Google Cloud Essential Skills: Challenge Lab

GSP101

Overview

For this Challenge Lab you must complete a series of tasks within a limited time period. Instead of following step-by-step instructions, you'll be given a scenario and task - you figure out how to to complete it on your own! An automated scoring system (shown on this page) will provide feedback on whether you have completed your tasks correctly.

To score 100% you must complete all tasks within the time period!

When you take a Challenge Lab, you will not be taught Google Cloud concepts. You'll need to use your advanced Compute Engine skills to assess how to build the solution to the challenge presented. This lab is only recommended for students who have Compute Engine skills. Are you up for the challenge?

Topics tested

- Create a Linux virtual machine instance
- Enable public access to VM instance
- Running basic Apache Web Server
- Test your server

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

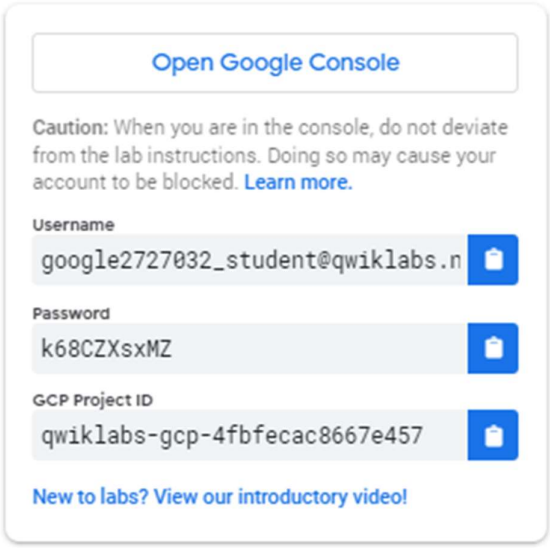
To complete this lab, you need:

- 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.

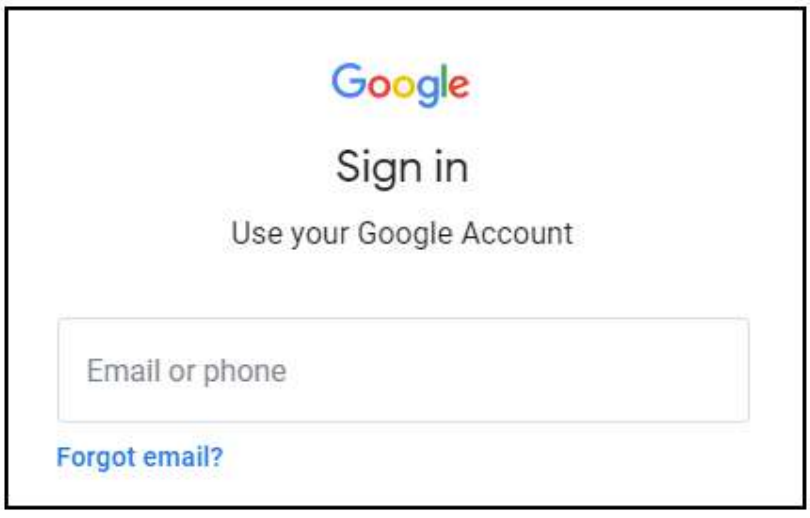
  Note: If you are using a Pixelbook, open an Incognito window to run this lab.

  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.

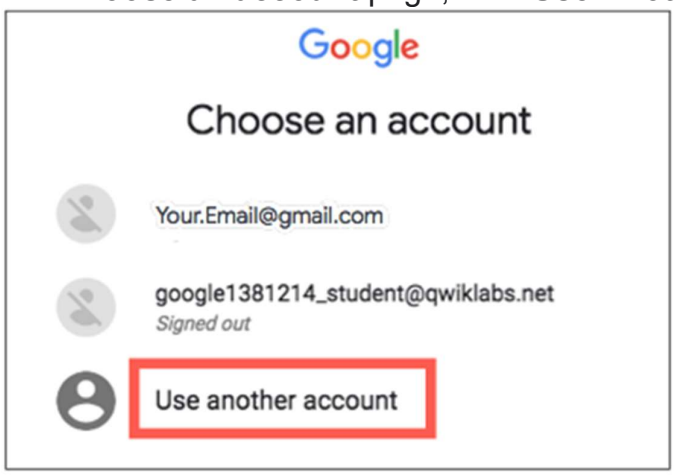


  2. Copy the username, and then click **Open Google Console**. The lab spins up resources, and then opens another tab that shows the **Sign in** page.



  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.

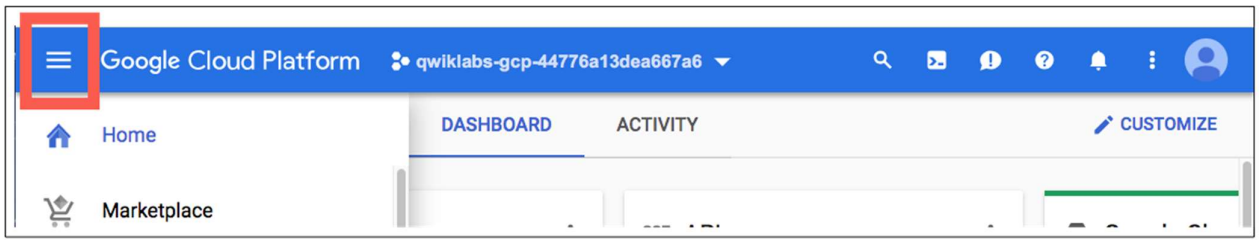
   Important: You must use the credentials from the Connection Details panel. Do not use your Qwiklabs credentials. If you have your own Google Cloud account, do not use it for this lab (avoids incurring charges).

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.

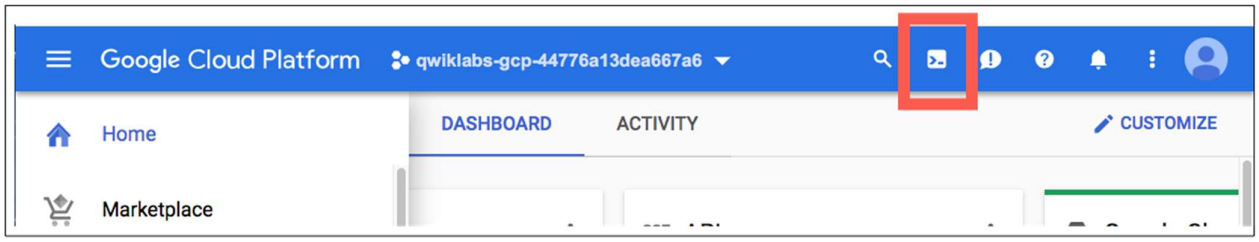
Note: You can view the menu with a list of Google Cloud Products and Services by clicking the **Navigation menu** at the top-left.



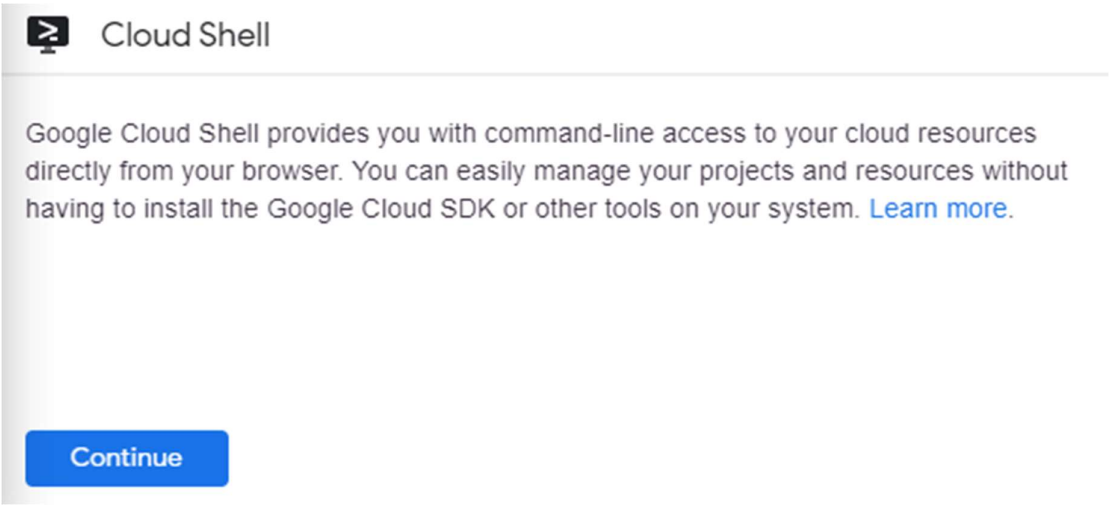
Activate Cloud Shell

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:

`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.

Challenge scenario

Your company is ready to launch a brand new product! Because you are entering a totally new space, you have decided to deploy a new website as part of the product launch. The new site is complete, but the person who built the new site left the company before they could deploy it.

Your challenge

Your challenge is to deploy the site in the public cloud by completing the tasks below. You will use a simple Apache web server as a placeholder for the new site in this exercise. Good luck!

Running a Basic Apache Web Server

A virtual machine instance on Compute Engine can be controlled like any standard Linux server. Deploy a simple Apache web server (a placeholder for the new product site) to learn the basics of running a server on a virtual machine instance.

Create a Linux VM Instance

Create a Linux virtual machine, name it "Apache" and specify the zone as "us-central1-a".

Enable Public Access to VM Instance

While creating the Linux instance, make sure to apply the appropriate firewall rules so that potential customers can find your new product.

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

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

Test Your Server

Test that your instance is serving traffic on its external IP. You should see the "Hello World!" page (a placeholder for the new product site).

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

Troubleshooting

- **Receiving a Connection Refused Error:**
    - Your VM instance is not publicly accessible because the VM instance does not have the proper tag that allows Compute Engine to apply the appropriate firewall rules, or your project does not have a firewall rule that allows traffic to your instance's external IP address.
    - You are trying to access the VM using an https address. Check that your URL is http:// EXTERNAL_IP and not https:// EXTERNAL_IP

Congratulations!

Finish Your Quest

This self-paced lab is part of the Qwiklabs Cloud Architecture: Design, Implement, and Manage Quest. 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

Continue your quest with Deploy a Compute Instance with a Remote Startup Script, or check out these suggestions:

- Configure a Firewall and a Startup Script with Deployment Manager
- Configure Secure RDP Using a Windows Bastion Host

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Lab Last Tested June 11, 2019
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Solution:

1. navigate to *Compute Engine* > *VM instances*
2. create a new VN instance
3. give the instance a name, called `apache`
4. Select `Allow HTTP traffic` under the Firewall section
5. leave other fields with the default settings, then click **Create**.

Check progress

6. click **SSH** to launch a terminal, and connect to the `apache` instance

```
sudo apt-get update
sudo apt-get install apache2 -y
```

Check Progress

```
echo '<!doctype html><html><body><h1>Hello World!</h1></body></html>' | sudo tee
/var/www/html/index.html
```

Check Progress