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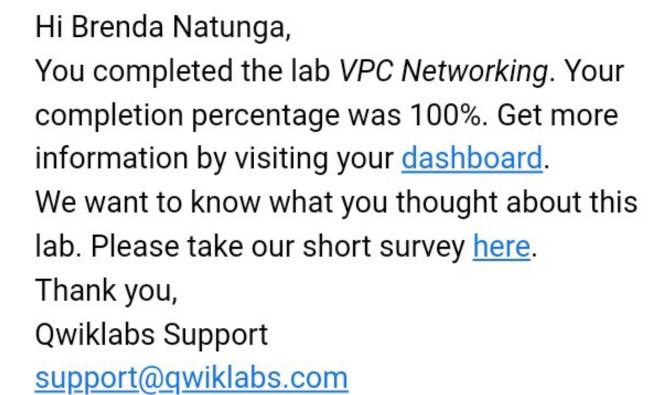
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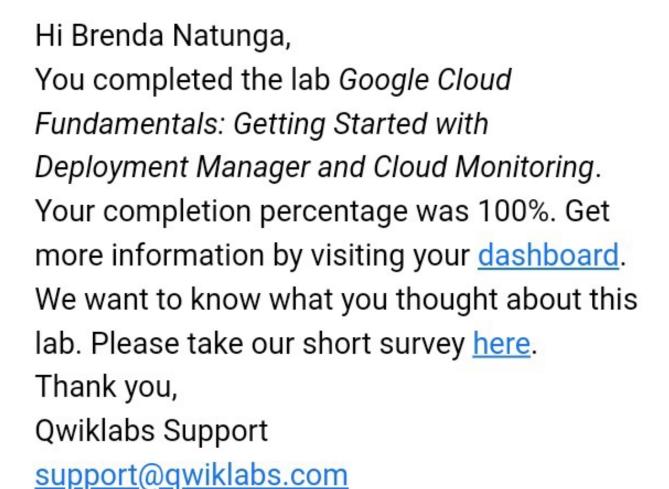
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Today, 3:48 PM

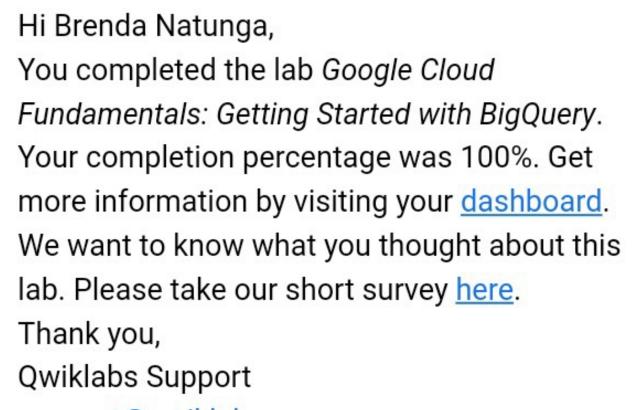






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# **VPC Networking**

## Task 1. Explore the default network

#### View the subnets

gcloud compute networks subnets list

### View the routes

gcloud compute routes list

#### View the firewall rules

gcloud compute firewall-rules list

#### **Delete the Firewall rules**

gcloud compute firewall-rules delete

#### Delete the default network

gcloud compute networks delete default

### Try to create a VM instance

gcloud compute instances create trial-vm

## Task 2. Create an auto mode network

#### Create an auto mode VPC network with firewall rules

gcloud compute networks create mynetwork --subnet-mode=auto

gcloud compute firewall-rules create mynetwork-allow-icmp-ssh-rdp --direction=INGRESS --priority=1000 --network=mynetwork --action=ALLOW --rules=icmp,tcp:22,tcp:3389 --source-ranges=0.0.0.0/0

## Create a VM instance in us-central1

gcloud compute instances create mynet-us-vm --zone=us-central1-c --machine-type=n1-standard-1

#### Create a VM instance in europe-west1

gcloud compute instances create mynet-us-vm --zone=europe-west1-c --machine-type=n1standard-1

#### Verify connectivity for the VM instances

```
gcloud compute ssh mynet-us-vm –zone europe-west1-c

ping -c 3 <mynet-eu-vm's internal IP>
OR
ping -c 3 mynet-eu-vm
OR
ping -c 3 <mynet-eu-vm's external IP>
```

#### Convert the network to a custom mode network

gcloud compute networks update mynetwork --switch-to-custom-subnet-mode

### Task 3. Create custom mode networks

### Create the managementnet network

gcloud compute networks create managementnet --subnet-mode=custom

gcloud compute firewall-rules create mynetwork-allow-icmp-ssh-rdp --direction=INGRESS --priority=1000 --network=privatenet --action=ALLOW --rules=icmp,tcp:22,tcp:3389 --source-ranges=0.0.0.0/0

gcloud compute networks subnets create managementsubnet-us --network=managementnet --region=us-central1 --range=10.130.0.0/20

#### Create the privatenet network

gcloud compute networks create privatenet --subnet-mode=custom

gcloud compute networks subnets create privatesubnet-us --network=privatenet --region=us-central1 --range=172.16.0.0/24

gcloud compute networks subnets create privatesubnet-eu --network=privatenet --region=europe-west1 --range=172.20.0.0/20

#### Create the firewall rules for managementnet

gcloud compute firewall-rules create managementnet-allow-icmp-ssh-rdp --direction=INGRESS --priority=1000 --network=managementnet --action=ALLOW rules=icmp,tcp:22,tcp:3389 --source-ranges=0.0.0.0/0

### Create the firewall rules for privatenet

gcloud compute firewall-rules create privatenet-allow-icmp-ssh-rdp --direction=INGRESS --priority=1000 --network=privatenet --action=ALLOW --rules=icmp,tcp:22,tcp:3389 --source-ranges=0.0.0.0/0

### Create the managementnet-us-vm instance

gcloud compute instances create managementnet-us-vm --zone=us-central1-c --machine-type=f1-micro --subnet=managementsubnet-us

### Create the privatenet-us-vm instance

gcloud compute instances create privatenet-us-vm --zone=us-central1-c --machine-type=f1-micro --subnet=privatesubnet-us

# Task 4. Explore the connectivity across networks

### Ping the external IP addresses

```
gcloud compute ssh mynet-us-vm –zone europe-west1-c
ping -c 3 <mynet-eu-vm's external IP>
ping -c 3 <managementnet-us-vm's external IP>
ping -c 3 <pri>privatenet-us-vm's external IP>
```

### Ping the internal IP addresses

```
ping -c 3 <mynet-eu-vm's internal IP>
ping -c 3 <managementnet-us-vm's internal IP>
```

# **Creating Virtual Machines**

# Task 1: Create a utility virtual machine

#### Create a VM

gcloud compute instances create utility-vm --zone=us-central1-c --machine-type=n1-standard-1 -- no-address

#### **Explore the VM details**

gcloud compute instances list

### **Explore the VM logs**

gcloud logging logs list

### Task 2: Create a Windows virtual machine

#### Create a VM

gcloud compute instances create windows-vm --image-project windows-cloud --image-family windows-server-2016-datacenter-core --machine-type n1-standard-2 --boot-disk-size 100 --boot-disk-type SSD persistent disk

## Set the password for the VM

gcloud compute reset-windows-password windows-vm

#### Task 3: Create a custom virtual machine

#### Create a VM

gcloud compute instances create custom-vm –zone=us-west1-b –machine-type=custom --custom-cpu=6 --custom-memory= 32 GB

## Connect via SSH to your custom VM

```
gcloud compute ssh custom-vm –zone us-west1-b
free
sudo dmidecode -t 17
nproc
lscpu
exit
```