

# 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:

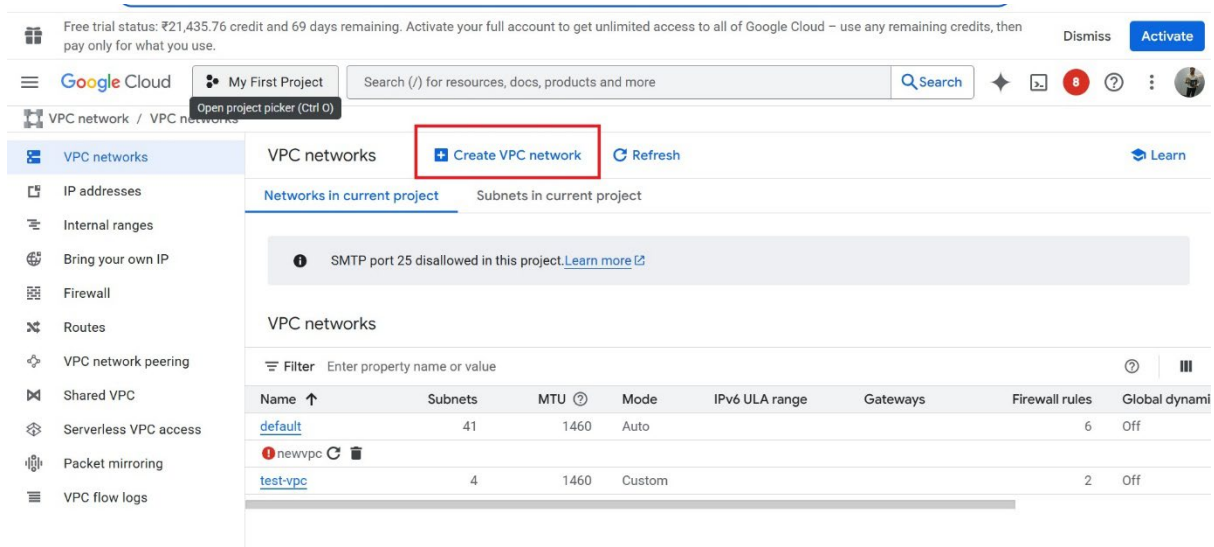
- Exposing web servers or APIs

- 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.

[←](#) Create a VPC network

Name \*

my-vpc

Lowercase letters, numbers, hyphens allowed

Description

Maximum transmission unit (MTU)

1460

☐ Configure network profile

Subnet creation mode

☒ Custom

☐ Automatic

Private IPv6 address settings

☐ Configure a ULA internal IPv6 range for this VPC Network

The ULA range is a /48 CIDR from which all private IPv6 subnet ranges will be taken.  
Google Cloud can allocate one automatically or you can allocate one manually. Allocation

Click on Add subnet

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VPC networks

IP addresses

Internal ranges

Bring your own IP

Firewall

Routes

VPC network peering

Shared VPC

Serverless VPC access

Packet mirroring

VPC flow logs

← Create a VPC network

Subnets

Subnets let you create your own private cloud topology within Google Cloud. Click Automatic to create a subnet in each region, or click Custom to manually define the subnets.[Learn more](#)

Subnet 1

Add subnet

Firewall rules

Select any of the firewall rules below that you would like to apply to this VPC network. Once the VPC network is created, you can manage all firewall rules on the Firewall rules page.

IPv4 firewall rules

<input type="checkbox"/>	Name	Type	Targets	Filters	Protocols/ports	Action	Priority ↑	Edit
<input type="checkbox"/>	my-vpc-allow-custom	Ingress	Apply to all	IP ranges:	all	Allow	65,534	Edit
<input type="checkbox"/>	my-vpc-allow-icmp	Ingress	Apply to	IP ranges:	icmp	Allow	65,534	

GCP by Abhi

Enter the name of subnet and its region

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**Edit subnet**

Name \*  
pub-subnet  
Lowercase letters, numbers, hyphens allowed

Description

Region \*  
us-east1

IP stack type ?  
☒ IPv4 (single-stack)  
☐ IPv4 and IPv6 (dual-stack)  
☐ IPv6 (single-stack)

Primary IPv4 range  
☐ Associate with an internal range

Enter the CIDR block

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**Primary IPv4 range**  
☐ Associate with an internal range  
Use an internal range to specify the subnet's internal IP address range. The subnetwork can be associated with an entire internal range or only part of the range.

IPv4 range \*  
10.0.0.0/24  
E.g. 10.0.0.0/24

**Secondary IPv4 ranges ?**  
[Add a secondary IPv4 range](#)

**Private Google Access ?**  
☐ On  
☒ Off

**Flow logs**  
☐ On

Create another subnet

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**Create a VPC network**

**New subnet**

Name \*  
pvt-subnet  
Lowercase letters, numbers, hyphens allowed

Description

Region \*  
us-east4

IP stack type ?  
☒ IPv4 (single-stack)  
☐ IPv4 and IPv6 (dual-stack)  
☐ IPv6 (single-stack)

Primary IPv4 range  
☐ Associate with an internal range

Enter the CIDR block

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**Create a VPC network**

☐ IPv4 and IPv6 (dual-stack)  
☐ IPv6 (single-stack)

Primary IPv4 range  
☐ Associate with an internal range  
Use an internal range to specify the subnet's internal IP address range. The subnetwork can be associated with an entire internal range or only part of the range.

IPv4 range \*  
10.0.1.0/24  
E.g. 10.0.0.0/24

Secondary IPv4 ranges ?  
[Add a secondary IPv4 range](#)

Private Google Access ?  
☐ On  
☒ Off

Click on create

Free trial status: ₹21,435.76 credit and 69 days remaining. Activate your full account to get unlimited access to all of Google Cloud – use any remaining credits, then pay only for what you use. Dismiss Activate

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**VPC networks**

- IP addresses
- Internal ranges
- Bring your own IP
- Firewall
- Routes
- VPC network peering
- Shared VPC
- Serverless VPC access
- Packet mirroring
- VPC flow logs

### Create a VPC network

☒ **Regional**  
Cloud Routers will learn routes only in the region in which they were created

☐ **Global**  
Global routing lets you learn routes dynamically to and from all regions with a single VPN or interconnect and Cloud Router

**Best path selection mode** ?

☒ **Legacy (default)**

☐ **Standard**

**DNS configuration (optional)**

Managed zone ▼ ?

DNS server policy ▼ ?

Create Cancel

VPC created successfully.

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