

Install gcloud command line tool to access quotas:

[Installing Google Cloud SDK | Cloud SDK Documentation](#)

Install Google Cloud on a Ubuntu machine:

```
diego@EstudioVM:~$ echo "deb [signed-by=/usr/share/keyrings/cloud.google.gpg]
https://packages.cloud.google.com/apt cloud-sdk main" | sudo tee -a
/etc/apt/sources.list.d/google-cloud-sdk.list
[sudo] contraseña para diego:
deb [signed-by=/usr/share/keyrings/cloud.google.gpg]
https://packages.cloud.google.com/apt cloud-sdk main

diego@EstudioVM:~$ sudo apt-get install apt-transport-https ca-certificates gnupg
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias
Leyendo la información de estado... Hecho
gnupg ya está en su versión más reciente (2.2.19-3ubuntu2).
fijado gnupg como instalado manualmente.
ca-certificates ya está en su versión más reciente (20210119~20.04.1).
Los paquetes indicados a continuación se instalaron de forma automática y ya no
son necesarios.
    libfprint-2-tod1 libllvm9 linux-modules-extra-5.4.0-58-generic python3-click
python3-colorama
Utilice «sudo apt autoremove» para eliminarlos.
Se actualizarán los siguientes paquetes:
    apt-transport-https
1 actualizados, 0 nuevos se instalarán, 0 para eliminar y 106 no actualizados.
Se necesita descargar 1.704 B de archivos.
Se utilizarán 0 B de espacio de disco adicional después de esta operación.
¿Desea continuar? [S/n] s
Des:1 http://es.archive.ubuntu.com/ubuntu focal-updates/universe amd64
apt-transport-https all 2.0.4 [1.704 B]
Descargados 1.704 B en 0s (7.038 B/s)
(Leyendo la base de datos ... 275235 ficheros o directorios instalados
actualmente.)
Preparando para desempaquetar .../apt-transport-https_2.0.4_all.deb ...
Desempaquetando apt-transport-https (2.0.4) sobre (2.0.2ubuntu0.2) ...
Configurando apt-transport-https (2.0.4) ...

diego@EstudioVM:~$ curl https://packages.cloud.google.com/apt/doc/apt-key.gpg |
sudo apt-key --keyring /usr/share/keyrings/cloud.google.gpg add -
    % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100  1974    100  1974  0      0  10175    0 --:--:-- --:--:-- --:--:-- 10123
OK

diego@EstudioVM:~$ sudo apt-get update && sudo apt-get install google-cloud-sdk
Obj:1 https://download.docker.com/linux/ubuntu bionic InRelease
Des:2 http://security.ubuntu.com/ubuntu focal-security InRelease [109 kB]
Obj:3 http://es.archive.ubuntu.com/ubuntu focal InRelease
Des:4 http://es.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
```

Des:5 http://es.archive.ubuntu.com/ubuntu focal-backports InRelease [101 kB]
Des:6 http://security.ubuntu.com/ubuntu focal-security/main amd64 DEP-11
Metadata a [24,3 kB]
Des:7 http://security.ubuntu.com/ubuntu focal-security/main amd64 c-n-f
Metadata [6.164 B]
Des:8 http://security.ubuntu.com/ubuntu focal-security/universe amd64 DEP-11
Metadata [56,6 kB]
Des:9 http://es.archive.ubuntu.com/ubuntu focal-updates/main i386 Packages [415
kB]
Des:10 https://packages.cloud.google.com/apt cloud-sdk InRelease [6.739 B]
Des:11 http://es.archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages
[79 7 kB]
Des:12 https://packages.cloud.google.com/apt cloud-sdk/main i386 Packages [136
kB]
Des:13 https://packages.cloud.google.com/apt cloud-sdk/main amd64 Packages [156
kB]
Des:14 http://es.archive.ubuntu.com/ubuntu focal-updates/main amd64 DEP-11
Metadata [264 kB]
Des:15 http://es.archive.ubuntu.com/ubuntu focal-updates/restricted amd64
Packages [144 kB]
Des:16 http://es.archive.ubuntu.com/ubuntu focal-updates/universe i386 Packages
[547 kB]
Des:17 http://es.archive.ubuntu.com/ubuntu focal-updates/universe amd64
Packages [737 kB]
Des:18 http://es.archive.ubuntu.com/ubuntu focal-updates/universe amd64 DEP-11
Metadata [301 kB]
Des:19 http://es.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64
DEP-11 Metadata [2.468 B]
Des:20 http://es.archive.ubuntu.com/ubuntu focal-backports/universe amd64
DEP-11 Metadata [1.768 B]
Descargados 3.919 kB en 2s (1.870 kB/s)
Leyendo lista de paquetes... Hecho
Leyendo lista de paquetes... Hecho
Creando árbol de dependencias
Leyendo la información de estado... Hecho
Los paquetes indicados a continuación se instalaron de forma automática y ya no
son necesarios.
libfprint-2-tod1 libllvm9 linux-modules-extra-5.4.0-58-generic python3-click
python3-colorama
Utilice «sudo apt autoremove» para eliminarlos.
Se instalarán los siguientes paquetes adicionales:
python3-crcmod
Paquetes sugeridos:
google-cloud-sdk-app-engine-java google-cloud-sdk-app-engine-python
google-cloud-sdk-pubsub-emulator google-cloud-sdk-bigtable-emulator
google-cloud-sdk-datastore-emulator kubectl
Se instalarán los siguientes paquetes NUEVOS:
google-cloud-sdk python3-crcmod
0 actualizados, 2 nuevos se instalarán, 0 para eliminar y 106 no actualizados.
Se necesita descargar 92,6 MB de archivos.
Se utilizarán 492 MB de espacio de disco adicional después de esta operación.
¿Desea continuar? [S/n]

```
Des:1 http://es.archive.ubuntu.com/ubuntu focal/universe amd64 python3-crcmod
amd64 1.7+dfsg-2build2 [18,8 kB]
Des:2 https://packages.cloud.google.com/apt cloud-sdk/main amd64
google-cloud-sdk all 326.0.0-0 [92,6 MB]
Descargados 92,6 MB en 16s (5.828 kB/s)
Seleccionando el paquete python3-crcmod previamente no seleccionado.
(Leyendo la base de datos ... 275235 ficheros o directorios instalados
actualmente.)
Preparando para desempaquetar .../python3-crcmod_1.7+dfsg-2build2_amd64.deb ...
Desempaquetando python3-crcmod (1.7+dfsg-2build2) ...
Seleccionando el paquete google-cloud-sdk previamente no seleccionado.
Preparando para desempaquetar .../google-cloud-sdk_326.0.0-0_all.deb ...
Desempaquetando google-cloud-sdk (326.0.0-0) ...
Configurando python3-crcmod (1.7+dfsg-2build2) ...
Configurando google-cloud-sdk (326.0.0-0) ...
Procesando disparadores para man-db (2.9.1-1) ...
```

I select us-west1-b because it seems it is the cheapest region for a K80 Nvidia GPU.

```
diego@EstudioVM:~$ gcloud init
```

Welcome! This command will take you through the configuration of gcloud.

Your current configuration has been set to: [default]

You can skip diagnostics next time by using the following flag:

```
gcloud init --skip-diagnostics
```

Network diagnostic detects and fixes local network connection issues.

Checking network connection...done.

Reachability Check passed.

Network diagnostic passed (1/1 checks passed).

You must log in to continue. Would you like to log in (Y/n)?

Go to the following link in your browser:

```
https://accounts.google.com/o/oauth2/auth?response_type=code&client_id=32555940
559.apps.googleuse
rcontent.com&redirect_uri=urn%3Aietf%3Awg%3Aoauth%3A2.0%3Aaob&scope=openid+http
s%3A%2F%2Fwww.googleap
is.com%2Fauth%2Fuserinfo.email+https%3A%2F%2Fwww.googleapis.com%2Fauth%2Fcloud-
platform+https%3A%2F%2
Fwww.googleapis.com%2Fauth%2Fappengine.admin+https%3A%2F%2Fwww.googleapis.com%2
Fauth%2Fcompute+https%
3A%2F%2Fwww.googleapis.com%2Fauth%2Faccounts.reauth&state=heAdLxFKVCxJxoZOZ8U6Z
TVwDQD9Lr&prompt=conse
nt&access_type=offline&code_challenge=zDcjDJyylCMcbOTHbPBup-V_dEQZzO0osMWgzTwXl
rw&code_challenge_meth od=S256
```

Enter verification code:

```
4/1AY0e-g7Y-jz7nMo8U4yReIMnpUsX_EfDmzFpX7AgcOVA1xNUoo4syKMDwmw
```

You are logged in as: [diegotascon@gmail.com].

Pick cloud project to use:

- [1] aidl2021project
- [2] udemy-nodejs-279112
- [3] Create a new project

Please enter numeric choice or text value (must exactly match list item): 1

Your current project has been set to: [aidl2021project].

Do you want to configure a default Compute Region and Zone? (Y/n)?

Which Google Compute Engine zone would you like to use as project default?

If you do not specify a zone via a command line flag while working with Compute Engine resources, the default is assumed.

- [1] us-east1-b
- [2] us-east1-c
- [3] us-east1-d
- [4] us-east4-c
- [5] us-east4-b
- [6] us-east4-a
- [7] us-central1-c
- [8] us-central1-a
- [9] us-central1-f
- [10] us-central1-b
- [11] us-west1-b
- [12] us-west1-c
- [13] us-west1-a
- [14] europe-west4-a
- [15] europe-west4-b
- [16] europe-west4-c
- [17] europe-west1-b
- [18] europe-west1-d
- [19] europe-west1-c
- [20] europe-west3-c
- [21] europe-west3-a
- [22] europe-west3-b
- [23] europe-west2-c
- [24] europe-west2-b
- [25] europe-west2-a
- [26] asia-east1-b
- [27] asia-east1-a
- [28] asia-east1-c
- [29] asia-southeast1-b
- [30] asia-southeast1-a
- [31] asia-southeast1-c
- [32] asia-northeast1-b
- [33] asia-northeast1-c
- [34] asia-northeast1-a
- [35] asia-south1-c

```
[36] asia-south1-b
[37] asia-south1-a
[38] australia-southeast1-b
[39] australia-southeast1-c
[40] australia-southeast1-a
[41] southamerica-east1-b
[42] southamerica-east1-c
[43] southamerica-east1-a
[44] asia-east2-a
[45] asia-east2-b
[46] asia-east2-c
[47] asia-northeast2-a
[48] asia-northeast2-b
[49] asia-northeast2-c
[50] asia-northeast3-a
```

Did not print [24] options.

Too many options [74]. Enter "list" at prompt to print choices fully.
Please enter numeric choice or text value (must exactly match list item): us-west1-b

Your project default Compute Engine zone has been set to [us-west1-b].
You can change it by running [gcloud config set compute/zone NAME].

Your project default Compute Engine region has been set to [us-west1].
You can change it by running [gcloud config set compute/region NAME].

Created a default .boto configuration file at [/home/diego/.boto]. See this file and

[<https://cloud.google.com/storage/docs/gsutil/commands/config>] for more information about configuring Google Cloud Storage.

Your Google Cloud SDK is configured and ready to use!

* Commands that require authentication will use diegotascon@gmail.com by default

* Commands will reference project `aidl2021project` by default

* Compute Engine commands will use region `us-west1` by default

* Compute Engine commands will use zone `us-west1-b` by default

Run `gcloud help config` to learn how to change individual settings

This gcloud configuration is called [default]. You can create additional configurations if you work with multiple accounts and/or projects.

Run `gcloud topic configurations` to learn more.

Some things to try next:

* Run `gcloud --help` to see the Cloud Platform services you can interact with.
And run `gcloud help COMMAND` to get help on any gcloud command.

* Run `gcloud topic --help` to learn about advanced features of the SDK like arg files and output formatting

Creating VMs with attached GPUs

[Creating VMs with attached GPUs | Compute Engine Documentation \(google.com\)](#)

Checking GPU quota

[Creating VMs with attached GPUs | Compute Engine Documentation \(google.com\)](#)

Do I have sufficient GPU quota in the region?

```
diego@EstudioVM:~$ gcloud compute regions describe us-west1
creationTimestamp: '1969-12-31T16:00:00.000-08:00'
description: us-west1
id: '1210'
kind: compute#region
name: us-west1
quotas:
- limit: 24.0
  metric: CPUS
  usage: 0.0
- limit: 4096.0
  metric: DISKS_TOTAL_GB
  usage: 0.0
- limit: 8.0
  metric: STATIC_ADDRESSES
  usage: 0.0
- limit: 8.0
  metric: IN_USE_ADDRESSES
  usage: 0.0
- limit: 500.0
  metric: SSD_TOTAL_GB
  usage: 0.0
- limit: 6000.0
  metric: LOCAL_SSD_TOTAL_GB
  usage: 0.0
- limit: 100.0
  metric: INSTANCE_GROUPS
  usage: 0.0
- limit: 50.0
  metric: INSTANCE_GROUP_MANAGERS
  usage: 0.0
- limit: 24.0
  metric: INSTANCES
  usage: 0.0
- limit: 50.0
  metric: AUTOSCALERS
  usage: 0.0
- limit: 20.0
  metric: REGIONAL_AUTOSCALERS
  usage: 0.0
- limit: 20.0
  metric: REGIONAL_INSTANCE_GROUP_MANAGERS
```

```
usage: 0.0
- limit: 0.0
  metric: PREEMPTIBLE_CPUS
  usage: 0.0
- limit: 1.0
  metric: NVIDIA_K80_GPUS
  usage: 0.0
- limit: 0.0
  metric: COMMITTED_CPUS
  usage: 0.0
- limit: 0.0
  metric: COMMITTED_LOCAL_SSD_TOTAL_GB
  usage: 0.0
- limit: 0.0
  metric: COMMITMENTS
  usage: 0.0
- limit: 100.0
  metric: NETWORK_ENDPOINT_GROUPS
  usage: 0.0
- limit: 200.0
  metric: INTERNAL_ADDRESSES
  usage: 0.0
- limit: 1.0
  metric: NVIDIA_P100_GPUS
  usage: 0.0
- limit: 0.0
  metric: PREEMPTIBLE_LOCAL_SSD_GB
  usage: 0.0
- limit: 1.0
  metric: PREEMPTIBLE_NVIDIA_K80_GPUS
  usage: 0.0
- limit: 1.0
  metric: PREEMPTIBLE_NVIDIA_P100_GPUS
  usage: 0.0
- limit: 1.0
  metric: NVIDIA_P100_VWS_GPUS
  usage: 0.0
- limit: 1.0
  metric: NVIDIA_V100_GPUS
  usage: 0.0
- limit: 1.0
  metric: NVIDIA_P4_GPUS
  usage: 0.0
- limit: 1.0
  metric: NVIDIA_P4_VWS_GPUS
  usage: 0.0
- limit: 100.0
  metric: NODE_GROUPS
  usage: 0.0
- limit: 100.0
  metric: NODE_TEMPLATES
  usage: 0.0
```

- limit: 1.0
metric: PREEMPTIBLE_NVIDIA_V100_GPUS
usage: 0.0
- limit: 1.0
metric: PREEMPTIBLE_NVIDIA_P4_GPUS
usage: 0.0
- limit: 1.0
metric: PREEMPTIBLE_NVIDIA_P100_VWS_GPUS
usage: 0.0
- limit: 1.0
metric: PREEMPTIBLE_NVIDIA_P4_VWS_GPUS
usage: 0.0
- limit: 16.0
metric: INTERCONNECT_ATTACHMENTS_PER_REGION
usage: 0.0
- limit: 80000.0
metric: INTERCONNECT_ATTACHMENTS_TOTAL_MBPS
usage: 0.0
- limit: 5.0
metric: RESOURCE_POLICIES
usage: 0.0
- limit: 20.0
metric: IN_USE_SNAPSHOT_SCHEDULES
usage: 0.0
- limit: 1.0
metric: NVIDIA_T4_GPUS
usage: 0.0
- limit: 1.0
metric: NVIDIA_T4_VWS_GPUS
usage: 0.0
- limit: 1.0
metric: PREEMPTIBLE_NVIDIA_T4_GPUS
usage: 0.0
- limit: 1.0
metric: PREEMPTIBLE_NVIDIA_T4_VWS_GPUS
usage: 0.0
- limit: 20.0
metric: IN_USE_BACKUP_SCHEDULES
usage: 0.0
- limit: 10.0
metric: PUBLIC_DELEGATED_PREFIXES
usage: 0.0
- limit: 0.0
metric: COMMITTED_NVIDIA_K80_GPUS
usage: 0.0
- limit: 0.0
metric: COMMITTED_NVIDIA_P100_GPUS
usage: 0.0
- limit: 0.0
metric: COMMITTED_NVIDIA_P4_GPUS
usage: 0.0
- limit: 0.0


```
metric: COMMITTED_NVIDIA_V100_GPUS
usage: 0.0
- limit: 0.0
metric: COMMITTED_NVIDIA_T4_GPUS
usage: 0.0
- limit: 8.0
metric: C2_CPUS
usage: 0.0
- limit: 8.0
metric: N2_CPUS
usage: 0.0
- limit: 0.0
metric: COMMITTED_N2_CPUS
usage: 0.0
- limit: 0.0
metric: COMMITTED_C2_CPUS
usage: 0.0
- limit: 100.0
metric: RESERVATIONS
usage: 0.0
- limit: 0.0
metric: COMMITTED_LICENSES
usage: 0.0
- limit: 8.0
metric: N2D_CPUS
usage: 0.0
- limit: 0.0
metric: COMMITTED_N2D_CPUS
usage: 0.0
- limit: 128.0
metric: STATIC_BYOIP_ADDRESSES
usage: 0.0
- limit: 0.0
metric: AFFINITY_GROUPS
usage: 0.0
- limit: 0.0
metric: NVIDIA_A100_GPUS
usage: 0.0
- limit: 0.0
metric: PREEMPTIBLE_NVIDIA_A100_GPUS
usage: 0.0
- limit: 0.0
metric: COMMITTED_NVIDIA_A100_GPUS
usage: 0.0
- limit: 0.0
metric: M1_CPUS
usage: 0.0
- limit: 0.0
metric: M2_CPUS
usage: 0.0
- limit: 0.0
metric: A2_CPUS
```

```
usage: 0.0
- limit: 0.0
  metric: COMMITTED_A2_CPUS
  usage: 0.0
- limit: 0.0
  metric: COMMITTED_MEMORY_OPTIMIZED_CPUS
  usage: 0.0
selfLink:
https://www.googleapis.com/compute/v1/projects/aidl2021project/regions/us-west1
status: UP
supportsPzs: false
zones:
-
https://www.googleapis.com/compute/v1/projects/aidl2021project/zones/us-west1-a
-
https://www.googleapis.com/compute/v1/projects/aidl2021project/zones/us-west1-b
-
https://www.googleapis.com/compute/v1/projects/aidl2021project/zones/us-west1-c
```

It seems I have a limit of 1 Nvidia K80 GPU. That should be enough.

Create an instance with one GPU

[Creating a Deep Learning VM Instance From the Google Cloud Marketplace](#)

I open

https://console.cloud.google.com/marketplace/details/click-to-deploy-images/deeplearning?_ga=2.13134391.1007356524.1612367677-1479030961.1612367677



Deep Learning VM

[Google Click to Deploy](#)

Intel(R) optimized and GPU-ready machine learning frameworks

LAUNCH

VIEW PAST DEPLOYMENTS

OVERVIEW

PRICING

SUPPORT

Overview

Deploy a Compute Engine instance with your favorite machine learning framework, Intel(R) optimized for GCE and configured to support common GPU workloads out of the box. This deployment automates out the hassle of setting up a high-performance computing environment: the latest NVIDIA GPU libraries (CUDA, CuDNN, NCCL), latest Intel(R) libraries (Intel(R) MKL-DNN) are all ready to go, along with the latest supported drivers. The VM also includes support for both python2 and python3.7 (default) with key packages for handling data, such as scikit-learn, pandas, and nltk. Currently,

Additional details

Runs on: Google Compute Engine

Type: [Virtual machines](#), Single VM

Last updated: 2/3/21

Category: [Compute](#), [Developer tools](#)

Version: M62

After launching the instance, an error states that I have no access to GPUs:



Free trial status: €248.41 credit and 91 days remaining - with a full account, you'll get unlimited access to all of Google Cloud Platform.

DISMISS

ACTIVATE



Google Cloud Platform



aidl2021project



1



New Deep Learning VM deployment



You've gone over GPUs (all regions) quota by 1 GPU. Please increase your quota in the [quotas page](#). [Learn more](#)



Deep Learning VM overview

Solution provided by Google Click to Deploy

Deployment name

deeplearning-1

Zone

GPU availability is limited to certain zones. [Learn more](#)

us-west1-b

Machine type

2 vCPUs

13 GB
memory

[Customize](#)

[Upgrade your account](#) to create instances with up to 96 cores

GPUs

The number of GPU dies is linked to the number of CPU cores and memory selected for this instance. For the current configuration, you can select no fewer than 1 GPU die of this type. [Learn more](#)

\$295.20 per month estimated

Effective hourly rate \$0.404 (730 hours per month)

[Details](#)

Software

Operating System

Debian (10)

Documentation

[Official Documentation](#)

[StackOverflow: Deep Learning VM](#)

[Google Group: Deep Learning VM](#)

Terms of Service

By deploying the software or accessing the service you are agreeing to comply with the [GCP Marketplace terms of service](#) and the terms of applicable open source software licenses bundled with the software or service. Please review these terms and licenses carefully for details about any obligations you may have related to the software or

Upgrading the free account to premium

I tried to change the "GPUs (all regions)" quota, but according to

<https://stackoverflow.com/questions/63104914/cant-select-quota-to-edit-on-google-cloud-quota-edition-screen>

I must upgrade to a Premium account. So I push the gift icon (not shown in the capture) and press "Activate".

Upgrade your account

You're one step away from unlocking all of Google Cloud Platform.

You won't be charged until after your free credits run out or expire (whichever comes first). [Learn more](#)

You only pay for what you use. [View pricing details](#)

CANCEL

UPGRADE

Requesting a quota upgrade for GPUs

After upgrading, I go to the quotas page link:

https://console.cloud.google.com/iam-admin/quotas?metric=compute.googleapis.com%2Fgpus_all_regions&project=aidl2021project&folder=&organizationId=

Google Cloud Platform

aidl2021project

1

IAM & Admin

IAM

Identity & Organization

Policy Troubleshooter

Policy Analyzer

Organization Policies

Service Accounts

Labels

Settings

Privacy & Security

Identity-Aware Proxy

Roles

Audit Logs

Essential Contacts

Groups

Early Access Center

Quotas

<|

Quotas

EDIT QUOTAS

SHOW QUOTA PANEL

Metric : compute.googleapis.com/gpus_all_regions

OR

Limit Name : compute.googleapis.com/gpus_all_regions

Filter table

Service	Limit name	Quota status	Details
Compute Engine API	GPUs (all regions)		ALL QUOTAS

I click on the “GPUs (all regions)” text:

aidl2021project

1

Quotas

EDIT QUOTAS

HIDE QUOTA PANEL

GPUs (all regions)

Service: Compute Engine API

Category: Location

☒ Global

Limit:0

I select "Global" and click on "Edit quotas":

Quota changes

Expand each service card to change individual quotas.



Compute Engine API

Quota: GPUs (all regions)

Current limit: 0

Enter a new quota limit. Your request will be sent to your service provider for approval. ?

New limit *

1

GPU increment request to be able to use an already granted 1 GPU quota on us-west1-b region. This will allow me to deploy my first Deep Learning VM instance and check Google Cloud services for DL training.

Thank you

Your description will be sent to your service provider and is used to evaluate your request. It's useful to include the intent of the quota usage, future growth plans, region or zone spread, and any additional requirements or dependencies.

DONE

NEXT

I set the new limit to 1 and write a description of the request. After that I press “Done” and “Next”:

Contact details

These details will be sent to the approvers while reviewing quota change request.

Name *

Diego Tascón Tello

Email *

diegotascon@gmail.com



Phone *

555 666 777

SUBMIT REQUEST

BACK

Contact details must be filled in and “Submit request” pressed:



Edit quotas

Close

Compute Engine API

Thank you for submitting Case # (ID:97819b36fdb944aca849df8c58c1bee8) to Google Cloud Platform support for the following quota:

Change GPUs (all regions) from 0 to 1

Your request is being processed and you should receive an email confirmation for your request. Should you need further assistance, you can respond to that email.

Once the request is sent, an email has to be received. I press “Close” to end with the quota edition. The mail arrives in just one minute:

Google Compute Engine Quota Support <esupport@google.com>

para mí ▾

Hello,

Your quota request for aidl2021project has been approved and your project quota

has been adjusted according to the following requested limits:

+-----+-----+-----+			
	Name	Region Requested Limit	
+-----+-----+-----+			
	GPUS_ALL_REGIONS GLOBAL	1	
+-----+-----+-----+			

After approved, Quotas can take up to 15 min to be fully visible in the Cloud

Console and available to you.

To verify, please navigate to

<https://console.cloud.google.com/iam-admin/quotas?project=aidl2021project>.

If you find actual limits are greater than expected, this is normal if previous

requests were approved with higher limits. Otherwise, please let us know if approved changes are not reflected in your project.

If you want to increase your quota further, please file a new request.

Best regards and happy computing!

Sincerely,

Cloud Platform Support

Creating the instance

So I open again

https://console.cloud.google.com/marketplace/details/click-to-deploy-images/deeplearning?_ga=2.13134391.1007356524.1612367677-1479030961.1612367677 and press "Launch":

Google Cloud Platform

aidl2021project

1

← New Deep Learning VM deployment

Deployment name

deeplearning-1

Zone

us-west1-b

Machine type

2 vCPUs

13 GB memory

Customize

GPUs

The number of GPU dies is linked to the number of CPU cores and memory selected for this instance. For the current configuration, you can select no fewer than 1 GPU die of this type. [Learn more](#)

Number of GPUs

1

GPU type

NVIDIA Tesla K80

Machines with GPUs can't migrate on host maintenance

Framework

PyTorch 1.7 (CUDA 11.0)

GPU

☒ Install NVIDIA GPU driver automatically on first startup?

I want to use NVIDIA GPUs with this image. Please fetch NVIDIA GPU drivers from a third-party location and install them on my behalf (requires internet access on the VM).

Deep Learning VM overview

Solution provided by Google Click to Deploy

\$291.84 per month estimated

Effective hourly rate \$0.40 (730 hours per month)

Item	Estimated costs
Click to Deploy TensorFlow 2.0 Alpha with CUDA Usage Fee	\$0.00/month
Google DeepLearning VM does not charge a usage fee.	
Google Compute Engine Costs	
VM instance: 2 vCPUs + 13 GB memory (n1-highmem-2)	\$86.36/month
Standard Persistent Disk: 30GB	\$1.44/month
NVIDIA Tesla K80 GPU	\$328.50/month
Sustained use discount	− \$124.46/month
Total	\$291.84/month

[Less](#)

Software

Operating System

Debian (10)

Documentation

[Official Documentation](#)

[StackOverflow: Deep Learning VM](#)

[Google Group: Deep Learning VM](#)

After changing the default deployment name (shown), choosing the Zone (us-west1-b seemed the cheapest), 2 CPUs, leaving the standard 13GB of RAM, setting 1 NVIDIA Tesla K80, selecting PyTorch 1.7 as framework, activating the “Install NVIDIA GPU driver automatically on first startup” ...

Google Cloud Platform

aidl2021project

1

←

New Deep Learning VM deployment

Access to the Jupyter Lab

☒ Enable access to JupyterLab via URL instead of SSH. (Beta) ?
Enable this feature to access the running JupyterLab environment through a URL instead of SSH tunneling. Anyone who has been granted the Editor or Owner role in your GCP project can access this URL. This feature is available only in the US, EU and Asia.

Boot Disk

Boot disk type ?
Standard Persistent Disk

Boot disk size in GB ?
30

Networking

Network interfaces
default default (10.138.0.0/20)

+ Add network interface

☒ I accept the GCP Marketplace Terms of Service and Google Click to Deploy Terms of Service .

Deploy

Terms of Service

By deploying the software or accessing the service you are agreeing to comply with the [GCP Marketplace terms of service](#) and the terms of applicable open source software licenses bundled with the software or service. Please review these terms and licenses carefully for details about any obligations you may have related to the software or service. To the limited extent an open source software license related to the software or service expressly supersedes the GCP Marketplace Terms of Service, that open source software license governs your use of that software or service.

By using this product, you understand that certain account and usage information may be shared with Google Click to Deploy for the purposes of financial accounting, sales attribution, performance analysis, and support. ?

Google is providing this software or service "as-is" and will not perform any ongoing maintenance. Ongoing upgrades and maintenance are your responsibility.

... enabling access to JupyterLab via URL, setting a disk size of 30GB (as stated in the slides), and accepting the terms of service, I press "Deploy".

Deploying ...

But an error is issued: *"Invalid value for field 'resource.disks[0].initializeParams.diskSizeGb': '30'. Requested disk size cannot be smaller than the image size (50 GB)"*

Google Cloud Platform aidl2021project Search products and resources

Deployment Manager aidl2021 DELETE tensorflow

Deployments Type registry

aidl2021 failed to deploy VIEW DETAILS

Overview - aidl2021

- tensorflow tensorflow.jinja
 - tensorflow-vm-tmpl vm_instance.py
 - aidl2021-vm vm instance
 - software-status software_status.py
 - aidl2021-config config
 - aidl2021-software config waiter

tensorflow has resource level errors

aidl2021-vm:

```
{
  "ResourceType": "compute.v1.instance",
  "ResourceErrorCode": "400",
  "ResourceErrorMessage": {
    "code": "400",
    "errors": [
      {
        "domain": "global",
        "message": "Invalid value for field 'resource.disks[0].initializeParams.diskSizeGb': '30'. Requested disk size cannot be smaller than the image size (50 GB)",
        "reason": "invalid"
      },
      {
        "domain": "global",
        "message": "Invalid value for field 'resource.disks[0].initializeParams.diskSizeGb': '30'. Requested disk size cannot be smaller than the image size (50 GB)",
        "statusMessage": "Bad Request",
        "requestPath": "https://compute.googleapis.com/compute/v1/projects/aidl2021project/zones/us-west1-b/instances",
        "httpMethod": "POST"
      }
    ]
  }
}
```

Deep Learning VM
Solution provided by Google Click to Deploy

Instance	aidl2021-vm
Instance zone	us-west1-b
Instance machine type	n1-highmem-2

[MORE ABOUT THE SOFTWARE](#)

Documentation

- [Official Documentation](#)
- [StackOverflow: Deep Learning VM](#)
- [Google Group: Deep Learning VM](#)

I press "Delete" to erase the resources and make a new try.

Thanks to Dani Fojo indications on Slack, I try again with 70GB (50GB for the installation and libraries, plus 20GB for the dataset).

aidl2021 is being deployed VIEW DETAILS

Overview - aidl2021

- tensorflow tensorflow.jinja
 - tensorflow-vm-tmpl vm_instance.py
 - aidl2021-vm vm instance
 - software-status software_status.py
 - aidl2021-config config
 - aidl2021-software config waiter

The instance is deployed with a minor warning:

The screenshot shows the Google Cloud Platform interface. The top navigation bar includes the Google Cloud Platform logo, the project name 'aidl2021project', and a search bar. The main content area is divided into two panels. The left panel, titled 'Deployment Manager', shows a list of deployments with 'aidl2021' selected. The right panel, titled 'tensorflow', shows the details of the deployment. A warning message at the top of the right panel states: 'tensorflow has resource level warnings'. Below this, a detailed warning message explains that the resource 'projects/click-to-deploy-images/global/images/pytorch-1-7-cu110-v20210121-debian-10' is deprecated and suggests a replacement. The 'Deep Learning VM' section on the right provides details about the instance: 'Instance' is 'aidl2021-vm', 'Instance zone' is 'us-west1-b', and 'Instance machine type' is 'n1-highmem-2'. A 'VIEW DETAILS' button is visible in the left panel.

Google Cloud Platform aidl2021project Search products and resources

Deployment Manager aidl2021 DELETE tensorflow

Deployments Type registry

aidl2021 has been deployed, but contains warnings [VIEW DETAILS](#)

Overview - aidl2021

- tensorflow tensorflow.jinja
 - tensorflow-vm-tmpl vm_instance.py
 - aidl2021-vm vm instance
 - software-status software_status.py
 - aidl2021-config config
 - aidl2021-software config waiter

tensorflow has resource level warnings

[aidl2021-vm](#): The resource 'projects/click-to-deploy-images/global/images/pytorch-1-7-cu110-v20210121-debian-10' is deprecated. A suggested replacement is 'projects/click-to-deploy-images/global/images/pytorch-1-7-cu110-v20210203-debian-10'.

Deep Learning VM
Solution provided by Google Click to Deploy

Instance	aidl2021-vm
Instance zone	us-west1-b
Instance machine type	n1-highmem-2

[MORE ABOUT THE SOFTWARE](#)


Why on earth does it let me choose a deprecated option?? Anyway, it is just 11 days old...

Get started with Deep Learning VM

SSH

Suggested next steps

- **Set up the Cloud SDK.**

The Cloud SDK (gcloud) is the preferred command line tool for interfacing with your instance. [Download it here.](#) 

- **(Optional) Copy files to your VM from your local machine.**

You can use the gcloud tool to upload files to your machine.


```
$ gcloud compute scp --project aidl2021project --zone us-west1-b --recurse <local file or directory> aidl2021-vm:~/
```

- **Access the running Jupyter notebook.**

We've already started a Jupyter notebook instance on the VM for your convenience. In order to get link that can be used to access Jupyter Lab run the following command.

```
$ gcloud compute instances describe --project aidl2021project --zone us-west1-b aidl2021-vm | grep googleusercontent.com | grep datalab
```

- **Assign a static external IP address to your VM instance**

An ephemeral external IP address has been assigned to the VM instance. If you require a static external IP address, you may promote the address to static. [Learn more](#) 


Copy files to your VM from your local machine: `gcloud compute scp --project aidl2021project --zone us-west1-b --recurse <local file or directory> aidl2021-vm:~/`

Access the running Jupyter notebook: `gcloud compute instances describe --project aidl2021project --zone us-west1-b aidl2021-vm | grep googleusercontent.com | grep datalab`

Documentation

- [Official Documentation](#) 
- [StackOverflow: Deep Learning VM](#) 
- [Google Group: Deep Learning VM](#) 

Support

If you have non-framework related issues, you can bring them up at the Deep Learning VM [Stack Overflow](#) .

Template properties

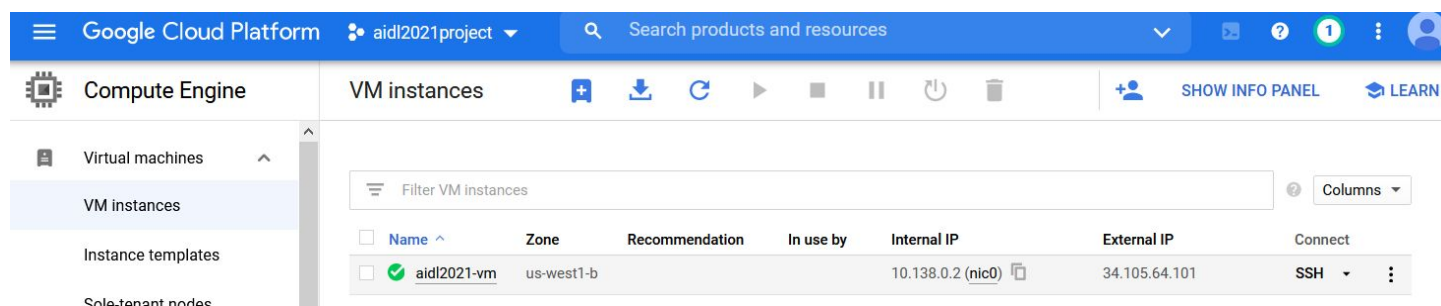
type	tensorflow.jinja
acceleratorCount	1.0
acceleratorType	nvidia-tesla-k80
bootDiskSizeGb	70.0
bootDiskType	pd-standard
externalIP	- EPHEMERAL
input_enableProxy	true
input_framework	PyTorch 1.7 (CUDA 11.0)
input_installNvidiaDriver	true
machineType	n1-highmem-2
network	- https://www.googleapis.com/compute/v1/projects/aidl2021project/global/networks/default
subnetwork	- https://www.googleapis.com/compute/v1/projects/aidl2021project/regions/us-west1/subnetworks/default
zone	us-west1-b

First access to the instance

https://cloud.google.com/ai-platform/deep-learning-vm/docs/quickstart-marketplace#access_your_new_instance

I go to the VM instances page in my Console:

https://console.cloud.google.com/compute/instances?_ga=2.98630743.819462119.1612542875-1479030961.1612367677



Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
<input checked="" type="checkbox"/> aidl2021-vm	us-west1-b			10.138.0.2 (nic0)	34.105.64.101	SSH

I click on the drop-down SSH list:

VM instances

[CREATE INSTANCE](#) [IMPORT VM](#) [Refresh](#) [Play](#) [Stop](#) [Pause](#) [Restart](#) [Delete](#)

[MANAGE ACCESS](#) [SHOW INFO PANEL](#) [User](#)

Filter VM instances

Columns

Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
aidl2021-vm	us-west1-b			10.138.0.2 (nic0)	34.105.64.101	SSH

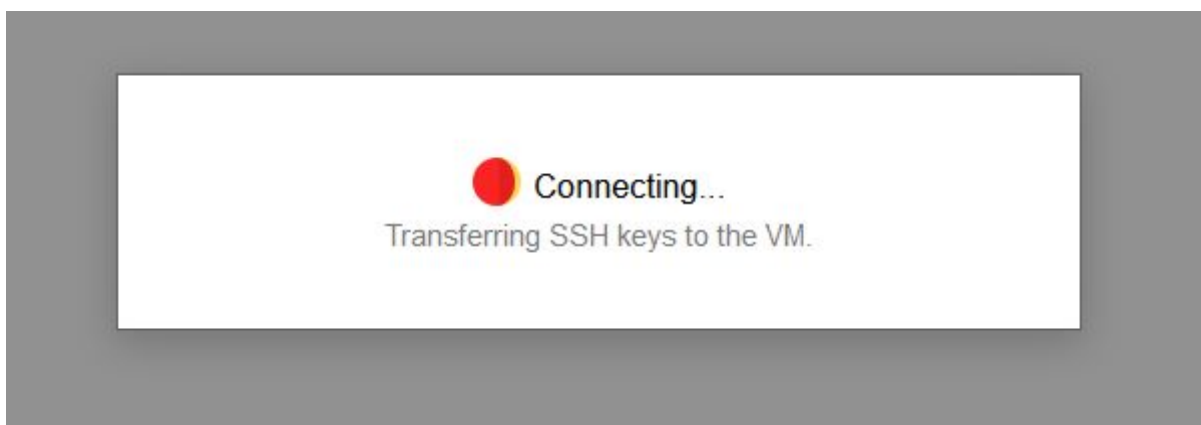
- Open in browser window
- Open in browser window on custom port
- Open in browser window using provided private SSH key
- View gcloud command
- Use another SSH client

Related Actions

and I choose “Open in browser window”:



I setup my browser to allow Google Cloud console opening new tabs or windows:



And finally a shell window opens:

```
diegotascon@aidl2021-vm: ~ - Mozilla Firefox
https://ssh.cloud.google.com/projects/aidl2021project/zones/us-west1-b/instances/aidl2021-vm?useAdminProxy=tr...

=====
Version: pytorch-gpu.1-7.mnighlty-2021-01-20-debian-10-test
Based on: Debian GNU/Linux 10 (buster) (GNU/Linux 4.19.0-13-cloud-amd64 x86_64\n)

Resources:
* Google Deep Learning Platform StackOverflow: https://stackoverflow.com/questions/tagged/google-dl-platform
* Google Cloud Documentation: https://cloud.google.com/deep-learning-vm
* Google Group: https://groups.google.com/forum/#!forum/google-dl-platform

To reinstall Nvidia driver (if needed) run:
sudo /opt/deeplearning/install-driver.sh
Linux aidl2021-vm 4.19.0-13-cloud-amd64 #1 SMP Debian 4.19.160-2 (2020-11-28) 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.
diegotascon@aidl2021-vm:~$
```

I get some info from the machine:

```
diegotascon@aidl2021-vm:~$ uname -a
Linux aidl2021-vm 4.19.0-13-cloud-amd64 #1 SMP Debian 4.19.160-2 (2020-11-28)
x86_64 GNU/Linux

diegotascon@aidl2021-vm:~$ vmstat -a
procs -----memory----- ---swap-- ----io---- -system--
-----cpu-----
 r  b   swpd   free   inact active    si   so      bi   bo    in   cs us sy id wa
st
  0   0       0 12491360 300580 370832    0    0   322    6   76  103  1  1 96  2  0

diegotascon@aidl2021-vm:~$ nvidia-smi
Sat Feb  6 15:23:08 2021
+-----+
| NVIDIA-SMI 450.51.06      Driver Version: 450.51.06  CUDA Version: 11.0   |
|-----+-----+-----+-----+-----+-----+-----+-----+-----+
| GPU   Name           Persistence-M| Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp  Perf  Pwr:Usage/Cap|      Memory-Usage | GPU-Util  Compute M. |
|                                   |                    |              MIG M.  |
+-----+-----+-----+-----+-----+-----+-----+-----+-----+
```

```

=====+=====+=====+
| 0 Tesla K80 Off | 00000000:00:04.0 Off | 0 |
| N/A 47C P0 72W / 149W | 0MiB / 11441MiB | 100% Default |
| | | N/A |
+-----+-----+-----+

+-----+
| Processes: |
| GPU GI CI PID Type Process name GPU Memory |
| ID ID | Usage |
+=====+
| No running processes found |
+-----+

```

```

diegotascon@aidl2021-vm:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
udev            6.4G   0 6.4G   0% /dev
tmpfs           1.3G   8.5M 1.3G   1% /run
/dev/sda1       69G   33G  34G  50% /
tmpfs           6.4G   0 6.4G   0% /dev/shm
tmpfs           5.0M   0 5.0M   0% /run/lock
tmpfs           6.4G   0 6.4G   0% /sys/fs/cgroup
/dev/sda15      124M   7.9M 116M   7% /boot/efi
tmpfs           1.3G   0 1.3G   0% /run/user/1001

```

```

diegotascon@aidl2021-vm:~$ ls /home
diegotascon  jupyter

```

```

diegotascon@aidl2021-vm:~$ python --version
Python 3.7.8

```

```

diegotascon@aidl2021-vm:~$ python
Python 3.7.8 | packaged by conda-forge | (default, Nov 17 2020, 23:45:15)
[GCC 7.5.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> import torch
>>> torch.cuda.is_available()
True

```

In the console, if I click on the aidl2021-vm, I get the details:

✔

aidl2021-vm

Details

Monitoring

Screenshot

Remote access

SSH ▾

Connect to serial console ▾

☐ Enable connecting to serial ports [?](#)

Logs

[Cloud Logging](#)[Serial port 1 \(console\)](#)[⌵ More](#)

Instance Id

4301326556626734139

Machine type

n1-highmem-2 (2 vCPUs, 13 GB memory)

Reservation

Automatically choose (default)

CPU platform

Intel Broadwell

Display device

Turn on a display device if you want to use screen capturing and recording tools.

☐ Turn on display device

GPUs

1 x NVIDIA Tesla K80

Zone

us-west1-b

Labels

goog-dm : aidl2021

Creation time

05.02.2021, 17:31:18

Network interfaces


Name	Network	Subnetwork	Primary internal IP	Alias IP ranges	External IP	Network Tier ?	IP forwarding	Network details
nic0	default	default	10.138.0.2	—	34.105.64.101 (ephemeral)	Premium	Off	View details

Public DNS PTR Record
None

Firewalls
☐ Allow HTTP traffic
☐ Allow HTTPS traffic

Network tags
aidl2021-deployment, deeplearning-vm

Deletion protection
☐ Enable deletion protection
When deletion protection is enabled, instance cannot be deleted. [Learn more](#)




Confidential VM service 
Disabled

Boot disk							
Name	Image	Size (GB)	Device name	Type	Encryption	Mode	When deleting instance
aidl2021-vm	pytorch-1-7-cu110-v20210121-debian-10	70	tensorflow-vm-tmpl-boot-disk	Standard persistent disk	Google managed	Boot, read/write	Delete disk

Additional disks
None

Local disks
None

Preserved state size
0 GB

Shielded VM 
To edit Shielded VM features you need to stop the instance first.
Turn on all settings for the most secure configuration.
☐ Turn on Secure Boot 
☒ Turn on vTPM 
☒ Turn on Integrity Monitoring 

Availability policies

Preemptibility	Off (recommended)
On host maintenance	Terminate VM instance
Automatic restart	On (recommended)

Custom metadata

framework	PyTorch:1.7
google-logging-enable	0
google-monitoring-enable	0
install-nvidia-driver	True
proxy-mode	project_editors
proxy-url	1a45d4f37210686b-dot-us-west1.notebooks.googleusercontent.com
shutdown-script	/opt/deeplearning/bin/shutdown_script.sh
status-config-url	https://runtimeconfig.googleapis.com/v1beta1/projects/aidl2021project/configs/aidl2021-config
status-uptime-deadline	600
status-variable-path	status
title	PyTorch/CUDA11.0.GPU
version	nightly-2021-01-20-debian-10-test

SSH Keys

☐ Block project-wide SSH keys

None

Service account

602576452010-compute@developer.gserviceaccount.com

Cloud API access scopes

BigQuery	Disabled
Bigtable Admin	Disabled
Bigtable Data	Disabled
Cloud Datastore	Disabled
Cloud Debugger	Disabled
Cloud Pub/Sub	Disabled
Cloud Source Repositories	Disabled
Cloud SQL	Disabled
Compute Engine	Read Write
Service Control	Disabled
Service Management	Disabled
Stackdriver Logging API	Write Only
Stackdriver Monitoring API	Write Only
Stackdriver Trace	Disabled
Storage	Read Only
Task queue	Disabled
User info	Disabled

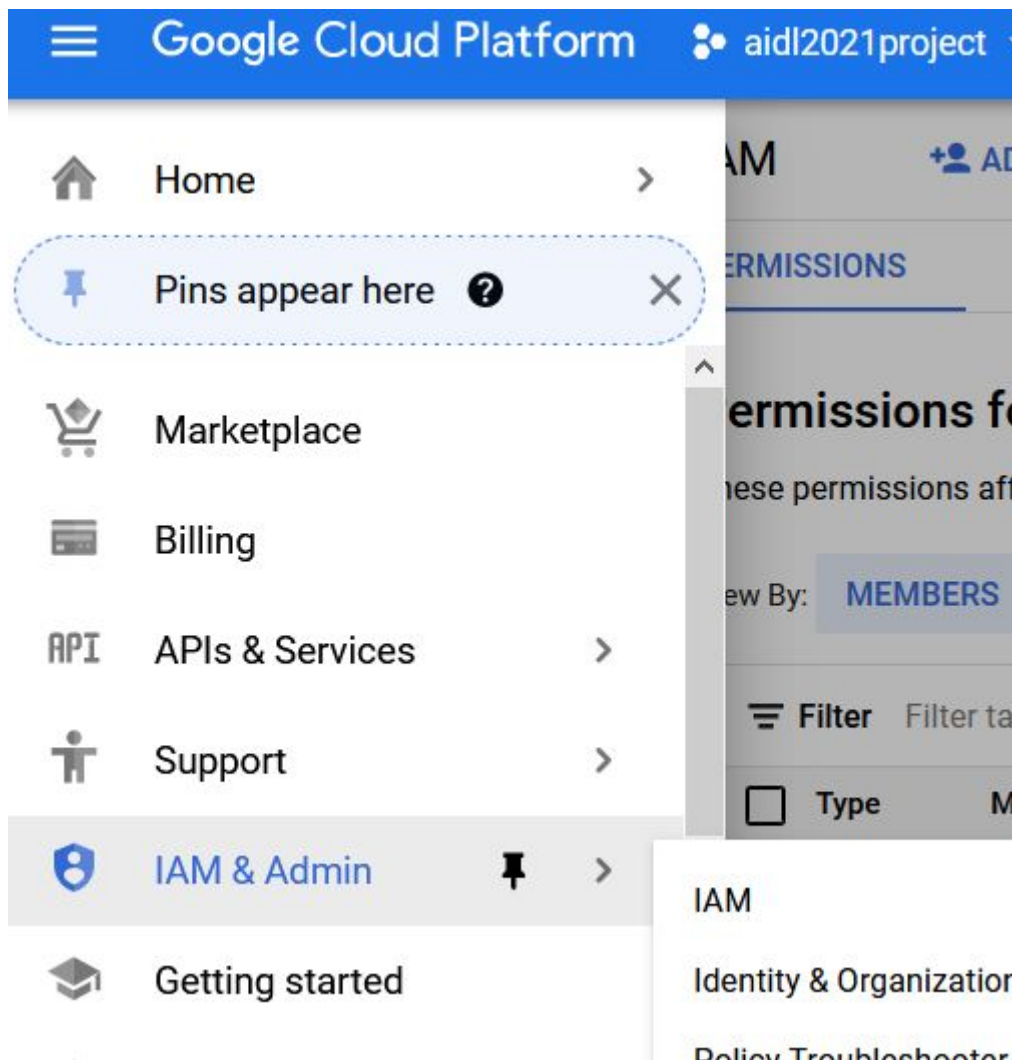
Equivalent [REST](#)

Granting permissions to colleagues over the project

Steps vaguely inspired in the following documentation:

<https://cloud.google.com/compute/docs/access/managing-access-to-resources#bind-member>

In the menu, I clicked directly the “IAM & Admin” option, not any of its suboptions:



And the list of users of the project appears:

IAM

+ ADD

- REMOVE

PERMISSIONS

RECOMMENDATIONS HISTORY

Permissions for project "aidl2021project"

These permissions affect this project and all of its resources. [Learn more](#)

View By: MEMBERS ROLES

☐ Include Google-provided role grants

Filter

Filter table

<input type="checkbox"/>	Type	Member <div>↑</div>	Name	Role	Analyzed permissions (excess/total)	Inheritance
<input type="checkbox"/>		602576452010-compute@developer.gserviceaccount.com	Compute Engine default service account	Editor	<div>?</div>	<div></div>
<input type="checkbox"/>		602576452010@cloudservices.gserviceaccount.com	Google APIs Service Agent <div>?</div>	Editor	<div>?</div>	<div></div>
<input type="checkbox"/>		diegotascon@gmail.com	Diego Tascón Tello	Owner	<div>?</div>	<div></div>

I pressed the Add button above:

Add members, roles to "aidl2021project" project

Enter one or more members below. Then select a role for these members to grant them access to your resources. Multiple roles allowed. [Learn more](#)

New members

?

Must select at least one member to add

Select a role

Condition

[Add condition](#)



+ ADD ANOTHER ROLE

☐ Send notification email

SAVE

CANCEL

I write the gmail addresses of my colleagues and grant them an editor role:

Add members, roles to "aidl2021project" project

Enter one or more members below. Then select a role for these members to grant them access to your resources. Multiple roles allowed. [Learn more](#)

New members

luisa.fleta@gmail.com ✕

dariocortizo@gmail.com ✕



Role

Editor ▼

Condition

[Add condition](#)



Edit access to all resources.

[+ ADD ANOTHER ROLE](#)

☒ Send notification email

This email will inform members that you've granted them access to this role for "aidl2021project"

SAVE

CANCEL

Pressing "Save":

Permissions for project "aidl2021project"

These permissions affect this project and all of its resources. [Learn more](#)

View By: [MEMBERS](#) [ROLES](#)

Filter Filter table

<input type="checkbox"/>	Type	Member ↑	Name	Role
<input type="checkbox"/>		602576452010-compute@developer.gserviceaccount.com	Compute Engine default service account	Editor
<input type="checkbox"/>		602576452010@cloudservices.gserviceaccount.com	Google APIs Service Agent ?	Editor
<input type="checkbox"/>		dariocortizo@gmail.com		Editor
<input type="checkbox"/>		diegotascon@gmail.com	Diego Tascón Tello	Owner
<input type="checkbox"/>		luisa.fleta@gmail.com		Editor

Setting a budget alarm

<https://cloud.google.com/billing/docs/how-to/budgets>

In the main menu I select Billing and the billing console appears:

The screenshot displays the Google Cloud Billing console interface. The top navigation bar includes the Google Cloud Platform logo, a search bar, and user account information. The left sidebar lists various billing-related options, with 'Billing' selected. The main content area is titled 'Overview' and shows the 'BILLING ACCOUNT OVERVIEW' tab. It features two primary sections: 'Current month' and 'Cost trend'. The 'Current month' section displays the period 'February 1 – 8, 2021' and shows a 'Month-to-date total cost' of €0.00, along with an 'End-of-month total cost (forecasted)' of €0.00, noting that there is not enough historical data for project cost. A 'View report' link is provided. The 'Cost trend' section shows the period 'February 1, 2020 – February 28, 2021' and an 'Average monthly total cost' of €0.00. On the right side, there are three informational panels: 'Billing account' (My Billing Account, 01DE8D-BBB2CF-8A236C), 'Organization' (No organization), 'Billing health checks' (0 critical, 1 warning, 1 success), and 'Promotional credits' (€247.94 remaining out of €248.41).

Billing

Overview My Billing Account ▼

BILLING ACCOUNT OVERVIEW PAYMENT OVERVIEW

Current month
February 1 – 8, 2021

Month-to-date total cost ⓘ
€0.00

End-of-month total cost (forecasted) ⓘ
Not enough historical data to project cost

→ View report

Cost trend
February 1, 2020 – February 28, 2021

Average monthly total cost
€0.00

Billing account [Manage](#)
My Billing Account, 01DE8D-BBB2CF-8A236C

Organization
No organization

Billing health checks ^

Check out your account health results to avoid common billing-related issues and adopt our best practice recommendations. [Learn more](#)

! 0 💡 1 ✓ 1

→ View all health checks

Promotional credits ⓘ

€247.94
Remaining credits
Out of €248.41

Remaining credits
€247.94 Free Trial

In the left menu, I select “Budgets & alerts”:

Billing

Budgets & alerts

Avoid surprises on your bill by creating budgets to monitor all your Google Cloud charges in one place. After you've set a budget, you can create budget alerts to email billing admins and users when charges exceed a certain amount.

[CREATE BUDGET](#)

I press "Create budget":

1 **Scope** — 2 Amount — 3 Actions

A budget enables you to track your actual spend against your planned spend.

Name *

AIDL2021 budget

A budget can be scoped to focus on a specific set of resources.

Projects

All projects (1)

Services

All services (1542)

Labels ?

Select the key and value of the label you want to filter.

Credits

Selected credits are applied to the total cost. Budget tracks the total cost minus any applicable selected credits

☒ Discounts ?

☒ Promotions and others ?

Cost trend

February 1, 2020
– February 28,
2021

Apr Sep Jan

● Actual cost

[→ View report](#)

NEXT

CANCEL

After writing down the name, I press "Next" (it doesn't allow me to select just one project, so I left the scopes as they came by default):

✓ Scope — 2 Amount —

3 Actions

Set a monthly budget amount. Budgets begin on the first of the month, and reset at the beginning of each month.

Budget type

Specified amount ▼

A fixed amount that your spend will be compared against.

Target amount

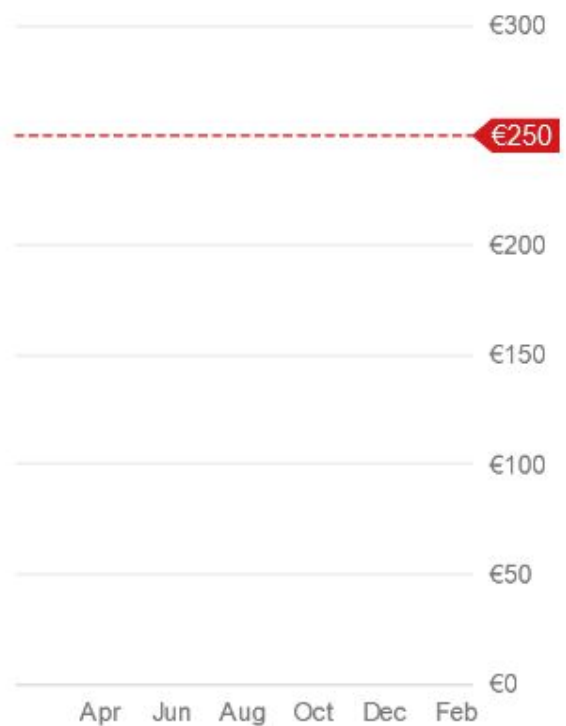
€ 250

NEXT

CANCEL

Cost trend

February 1, 2020 – February 28, 2021



● Actual cost

I set that it triggers an alarm when 250€ or more are spent in a single month. I press Next:

Set alert threshold rules

Send email alert notifications after the actual or forecasted spend exceeds a percent of the budget or a specified amount. [Learn more.](#)

Percent of budget	Amount	Trigger on [?]
50 %	€ 125	Actual ▼
90 %	€ 225	Actual ▼
100 %	€ 250	Actual ▼

[+ ADD THRESHOLD](#)

Manage notifications

Send email alert notifications to billing admins and users of this billing account.

☒ Email alerts to billing admins and users

Allow Monitoring email notification channels to receive alerts when this budget reaches thresholds.

☐ Link Monitoring email notification channels to this budget
Select a Monitoring workspace and maximum 5 Monitoring email notification channels.

Use Pub/Sub notifications to programmatically receive spend updates about this budget.

☐ Connect a Pub/Sub topic to this budget
Select a project and Pub/Sub topic. Anyone who can view this budget will also be able to view the project ID and the topic name. It may not be possible to add a Pub/Sub topic if it belongs to an organization that has [domain restricted sharing](#) enabled.

FINISH

CANCEL

Cost trend

February 1, 2020 – February 28, 2021



● Actual cost

[→ View report](#)

The already set thresholds are ok to me, so I just press Finish:

Budgets & alerts

My Billing Account ▼

[+ CREATE BUDGET](#)

[DELETE](#)

Budgets track expenses within a Google Cloud Platform project or billing account. Your budget can be a specified amount or based on previous spend. You can set alerts to notify billing admins and users when a budget goes over a specified amount.

i Setting a budget does not cap resource or API consumption. [Learn more.](#)

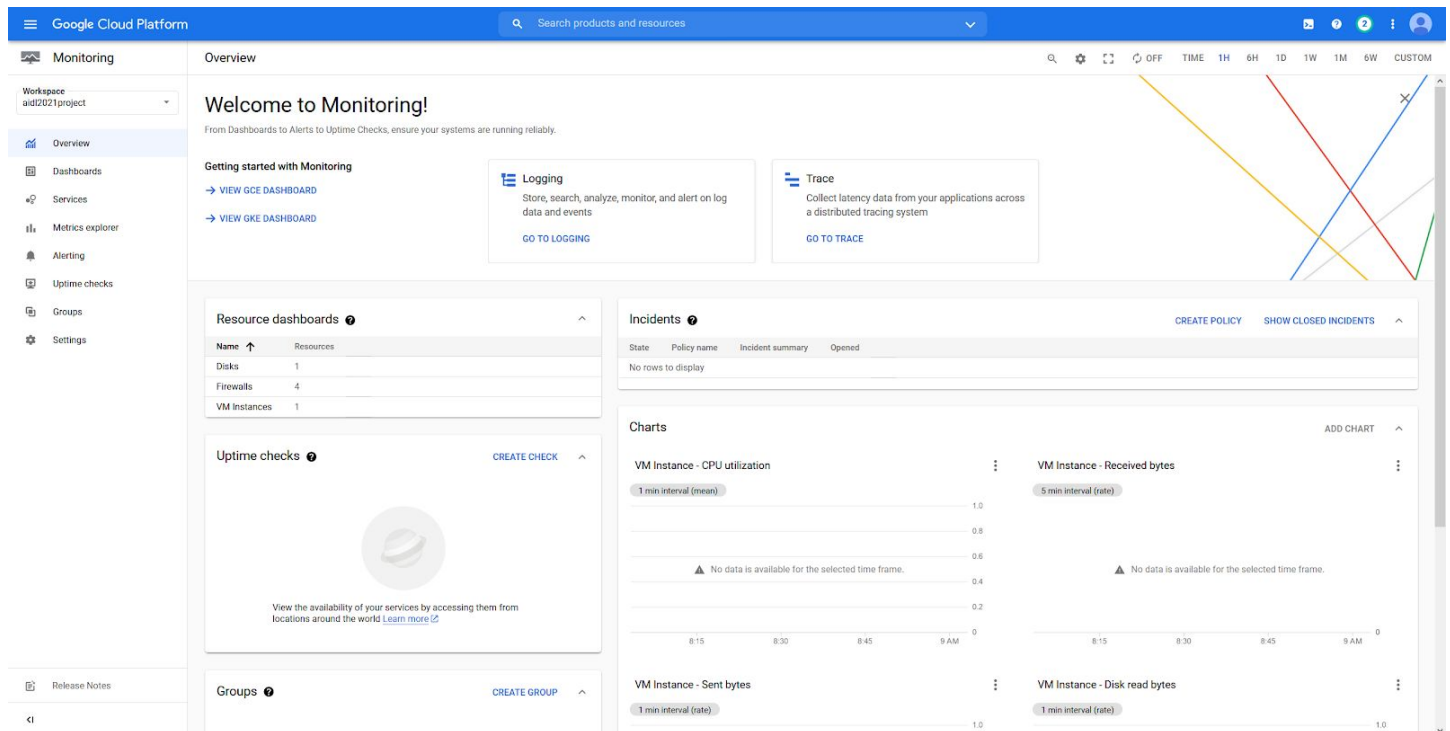
<input type="checkbox"/>	Budget name ↑	Budget type	Applies to	Trigger alerts at	Spend and budget amount
<input type="checkbox"/>	AIDL2021 budget	Specified amount	This billing accor ▼	50%, 90%, and 100%	<div></div> €0.00 / €250.00 Includes -€0.47 credit

Adding other team members to the receiving alerts

To let other team members receiving the budget alerts, a Monitoring Workspace must be created:

https://cloud.google.com/monitoring/workspaces/manage?_ga=2.205456150.-78066755.1601881399#create-quickly

I go to “Monitoring” in the main menu:



As stated in <https://cloud.google.com/monitoring/workspaces/create#single-project-workspace>, a Workspace for the project is automatically created (see upper left corner). I press “Alerting” on the left menu to set email notifications:

Google Cloud Platform

Search products and resources

2

Monitoring

Workspace
aidl2021project

Overview

Dashboards

Services

Metrics explorer

Alerting

Uptime checks

Groups

Settings

Release Notes

<1

Notification channels

This page lists the supported notification channel types and explains how to configure them. You must configure most notification channels before you use them in alerting policies. [Learn more](#)

Mobile Devices (via Cloud Mobile App)

ADD NEW

Monitoring now supports both user-scoped and device-scoped Cloud Console Mobile notification channels

LEARN MORE

DISMISS

No mobile devices configured

PagerDuty Services

ADD NEW

No PagerDuty services configured

PagerDuty Sync

ADD NEW

No PagerDuty Sync channels configured

Slack

ADD NEW

No Slack channels configured

Webhooks

ADD NEW

No webhook channels configured

Email

ADD NEW

No emails configured

SMS

ADD NEW

No SMS channels configured

Cloud Pub/Sub

BETA

ADD NEW

No Cloud Pub/Sub channels configured

Campfire Rooms (deprecated)

No Campfire rooms configured

I click on the “Add new” link for email:

Create Email Channel

Email addresses can be set to receive notifications from your alerting when a new incident is created.

Email Address *

Value is required.

Display Name *

CANCEL SAVE

I add the mails of my team mates. Then I com back to the “Budgets & Alerts” menu option under Billing:

Billing

Overview

Reports

Cost table

Cost breakdown

Commitments

Commitment analysis

Budgets & alerts

Billing export

Budgets & alerts

My Billing Account

CREATE BUDGET

DELETE

Budgets track expenses within a Google Cloud Platform project or billing account. Your budget can be a specified amount or based on previous spend. You can set alerts to notify billing admins and users when a budget goes over a specified amount.

Setting a budget does not cap resource or API consumption. [Learn more.](#)

<input type="checkbox"/>	Budget name <div></div>	Budget type	Applies to	Trigger alerts at	Spend and budget amount
<input type="checkbox"/>	AIDL2021 budget	Specified amount	This billing accoi <div></div>	50%, 90%, and 100%	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div> <div>€0.00 / €250.00</div> <div>Includes -€0.47 credit</div>

I click on the “AIDL2021 budget” to edit the alert:

Manage notifications

Send email alert notifications to billing admins and users of this billing account.

☒ Email alerts to billing admins and users

Allow Monitoring email notification channels to receive alerts when this budget reaches thresholds.

☐ Link Monitoring email notification channels to this budget

Select a Monitoring workspace and maximum 5 Monitoring email notification channels.

Use Pub/Sub notifications to programmatically receive spend updates about this budget.

☐ Connect a Pub/Sub topic to this budget

Select a project and Pub/Sub topic. Anyone who can view this budget will also be able to view the project ID and the topic name. It may not be possible to add a Pub/Sub topic if it belongs to an organization that has [domain restricted sharing](#) enabled.

SAVE

CANCEL

In the bottom “Manage notifications” section I check “Link Monitoring email notification channels to this budget. Two additional fields appear. I select the aidl2021project as workspace and my team mates as notification channels:

Manage notifications

Send email alert notifications to billing admins and users of this billing account.

☒ Email alerts to billing admins and users

Allow Monitoring email notification channels to receive alerts when this budget reaches thresholds.

☒ Link Monitoring email notification channels to this budget

Select a Monitoring workspace and maximum 5 Monitoring email notification channels.

Select workspace

aidl2021project (aidl2021project) ▼

Notification Channels

Luisa Fleta and Darío Cortizo ▼

Use Pub/Sub notifications to programmatically receive spend updates about this budget.

☐ Connect a Pub/Sub topic to this budget

Select a project and Pub/Sub topic. Anyone who can view this budget will also be able to view the project ID and the topic name. It may not be possible to add a Pub/Sub topic if it belongs to an organization that has [domain restricted sharing](#) enabled.

SAVE

CANCEL

I press "Save" to finish the setup.

Using the instance

Copying files

The gcloud command line tool can be used to copy files. My first try with gcloud compute scp failed:

```

diego@EstudioVM:~/10-Project/ldd-pix2pix$ gcloud compute scp *.py
aidl2021-vm:/home/diegotascon
WARNING: The private SSH key file for gcloud does not exist.
WARNING: The public SSH key file for gcloud does not exist.
WARNING: You do not have an SSH key for gcloud.
WARNING: SSH keygen will be executed to generate a key.
Generating public/private rsa key pair.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/diego/.ssh/google_compute_engine
Your public key has been saved in /home/diego/.ssh/google_compute_engine.pub
The key fingerprint is:
SHA256:HmEUJ+FjWaT43Cf+UDFxKlyty+qLybeFFfAOiOAL3tc diego@EstudioVM
The key's randomart image is:
+---[RSA 3072]-----+
|      .      =+= o..  |
|      . .  = O + +.  |
|      . . o X + *.   |
|      . o . * + +. +  |
|      . o . E o.=.   |
|      . . o *o      |
|      . +..|         |
|      . oo+         |
|      +o+o.|         |
+-----[SHA256]-----+
Updating project ssh metadata...:Updated
[https://www.googleapis.com/compute/v1/projects/aidl2021project].
Updating project ssh metadata...done.
Waiting for SSH key to propagate.
Warning: Permanently added 'compute.4301326556626734139' (ECDSA) to the list of
known hosts.
scp: /home/diegotascon/arguments.py: Permission denied
scp: /home/diegotascon/dataset.py: Permission denied
scp: /home/diegotascon/libs.py: Permission denied
scp: /home/diegotascon/network.py: Permission denied
scp: /home/diegotascon/test.py: Permission denied
scp: /home/diegotascon/train.py: Permission denied
scp: /home/diegotascon/transform-dataset.py: Permission denied
scp: /home/diegotascon/transform-dataset-v1.0.py: Permission denied
scp: /home/diegotascon/transform.py: Permission denied
scp: /home/diegotascon/utils.py: Permission denied
ERROR: (gcloud.compute.scp) [/usr/bin/scp] exited with return code [1].

```

Thanks to

<https://stackoverflow.com/questions/27807018/gcloud-compute-copy-files-permission-denied-when-copying-files> I find a solution:

```

diego@EstudioVM:~/10-Project/ldd-pix2pix$ gcloud compute scp *.py
diegotascon@aidl2021-vm:/home/diegotascon
Updating project ssh metadata...:Updated
[https://www.googleapis.com/compute/v1/projects/aidl2021project].
Updating project ssh metadata...done.

```

Waiting for SSH key to propagate.

arguments.py	100%	5819	33.9KB/s	00:00
dataset.py	100%	4946	28.8KB/s	00:00
libs.py	100%	815	4.8KB/s	00:00
network.py	100%	13KB	76.6KB/s	00:00
test.py	100%	0	0.0KB/s	00:00
train.py	100%	8774	51.2KB/s	00:00
transform-dataset.py	100%	8339	49.1KB/s	00:00
transform-dataset-v1.0.py	100%	6229	36.2KB/s	00:00
transform.py	100%	0	0.0KB/s	00:00
utils.py	100%	8880	51.8KB/s	00:00

Accessing remotely to the instance with gcloud

<https://cloud.google.com/sdk/gcloud/reference/compute/ssh>

```
diego@EstudioVM:~/10-Project/ldd-pix2pix$ gcloud compute ssh  
diegotascon@aidl2021-vm
```

```
=====
```

Welcome to the Google Deep Learning VM

```
=====
```

Version: pytorch-gpu.1-7.mnighlty-2021-01-20-debian-10-test
Based on: Debian GNU/Linux 10 (buster) (GNU/Linux 4.19.0-13-cloud-amd64
x86_64\n)

Resources:

- * Google Deep Learning Platform StackOverflow:
<https://stackoverflow.com/questions/tagged/google-dl-platform>
- * Google Cloud Documentation: <https://cloud.google.com/deep-learning-vm>
- * Google Group: <https://groups.google.com/forum/#!forum/google-dl-platform>

To reinstall Nvidia driver (if needed) run:

```
sudo /opt/deeplearning/install-driver.sh
```

```
Linux aidl2021-vm 4.19.0-13-cloud-amd64 #1 SMP Debian 4.19.160-2 (2020-11-28)  
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.

Last login: Sat Feb 6 15:23:01 2021 from 35.235.241.65

Starting and stopping remotely the instance

<https://cloud.google.com/sdk/gcloud/reference/compute/instances/stop>

You can just “sudo shutdown now” if you’re connected or use gcloud compute instances stop:

<https://cloud.google.com/sdk/gcloud/reference/compute/instances/stop>

Python installation

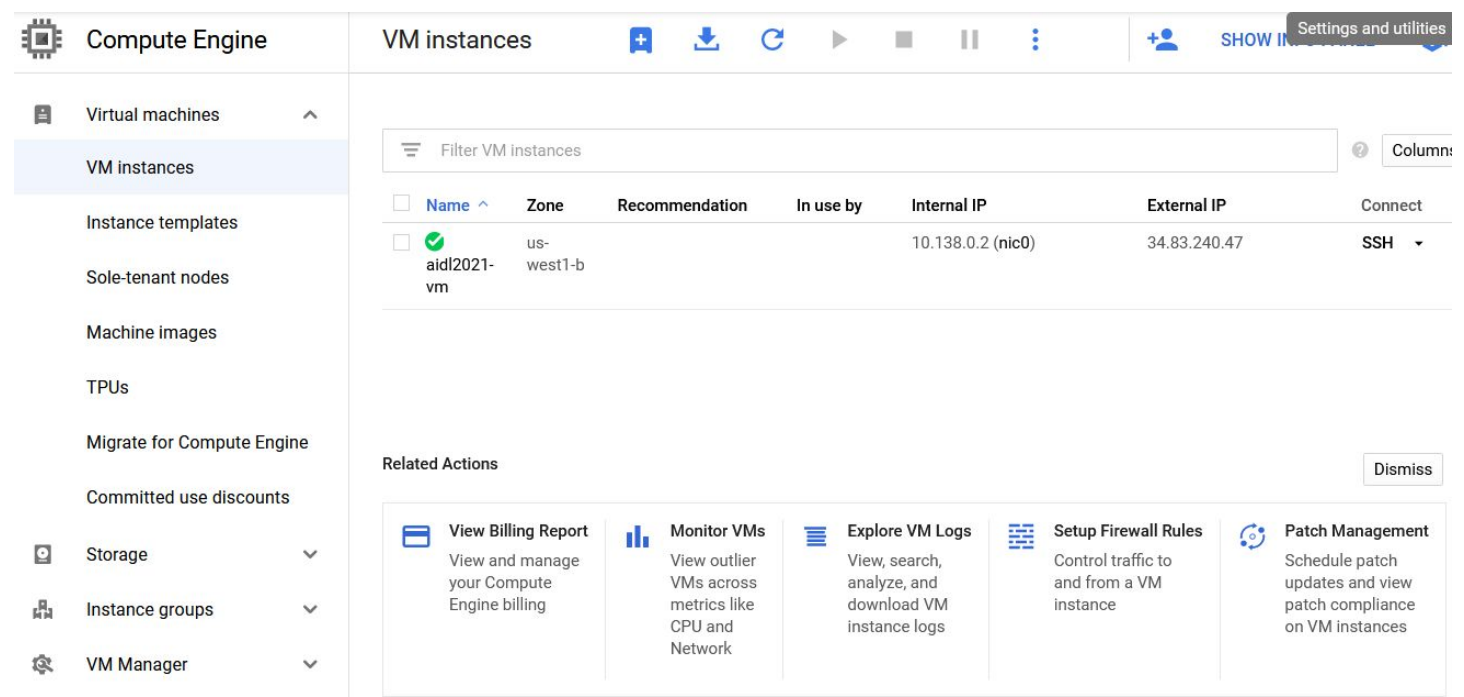
The instance comes with python and many modules already installed. For the project I had to additionally install:

- tensorboard
-

Minor settings

Changing firewall rules to allow external connections

Accessing Jupyter or Tensorboard requires allowing external connections to the instance. To modify the firewall rules, I went to the Compute Engine console:



The screenshot shows the Google Cloud Compute Engine console. On the left is a navigation menu with options like Virtual machines, VM instances, Instance templates, Sole-tenant nodes, Machine images, TPUs, Migrate for Compute Engine, Committed use discounts, Storage, Instance groups, and VM Manager. The main panel is titled 'VM instances' and contains a table of instances. Below the table is a 'Related Actions' section with five links: View Billing Report, Monitor VMs, Explore VM Logs, Setup Firewall Rules, and Patch Management.

Name	Zone	Recommendation	In use by	Internal IP	External IP	Connect
aidl2021-vm	us-west1-b			10.138.0.2 (nic0)	34.83.240.47	SSH

Related Actions

- View Billing Report**: View and manage your Compute Engine billing
- Monitor VMs**: View outlier VMs across metrics like CPU and Network
- Explore VM Logs**: View, search, analyze, and download VM instance logs
- Setup Firewall Rules**: Control traffic to and from a VM instance
- Patch Management**: Schedule patch updates and view patch compliance on VM instances

I click on the “Setup Firewall Rules” link:

VPC network

VPC networks

External IP addresses

Firewall

Routes

VPC network peering

Shared VPC

Serverless VPC access

Packet mirroring

Firewall

CREATE FIREWALL RULE

REFRESH

CONFIGURE LOGS

DELETE

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](#).

Filter

Filter table

<input type="checkbox"/>	Name	Type	Targets	Filters	Protocols / ports	Action	Priority	Network	Logs	Hit count	Last hit	Insights
<input type="checkbox"/>	default-allow-icmp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	icmp	Allow	65534	default	Off	—	—	
<input type="checkbox"/>	default-allow-internal	Ingress	Apply to all	IP ranges: 10.0.0.0/8	tcp:0-65535 udp:0-65535 icmp	Allow	65534	default	Off	—	—	
<input type="checkbox"/>	default-allow-rdp	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:3389	Allow	65534	default	Off	—	—	
<input type="checkbox"/>	default-allow-ssh	Ingress	Apply to all	IP ranges: 0.0.0.0/0	tcp:22	Allow	65534	default	Off	—	—	

I pressed on “Create firewall rule”:

Create a firewall rule

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

Name *

tensorboard



Lowercase letters, numbers, hyphens allowed

Description

Allows access to the tensorboard server running on aidl2021-vm



Logs

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

☐ On

☒ Off

Network *

default




Priority *

1000

[CHECK PRIORITY OF OTHER FIREWALL RULES](#)



Priority can be 0 - 65535

Direction of traffic 

☒ Ingress

☐ Egress

Action on match 

☒ Allow

☐ Deny

Direction of traffic ?

- ☒ Ingress
- ☐ Egress

Action on match ?

- ☒ Allow
- ☐ Deny

Targets

Specified target tags



Target tags *

aidl2021-vm

Source filter

IP ranges



Source IP 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 :

6006



udp :

all



Other protocols

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

▼ DISABLE RULE

CREATE

CANCEL

I filled in the gaps and I pressed “Create”.

Firewall

CREATE FIREWALL RULE

REFRESH

CONFIGURE LOGS

DELETE

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](#).

Filter

Filter table

Name

Type

Targets

Filters

Protocols / ports

Action

Priority

Network

↑

Logs

Hit count

Last hit

Insights

tensorboard

Ingress

aidl2021-vrr

IP ranges: 0.0.0.0/0

tcp:6006

Allow

1000

default

Off

—

—

default-allow-icmp

Ingress

Apply to all

IP ranges: 0.0.0.0/0

icmp

Allow

65534

default

Off

—

—

default-allow-internal

Ingress

Apply to all

IP ranges: 10.0.0.0/8

tcp:0-65535
udp:0-65535
icmp

Allow

65534

default

Off

—

—

default-allow-rdp

Ingress

Apply to all

IP ranges: 0.0.0.0/0

tcp:3389

Allow

65534

default

Off

—

—

default-allow-ssh

Ingress

Apply to all

IP ranges: 0.0.0.0/0

tcp:22

Allow

65534

default

Off

—

—

The tensorboard rule appears. That didn't work, so I edited the rule to allow any target in the network:

Action on match

Allow

Targets

All instances in the network

And that allowed me to access Tensorboard in the instance.