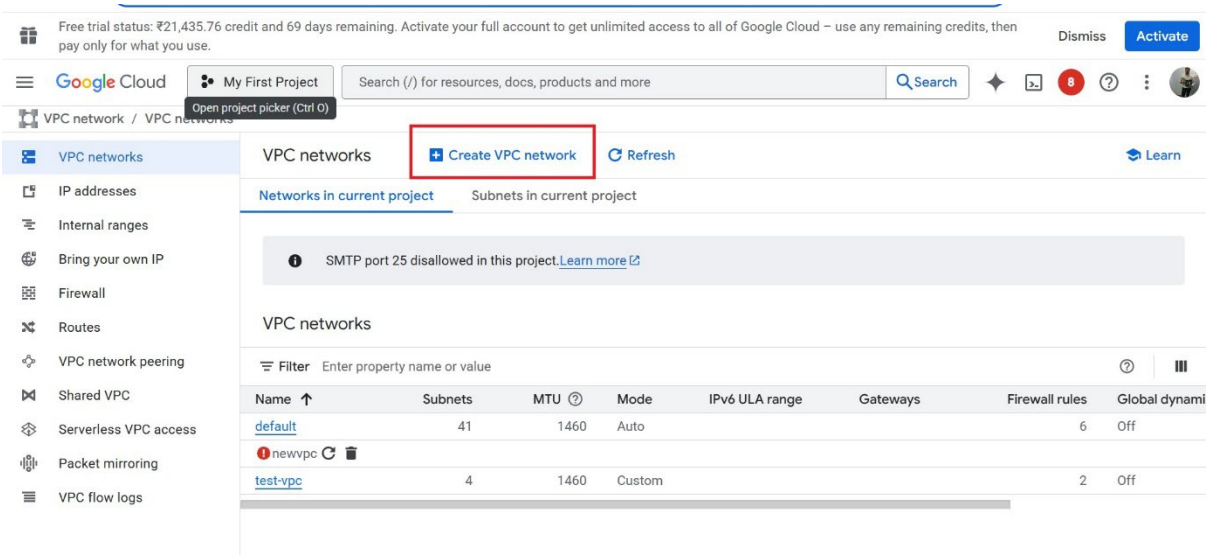
- Exposing web servers or APIs

- SSH or RDP access to VMs (if no bastion host is used)
- Services that need to reach or be reachable from the internet

Create a VPC with two subnets

Don’t add any firewall rules

Click on Create VPC



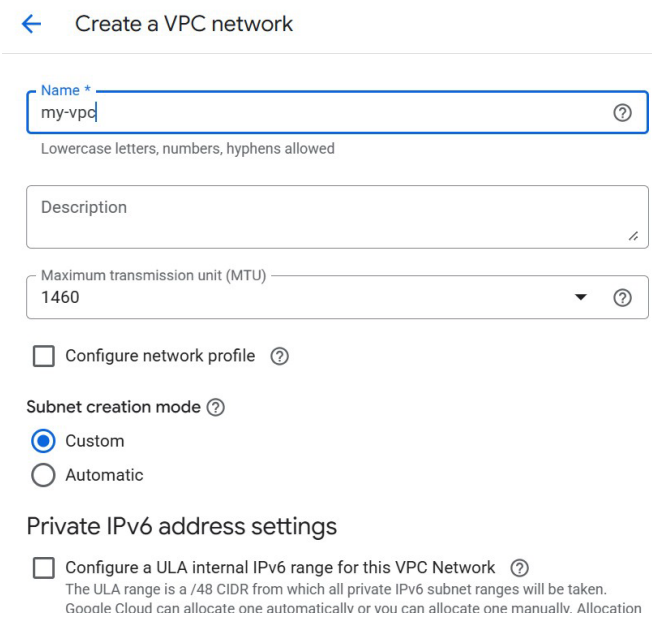
Enter the name of VPC

Change MTU if required

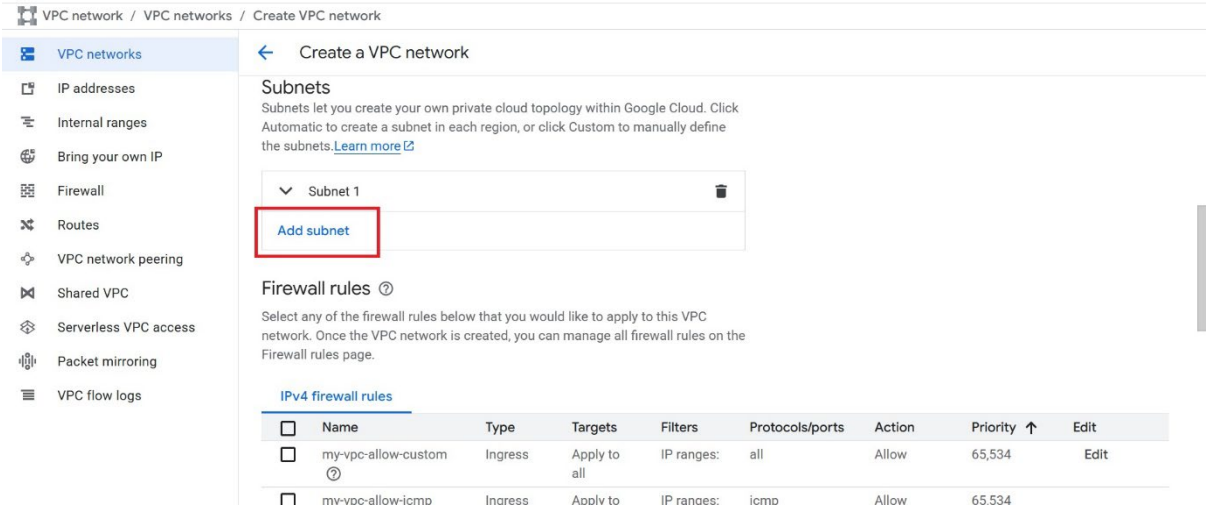
MTU (Maximum Transmission Unit) is the **largest packet size (in bytes)** that a network interface can transmit without needing to fragment the packet.

In Google Cloud Platform (GCP)

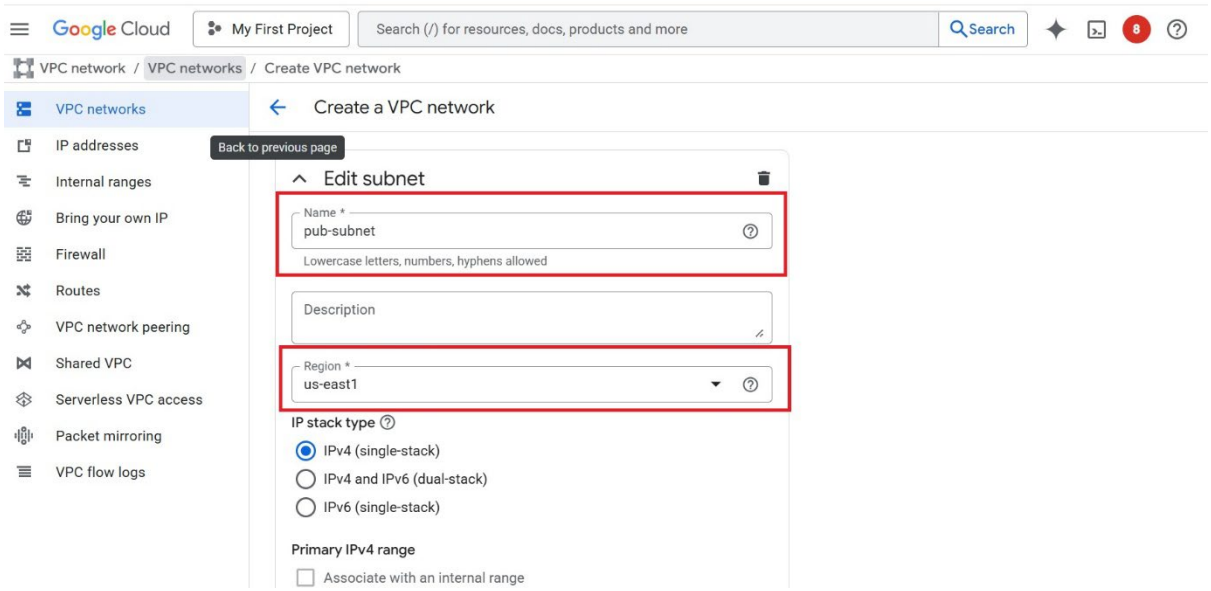
- **Default MTU**:
  The default MTU in GCP is **1460 bytes** for most **VPC networks** and **VM network interfaces**.
- **Custom MTU**:
  GCP allows you to **set a custom MTU up to 8896 bytes** for VPC networks, **but all connected VMs and services must support it** to avoid packet drops.



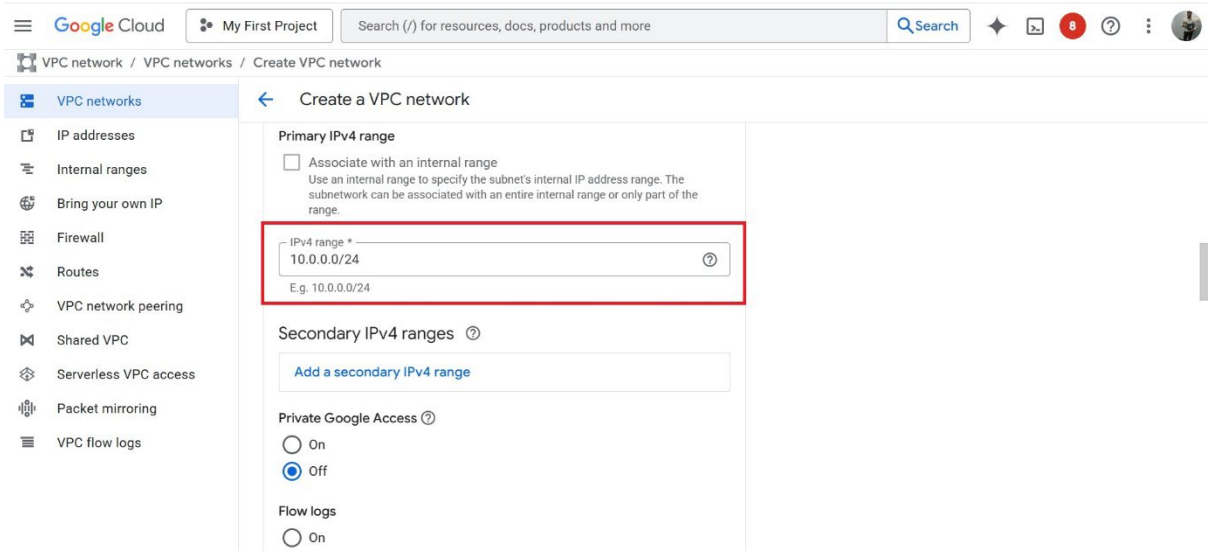
Click on Add subnet



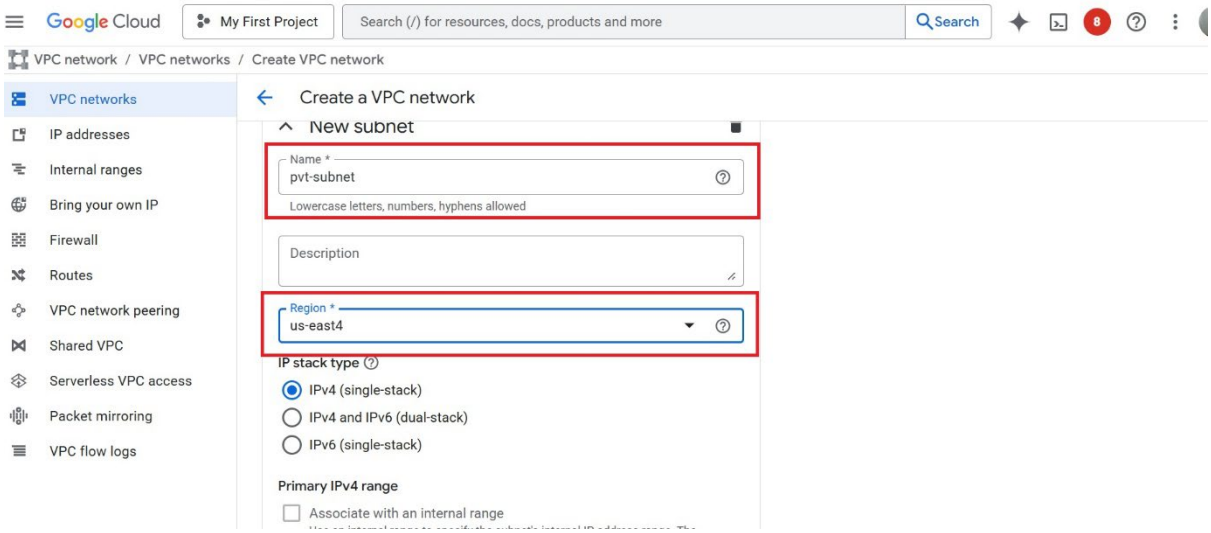
Enter the name of subnet and its region



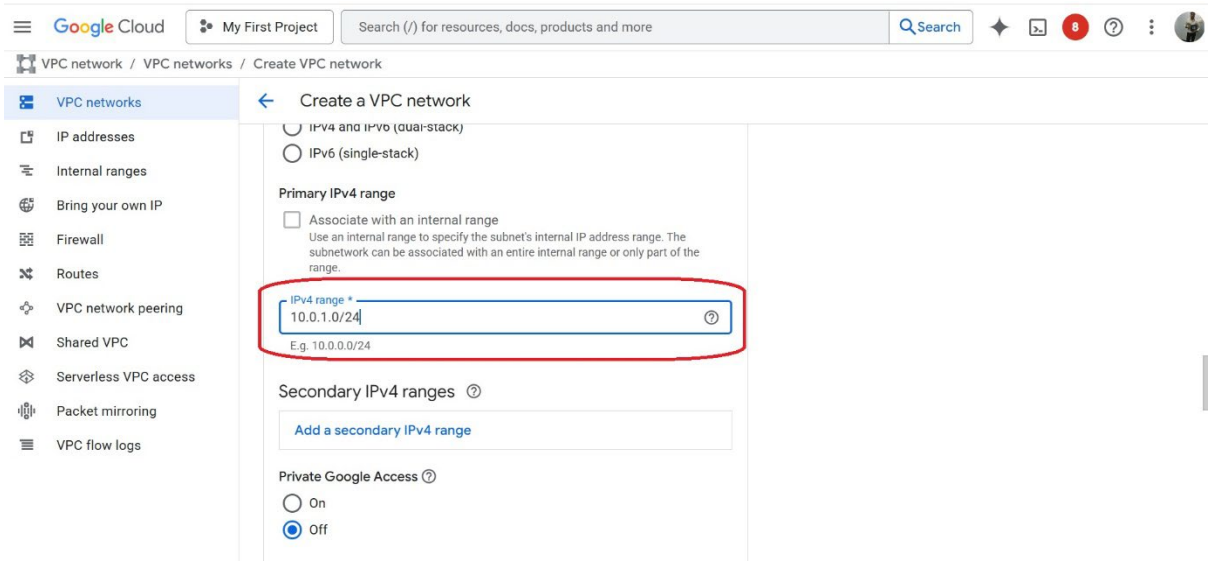
Enter the CIDR block



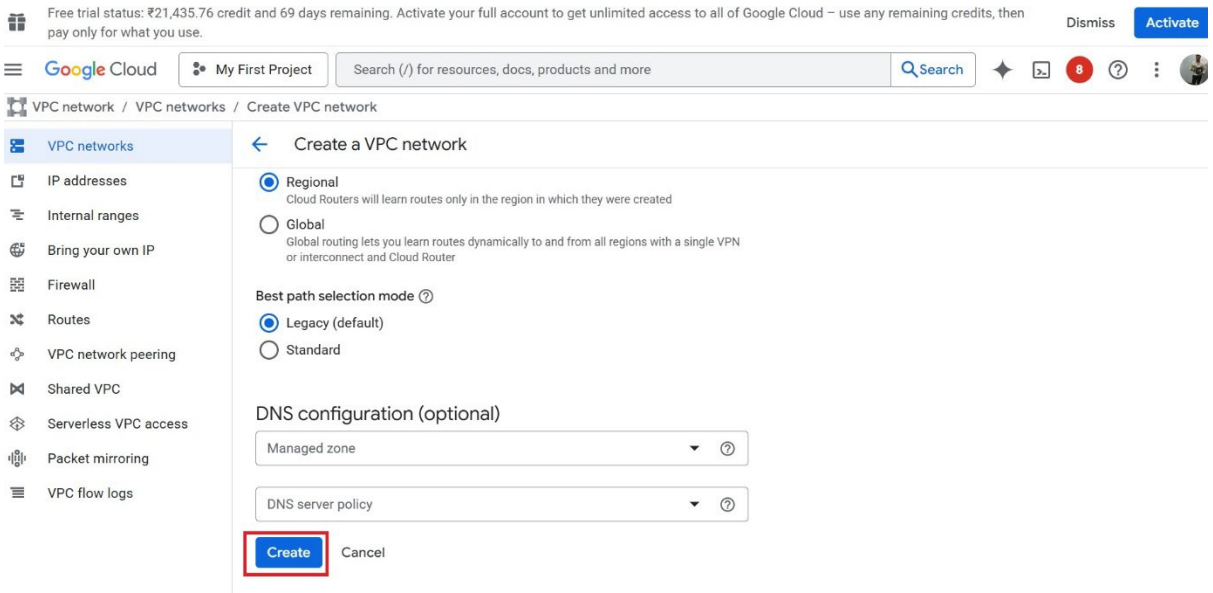
Create another subnet



Enter the CIDR block



Click on create



VPC created successfully.

Note : Since we have not added any firewall rules by default it will block all access