



Department of Computing

SE-315: Cloud Computing

Lab 05: Cloud Marketplace – Deploy LAMP stack.

Working with VPC Networking and Google Compute Engine

Date: 9.10.24



Lab 05: Cloud Marketplace – Deploy LAMP stack. Working with VPC Networking and Google Compute

Introduction:

This lab consists of two tasks:

1. Deploy LAMP stack using Google Cloud Marketplace
2. Working with VPC networking and Google compute

1. Sign in to the Google Cloud Console

End Lab

00:24:47

Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked.
[Learn more.](#)

Open Google Cloud console

Username

student-02-14fcb11470d!

Password

gk6IdDohW93R

Project ID

qwiklabs-gcp-01-cf6ccc!

Region

us-central1

Zone

us-central1-c



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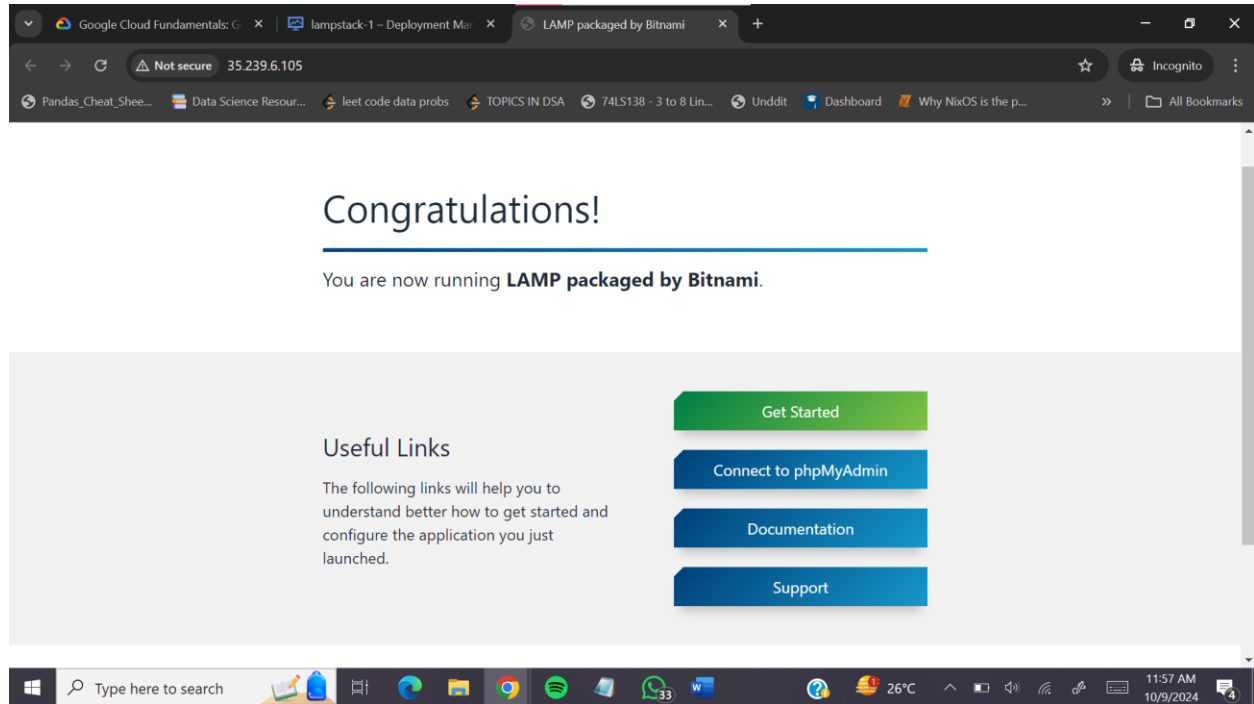
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2. Use Cloud Marketplace to deploy a LAMP stack

Lampstack successfully deployed:



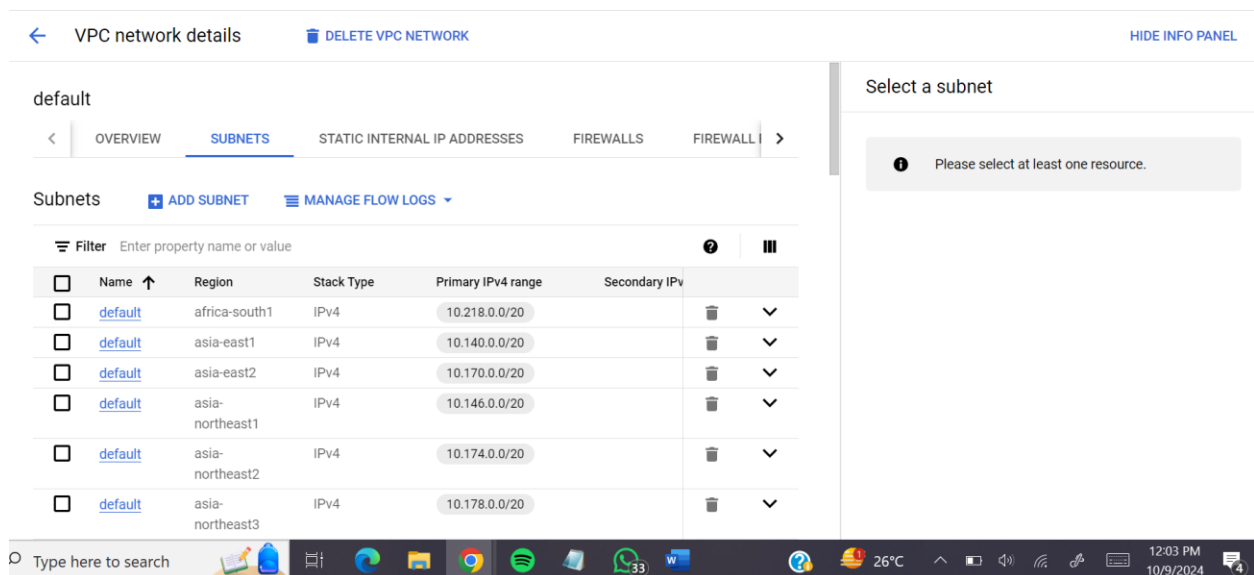
3. Verify your deployment



Task B

1. Explore the default network

View the subnets





View the routes

Routes

EFFECTIVE ROUTES

ROUTE MANAGEMENT

Select the VPC network and region for which you want to view routes

Network *
default

Region *
us-central1 (Iowa)

VIEW

REFRESH

Already displaying routes with selected parameters

Filter

Enter property name or value

?

Show suppressed routes

|||

Status	Name ↑	Type	IP version	Destination IP range	Priority	Scope limits ?	Next hop
✓	default-route-a72493d5087a89d0	Static	IPv4	0.0.0.0/0	1000	—	Default internet gateway
✓	default-route-r-0ac55215c2f0f35b	Subnet	IPv4	10.154.0.0/20	0	—	Network default
✓	default-route-r-13643c8c38c55997	Subnet	IPv4	10.182.0.0/20	0	—	Network default
✓	default-route-r-1c54e3cf615e7968	Subnet	IPv4	10.218.0.0/20	0	—	Network default
✓	default-route-r-...	Subnet	IPv4	10.132.0.0/20	0	—	Network

View firewall rules

Firewall policies

CREATE FIREWALL POLICY

CREATE FIREWALL RULE

LEARN

VPC firewall rules

Firewall rules control incoming or outgoing traffic to an instance. By default, incoming traffic from outside your network is blocked. [Learn more](#)

Note: App Engine firewalls are managed in the [App Engine Firewall rules section](#).

SMTP port 25 disallowed in this project. [Learn more](#)

REFRESH

CONFIGURE LOGS

DELETE

Filter

Enter property name or value

?

|||

<input type="checkbox"/>	Name	Type	Targets	Filters	Protocols / ports	Action	Priority	
<input type="checkbox"/>	default-allow-icmp	Ingress	Apply to all	IP ranges:	icmp	Allow	65534	▼
<input type="checkbox"/>	default-allow-internal	Ingress	Apply to all	IP ranges:	tcp:0-65535 udp:0-65535 icmp	Allow	65534	▼

Get started with VPC routes

Routes overview

Help document

Get an overview of routes and routing in Virtual Private Cloud networks.

VPC routes

Route types

Help document

Understand the different types of routes that you can use in a VPC network and how they interact with each other.

Route applicability and order

Help document

Understand how Google Cloud selects a route based on packet characteristics and route type.

Policy-based routes overview

Help document



Delete the default network

Deleting firewall rules

Note: App Engine firewalls are managed in the [App Engine Firewall rules section](#).

SMTP port 25 disallowed

REFRESH CONFIGURE

Filter Enter property name or

Are you sure you want to delete 4 firewall rules?

CANCEL DELETE

<input checked="" type="checkbox"/>	Name	Type	Action	Priority
<input checked="" type="checkbox"/>	default-allow-icmp	Ingress	Apply to all IP ranges: icmp	Allow 65534
<input checked="" type="checkbox"/>	default-allow-internal	Ingress	Apply to all IP ranges: tcp:0-65535 udp:0-65535 icmp	Allow 65534
<input checked="" type="checkbox"/>	default-allow-rdp	Ingress	Apply to all IP ranges: tcp:3389	Allow 65534

Deleting VPC network

Delete network?

⚠ Deleting a network also deletes its subnetworks, routes and firewall rules. You cannot undo this action.

Before you can delete a network, you must delete all resources in all of its subnets, and all resources that reference the network. [Learn more](#)

Are you sure you want to delete the VPC network?

To confirm type the network name "default".

default *
default

CANCEL DELETE



Without a VPC network, there are no routes!

Routes

LEARN

EFFECTIVE ROUTESROUTE MANAGEMENT

Select the VPC network and region for which you want to view routes

Network *
default

Region *
us-central1 (Iowa)

VIEW

REFRESH

Filter

Enter property name or value

?

Show suppressed routes

|||

Status	Name ↑	Type	IP version	Destination IP range	Priority	Scope limits ?	Next hop
No rows to display							

Successfully deleted network

Can not create a VM instance due to unavailability of network



Network interface is permanent

^ Edit network interface

Network *

! Network is required

No more networks available in this project

Subnetwork

! You must select a subnetwork

2. Create a VPC network and VM instances

Create an auto mode VPC network with Firewall rules

Creating network "mynetwork"...



Viewing the subnets and noting IP ranges



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Subnets

[+ ADD SUBNET](#) [MANAGE FLOW LOGS](#)

Filter

?

III

Name	Region	Stack Type	Primary IPv4 range	Secondary IPv4 ranges	IPv6 ranges	Reserved internal ranges	Gateway	Private Google Access	Flow logs
mynetwork	africa-south1	IPv4	10.218.0.0/20			None	10.218.0.1	Off	Off
mynetwork	asia-east1	IPv4	10.140.0.0/20			None	10.140.0.1	Off	Off
mynetwork	asia-east2	IPv4	10.170.0.0/20			None	10.170.0.1	Off	Off
mynetwork	asia-northeast1	IPv4	10.146.0.0/20			None	10.146.0.1	Off	Off
mynetwork	asia-northeast2	IPv4	10.174.0.0/20			None	10.174.0.1	Off	Off

Type here to search

12:22 PM 10/9/2024

Creating a vm instance

VM instances

Filter

?

III

Status	Name	Zone	Internal IP	External IP	Connect
✓	mynet-second-vm	us-central1-c	10.128.0.4 (nic0)	34.171.158.115 (nic0)	SSH
✓	mynet-us-vm	us-central1-c	10.128.0.3 (nic0)	34.71.129.122 (nic0)	SSH

Type here to search

12:34 PM 10/9/2024

3. Test your understanding

Accessing SSH server



```
ssh.cloud.google.com/v2/ssh/projects/massive-tea-433020-b2/zones/us-central1-c/instances/mynet-us-vm?authuser=0&hl=en_US&projec...
ssh.cloud.google.com/v2/ssh/projects/massive-tea-433020-b2/zones/us-central1-c/instances/mynet-us-vm?authuser=0&hl=en_U...
SSH-in-browser
Linux mynet-us-vm 6.1.0-25-cloud-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.106-3 (2024-08-26) x86_64

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
sfatima_bese22seecs@mynet-us-vm:~$
```

PINGING THE SECOND VM SUCCESSFULLY

```
sfatima_bese22seecs@mynet-us-vm:~$ ping -c 3 10.128.0.4
PING 10.128.0.4 (10.128.0.4) 56(84) bytes of data.
64 bytes from 10.128.0.4: icmp_seq=1 ttl=64 time=1.12 ms
64 bytes from 10.128.0.4: icmp_seq=2 ttl=64 time=0.298 ms
64 bytes from 10.128.0.4: icmp_seq=3 ttl=64 time=0.281 ms

--- 10.128.0.4 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2022ms
rtt min/avg/max/mdev = 0.281/0.564/1.115/0.389 ms
sfatima_bese22seecs@mynet-us-vm:~$ ping -c 3 34.171.158.115
PING 34.171.158.115 (34.171.158.115) 56(84) bytes of data.
64 bytes from 34.171.158.115: icmp_seq=1 ttl=61 time=4.07 ms
64 bytes from 34.171.158.115: icmp_seq=2 ttl=61 time=0.488 ms
64 bytes from 34.171.158.115: icmp_seq=3 ttl=61 time=0.640 ms

--- 34.171.158.115 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2015ms
rtt min/avg/max/mdev = 0.488/1.733/4.071/1.654 ms
sfatima_bese22seecs@mynet-us-vm:~$
```

4. Remove the allow-icmp firewall rules



Delete a firewall rule

Are you sure you want to delete firewall rule "mynetwork-allow-icmp"?

CANCEL

DELETE

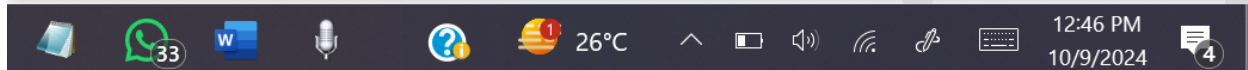
100% Packet loss when accessing external IP of second vm

```
sfatima_bese22seecs@mynet-us-vm:~$ ping -c 3 10.128.0.4
PING 10.128.0.4 (10.128.0.4) 56(84) bytes of data.
64 bytes from 10.128.0.4: icmp_seq=1 ttl=64 time=1.17 ms
64 bytes from 10.128.0.4: icmp_seq=2 ttl=64 time=0.254 ms
64 bytes from 10.128.0.4: icmp_seq=3 ttl=64 time=0.299 ms

--- 10.128.0.4 ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2011ms
rtt min/avg/max/mdev = 0.254/0.573/1.167/0.420 ms
sfatima_bese22seecs@mynet-us-vm:~$ ping -c 3 34.171.158.115
PING 34.171.158.115 (34.171.158.115) 56(84) bytes of data.

--- 34.171.158.115 ping statistics ---
3 packets transmitted, 0 received, 100% packet loss, time 2056ms

sfatima_bese22seecs@mynet-us-vm:~$
```



5. Remove the allow-custom firewall rules



Delete firewall rule "mynetwork-allow-custom"
My First Project

Just now

100% packet loss when accessing the internal IP of the second vm instance

```
sfatima_bese22seecs@mynet-us-vm:~$ ping -c 3 10.128.0.4
PING 10.128.0.4 (10.128.0.4) 56(84) bytes of data.

--- 10.128.0.4 ping statistics ---
3 packets transmitted, 0 received, 100% packet loss, time 2053ms
```

6. Remove the allow-ssh firewall rules



Delete firewall rule "mynetwork-allow-ssh"
My First Project

Just now

Trying to access the SSH server of mynet-us-vm



Connection via Cloud Identity-Aware Proxy Failed

Code: 4003

Reason: failed to connect to backend

Connection to VM is refused.

Please ensure that:

- VM has a **firewall rule** that allows TCP ingress traffic from the IP range 35.235.240.0/20, port: 22
- SSH daemon on target VM is up and running

You may be able to connect without using the Cloud Identity-Aware Proxy.

[Retry](#) [Retry without Cloud Identity-Aware Proxy](#) [Troubleshoot](#)

The **Connection failed** message indicates that you are unable to SSH to **mynet-us-vm** because you deleted the **allow-ssh** firewall rule!

DELETING VM INSTANCES:

```
sfatima_bese22seecs@cloudshell:~ (massive-tea-433020-b2)$ gcloud compute instances delete mynet-second-vm mynet-us-vm --zone=us-central1-c
The following instances will be deleted. Any attached disks configured to be auto-deleted will be deleted unless they are attached to any other instances or the '--keep-disks' flag is given and specifies them for keeping. Deleting a disk is irreversible and any data on the disk will be lost.
- [mynet-second-vm] in [us-central1-c]
- [mynet-us-vm] in [us-central1-c]

Do you want to continue (Y/n)? y

Deleted [https://www.googleapis.com/compute/v1/projects/massive-tea-433020-b2/zones/us-central1-c/instances/mynet-second-vm].
Deleted [https://www.googleapis.com/compute/v1/projects/massive-tea-433020-b2/zones/us-central1-c/instances/mynet-us-vm].
sfatima_bese22seecs@cloudshell:~ (massive-tea-433020-b2)$
```

DELETING COMPUTE ENGINE API:

```
sfatima_bese22seecs@cloudshell:~ (massive-tea-433020-b2)$ gcloud services disable compute.googleapis.com --force
Operation "operations/acf.p17-597660719414-10afe73a-a79a-4982-9983-82f65cc26f1a" finished successfully.
sfatima_bese22seecs@cloudshell:~ (massive-tea-433020-b2)$
```

Available credits by the end of the lab:



Status	Percent remaining	Remaining value	Original value
➔	➔	➔	➔
✓ Available	99%	\$49.64	\$50.00
