



Education

Chapter 3 Lab: Create a Google Cloud Compute Engine VM

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Overview

This lab provides practical experience of creating a Google Cloud Compute Engine VM. There are different public cloud providers like AWS, Azure, Digital Ocean, etc. In our lab we will use GCP.

Creating and consuming the infrastructure is similar across different cloud providers with a few vendor-specific differences. In this exercise we will learn how to create a Google Cloud Compute Engine (Virtual Machine).

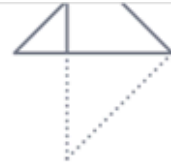
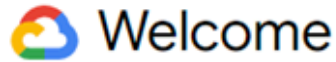
Pre-Requisites

Ensure you have a [Google Cloud account](#). If not, create an account on Google Cloud; new customers get 300\$ free credits to evaluate, run, test and deploy workloads.

Create Google Cloud Compute Engine (Virtual Machine)

In this exercise, we will create a virtual machine with Ubuntu 20.04 as an operating system on GCP.

1. Sign in to [Google Cloud Console](#) using the Google account. Open your web browser and navigate to the Google Cloud Console.



[Dashboard](#) [Recommendations](#)


+ Create a VM


+ Run a query in BigQuery


+ Create a GKE cluster


+ Create a storage bucket


Quick access

 APIs & Services

 IAM & Admin

 Billing

 Compute Engine

 Cloud Storage

 BigQuery

2. Select or Create a Project. If you have an existing project, select it from the drop-down menu at the top of the console. Otherwise, click on the "Create Project" button and follow the prompts to create a new project.

☰ Google Cloud

New Project


Project name *

Demo



Project ID: precise-asset-416415. It cannot be changed later. [EDIT](#)

Location *

 No organization

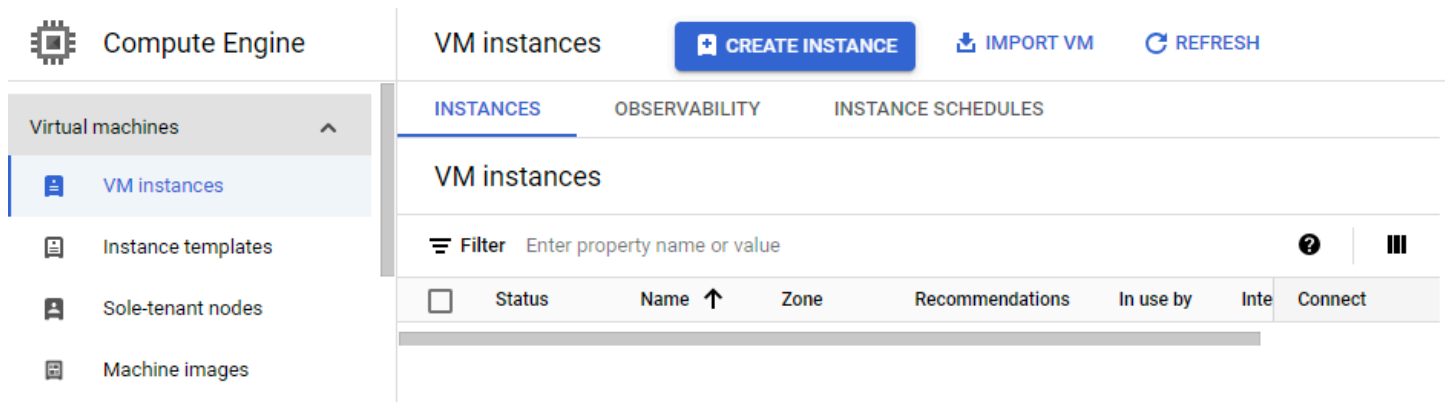
[BROWSE](#)

Parent organization or folder

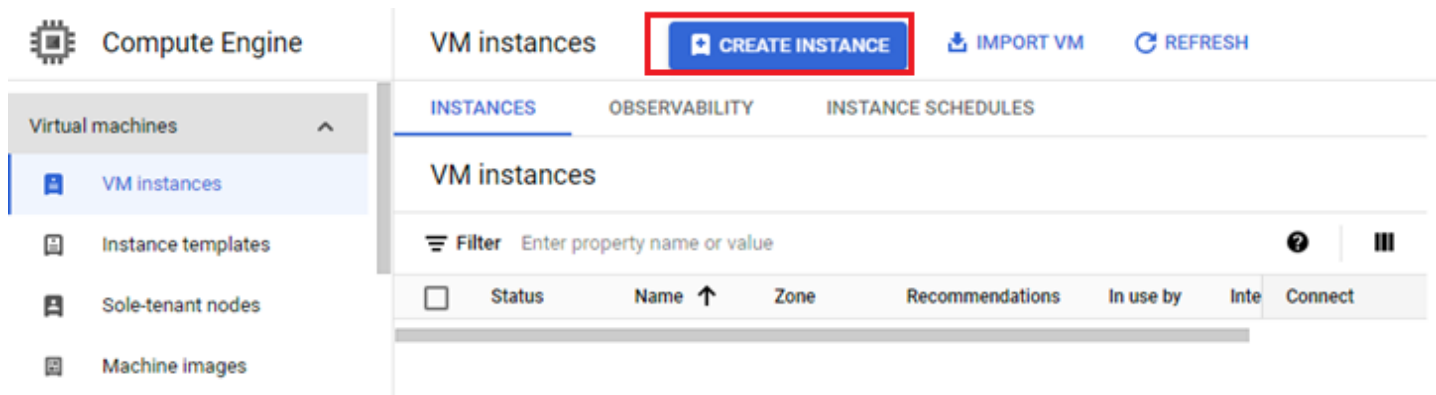
CREATE

CANCEL

3. Navigate to Compute Engine: On the left-hand side of the console, click on the "Compute Engine" option under the "Compute" section. This will take you to the Compute Engine dashboard.



3. On the Compute Engine dashboard, click on the "Create" button to start creating a new instance.



4. Configure Instance Details:

Name: cp.

Region and Zone: Choose the region and zone where you want to deploy your instance. This choice may affect latency and pricing.

Machine Type: Select the machine type for your instance. This determines the amount of CPU and memory resources allocated to your instance.

Boot Disk: Choose the operating system and disk size for your instance. You can also specify custom images or snapshots if needed.

Name *

cp

?

MANAGE TAGS AND LABELS

Region *

us-central1 (Iowa)

?

Region is permanent


Zone *

us-central1-a

?

Zone is permanent

Machine configuration

 **NEW: General-purpose machine series in Preview**

Try the new N4 series, ideal for workloads that prioritize flexibility and cost-optimization

SIGN UP

General purpose

Compute optimized

Memory optimized

Storage optimized


NEW

GPUs

Machine types for common workloads, optimized for cost and flexibility

Series	Description	vCPUs	Memory
--------	-------------	-------	--------

Boot disk

Name	cp
Type	New balanced persistent disk
Size	10 GB
License type	Free
Image	 Ubuntu 20.04 LTS

CHANGE

6. Under the "Firewall" section, you can configure network tags and firewall rules for your instance. By default, SSH access is enabled. You may want to add additional rules depending on your requirements.

Firewall

Add tags and firewall rules to allow specific network traffic from the Internet

- ☒ Allow HTTP traffic
- ☒ Allow HTTPS traffic
- ☒ Allow Load Balancer Health Checks

7. Configure Networking: You can configure networking options such as network tags, external IP addresses, and network interfaces for your instance.

Advanced options

Networking

Hostname and network interfaces

Network tags 

Hostname 

Set a custom hostname for this instance or leave it default. Choice is permanent

IP forwarding

☐ Enable

Network performance configuration

Network interface card 

Network bandwidth


☐ Enable per VM Tier_1 networking performance

Maximum outbound network bandwidth: 2Gbps

VM to Public IP: 2Gbps

Network interfaces

Network interface is permanent

default default (10.128.0.0/20) 

[ADD A NETWORK INTERFACE](#)

8. Add SSH Keys If you plan to connect to your instance via SSH, you can add your SSH public keys under the "Management, security, disks, networking, sole tenancy" section.

Security

Shielded VM and SSH keys

Shielded VM ?

Turn on all settings for the most secure configuration.

- ☐ Turn on Secure Boot ?
- ☒ Turn on vTPM ?
- ☒ Turn on Integrity Monitoring ?

VM access

Manage how users connect to the VM



By default, when you connect to a VM using this console or gcloud, your SSH keys are generated automatically. [Learn more](#)

- ☐ Control VM access through IAM permissions ?
Link VM access to the user's IAM role. Enables OS Login. [Learn more](#)
- ☐ Require 2-step verification
Require a second form of user authentication. [Learn more](#)
- ☐ Block project-wide SSH keys
When checked, project-wide SSH keys cannot access this instance. [Learn more](#)

Add manually generated SSH keys

Add your own keys for VM access through a 3rd-party tool. You cannot use these keys when IAM-based access (using OS Login) is enabled. [Learn more](#)

SSH key 1 *

ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQCM3S/y/U6jClySc93KN96



Enter public SSH key

+ ADD ITEM

9. Once you have configured all the necessary settings, click on the "Create" button at the bottom of the page to create your instance. Wait for Provisioning, Google Cloud will now provision your Compute Engine instance. This may take a few minutes depending on your configuration.

VM instances

CREATE INSTANCE

IMPORT VM

REFRESH

LEARN

INSTANCES

OBSERVABILITY

INSTANCE SCHEDULES

VM instances

Filter

Enter property name or value

?

⋮

<input type="checkbox"/>	Status	Name ↑	Zone	Recommendations	In use by	Internal IP	External IP	Connect
<input type="checkbox"/>	✔	cp	us-central1-a			10.128.0.5 (nic0)	34.29.48.222 ↗ (nic0)	SSH ▾ ⋮

10. Access Your Instance: Once your instance is created, you can access it via SSH from the Google Cloud Console or using an SSH client like PuTTY.

That's it! You've successfully created a Google Cloud Compute Engine instance. You can now start using your instance to host applications, run workloads, or perform any other computing tasks you need.