

App Engine: Qwik Start - Python

GSP067



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

Setup

Before you click the Start Lab button

Read these instructions. Labs are timed and you cannot pause them. The timer, which starts when you click **Start Lab**, shows how long Google Cloud resources will be made available to you.

This Qwiklabs hands-on lab lets you do the lab activities yourself in a real cloud environment, not in a simulation or demo environment. It does so by giving you new, temporary credentials that you use to sign in and access Google Cloud for the duration of the lab.

What you need

To complete this lab, you need:

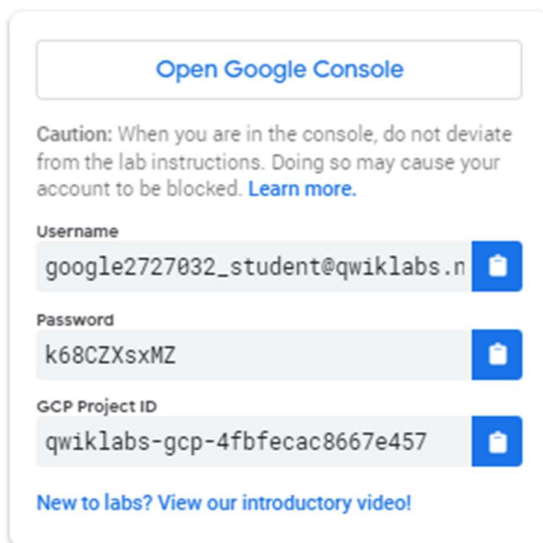
- Access to a standard internet browser (Chrome browser recommended).
- Time to complete the lab.

Note: If you already have your own personal Google Cloud account or project, do not use it for this lab.

Note: If you are using a Pixelbook, open an Incognito window to run this lab.

How to start your lab and sign in to the Google Cloud Console

1. Click the **Start Lab** button. If you need to pay for the lab, a pop-up opens for you to select your payment method. On the left is a panel populated with the temporary credentials that you must use for this lab.



The screenshot shows a sign-in panel with the following elements:

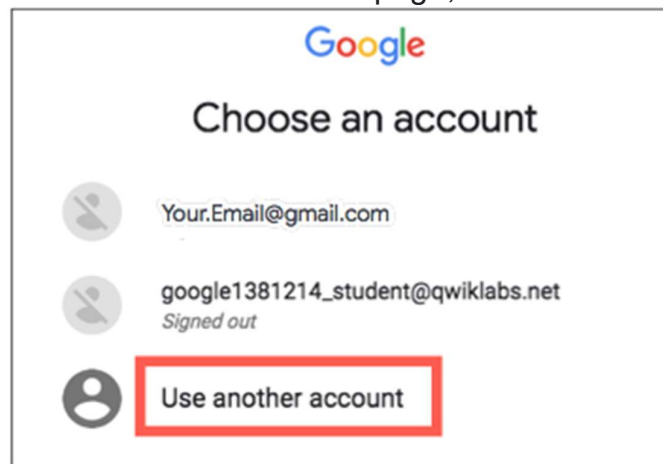
- A button at the top labeled "Open Google Console".
- A caution message: "Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)"
- Three input fields, each with a copy icon to its right:
 - Username:** google2727032_student@qwiklabs.n
 - Password:** k68CZXsxMZ
 - GCP Project ID:** qwiklabs-gcp-4fbfecac8667e457
- A link at the bottom: "New to labs? View our introductory video!"

2. Copy the username, and then click **Open Google Console**. The lab spins up resources, and then opens another tab that shows the **Sign in** page.



Tip: Open the tabs in separate windows, side-by-side.

If you see the **Choose an account** page, click **Use Another**



Account.

3. In the **Sign in** page, paste the username that you copied from the Connection Details panel. Then copy and paste the password.

Important: You must use the credentials from the Connection Details panel. Do not use your Qwiklabs credentials. If you have your own Google Cloud account, do not use it for this lab (avoids incurring charges).

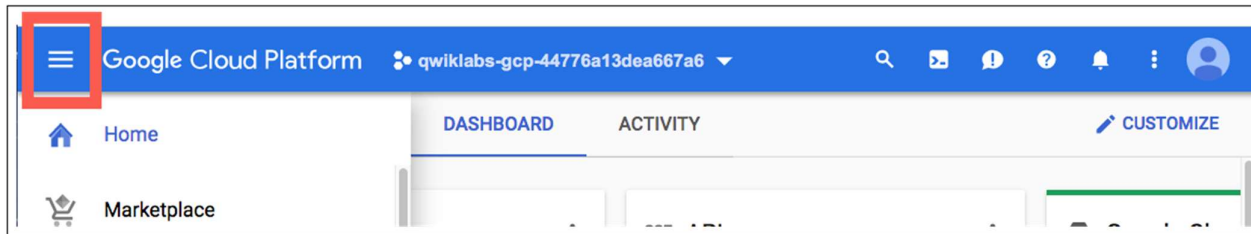
4. Click through the subsequent pages:

- Accept the terms and conditions.
- Do not add recovery options or two-factor authentication (because this is a temporary account).
- Do not sign up for free trials.

After a few moments, the Cloud Console opens in this tab.

Note: You can view the menu with a list of Google Cloud Products and Services by clicking the **Navigation menu** at the top-

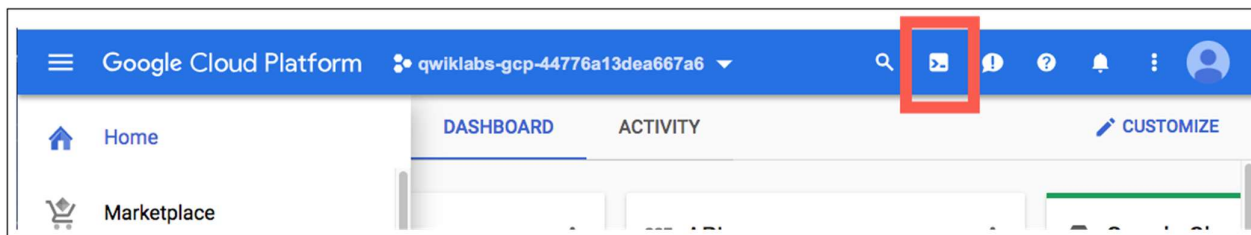
left.



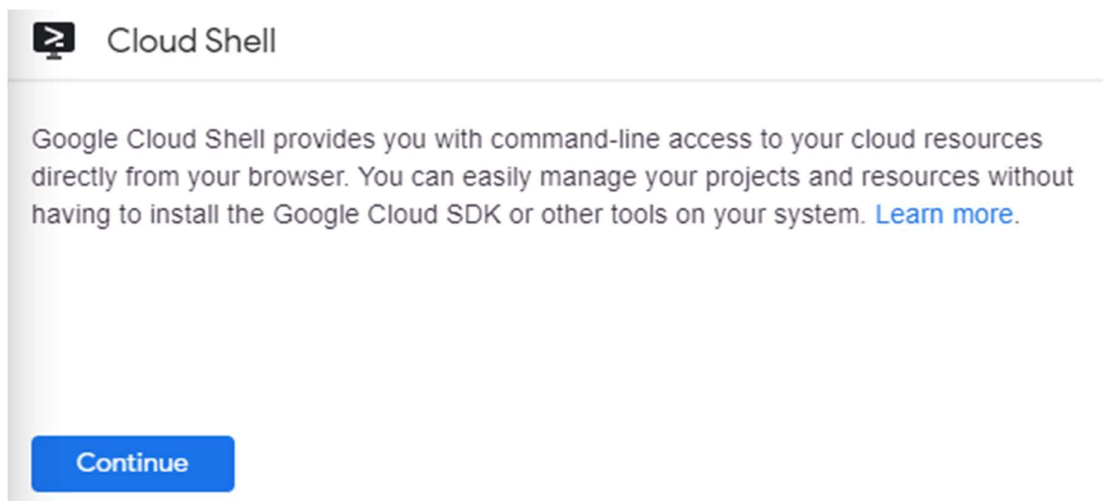
Activate Cloud Shell

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

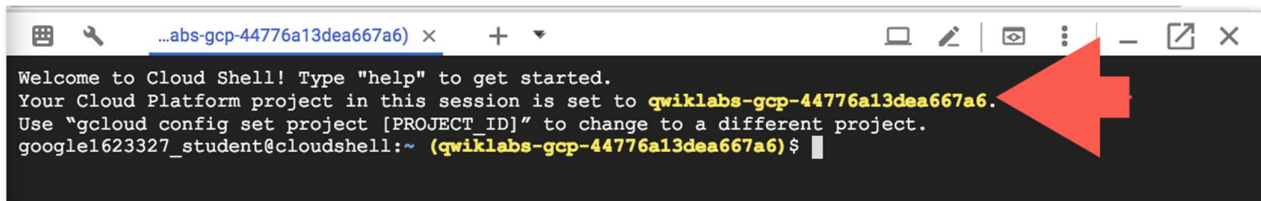
In the Cloud Console, in the top right toolbar, click the **Activate Cloud Shell** button.



Click **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:



```
...abs-gcp-44776a13dea667a6) x + ▾
Welcome to Cloud Shell! Type "help" to get started.
Your Cloud Platform project in this session is set to qwiklabs-gcp-44776a13dea667a6.
Use "gcloud config set project [PROJECT_ID]" to change to a different project.
google1623327_student@cloudshell:~ (qwiklabs-gcp-44776a13dea667a6) $
```

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

You can list the active account name with this command:

```
gcloud auth list
```

(Output)

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

(Example output)

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

You can list the project ID with this command:

```
gcloud config list project
```

(Output)

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

(Example output)

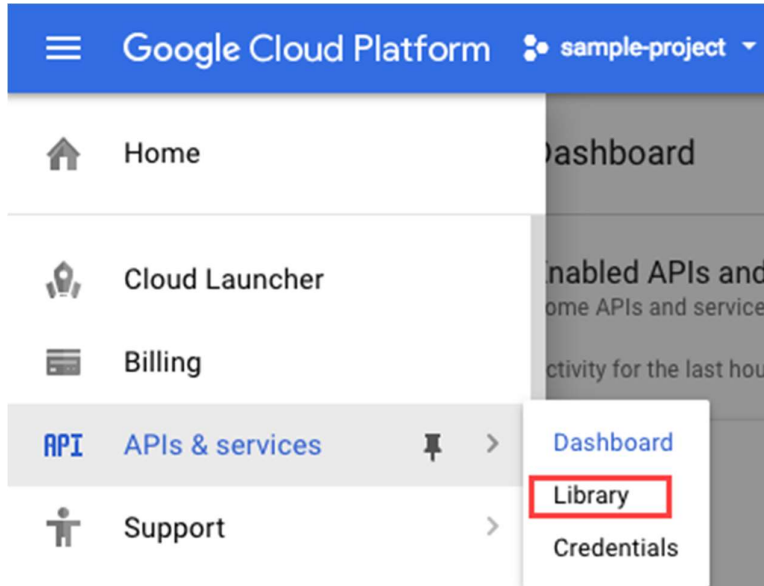
```
[core]
project = qwiklabs-gcp-44776a13dea667a6
```

For full documentation of `gcloud` see the [gcloud command-line tool overview](#).

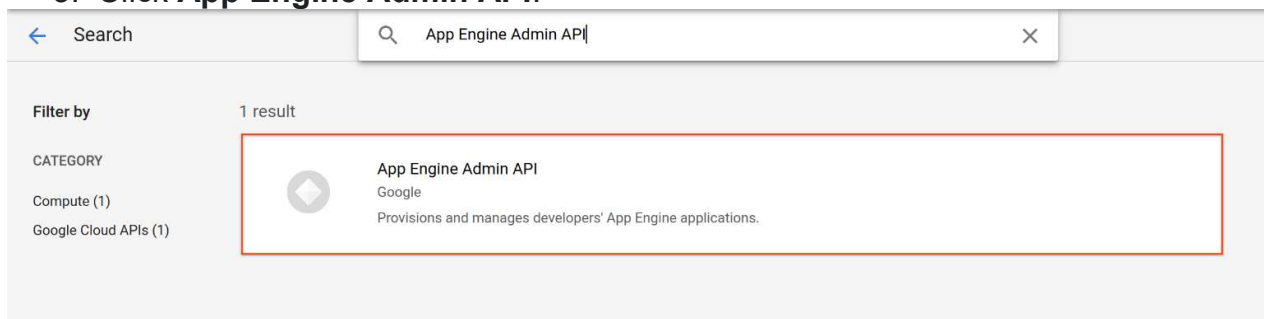
Enable Google App Engine Admin API

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**.



4. Click **Enable**. If there is no prompt to enable the API, then it is already enabled and no action is needed.



App Engine Admin API

Google

Provisions and manages developers' App Engine applications.

ENABLE

TRY THIS API [↗](#)

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. Follow these steps to download Hello World to your Google Cloud instance.

1. Enter the following command to copy the Hello World sample app repository to your Google Cloud instance:

```
gsutil -m cp -r gs://spls/gsp067/python-docs-samples .
```

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

```
cd python-docs-samples/appengine/standard_python3/hello_world
```

Test the application

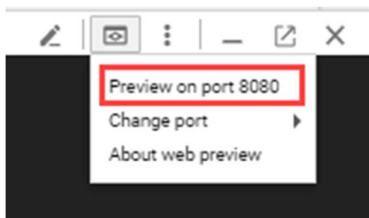
Test the application using the Google Cloud development server (`dev_appserver.py`), which is included with the preinstalled App Engine SDK.

1. From within your helloworld directory where the app's [app.yaml](#) configuration file is located, start the Google Cloud development server with the following command:

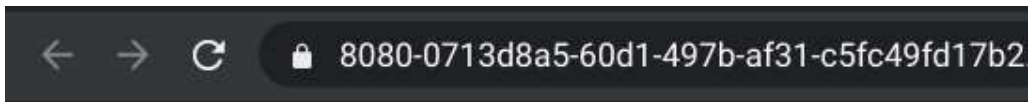
```
dev_appserver.py app.yaml
```

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.



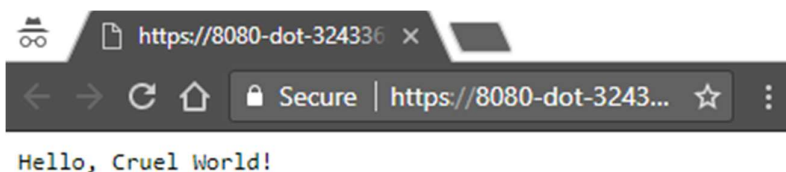
2. Enter this command to go to the directory that contains the sample code.

```
cd python-docs-samples/appengine/standard/python3/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.



Deploy your app

To deploy your app to App Engine, run the following command from within the root directory of your application where the app.yaml file is located:

```
gcloud app deploy
```

You will be prompted to enter where your App engine will be located.

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

```
[1] asia-east2
[2] asia-northeast1
[3] asia-northeast2
[4] asia-northeast3
[5] asia-south1
[6] asia-southeast2
[7] australia-southeast1
[8] europe-west
[9] europe-west2
[10] europe-west3
[11] europe-west6
[12] northamerica-northeast1
[13] southamerica-east1
[14] us-central
[15] us-east1
[16] us-east4
[17] us-west2
[18] us-west3
[19] us-west4
[20] cancel
```

```
Please enter your numeric choice:
```

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

Example output:

```
Creating App Engine application in project [qwiklabs-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: [qwiklabs-gcp-233dca09c0ab577b]
target service: [default]
target version: [20171117t072143]
target url:     [https://qwiklabs-gcp-233dca09c0ab577b.appspot.com]
```

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

Enter **Y** when 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/qwiklabs-gcp-233dca09c0ab577b/operations/2e88ab76-33dc-4aed-93c4-fdd944a95ccf] to complete...done.  
Updating service [default]...done.  
Deployed service [default] to [https://qwiklabs-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
```

Note: If you receive an error as "Unable to retrieve P4SA" while deploying the app, then re-run the above command.

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://qwiklabs-gcp-233dca09c0ab577b.appspot.com
```



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

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

Test your knowledge

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

Container instances running on Google's infrastructure are preconfigured with which of the several available runtimes?
All of them

Congratulations!



Finish Your Quest

Continue your Quest with [Baseline: Deploy & Develop](#). A Quest is a series of related labs that form a learning path. Completing this Quest earns you the badge above, to recognize your achievement. You can make your badge (or badges) public and link to them in your online resume or social media account. [Enroll in this Quest](#) and get immediate completion credit if you've taken this lab. [See other available Qwiklabs Quests](#).

Take Your Next Lab

This lab is also part of a series of labs called Qwik Starts. These labs are designed to give you a little taste of the many features available with Google Cloud. Search for "Qwik Starts" in the [lab catalog](#) to find the next lab you'd like to take!

Next Steps /Learn More

- Learn 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](#)

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