

# Setting up Jupyter Notebook in Google Cloud

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## 1 Why the Google Cloud?

Google Cloud is a platform that provides data and large data storage services, artificial Intelligence processes, networks and other applications providing high data security in Google. In this document, an instance will be created in the databases of Google Cloud and then, we will proceed to the installation of the interactive web environment of code execution "Jupyter Notebook" in order to be able to interact with the previous instance by Python language.

## 2 Steps for creating a new instance of Compute Engine

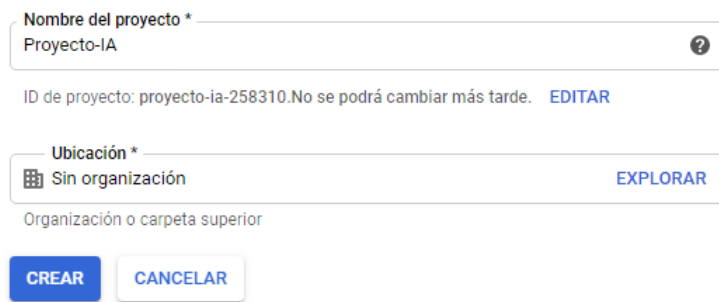
Compute Engine is a Google Cloud service which is use to create an instance in Google databases. In order to do this we will follow these steps:

### 2.1 Step 1: Create a free Google Cloud account

To access Google Cloud services, you must enter your payment information and verify your account with your Google mail.

### 2.2 Step 2: Creating a new project

Once inside Google Cloud Plataform, click on "Select a Project" and then on 'New Project" (as shown in Image 1).




Nombre del proyecto \*

Proyecto-IA

ID de proyecto: proyecto-ia-258310.No se podrá cambiar más tarde. [EDITAR](#)

Ubicación \*

 Sin organización [EXPLORAR](#)

Organización o carpeta superior

[CREAR](#) [CANCELAR](#)

Image1

### 2.3 Step 3: Creating a virtual machine

To create the virtual machine in the Google Cloud databases, we go to the 3 lines at the top of the front of Google Cloud Plataform and choose the option "Compute Engine" (as shown in Image 2).

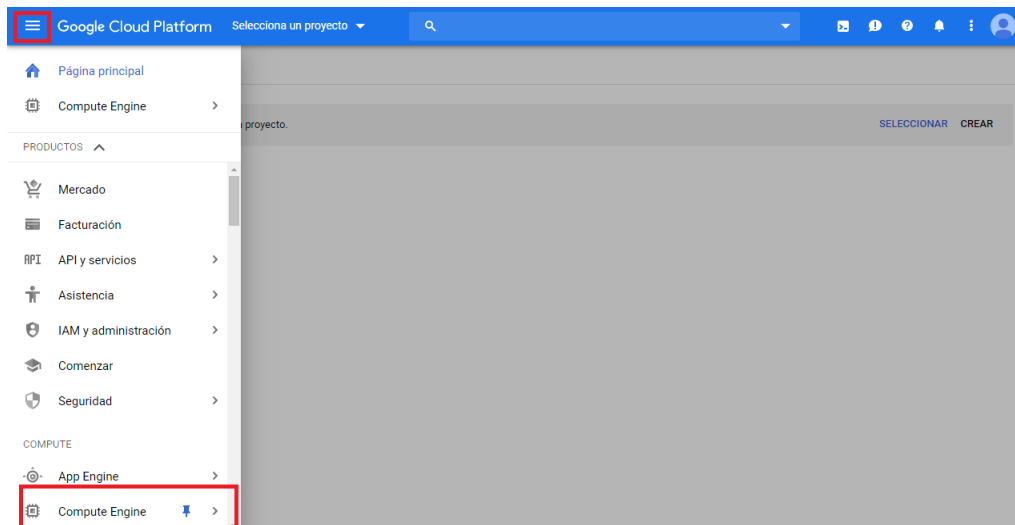


Image2

Once inside "Compute Engine", you will click on the part to create and in this case we will make a virtual machine with the following options (As shown in Image3):

- Nombre/Name: vmbeta
- Región/Region: us-central1 (Iowa)
- Zona/Area: us-central1-a
- Configuración de la máquina/Configuration of the machine:
  - Familia de máquinas/Family of machines: Uso general
  - Serie/Serie: N1
  - Tipo de máquina/Type of the machine: n1-standard-4 (4CPU virtuales, 15 GB)
  - Disco de arranque/Boot disk: Debian GNU/Linux 9 (stretch)
  - Identidad y acceso a la API/Identity and access to the API: Permitir el acceso total a todas las API de Cloud
  - Firewall: Permitir el tráfico HTTP y HTTPS

Google Cloud Platform

Crear una instancia

Nombre

vmbeta

Name can't be changed once the instancia is created

Región

us-central1 (Iowa)

Zona

us-central1-a

Configuración de la máquina

Familia de máquinas

Uso general

Memoria optimizada

Tipos de máquinas para cargas de trabajo comunes, optimizados en función del costo y la flexibilidad

Series

N1

Con la tecnología de la plataforma de CPU Intel Skylake o uno de sus predecesores

Tipo de máquina

n1-standard-4 (4 CPU virtuales, 15 GB de memoria)

CPU virtual

4

Memoria

15 GB

Plataforma de CPU y GPU

Contenedor

☐

Implementa una imagen de contenedor en esta instancia de VM. [Más información](#)

Disco de arranque

Disco persistente estándar de 10 GB nuevo

Imagen

Debian GNU/Linux 9 (stretch)

Cambiar

Identidad y acceso a la API

Cuenta de servicio

Compute Engine default service account

Alcance del acceso

☐ Permitir el acceso predeterminado

☒ Permitir el acceso total a todas las API de Cloud

☐ Configurar el acceso para cada API

Firewall

Agregar etiquetas y reglas de firewall para permitir un tráfico de red determinado desde Internet

☒ Permitir el tráfico HTTP

☒ Permitir el tráfico HTTPS

Administración, seguridad, discos, redes, instancia única

Se usará tu crédito de la prueba gratuita para esta instancia de VM.

[Nivel gratuito de GCP](#)

Image3

After configuring the options, we will click on "create" and it will be ready to run.

4

## 2.4 Step 4: Setting up "VPC Network"

In this section we will put the external network as static, in order to facilitate access to the virtual machine. Before setting up the "VPC Network", we will turn off the virtual machine as shown in Image4.



Image4

Now we go to the top left of the screen, on the 3 lines and choose the option "VPC Network" and select the option "External IP Addresses" (as shown in Image 5).

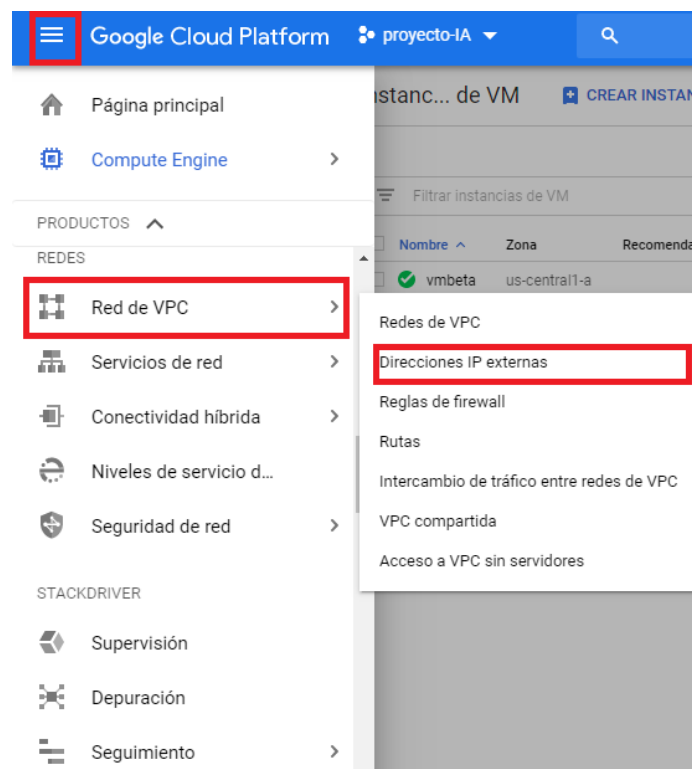


Image5

Change the ephemeral type to static, and set a name for it (as shown in Image 6/7 respectively).

<input type="checkbox"/>	Nombre	Dirección externa	Región	Tipo ▾	Versión	En uso por	Nivel de red ?	Etiquetas
<input type="checkbox"/>	vmbetaip	34.68.187.197	us-central1	Estática	IPv4	Instancia de VM vmbeta (Zona us-central1-a)	Premium	Cambiar

Image6

### Reservar una nueva dirección IP estática

Name can't be changed once the reserva is created

Descripción (Opcional)

CANCELAR RESERVAR

Image7

## 2.5 Step 5: Setting up "Firewall Rule Details"

In this section we will configure the Firewall, for that we go to the top left where the options appear in the 3 lines, we will look for the section of "Network of VPC" and select "Firewall Rule" (As seen in Image8).

Reglas de firewall

+

CREAR REGLA DE FIREWALL

ACTUALIZAR

BORRAR

Las reglas de firewall controlan el tráfico saliente o entrante a una instancia. De manera predeterminada, se bloquea el tráfico que entra desde el exterior de tu red.  
[Más información](#)

Nota: Los firewalls de App Engine se administran [aquí](#).

Filtrar recursos

Columnas ▾

<input type="checkbox"/>	Nombre	Tipo	Destinos	Filtros	Protocolos/puertos	Acción	Prioridad	Red <sup>^</sup>
<input type="checkbox"/>	default-allow-http	Entrada	http-server	Intervalos de IP: 0.0.0.0/0	tcp:80	Permitir	1000	default
<input type="checkbox"/>	default-allow-https	Entrada	https-server	Intervalos de IP: 0.0.0.0/0	tcp:443	Permitir	1000	default
<input type="checkbox"/>	default-allow-icmp	Entrada	Aplicar a todas	Intervalos de IP: 0.0.0.0/0	icmp	Permitir	65534	default
<input type="checkbox"/>	default-allow-internal	Entrada	Aplicar a todas	Intervalos de IP: 10.128.0.0/9	tcp:0-65535 udp:0-65535 icmp	Permitir	65534	default
<input type="checkbox"/>	default-allow-rdp	Entrada	Aplicar a todas	Intervalos de IP: 0.0.0.0/0	tcp:3389	Permitir	65534	default
<input type="checkbox"/>	default-allow-ssh	Entrada	Aplicar a todas	Intervalos de IP: 0.0.0.0/0	tcp:22	Permitir	65534	default

Image8

We now configure "Firewall Rule" with the following:

- Nombre/Name: vmbetarulefirewall
- Registros/Records: Desactivado
- Dirección del tráfico/Traffic address: Entrada
- Rangos de IP de origen/Source IP ranges: 0.0.0.0/0
- Protocolos y puertos/Protocols and ports: tcp(27)

Crear una regla de firewall

Las reglas de firewall controlan el tráfico saliente o entrante a una instancia. De manera predeterminada, se bloquea el tráfico que entra desde el exterior de tu red.  
[Más información](#)

Nombre

vmbetarulefirewall

Descripción (Opcional)

Registros

Si activas los registros del firewall, se pueden generar una gran cantidad de registros y aumentar los costos en Stackdriver. [Más información](#)

☐ Activado

☒ Desactivado

Red

default

Prioridad

La prioridad puede ser de 0 a 65535

1000

Dirección del tráfico

☒ Entrada

☐ Salida

Acción en caso de coincidencia

☒ Permitir

☐ Rechazar

Destinos

Etiquetas de destino especificadas

Etiquetas de destino

Filtro de fuente

Rangos de IP

Rangos de IP de origen

0.0.0.0/0

Segundo filtro de fuente

No hay recursos para mostrar

Protocolos y puertos

☐ Permitir todo

☒ Puertos y protocolos especificados

☒ tcp : 27

☐ udp : todos

☐ Otros protocolos

protocolos, separados por coma, p. ej., ah, sctp

Inhabilitar regla

Crear

Cancelar

Image9

Now we can click "Save", then we go to "Compute Engine" and start the virtual machine (as shown in Image9).





Image10

## 2.6 Step 6: Installing "Jupyter Notebook"

Start the CMD of the virtual machine by clicking on "SSH" (as shown in Image 10/11 respectively)

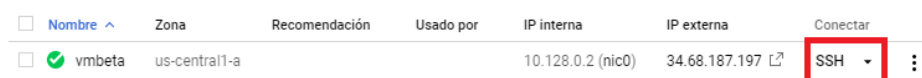


Image11

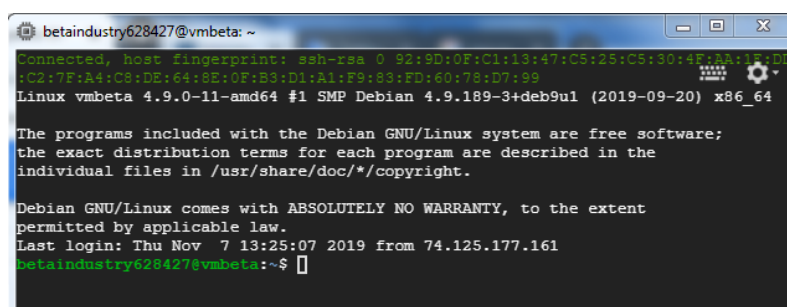


Image12

Now we proceed to install Anaconda3 in the virtual machine by means of command lines, for that we will be guided by the documentation provided by the Anaconda3 website that you will find in the following link:

- <https://docs.anaconda.com/anaconda/install/linux/>

## 2.7 Step 7: Configuring the VM Service

Enter the following command line to verify if you have a Jupyter configuration file:

- `ls .jupyter jupyter_notebook_config.py`

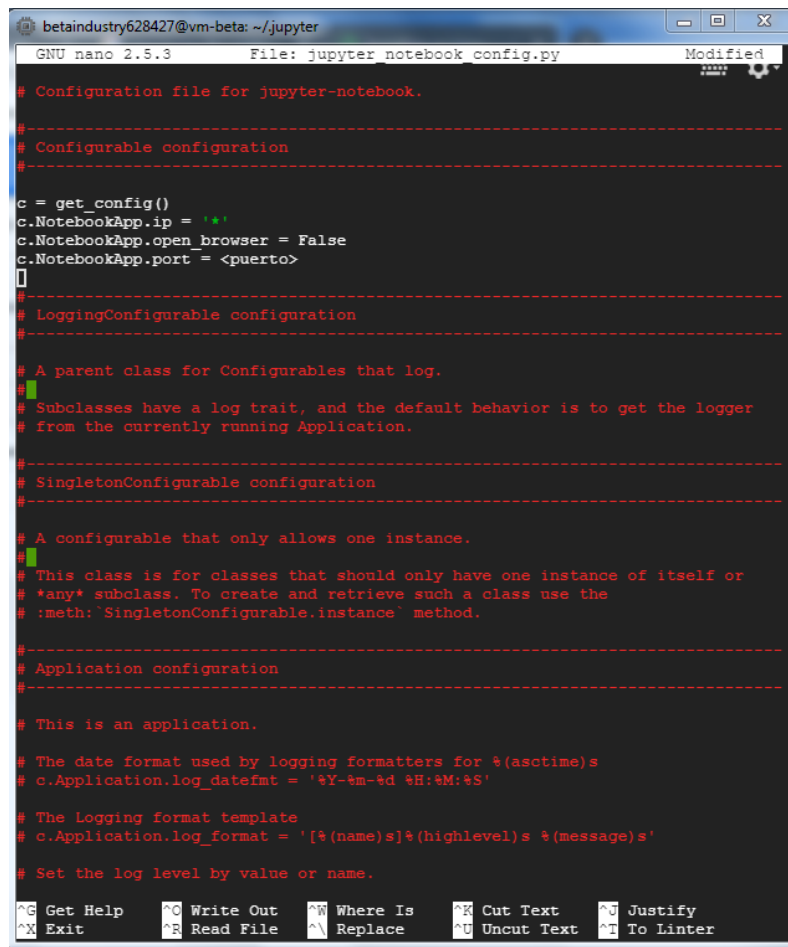
If you don't have one, do one with the following command:

- `cuaderno jupyter --generate-config/notebook jupyter --generate-config`

Once you create one, next to the nano command edit the file with the following:

- `c = get_config ()`
- `c.NotebookApp.ip = '*'`
- `c.NotebookApp.open_browser = False`
- `c.NotebookApp.port = ¡Port number¿`

Now replace `tcp` that was configured in step 5 and save the document (as shown in Image 13 ).



```
betaindustry628427@vm-beta: ~/jupyter
GNU nano 2.5.3 File: jupyter_notebook_config.py Modified

# Configuration file for jupyter-notebook.

# -----
# Configurable configuration
# -----

c = get_config()
c.NotebookApp.ip = '*'
c.NotebookApp.open_browser = False
c.NotebookApp.port = <puerto>
[]

# -----
# LoggingConfigurable configuration
# -----

# A parent class for Configurables that log.
# Subclasses have a log trait, and the default behavior is to get the logger
# from the currently running Application.

# -----
# SingletonConfigurable configuration
# -----

# A configurable that only allows one instance.
# This class is for classes that should only have one instance of itself or
# *any* subclass. To create and retrieve such a class use the
# :meth: 'SingletonConfigurable.instance' method.

# -----
# Application configuration
# -----

# This is an application.

# The date format used by logging formatters for %(asctime)s
# c.Application.log_datefmt = '%Y-%m-%d %H:%M:%S'

# The Logging format template
# c.Application.log_format = '[%(name)s]%(highlevel)s %(message)s'

# Set the log level by value or name.

^G Get Help ^O Write Out ^W Where Is ^X Cut Text ^J Justify
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^L To Linter
```

Image13

### 3 Start Jupyter Notebook

To start Jupyter Notebook in the SSH you will write the following command and the system will respond (as shown in Image14):

- `jupyter-notebook --no-browser --port = ¡PORT-NUMBER¡`

```

betaindustry628427@vm-beta:~$ cd .jupyter
betaindustry628427@vm-beta:~/.jupyter$ jupyter-notebook --no-browser --port=5000
0
[I 13:54:13.127 NotebookApp] Writing notebook server cookie secret to /run/user
/1001/jupyter/notebook_cookie_secret
[W 13:54:13.261 NotebookApp] WARNING: The notebook server is listening on all I
P addresses and not using encryption. This is not recommended.
[W 13:54:13.261 NotebookApp] WARNING: The notebook server is listening on all I
P addresses and not using authentication. This is highly insecure and not recom
mended.
[I 13:54:13.267 NotebookApp] Serving notebooks from local directory: /home/beta
industry628427/.jupyter
[I 13:54:13.267 NotebookApp] 0 active kernels
[I 13:54:13.267 NotebookApp] The Jupyter Notebook is running at: http://[all ip
addresses on your system]:5000/
[I 13:54:13.267 NotebookApp] Use Control-C to stop this server and shut down al
l kernels (twice to skip confirmation).

```

Image14

Now write in the search engine preferably the following link

- `http: // ¡External State IP Address!: ¡PORT-NUMBER¡`

Where the IP address is the one corresponding to the external of the virtual machine and the port number is set in step 5. Now pressing enter you will have access to Jupyter Notebook running on the virtual machine created on the servers of Google (As shown in Image15).

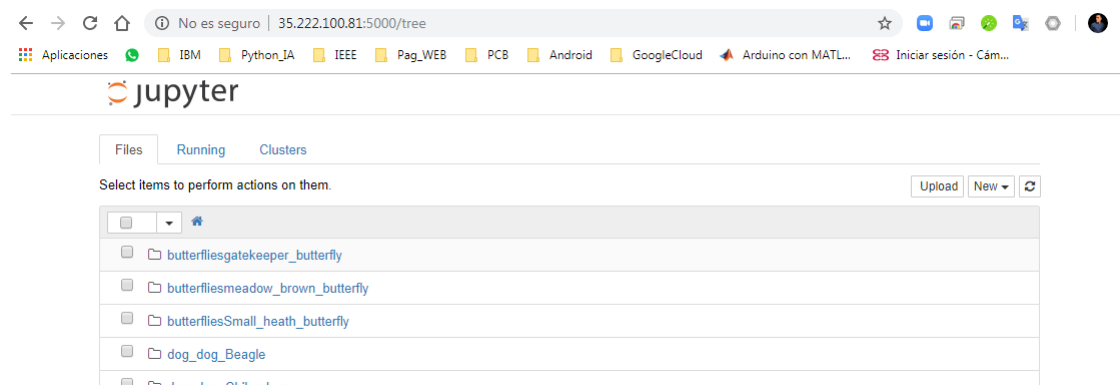


Image15