Google Cloud Tutorial

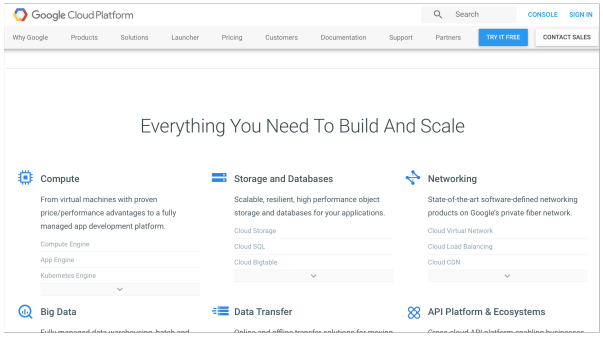
1 Create an Account for the Google Cloud Platform

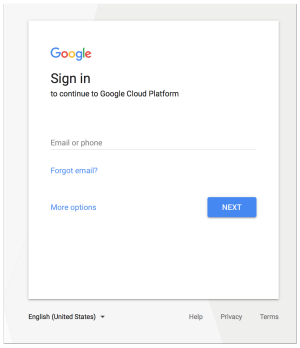
This tutorial is intended to provide you with the necessary steps of implementing the assignments and the projects using Google Cloud Platform (GCP). After you sign up for the first time, GCP gives 300 credits for free. We assume that it is enough for your project.

Attention

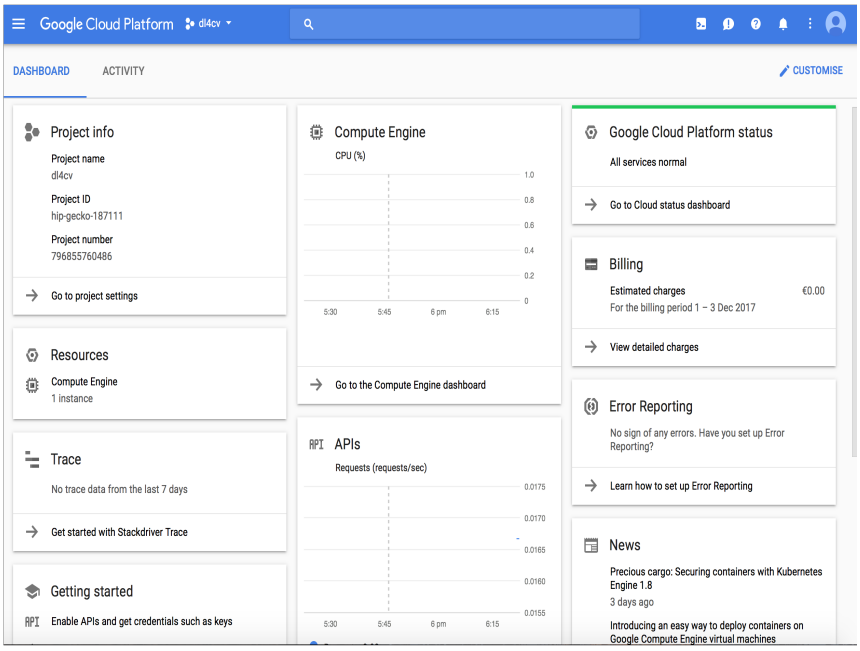
Be aware that you always have to manually stop your instances, otherwise they will continually consume your free credits. We only provide you with these guidelines but will not compensate you for any kind of additional costs. The usage of the GCP happens at your own risk!

First, if you do not have Google account, create one by going here and click on the **Compute** button. On the next page, click on the **TRY IT FREE** button. It requires you to sign up with or register a new Google account.





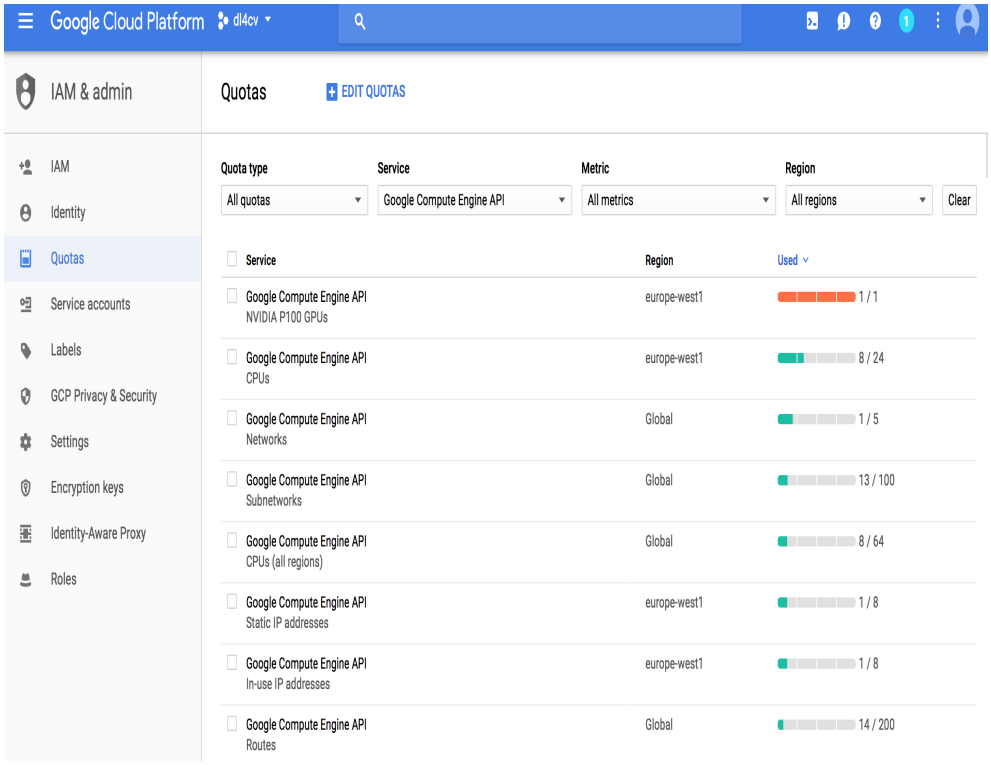
After you finish registering or signing up, click on the **Agree and continue** button. Once you have entered the information on the following page, click on the **Start my free trial** button. The next page should look like this:



2 Create a Virtual Instance with a GPU

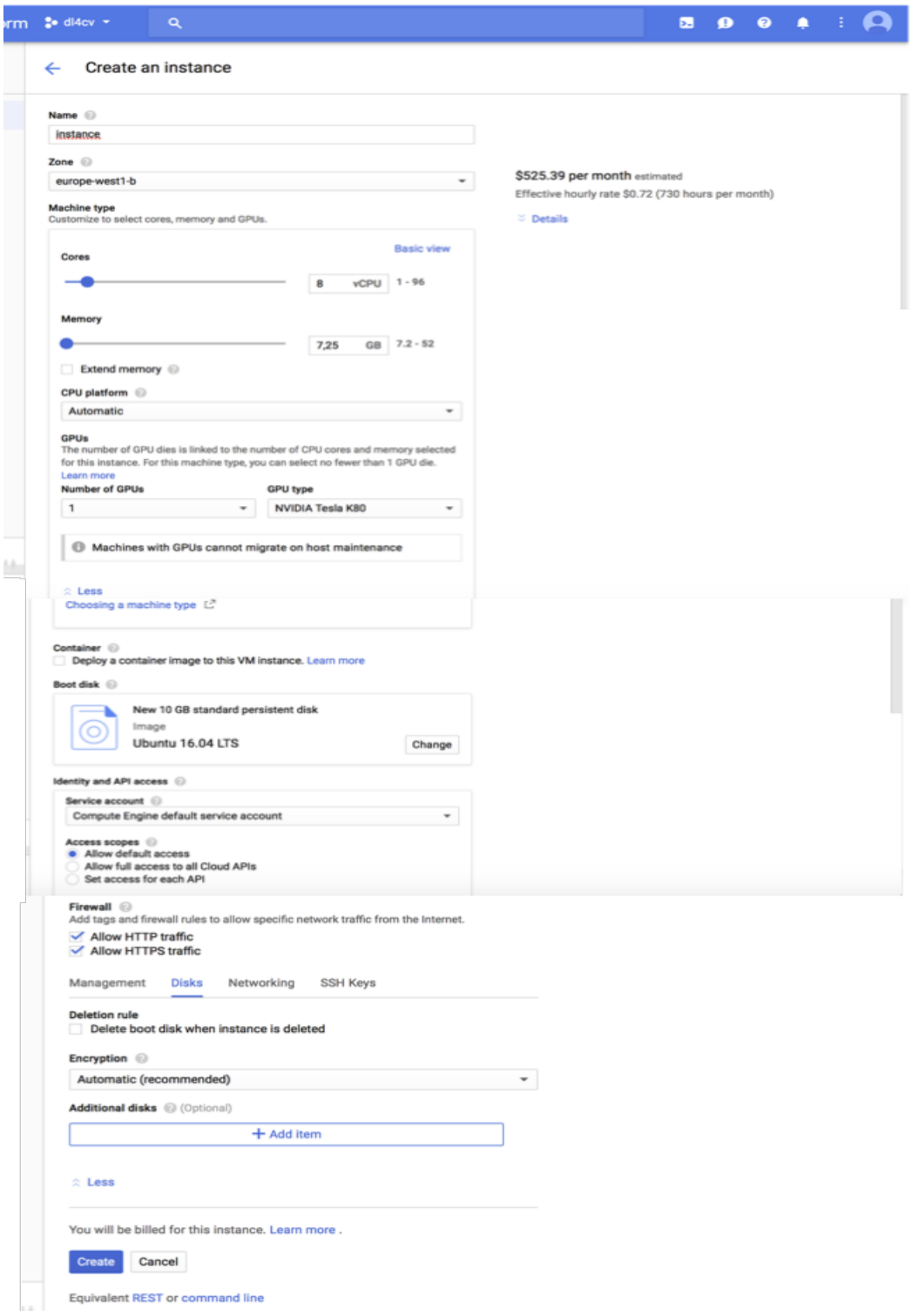
The important thing is free trial accounts do not receive GPU quota by default, you need to request a quota increase.

In order to increase your GPU quota, click on the button on the top left corner of your console (3 lines icon), click on the **IAM & Admin** entry and select the **Quotas** option. Filter the quotas by region to see only **europe-west1-b** quotas. Select the **NVIDIA Tesla K80** quota, click the **Edit Quotas** button at the th top of the page and fill the required fields of the form appearing on on the left. After that you will receive an email approving your quota increase. Once your quota is approved you can use GPUs. Be aware, that in the next step you can only create VM instances with GPUs of the same type as the GPU type of your quota. At the end your screen should look something like this:



To initiate a virtual instance, go to the button on the top left corner of your screen, click the **Compute Engine** menu and select the **VM instances** entry. On the following page, click on the **CREATE INSTANCE** button. Name your instance, and select the **europe-west1-b** zone. Under Machine Type press the **Customize** button. Pick for example **8 vCPUs** with **16 GB of memory** and set the number of **GPUs to 1**.

Click on the Change button under **Boot disk**, choose OS images, check **Ubuntu 16.04 LTS** and click on the blue select button. Next, check the **Allow HTTP traffic** and **Allow HTTPS traffic** options. Below, open the **Disks** option panel and uncheck the **Delete boot disk when instance is deleted**. You are ready to create. Press the **Create** button. This should look something like this:


dl4cv
Create an instance
Name
instance
Zone
europe-west1-b
$525.39 per month estimated
Effective hourly rate $0.72 (730 hours per month)
Details
Machine type
Customize to select cores, memory and GPUs.
Basic view
Cores
8 vCPU 1 - 96
Memory
7,25 GB 7.2 - 52
Extend memory
CPU platform
Automatic
GPUs
The number of GPU dies is linked to the number of CPU cores and memory selected for this instance. For this machine type, you can select no fewer than 1 GPU die.
Learn more
Number of GPUs
1
GPU type
NVIDIA Tesla K80
Machines with GPUs cannot migrate on host maintenance
Less
Choosing a machine type
Container
Deploy a container image to this VM instance. Learn more
Boot disk
New 10 GB standard persistent disk
Image
Ubuntu 16.04 LTS
Change
Identity and API access
Service account
Compute Engine default service account
Access scopes
Allow default access
Allow full access to all Cloud APIs
Set access for each API
Firewall
Add tags and firewall rules to allow specific network traffic from the Internet.
Allow HTTP traffic
Allow HTTPS traffic
Management
Disks
Networking
SSH Keys
Deletion rule
Delete boot disk when instance is deleted
Encryption
Automatic (recommended)
Additional disks (Optional)
+ Add item
Less
You will be billed for this instance. Learn more .
Create
Cancel
Equivalent REST or command line

3 Connecting with SSH Key

In order to access your instance you can use a standard SSH connection with a public key. Choose or create a private-public key pair and note the external IP in the instance overview. The latter can be used to ssh onto your instance. For this to work you can have to place your public key on the instance following these steps:

1. Click on your instance to enter the **VM instance details** window
2. If it is running, stop the instance
3. Click the **EDIT** button
4. Find the **SSH Keys** section and add your public key. The automatically generated name to the right of your key will be your ssh login username.
5. Save and start the instance again.

Now you should be able to ssh onto your machine by executing:

```
ssh username@external_ip
```

4 Install GPU drivers

The instance comes with most of the common packages and drivers preinstalled. Nevertheless we found it was necessary to execute the following setup steps:

1. Start your machine and establish an SSH connection
2. Execute:

   ```
   sudo apt-get install nvidia-cuda-toolkit
   ```

3. Restart (stop and start) your machine from the GCP web interface.
4. SSH to your machine and check the available GPUs with

   ```
   nvidia-smi
   ```