

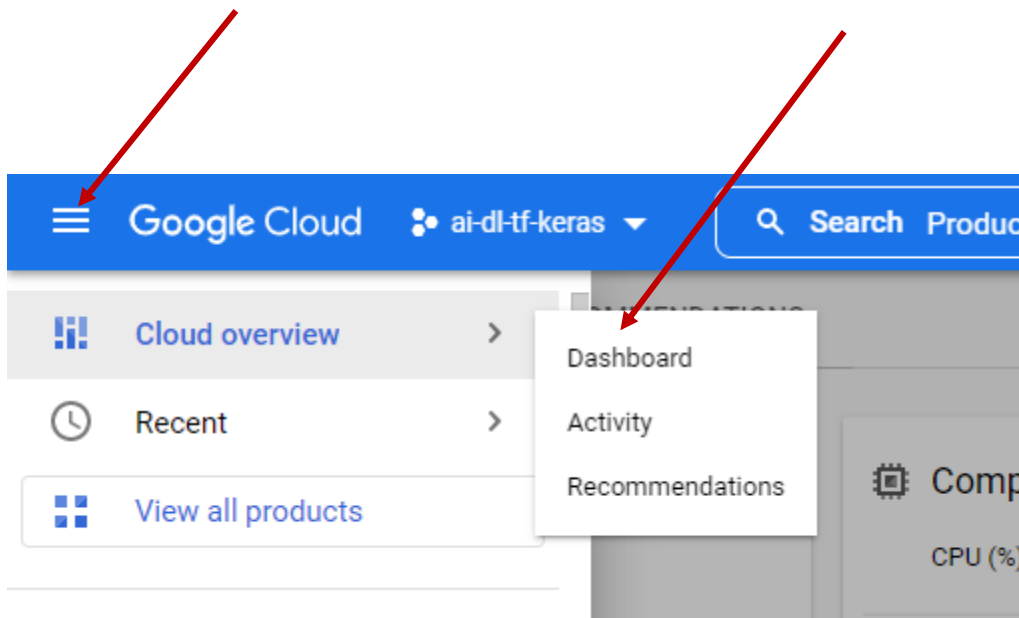
AI Deep Learning with TensorFlow & Keras on Google Cloud Platform (GCP) Set Up Natural Language API

Thuan L Nguyen, Ph.D.

1. Overview

Before using the Natural Language API to run Natural Language Processing (NLP) applications, the user must complete the process to set up the API.

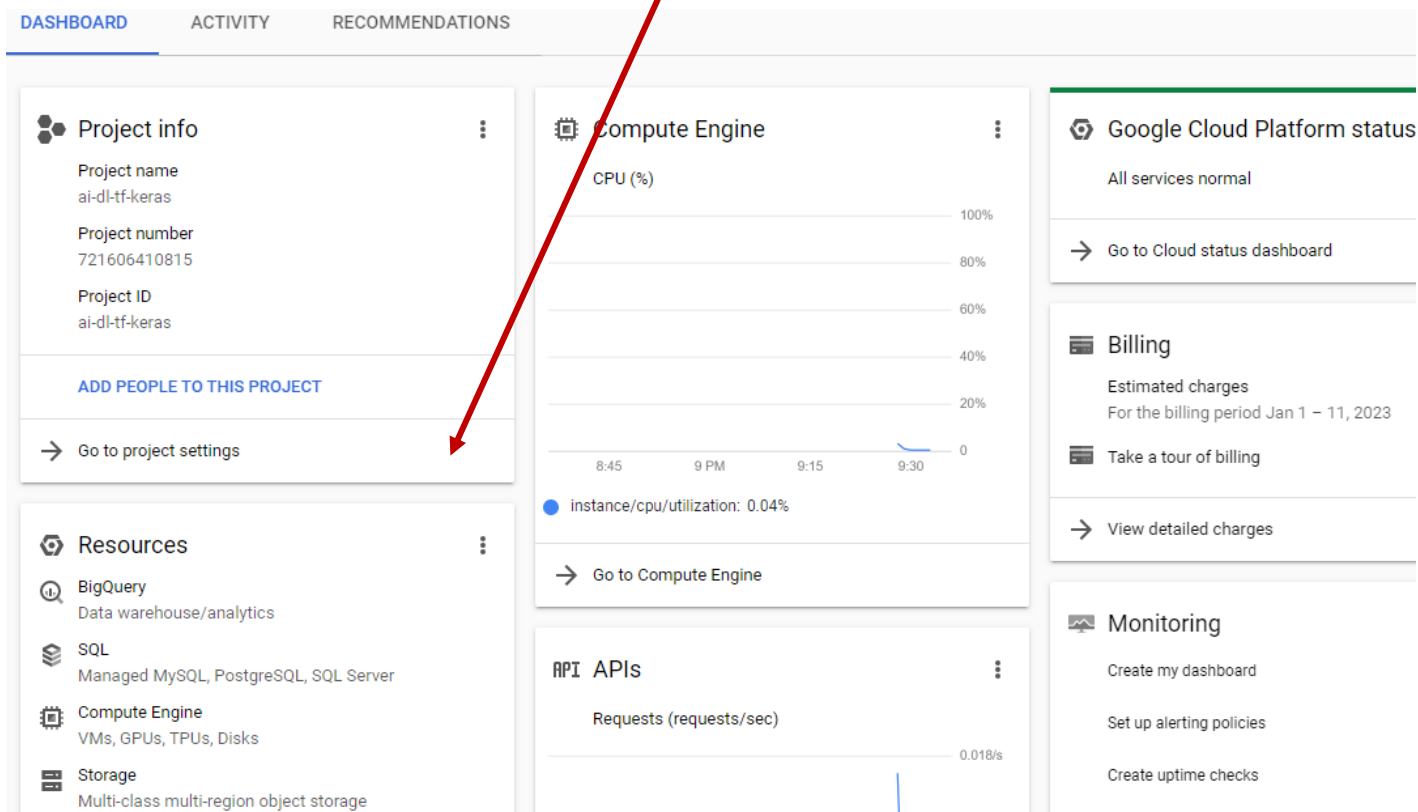
2. Access GCP Project Dashboard



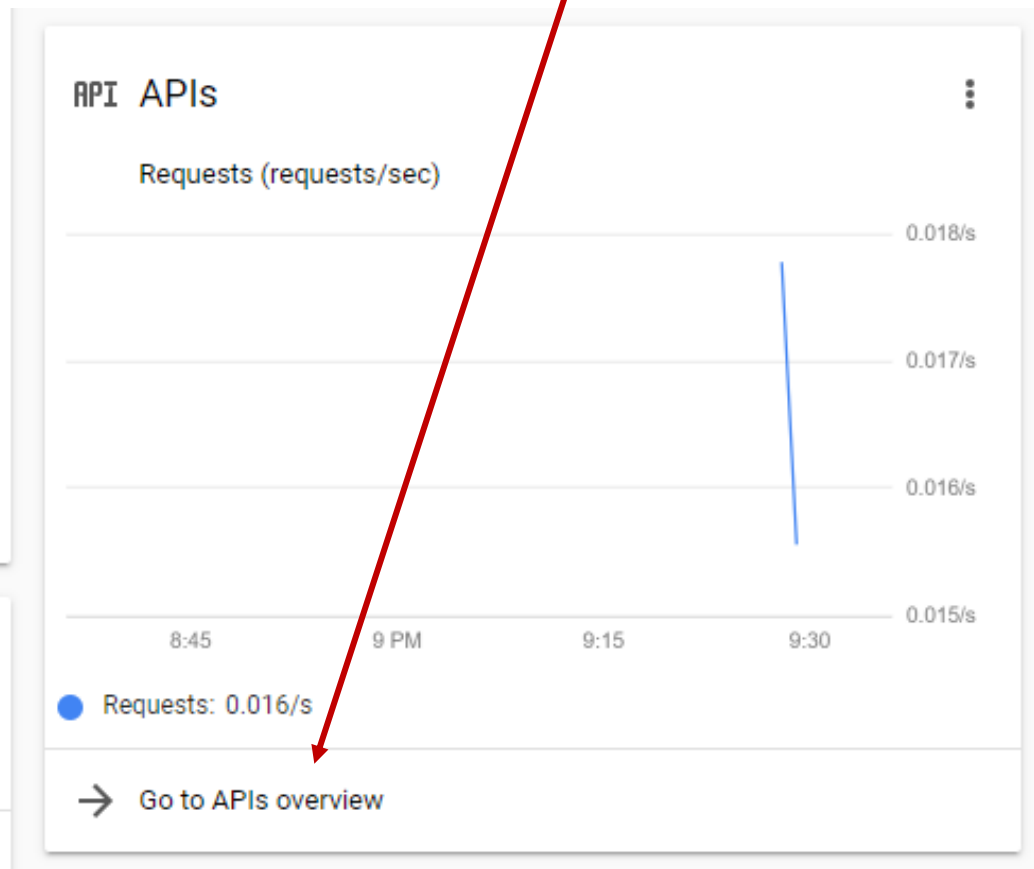
Click Products and Services icon (top-left corner)

Hover the mouse over Cloud Overview → Drop-down menu

Click Dashboard

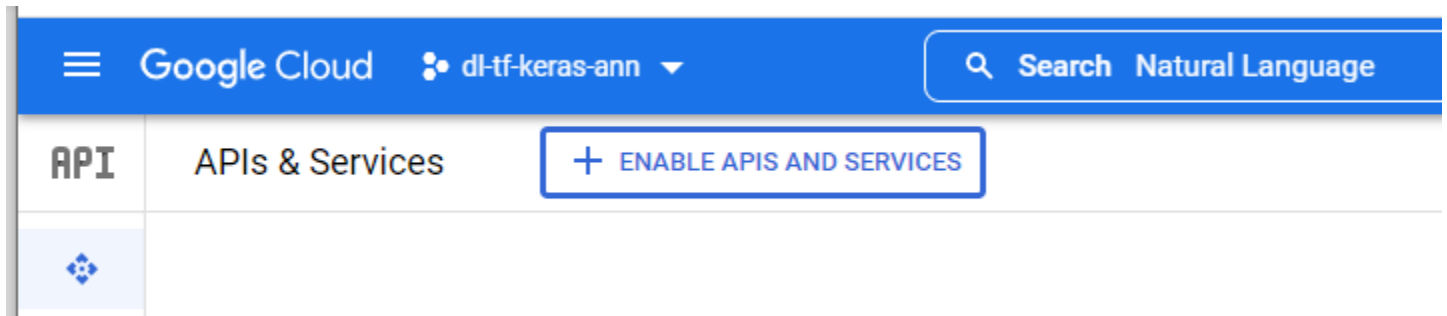


Look for **APIs**

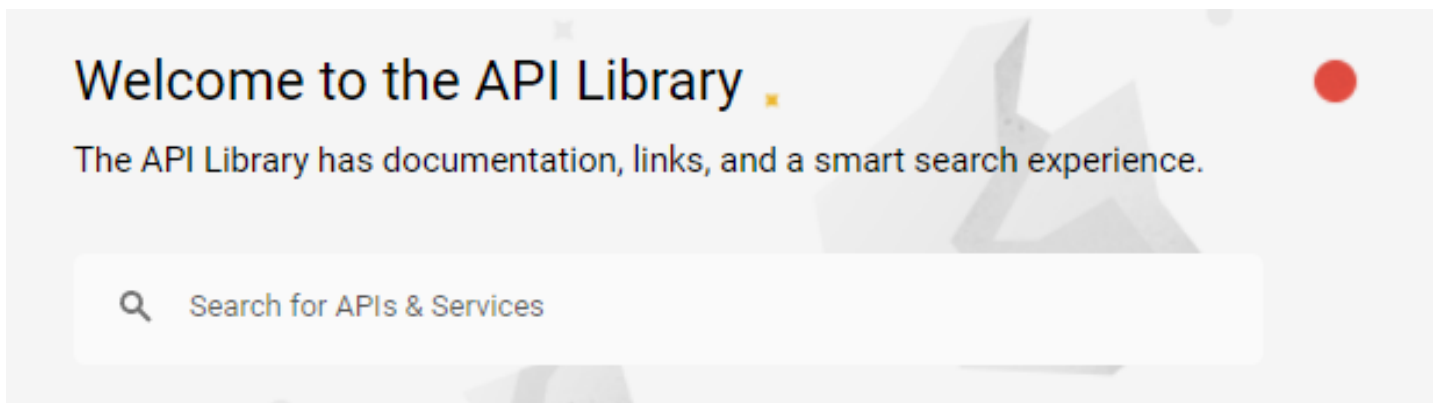


Click [Go to APIs overview](#) (to open the API page)

3. Set Up Natural Language API: Enable API



Click + **ENABLE APIS AND SERVICES**



Enter to search for “**Natural Language**”

Filter Type to filter

"Natural Language"

Category



3 results

Analytics

(1)

Machine learning

(1)

Google Enterprise APIs

(2)



Cloud Natural Language API

Google Enterprise API ?

Provides natural language understanding technologies, such as sentiment analysis, entity recognition, entity annotations, to developers.

Click to select: **Cloud Natural Language API**



Cloud Natural Language API

[Google Enterprise API](#)

Provides natural language understanding technologies, such as sentiment analysis, entity...

ENABLETRY THIS API [↗](#)

Click to activate: **ENABLE**

4. Create Service Account for Project (If not yet done)

See the file: [gcp_howto_create_service_account_for_project.pdf](#)

5. Set Up Service Account of VM Instance

STOP Remote deep learning server (VM instance)

Click: Name of VM instance (to open Information Page)

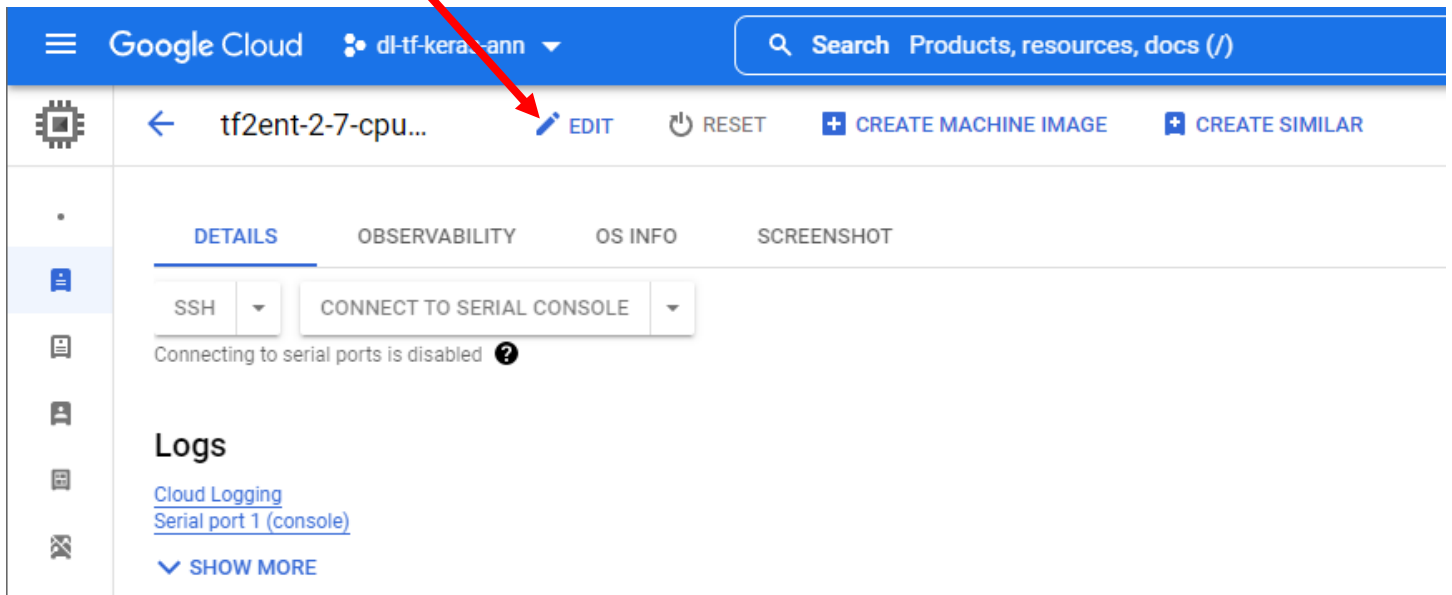
| Filter Enter property name or value | | |
|-------------------------------------|--------|---------------------------------------|
| <input type="checkbox"/> | Status | Name ↑ |
| <input type="checkbox"/> | ○ | adta-5240-cluster-m |
| <input type="checkbox"/> | ○ | adta-5240-cluster-w-0 |
| <input type="checkbox"/> | ○ | adta-5240-cluster-w-1 |
| <input type="checkbox"/> | ○ | tf1-keras-ann |
| <input type="checkbox"/> | ○ | tf1-keras-ann-2 |

NOTES:

--> Information page of the VM instance is opened.

Basic information




| | |
|---------------|------------------------------------|
| Name | tf2ent-2022-09-05-16 |
| Instance Id | 7053269131456952818 |
| Description | None |
| Type | Instance |
| Status | ○ Stopped |
| Creation time | Sep 5, 2022, 12:20:30 AM UTC-05:00 |










Click to open: **Edit** (on the top menu bar)

NOTES:



- The configuration page of the remote deep learning server is opened.

 Google Cloud  dl-tf-keras-ann  Search Products, resources, docs (/)

 Edit tf2ent-2-7-ubuntu20.04 instance

-
- 
- 
- 
- 
- 

Basic information

| | |
|---|---|
| Name | tf2ent-2-7-ubuntu20.04 |
| Instance ID | 2c1-17192-17641-2021-12-20 |
| Status |  Stopped |
| Creation time | Dec 20, 2021, 10:07:41 AM UTC-06:00 |
| Zone | us-east1-c |
| Reservation | Automatically choose (default) |
| Confidential VM service  | Disabled |

Scroll down to look for: **Service Accounts**

Identity and API access ?

Service accounts ?

Service account

Compute Engine default service account

Requires the Service Account User role (roles/iam.serviceAccountUser) to be set for users who want to access VMs with this service account. [Learn more](#)

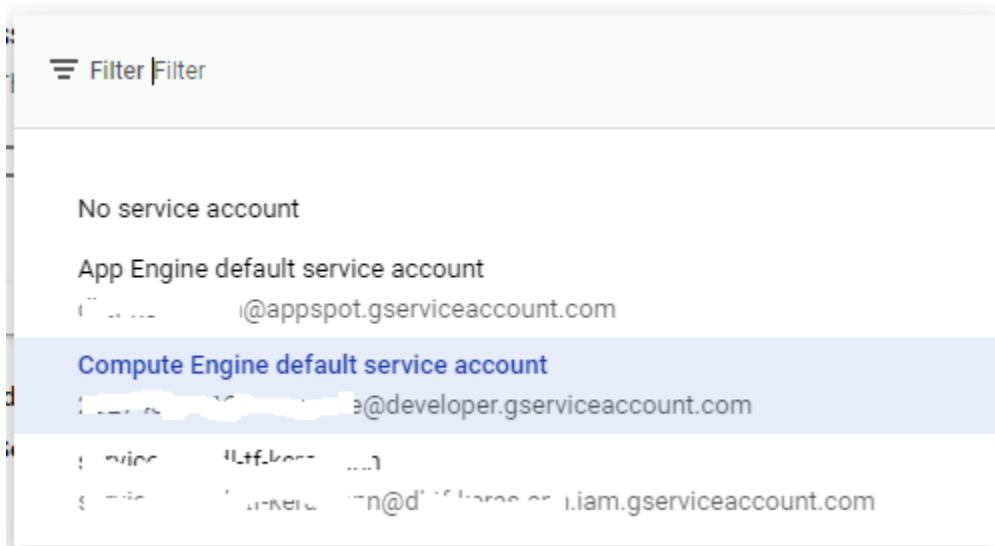
Access scopes ?

- ☐ Allow default access
- ☐ Allow full access to all Cloud APIs
- ☒ Set access for each API

Click to open a **drop-down menu**

NOTES:

- A drop-down menu of a list of *service accounts* pops up.



Click to select: **Service Account** (created in Section 4 above).

NOTES:

- A service account can be created and used for multiple GCP APIs or services.

IMPORTANT NOTES:

- The selected service account shows up in the section

Identity and API access ?

Service accounts ?

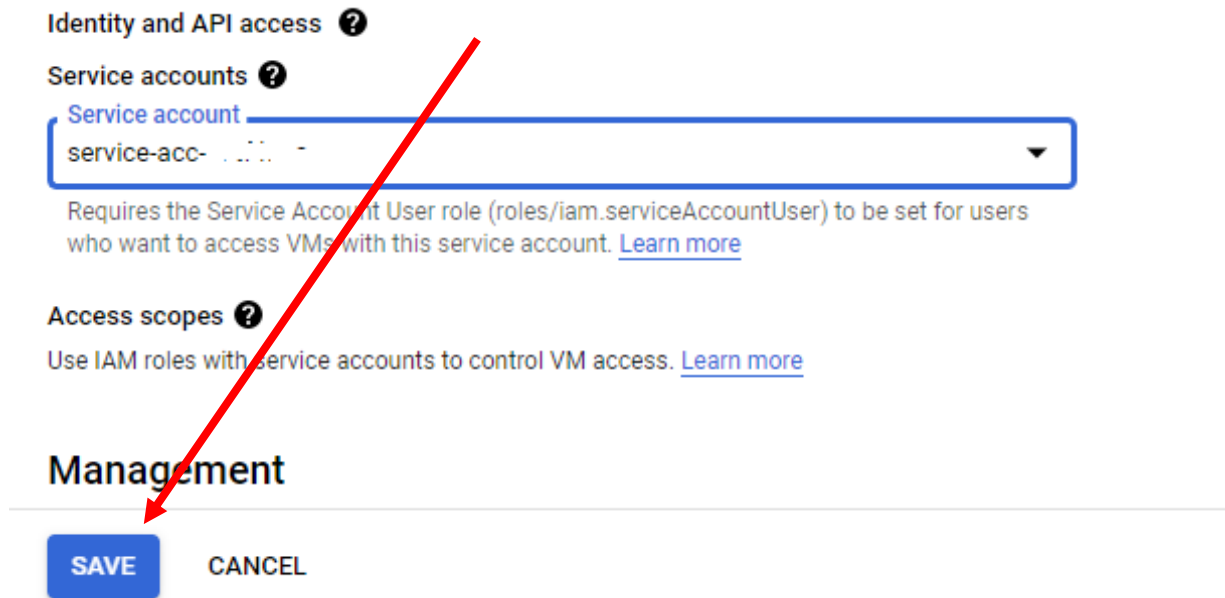
Service account

Requires the Service Account User role (roles/iam.serviceAccountUser) to be set for users who want to access VMs with this service account. [Learn more](#)

Access scopes ?

Use IAM roles with service accounts to control VM access. [Learn more](#)

Click to save the updated configuration: **SAVE** (***DON'T MISS THIS STEP***)



Identity and API access ?

Service accounts ?

Service account
 service-acc- ...

Requires the Service Account User role (roles/iam.serviceAccountUser) to be set for users who want to access VMs with this service account. [Learn more](#)

Access scopes ?

Use IAM roles with service accounts to control VM access. [Learn more](#)

Management

SAVE CANCEL

IMPORTANT NOTES:

- *SAVE button is located at the bottom of the page*

Open an **SSH terminal** (using Gcloud SDK)

```
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$ ls -l  
total 0  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$ mkdir JP_NTBK  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$ ls -l  
total 4  
drwxr-xr-x 2 inewtechs inewtechs 4096 Sep  6 15:53 JP_NTBK  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$
```

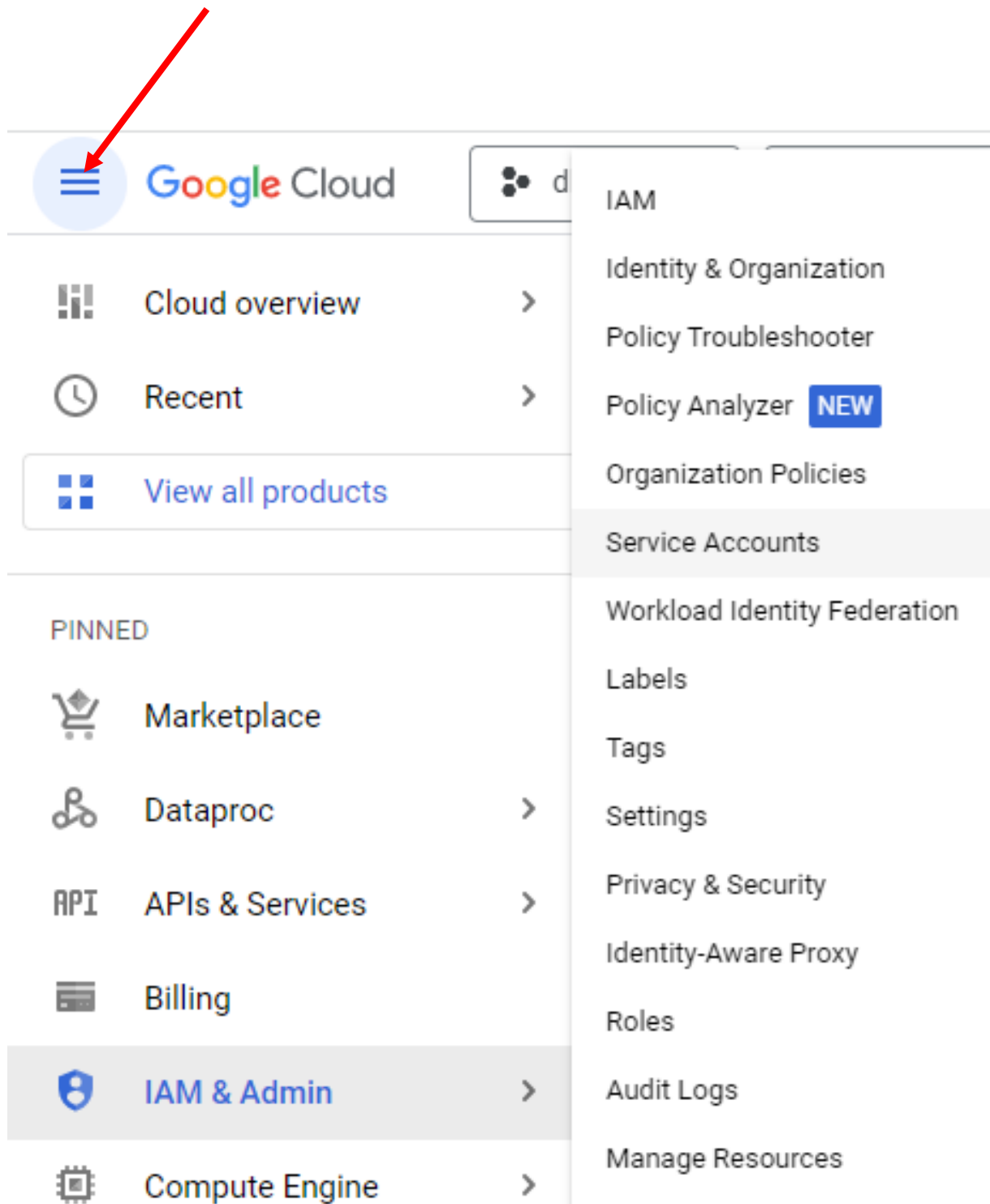
NOTES:

--> *No key file JSON in the home directory*






6. Get credentials of service account

Open **IAM & Admin: Service Accounts** page

- Click **Product and Services** icon → Open a drop-down menu
- Click **IAM & Admin** → Open a drop-down menu



Click to open: **Service Accounts**

|  Filter Enter property name or value | | | | | |
|--|--|---|--|-------------|---------|
| <input type="checkbox"/> | Email | Status | Name ↑ | Description | Key ID |
| <input type="checkbox"/> |  206583269885-compute@developer.gserviceaccount.com |  | Compute Engine default service account | | No keys |
| <input type="checkbox"/> |  service-acc-dl-tf-cnn@dl-tf-cnn.iam.gserviceaccount.com |  | service-acc-dl-tf-cnn | | No keys |

Click the **email** of the **Service Account** (created in **Section 4**) to open its page

Service account details

Name

service-acc-dl-tf-cnn@dl-tf-cnn.iam.gserviceaccount.com

SAVE

Description

Service account of the project "dl-tf-cnn"

SAVE

Email

service-acc-dl-tf-cnn@dl-tf-cnn.iam.gserviceaccount.com

Unique ID

1-77761-17761-17761

Copy "**Email**" of the **service account** to a Notepad file

7. Create Key File JSON of Service Account

- Open an **SSH** connection to the remote deep learning server
- **Run command line at the prompt** (in Home Directory)
- Command line:
 - **gcloud iam service-accounts keys create ~/key.json --iam-account <email of service account>**

For example:

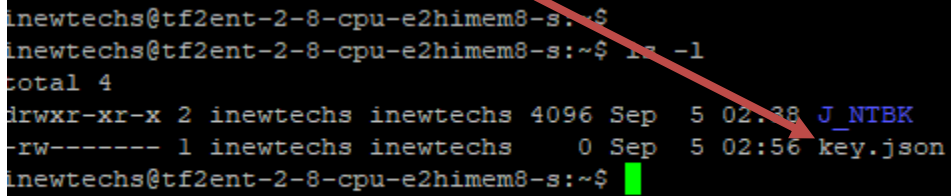
gcloud iam service-accounts keys create ~/key.json --iam-account service-acc-xyz@project-id-123.iam.gserviceaccount.com

```
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$ ls -l  
total 4  
drwxr-xr-x 2 inewtechs inewtechs 4096 Sep  6 15:53 JP_NTBK  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$ gcloud iam service-accounts keys create ~/key.json --iam-account service-acc-dl-tf-keras-ann@dl-tf-keras-ann.iam.gserviceaccount.com  
created key [b6781f2cf9329fa65173fe309fd88a6c1581ae7c] of type [json] as [/home/inewtechs/key.json] for [service-acc-dl-tf-keras-ann@dl-tf-keras-ann.iam.gserviceaccount.com]  
inewtechs@tf2ent-2-8-cpu-e2himeml6-c:~$
```

```
inewtechs@tf2ent-2-8-cpu-e2std8-s:~$  
inewtechs@tf2ent-2-8-cpu-e2std8-s:~$ ls -l  
total 4  
drwxr-xr-x 2 inewtechs inewtechs 4096 Aug 24 14:07 JP_NTBK  
inewtechs@tf2ent-2-8-cpu-e2std8-s:~$  
inewtechs@tf2ent-2-8-cpu-e2std8-s:~$ gcloud iam service-accounts keys create ~/key.json --iam-account service-acc-dl-tf-keras-ann@dl-tf-keras-ann.iam.gserviceaccount.com  
API [iam.googleapis.com] not enabled on project [232743561122]. Would you like to enable and retry (this will take a few minutes)? (y/N)? y  
  
Enabling service [iam.googleapis.com] on project [232743561122]...  
Operation "operations/acat.p2-232743561122-7d8cb53e-541e-434e-9f69-laf538f86f05" finished successfully.  
created key [2fed313d3af17791a98a54f796b6a0ade50c6944] of type [json] as [/home/inewtechs/key.json] for [service-acc-dl-tf-keras-ann@dl-tf-keras-ann.iam.gserviceaccount.com]  
inewtechs@tf2ent-2-8-cpu-e2std8-s:~$  
inewtechs@tf2ent-2-8-cpu-e2std8-s:~$  
inewtechs@tf2ent-2-8-cpu-e2std8-s:~$ ls -l  
total 8  
drwxr-xr-x 2 inewtechs inewtechs 4096 Aug 24 14:07 JP_NTBK  
-rw----- 1 inewtechs inewtechs 2358 Aug 24 14:25 key.json  
inewtechs@tf2ent-2-8-cpu-e2std8-s:~$
```

IMPORTANT NOTES:

Check: **Key file (key.json)** is found in the **home directory** of the VM instance



```
inewtechs@tf2ent-2-8-cpu-e2himem8-s:~$  
inewtechs@tf2ent-2-8-cpu-e2himem8-s:~$ ls -l  
total 4  
drwxr-xr-x 2 inewtechs inewtechs 4096 Sep  5 02:38 J_NTBK  
-rw----- 1 inewtechs inewtechs   0 Sep  5 02:56 key.json  
inewtechs@tf2ent-2-8-cpu-e2himem8-s:~$
```

IMPORTANT NOTES:

-) *The key file is found in the home directory of the remote deep learning service.*
-) *GCP Natural Languages API uses this key file to perform the authentication with GCP systems.*

IT'S DONE!

GCP NATURAL LANGUAGE API HAS BEEN SUCCESSFULLY SET UP.