



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).

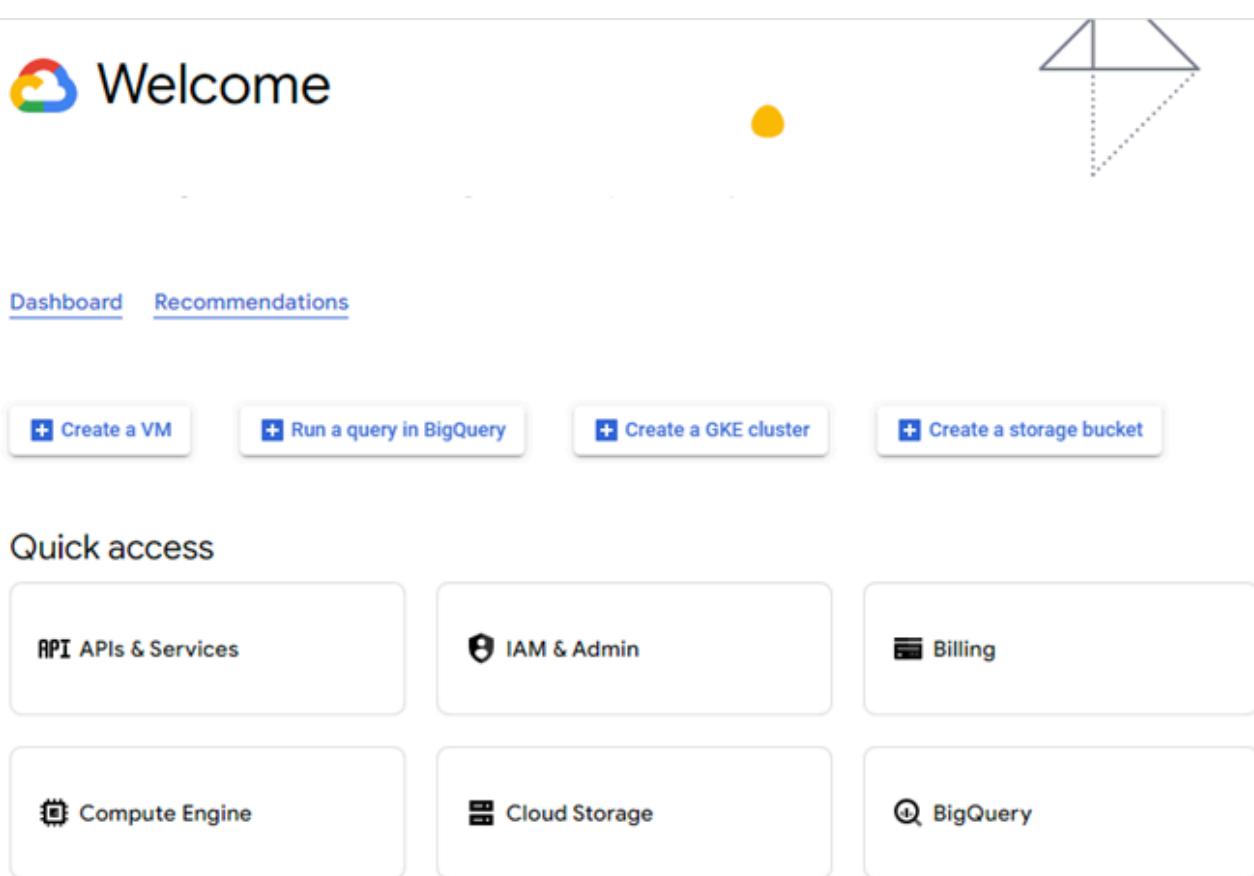
Pre-Requisites

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)

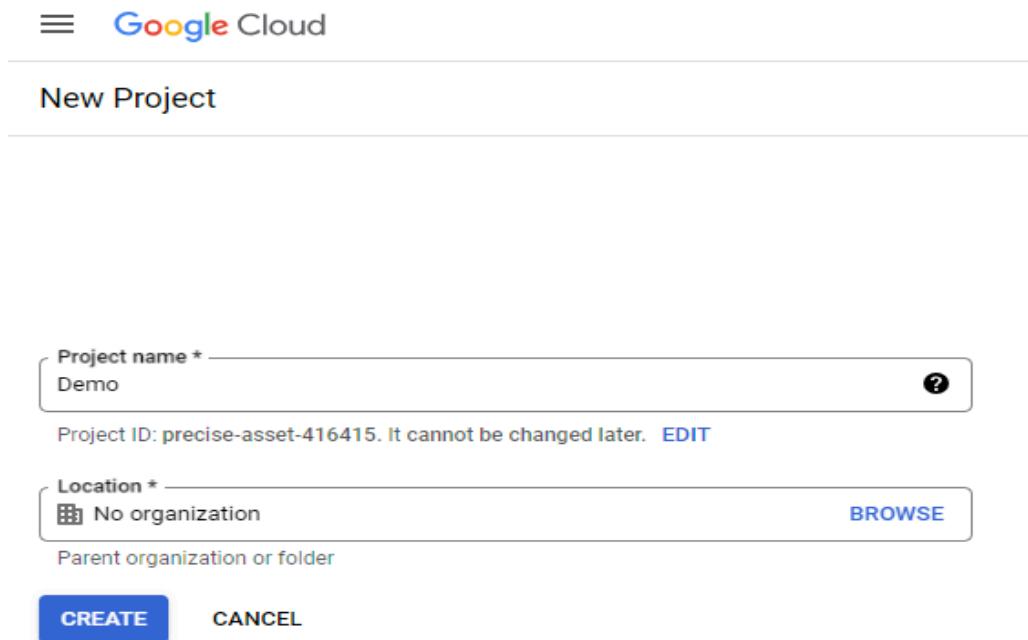
In this exercise, we will create a virtual machine with Ubuntu 24.04 as an operating system on GCP.

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



The image shows the Google Cloud Welcome screen. At the top left is the Google Cloud logo and the word "Welcome". To the right is a yellow circular progress bar with a dashed diagonal line. In the top right corner is a small icon of a triangle with dashed lines. Below the logo are two navigation links: "Dashboard" and "Recommendations", with "Recommendations" being underlined. Underneath these are four buttons: "Create a VM", "Run a query in BigQuery", "Create a GKE cluster", and "Create a storage bucket". A section titled "Quick access" contains six boxes: "API APIs & Services", "IAM & Admin", "Billing", "Compute Engine", "Cloud Storage", and "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.



The image shows the "New Project" creation form. At the top left is the Google Cloud logo and a three-line menu icon. Below is a "New Project" button. The form fields include:

- "Project name *": A text input field containing "Demo". To its right is a question mark icon.
- "Project ID": A note stating "Project ID: precise-asset-416415. It cannot be changed later." followed by an "EDIT" link.
- "Location *": A text input field containing "No organization". To its right is a "BROWSE" button.
- "Parent organization or folder": A text input field.

At the bottom are two buttons: "CREATE" and "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.

The screenshot shows the Compute Engine dashboard. On the left, there's a sidebar titled 'Virtual machines' with options: VM instances (selected), Instance templates, Sole-tenant nodes, and Machine images. The main area is titled 'VM instances' with tabs for INSTANCES, OBSERVABILITY, and INSTANCE SCHEDULES. Below is a table header for 'VM instances' with columns: Status, Name (sorted by up arrow), Zone, Recommendations, In use by, Inte, and Connect. A blue 'CREATE INSTANCE' button is at the top right of the main area.

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

This screenshot is identical to the one above, but the 'CREATE INSTANCE' button is highlighted with a red box to indicate it should be clicked.

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) ? Zone * — us-central1-a ? Region is permanent Zone is permanent

Machine configuration

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Series ?	Description	vCPUs ?	Memory ?
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Operating system and storage

Name	worker-20251027-103746
Type	New balanced persistent disk
Size	10 GB
Snapshot schedule ?	default-schedule-1
License type ?	Free
Image	Ubuntu 24.04 LTS
Device name	cp

[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 AAAAB3NzaC1yc2EAAAQABAAQCM3S/y/U6jClyScc93KN96



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.

The screenshot shows the Google Cloud Compute Engine interface for managing VM instances. At the top, there are buttons for 'CREATE INSTANCE', 'IMPORT VM', 'REFRESH', and 'LEARN'. Below these are tabs for 'INSTANCES', 'OBSERVABILITY', and 'INSTANCE SCHEDULES', with 'INSTANCES' being the active tab. A search bar labeled 'Filter' with the placeholder 'Enter property name or value' is present. A table lists the VM instance details:

Status	Name	Zone	Recommendations	In use by	Internal IP	External IP	Connect
<input type="checkbox"/>	<input checked="" 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.