Google Cloud Self-Paced Labs

Overview

App Engine allows developers to focus on doing what they do best, writing code. The App Engine standard environment is based on container instances running on Google's infrastructure. Containers are preconfigured with one of several available runtimes (Java 7, Java 8, Python 2.7, Go and PHP). Each runtime also includes libraries that support App Engine Standard APIs.
For many applications, the standard environment runtimes and libraries might be all you need.

The App Engine standard environment makes it easy to build and deploy an application that runs reliably even under heavy load and with large amounts of data. It includes the following features:

- Persistent storage with queries, sorting, and transactions.
- Automatic scaling and load balancing.
- Asynchronous task queues for performing work outside the scope of a request.
- Scheduled tasks for triggering events at specified times or regular intervals.
- Integration with other Google cloud services and APIs.

Applications run in a secure, sandboxed environment, allowing App Engine standard environment to distribute requests across multiple servers, and scaling servers to meet traffic demands. Your application runs within its own secure, reliable environment that is independent of the hardware, operating system, or physical location of the server.

This hands-on lab shows you how to create a small App Engine application that displays a short message.

What you'll do

- Download an application
- Test the application
- Deploy the application

What you need

To complete this lab, you need:

- Access to a standard internet browser (Chrome browser recommended).
- Time to complete the lab.

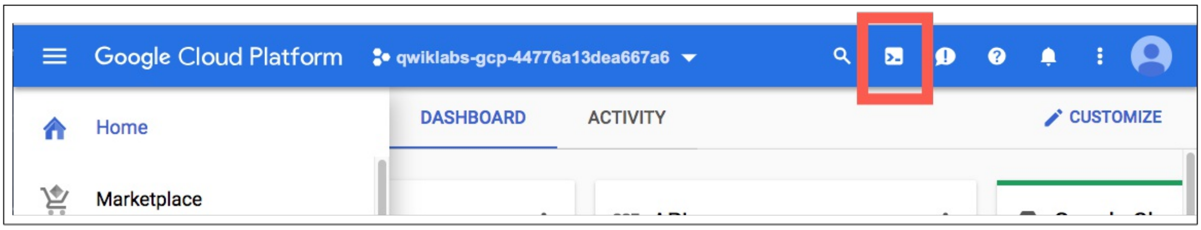
How to start your lab and sign in to the Console

- Open https://console.cloud.google.com/
- Enter login credentials

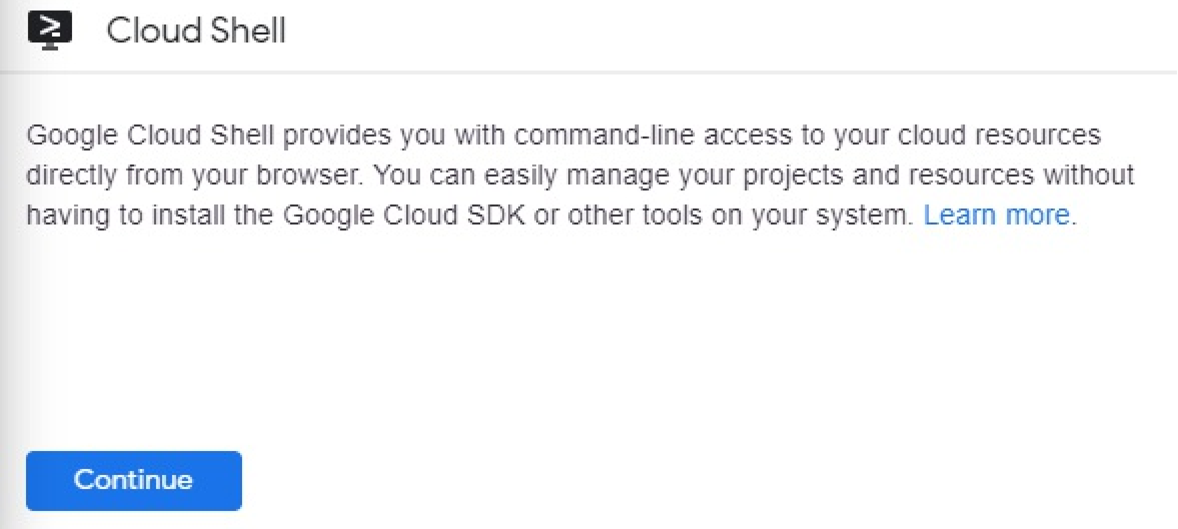
Activate Google Cloud Shell

Google Cloud Shell is a virtual machine that is loaded w ith development tools. It offers a persistent 5GB home directory and runs on the Google Cloud. Google Cloud Shell provides command-line access to your GCP resources.

1. In GCP console, on the top right toolbar, click the Open Cloud Shell button.



2. Click **Continue**.

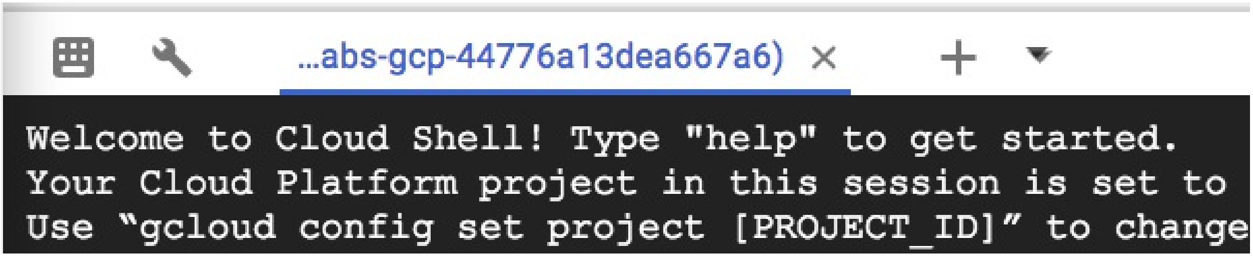


Cloud Shell

Google Cloud Shell provides you with command-line access to your cloud resources directly from your browser. You can easily manage your projects and resources without having to install the Google Cloud SDK or other tools on your system. Learn more.

Continue

It takes a few moments to provision and connect to the environment. When you are connected, you are already authenticated, and the project is set to your *PROJECT_ID*. For example:



```
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to
Use “gcloud config set project [PROJECT_ID]” to change
```

gcloud is the command-line tool for Google Cloud Platform. It comes pre-installed on Cloud Shell and supports tab-completion.

You can list the active account name w ith this command:

```
gcloud auth list
```

Output:

```
Credentialed accounts:
 - <myaccount>@<mydomain>.com (active)
```

Example output:

```
Credentialed accounts:
 - google1623327_student@testlabs.net
```

You can list the project ID with this command:

```
gcloud config list project
```

Output:

```
[core]
project = <project_ID>
```

Example output:

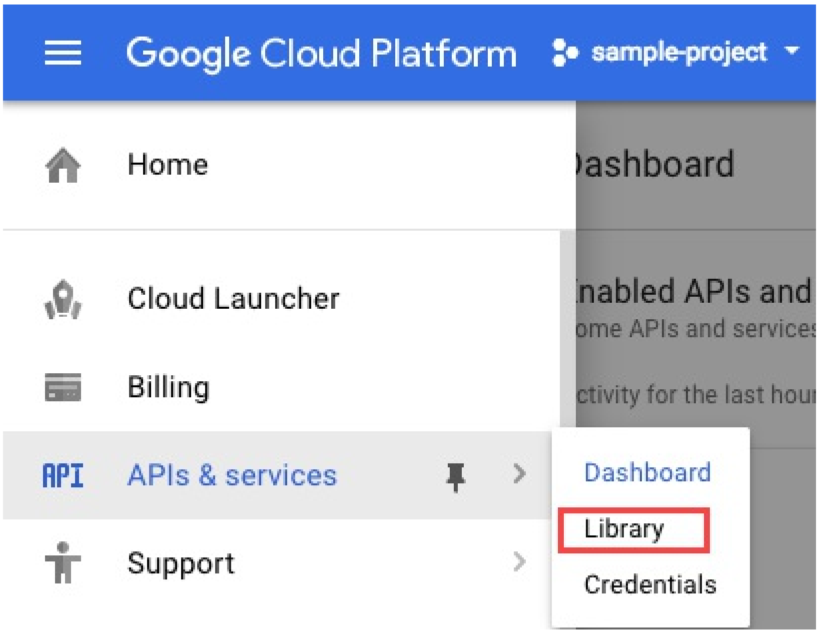
```
[core]
project = testlabs-gcp-44776a13dea667a6
```

Full documentation of **gcloud** is available on Google Cloud gcloud Overview .

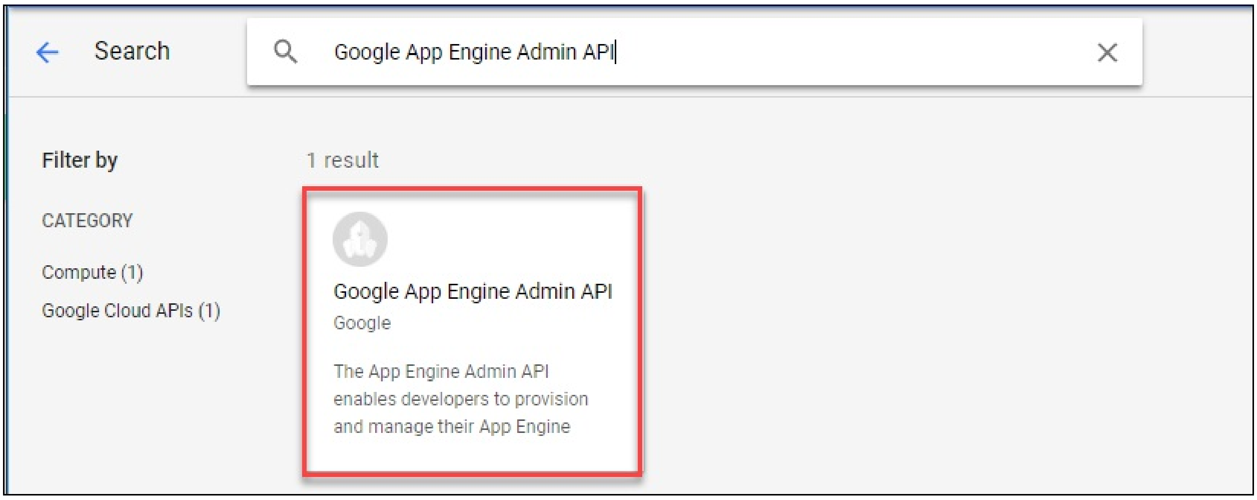
Enable Google App Engine Admin API

The App Engine Admin API enables developers to provision and manage their App Engine Applications.

1. In the left menu click **APIs & Services** > **Library**.



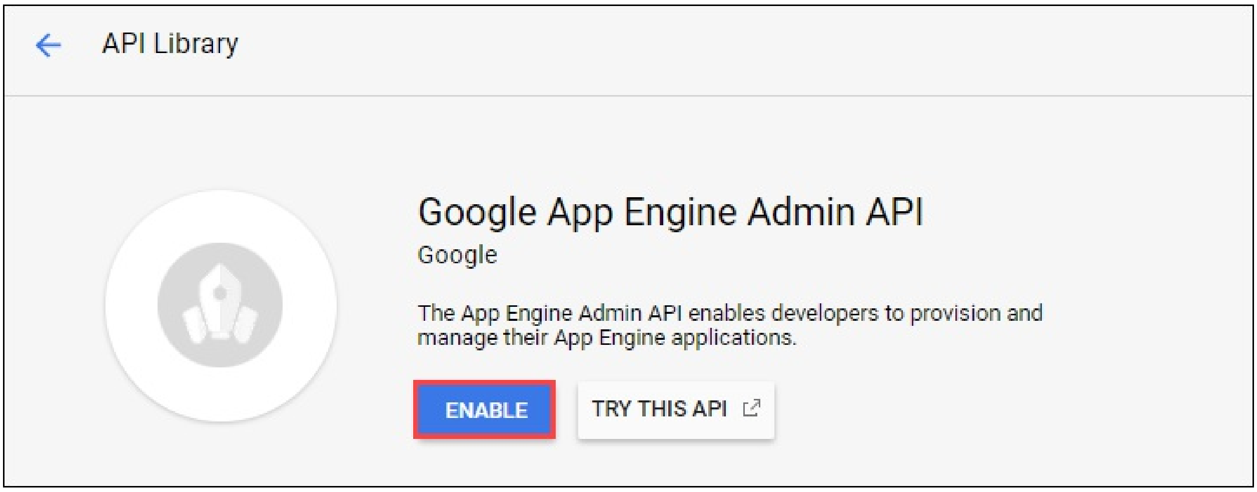
2. Type "App Engine Admin API" in search box.
3. Click **App Engine Admin API**.



Google App Engine Admin API

The App Engine Admin API enables developers to provision and manage their App Engine

4. Click Enable.



The App Engine Admin API enables developers to provision and manage their App Engine applications.

Download the Hello World app

There is a simple Hello World app for Python you can use to quickly get a feel for deploying an app to Google Cloud Platform. Follow these steps to dow nload Hello World to your Google Cloud instance.

1. Enter the follow ing command to clone the Hello World sample app repository to your Google Cloud instance:

```
git clone https://github.com/GoogleCloudPlatform/python-docs-samples
```

Output:

```
Cloning into 'python-docs-samples'...
remote: Counting objects: 13991, done.
remote: Compressing objects: 100% (71/71), done.
remote: Total 13991 (delta 23), reused 56 (delta 18), pack-reused 13891
Receiving objects: 100% (13991/13991), 3.81 MiB | 0 bytes/s, done.
Resolving deltas: 100% (7343/7343), done
```

2. Go to the directory that contains the sample code:

```
cd python-docs-samples/appengine/standard_python37/hello_world
```

Test the application

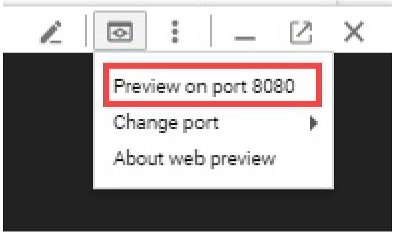
Test the application using the Google Cloud development server (`dev_appserver.py`), w hich is included w ith the preinstalled App Engine SDK.

1. From w ithin your hellow orld directory w here the app's app.yaml configuration file is located, start the Google Cloud development server w ith the follow ing command:

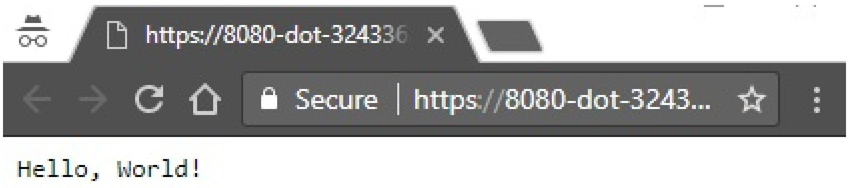
```
dev_appserver.py app.yaml
```

The development server is now running and listening for requests on port 8080.

2. View the results by clicking the **Web preview** > **Preview on port 8080**.



You'll see this in a new browser window:



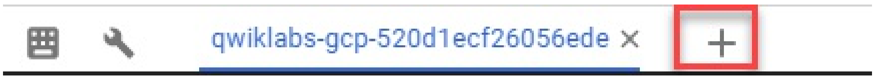
```
Hello, World!
```

Make a change

You can leave the development server running while you develop your application. The development server watches for changes in your source files and reloads them if necessary.

Let's try it. Leave the development server running. We'll open another command line window, then edit `main.py` to change "Hello, World!" to "Hello, Cruel World!".

1. Click the **+** next to your Cloud Shell tab to open a new command line session.



2. Enter this command to go to the directory that contains the sample code.

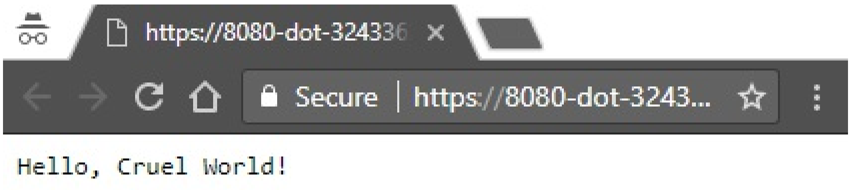
```
cd python-docs-samples/appengine/standard_python37/hello_world
```

3. Enter the following to open main.py in nano to edit the content.

```
nano main.py
```

4. Change "Hello, World!" to "Hello, Cruel World!". Exit and save the file.

5. Reload the Hello World! Browser or click the **Web Preview** > **Preview on port 8080** to see the results.



Hello, Cruel World!

Deploy your app

To deploy your app to App Engine, run the follow ing command from w ithin the root directory of your application w here the app.yaml file is located:

```
gcloud app deploy
```

You w ill be prompted to enter w here your App engine w ill be located.

```
Please choose the region where you want your App Engine application
located:

 [1] europe-west2  (supports standard and flexible)
 [2] us-east1      (supports standard and flexible)
 [3] us-east4      (supports standard and flexible)
 [4] asia-northeast1 (supports standard and flexible)
 [5] asia-south1   (supports standard and flexible)
 [6] australia-southeast1 (supports standard and flexible)
 [7] southamerica-east1 (supports standard and flexible)
 [8] us-central    (supports standard and flexible)
 [9] europe-west3  (supports standard and flexible)
 [10] europe-west   (supports standard and flexible)
 [11] cancel
Please enter your numeric choice:
```

Enter the number that represents your region. The App Engine application w ill then be created.

Example output:

```
Creating App Engine application in project [testlabs-gcp-233dca09c0ab577b] and region [asia-south1]....done.
Services to deploy:

descriptor:      [/home/gcpstaging8134_student/python-docs-samples/appengine/standard/hello_world/app.yaml]
source:          [/home/gcpstaging8134_student/python-docs-samples/appengine/standard/hello_world]
target project:  [testlabs-gcp-233dca09c0ab577b]
target service:  [default]
target version:  [20171117t072143]
target url:      [https://testlabs-gcp-233dca09c0ab577b.appspot.com]

Do you want to continue (Y/n)?
```

Enter **Y** w hen prompted to confirm the details and begin the deployment of service.

Example output:

```
Beginning deployment of service [default]...
Some files were skipped. Pass `--verbosity=info` to see which ones.
You may also view the gcloud log file, found at
[/tmp/tmp.dYC7xGu3oZ/logs/2017.11.17/07.18.27.372768.log].
╔════════════════════════════════════════════════════════════╗
╠═ Uploading 5 files to Google Cloud Storage                ═╣
╚════════════════════════════════════════════════════════════File upload done.
Updating service [default]...done.
Waiting for operation [apps/testlabs-gcp-233dca09c0ab577b/operations/2e88ab76-33dc-4aed-93c4-fdd944a95ccf] to complete...d
Updating service [default]...done.
Deployed service [default] to [https://testlabs-gcp-233dca09c0ab577b.appspot.com]

You can stream logs from the command line by running:
  $ gcloud app logs tail -s default

To view your application in the web browser run:
  $ gcloud app browse
```

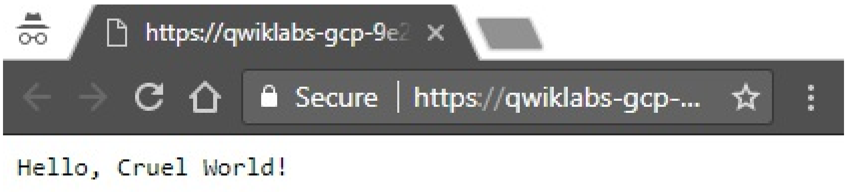
View your application

To launch your browser enter the following command, then click on the link it provides.

```
gcloud app browse
```

Example output, note that your link will be different:

```
Did not detect your browser. Go to this link to view your app:
https://testlabs-gcp-233dca09c0ab577b.appspot.com
```



Hello, Cruel World!

Your application is deployed and you can read the short message in your browser.

Click **Check my progress** to verify the objective.

Deploy your app.

Test your knowledge

Test your knowledge about Google cloud Platform by taking our quiz. (Please select multiple correct options if necessary.)

Congratulations!

Next Steps /Learn More

- Lean more about an App Engine with An Overview Of App Engine
- Try something else with an App Engine with Getting Started with Flask on App Engine Standard Environment