

Module 2---- Assignment

Go to VPC and create a new custom VPC named 'intellipaat-gcp'.

Get real-time analytics with Network Intelligence Center
Use Network Intelligence Center for comprehensive monitoring and troubleshooting. [Learn more](#)

- ✓ Visualize your network resources
- ✓ Diagnose and prevent connectivity issues
- ✓ View packet loss and latency metrics
- ✓ Keep your firewall rules strict and efficient

[GO TO NETWORK INTELLIGENCE CENTER](#) [REMIND ME LATER](#)

Name ↑	Region	Subnets	MTU ?	Mode	Internal IP ranges	External IP ranges	Gateways	Firewall Rules
▼ default	us-central1	default	1460	Auto	None	None	10.128.0.1	

Provide name.

Create a VPC network

Name *
intellipaat-gcp
Lowercase letters, numbers, hyphens allowed

Description
VPC

VPC network ULA internal IPv6 range ?
Enabling this feature will assign a /48 from Google defined ULA prefix fd20::/20.
☐ Enabled
☒ Disabled

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 creation mode ?
☒ Custom
☐ Automatic

Now, We need to create 2 subnets.

Subnet1 in US region

New subnet ^

Name *

subnet1



Lowercase letters, numbers, hyphens allowed

Description

Region *

us-central1



IP stack type

☒ IPv4 (single-stack)

☐ IPv4 and IPv6 (dual-stack) ?

IPv4 range *

10.21.0.0/24



[CREATE SECONDARY IPV4 RANGE](#)

Private Google Access ?

☐ On

☒ Off

Subnet2 in Asia region

Create a VPC network

☐ Automatic

subnet1



New subnet

Name *

subnet2



Lowercase letters, numbers, hyphens allowed

Description


Region *

asia-east1



IP stack type

☒ IPv4 (single-stack)

☐ IPv4 and IPv6 (dual-stack) 

IPv4 range *

10.30.0.0/24



[CREATE SECONDARY IPV4 RANGE](#)

Subnets created.

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 creation mode ?

- ☒ Custom
- ☐ Automatic

subnet1	▼
subnet2	▼
ADD SUBNET	

Toggle item "subnet2"

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

IPV6 FIREWALL RULES

—	Name	Type	Targets	Filters
---	------	------	---------	---------

←

Create a VPC network

<input type="checkbox"/>	intellipaat-gcp-allow-ssh ?	Ingress	Apply to all	IP ranges: 0.0.0.0/0
	intellipaat-gcp-deny-all-ingress ?	Ingress	Apply to all	IP ranges: 0.0.0.0/0
	intellipaat-gcp-allow-all-egress ?	Egress	Apply to all	IP ranges: 0.0.0.0/0

Dynamic routing mode ?

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

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

i

Enable DNS API to pick a DNS policy

ENABLE

Maximum transmission unit (MTU)

1460

▼

CREATE

CANCEL

EQUIVALENT COMMAND LINE

▼

VPC created.

	us-east5	default		10.202.0.0/20	None	10.202.0.1	
	europa-southwest1	default		10.204.0.0/20	None	10.204.0.1	
	us-south1	default		10.206.0.0/20	None	10.206.0.1	
▼	intellipaat-gcp	2	1460	Custom	None		0
	us-central1	subnet1		10.21.0.0/24	None	10.21.0.1	
	asia-east1	subnet2		10.30.0.0/24	None	10.30.0.1	

We need to create 2 VM in 2 subnets.

Go to VM and create.

Instance1 in uscentral1 region.

Create an instance

create a VM instance, select one of the options:

New VM instance

Create a single VM instance from scratch

New VM instance from template

Create a single VM instance from an existing template

New VM instance from machine image

Create a single VM instance from an existing machine image

Marketplace

Deploy a ready-to-go solution onto a VM instance

Name *

instance-1-gce

Labels ?

+ ADD LABELS

Region *

us-central1 (Iowa)

Region is permanent

Zone *

us-central1-c

Zone is permanent

Machine configuration

Machine family

GENERAL-PURPOSE

COMPUTE-OPTIMIZED

MEMORY-OPTIMIZED

GPU

Machine types for common workloads, optimized for cost and flexibility

Series

E2

CPU platform selection based on availability

Machine type

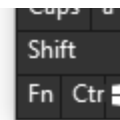
e2-medium (2 vCPU, 4 GB memory)

vCPU

Memory


Change networking details with the created vpc.



☐ Increase total egress bandwidth
Maximum outbound network bandwidth: 2Gbps






Network interfaces

Network interface is permanent

Edit network interface 

Network *
intellipaat-gcp  

Subnetwork *
subnet1 IPv4 (10.21.0.0/24)  

 To use IPv6, you need an IPv6 subnet range. [LEARN MORE](#)

IP stack type

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

Create one more vm in asia region.

Create an instance

create a VM instance, select one of the options:

New VM instance

Create a single VM instance from scratch

New VM instance from template

Create a single VM instance from an existing template

New VM instance from machine image

Create a single VM instance from an existing machine image

Marketplace

Deploy a ready-to-go solution onto a VM instance

Name *

instance-2-gce

Labels ?

+ ADD LABELS

Region *

asia-east1 (Taiwan)

Region is permanent

Zone *

asia-east1-b

Zone is permanent

Machine configuration

Machine family

GENERAL-PURPOSE

COMPUTE-OPTIMIZED

MEMORY-OPTIMIZED

Machine types for common workloads, optimized for cost and flexibility

Series

E2

CPU platform selection based on availability

Machine type

e2-medium (2 vCPU, 4 GB memory)




vCPU



Memory



Choose VPC and subnet.


Network interfaces

Network interface is permanent

Edit network interface

Network *
intellipaat-gcp

Subnetwork *
subnet2 IPv4 (10.30.0.0/24)

 To use IPv6, you need an IPv6 subnet range. [LEARN MORE](#)

IP stack type

☒ IPv4 (single-stack)

☐ IPv4 and IPv6 (dual-stack)

Primary internal IP

Instances created.

VM instances

HELP ASSISTANT

SH

INSTANCES

INSTANCE SCHEDULES

VM instances are highly configurable virtual machines for running workloads on Google infrastructure. [Learn more](#)

Filter

Enter property name or value

<input type="checkbox"/>	Status	Name ↑	Zone	Recommendations	Connect
<input type="checkbox"/>	✓	instance-1-gce	us-central1-c		SSH
<input type="checkbox"/>	✓	instance-2-gce	asia-east1-b		SSH

Related actions

Create an Firewall rule for SSH.

Go to VPC and then firewall.

Google Cloud Platform

Prac-Project

Search vpc

VPC network

VPC networks

IP addresses

Bring your own IP

Firewall

Routes

VPC network peering

Shared VPC

Serverless VPC access

Packet mirroring

← Create a firewall rule

traffic from outside your network is blocked. [Learn more](#)

Name *

learning-gce-fw

Lowercase letters, numbers, hyphens allowed

Description

Logs

Turning on firewall logs can generate a large number of logs which can increase costs in Cloud Logging. [Learn more](#)

☐ On

☒ Off

Network *

intellipaat-gcp

Priority *

1000

[CHECK PRIORITY OF OTHER FIREWALL RULES](#)

Priority can be 0 - 65535

Direction of traffic ?

☒ Ingress

Source filter

IPv4 ranges

▼

?

Source IPv4 ranges *

0.0.0.0/0 ✕ for example, 0.0.0.0/0, 192.168.2.0/24

?

Second source filter

None

▼

?

Protocols and ports ?

☐ Allow all

☒ Specified protocols and ports

☒ tcp :

22

☐ udp :

all

☐ Other protocols

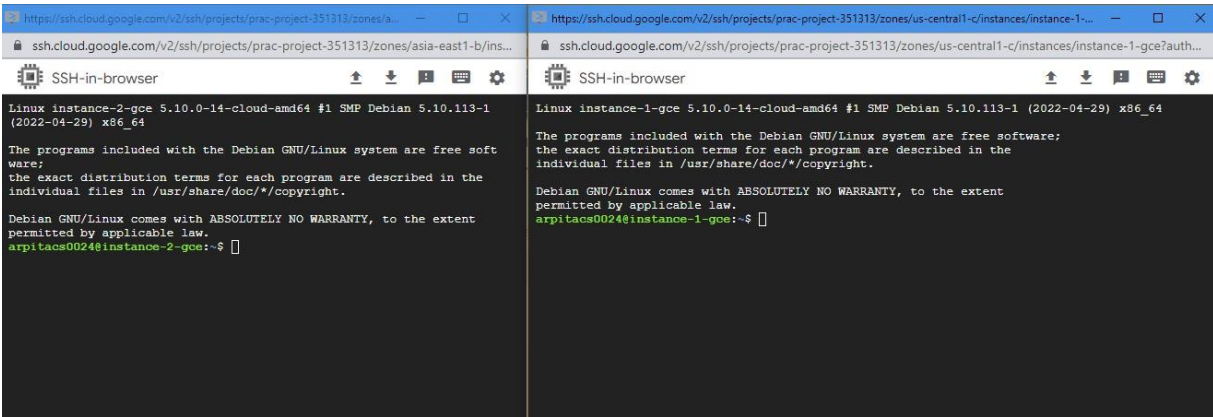
protocols, comma separated, e.g. ah, sctp

Firewall rule created.

allow-ssh									
<input type="checkbox"/> learning-gce-fw	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:22	Allow	1000	intellipaat-gcp	Off	▼

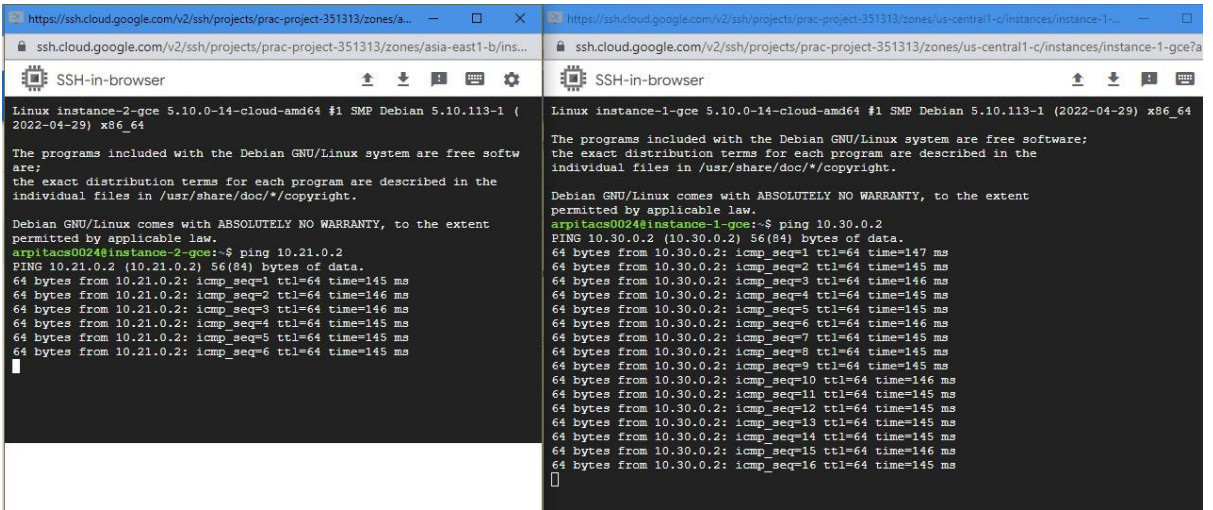
Successfully created firewall rule "learning-gce-fw".

Now, SSH the VM.



Open port icmp as well on firewall rule.

Ping is now working from instance1 to instance2 and vice versa.



Similarly, We need to create a VPC and subnets in different project.

VPC created.

	us-south1	default		10.206.0.0/20	None	10.206.0.1
▼ learning-gce-vpc1		2	1460	Custom	None	
	us-central1	subnet1		192.168.2.0/24	None	192.168.2.1
	asia-east1	subnet2		192.168.7.0/24	None	192.168.7.1

Both instances has been created.

Google Cloud Platform Prac-Project Search Products, resources, docs (/)

VPC network

- VPC networks
- IP addresses
- Bring your own IP
- Firewall
- Routes
- VPC network peering**
- Shared VPC
- Serverless VPC access
- Packet mirroring

Create peering connection

automatically created.

Name *
peering-connection-bw-2vpc
Lowercase letters, numbers, hyphens allowed

Your VPC network *
intellipaat-gcp

Peered VPC network

☐ In project prac-project-351313

☒ In another project

Project ID *
rising-analogy-351312

VPC network name *
learning-gce-vpc1

Exchange custom routes ?
You can choose to import or export static and dynamic routes over the VPC peering connection

☐ Import custom routes ?

☐ Export custom routes ?

VPC peering created on first project.

Google Cloud Platform Prac-Project Search Products, resources, docs (/)

VPC network

VPC network peering

Filter Enter property name or value

	Name	Your VPC network	Peered VPC network	Peered project ID	Status	Exchange custom routes
<input type="checkbox"/>	peering-connection-bw-vpc	intellipaat-gcp	learning-gce-vpc1	rising-analogy-351312	Inactive	None

CREATE PEERING CONNECTION REFRESH DELETE

Similarly, create vpc peering on 2nd project.

Google Cloud Platform

My First Project

Search vpc

VPC network

VPC networks

IP addresses

Bring your own IP

Firewall

Routes

VPC network peering

Shared VPC

Serverless VPC access

Packet mirroring

Create peering connection

Your VPC network will be fully connected to the peered VPC network (in a mesh topology). Routes to subnets in the peered VPC network are automatically created.

Name *

peer-connection-bw-vpc1

Lowercase letters, numbers, hyphens allowed

Your VPC network *

learning-gce-vpc1

Peered VPC network

☐ In project rising-analogy-351312

☒ In another project

Project ID *

prac-project-351313

VPC network name *

inellipaat-gcp

Exchange custom routes

VPC network peering						
Filter Enter property name or value						
<input type="checkbox"/>	Name ↑	Your VPC network	Peered VPC network	Peered project ID	Status	Exchange custom routes
<input type="checkbox"/>	peer-connection-bw-vpc1	learning-gce-vpc1	inellipaat-gcp	prac-project-351313	<div>Inactive</div>	None

VPC peering status active.

VPC network peering							
<div> <div> <div></div> <div>CREATE PEERING CONNECTION</div> </div> <div> <div></div> <div>REFRESH</div> </div> <div> <div></div> <div>DELETE</div> </div> </div>							
<div> <div>Filter</div> <div>Enter property name or value</div> <div></div> </div>							
<input type="checkbox"/>	Name ↑	Your VPC network	Peered VPC network	Peered project ID	Status	Exchange custom routes	Exchange
<input type="checkbox"/>	peervpc1	intellipaat-gcp	learning-gce-vpc1	rising-analogy-351312	Active	None	Export s

VPC network peering							
<div> <div> <div></div> <div>CREATE PEERING CONNECTION</div> </div> <div> <div></div> <div>REFRESH</div> </div> <div> <div></div> <div>DELETE</div> </div> </div>							
<div> <div>Filter</div> <div>Enter property name or value</div> <div></div> </div>							
<input type="checkbox"/>	Name ↑	Your VPC network	Peered VPC network	Peered project ID	Status	Exchange custom routes	Exchange
<input type="checkbox"/>	peervpc2	learning-gce-vpc1	intellipaat-gcp	prac-project-351313	Active	None	

VMs between these two VPCs should be able to ping each other.

https://ssh.cloud.google.com/v2/ssh/projects/prac-project-351313/zones/us-central1-c/instances/...

SSH-in-browser

```

arpitacs0024@instance-1-gce:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: ens4: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1460 qdisc mq state UP group default qlen 1000
    link/ether 42:01:0a:15:00:02 brd ff:ff:ff:ff:ff:ff
    altname enp0s4
    inet 10.21.0.2/32 brd 10.21.0.2 scope global dynamic ens4
        valid_lft 2471sec preferred_lft 2471sec
    inet6 fe80::4001:aff:fe15:2/64 scope link
        valid_lft forever preferred_lft forever
arpitacs0024@instance-1-gce:~$ ping 192.168.2.2
PING 192.168.2.2 (192.168.2.2) 56(84) bytes of data.
64 bytes from 192.168.2.2: icmp_seq=1 ttl=64 time=0.360 ms
64 bytes from 192.168.2.2: icmp_seq=2 ttl=64 time=0.378 ms
64 bytes from 192.168.2.2: icmp_seq=3 ttl=64 time=0.310 ms
64 bytes from 192.168.2.2: icmp_seq=4 ttl=64 time=0.330 ms

```

https://ssh.cloud.google.com/v2/ssh/projects/rising-analogy-351312/zones/us-central1-c/instances/...

SSH-in-browser

```

arpitacs0024@instance-1-gce:~$ ping 10.21.0.2
PING 10.21.0.2 (10.21.0.2) 56(84) bytes of data.
64 bytes from 10.21.0.2: icmp_seq=1 ttl=64 time=1.30 ms
64 bytes from 10.21.0.2: icmp_seq=2 ttl=64 time=0.365 ms
64 bytes from 10.21.0.2: icmp_seq=3 ttl=64 time=0.430 ms
64 bytes from 10.21.0.2: icmp_seq=4 ttl=64 time=0.345 ms
64 bytes from 10.21.0.2: icmp_seq=5 ttl=64 time=0.382 ms
64 bytes from 10.21.0.2: icmp_seq=6 ttl=64 time=0.392 ms
64 bytes from 10.21.0.2: icmp_seq=7 ttl=64 time=0.346 ms
64 bytes from 10.21.0.2: icmp_seq=8 ttl=64 time=0.399 ms
64 bytes from 10.21.0.2: icmp_seq=9 ttl=64 time=0.386 ms
64 bytes from 10.21.0.2: icmp_seq=10 ttl=64 time=0.320 ms
64 bytes from 10.21.0.2: icmp_seq=11 ttl=64 time=0.309 ms
64 bytes from 10.21.0.2: icmp_seq=12 ttl=64 time=0.653 ms
64 bytes from 10.21.0.2: icmp_seq=13 ttl=64 time=0.397 ms
64 bytes from 10.21.0.2: icmp_seq=14 ttl=64 time=0.483 ms
64 bytes from 10.21.0.2: icmp_seq=15 ttl=64 time=0.372 ms
64 bytes from 10.21.0.2: icmp_seq=16 ttl=64 time=0.430 ms
64 bytes from 10.21.0.2: icmp_seq=17 ttl=64 time=0.253 ms
64 bytes from 10.21.0.2: icmp_seq=18 ttl=64 time=0.292 ms
64 bytes from 10.21.0.2: icmp_seq=19 ttl=64 time=0.447 ms

```