APIs Explorer: Compute Engine

GSP293

Overview

The APIs Explorer enables you to construct REST-based API calls against any version of any Google service. In this lab, you'll use API Explorer to create (insert) a Compute Engine instance with the Compute Engine API and then use Cloud Monitoring to monitor CPU usage.

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

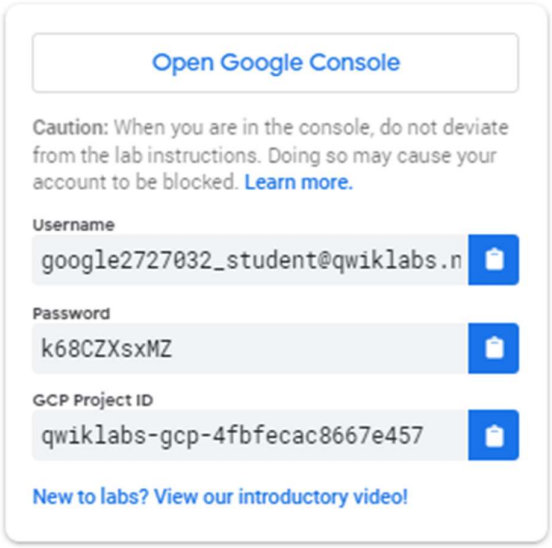
To complete this lab, you need:

- 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.

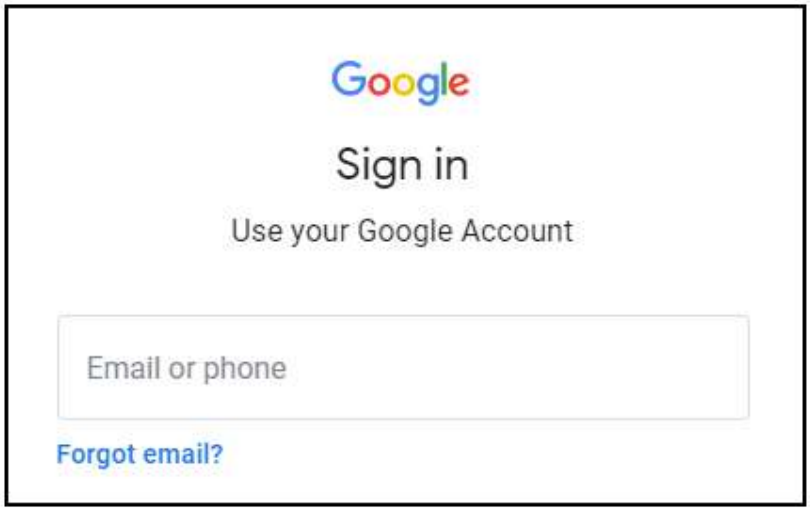
Note: If you are using a Pixelbook, open an Incognito window to run this lab.

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.

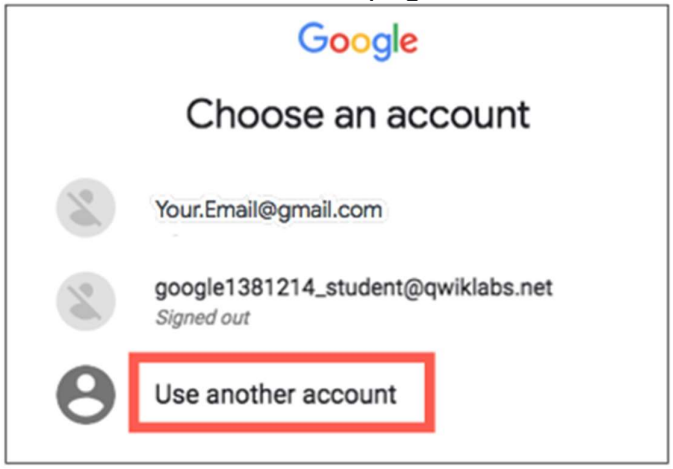


2. Copy the username, and then click **Open Google Console**. The lab spins up resources, and then opens another tab that shows the **Sign in** page.



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.

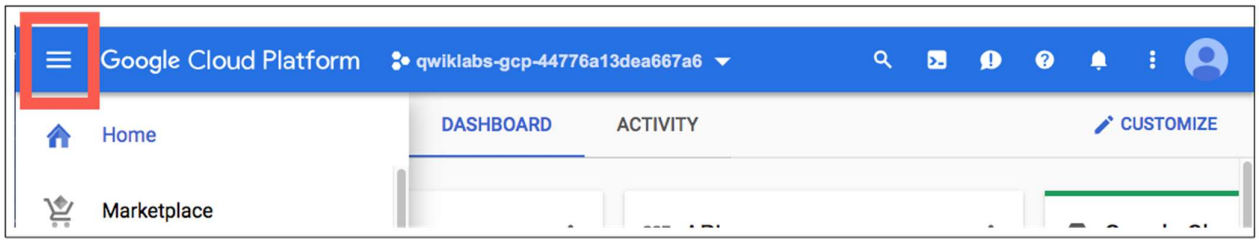
   Important: You must use the credentials from the Connection Details panel. Do not use your Qwiklabs credentials. If you have your own Google Cloud account, do not use it for this lab (avoids incurring charges).

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.

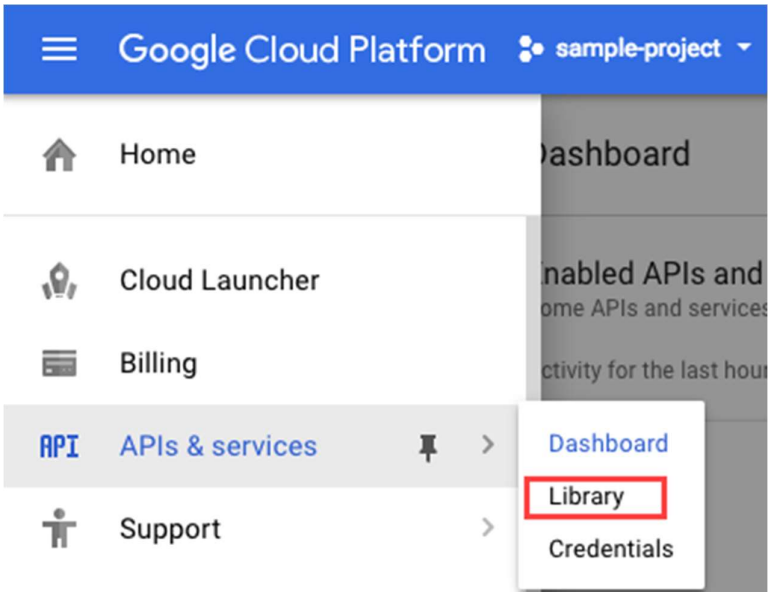
After a few moments, the Cloud Console opens in this tab.

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



API Explorer tool

To access the APIs Explorer tool, from the Navigation menu select **APIs & Services** > **Library**.



Type "compute" in the search bar and all the APIs prefixed with "compute" are returned. Click on **Compute Engine API**.

Make sure that API is enabled, if not click **Enable**.

Now that you have verified the API's enablement, open Rest API Reference. This will open a new tab with the Rest API Reference page for the Compute Engine API.

Create your request

From the left menu, navigate to **All APIs and references** > **Compute Engine API** > **v1** > **instances** > **insert** to `instances.insert` method or use this link to create an instance resource.
You'll now fill out a form to use the compute.instances.insert method. The Request body contains the resource properties that you want to use to create your instance:

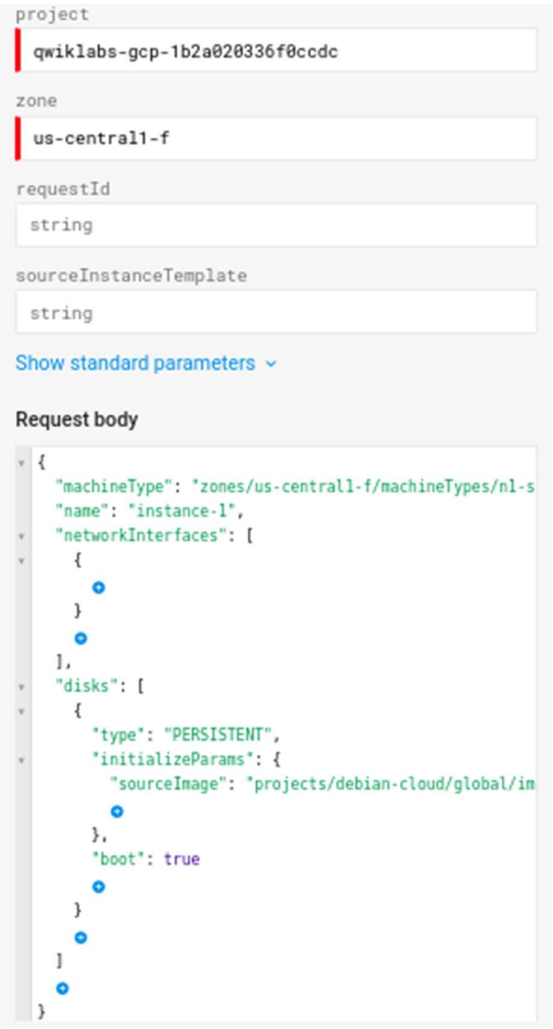
project= your-project-id

zone= `us-central1-f`

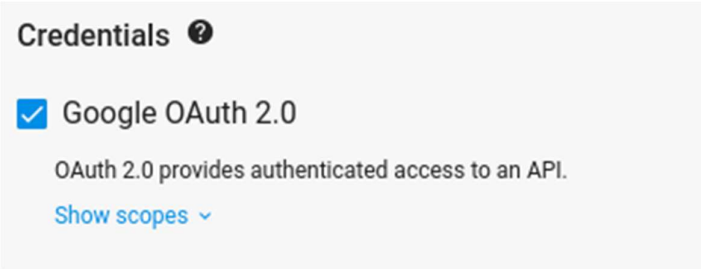
Request body= Click inside the brackets to select the following properties:

- **machineType**: `zones/us-central1-f/machineTypes/n1-standard-1`
- **name**: `instance-1`
- **networkInterfaces**: leave empty [{}]
- **disks**:
  - **type**: `PERSISTENT`
  - **initializeParams** > **sourceImage**: `projects/debian-cloud/global/images/family/debian-9`
- set the **boot** to **true**

Your form should look like this:



Make sure that **Google OAuth 2.0** checkbox is selected under **Credentials** section.



Note: To view **Credentials FAQs**, click on question mark icon next to **Credentials** title.
Make sure that there are no trailing spaces in any of the fields. Now scroll down and click **Execute**.

Select the student account you started the lab with.

On the next screen, click **Allow** to give APIs Explorer access.

You can see the Request that was sent to your project as code, built from the input you provided in the form. The Response below.

You can go into the Console and navigate to the **Navigation menu** > **Compute Engine** and see the instance you just created.

Test Completed Task

Click **Check my progress** to verify your performed task. If you have successfully created a Compute Engine instance via API, you will see an assessment score.

Monitor your instance with Cloud monitoring

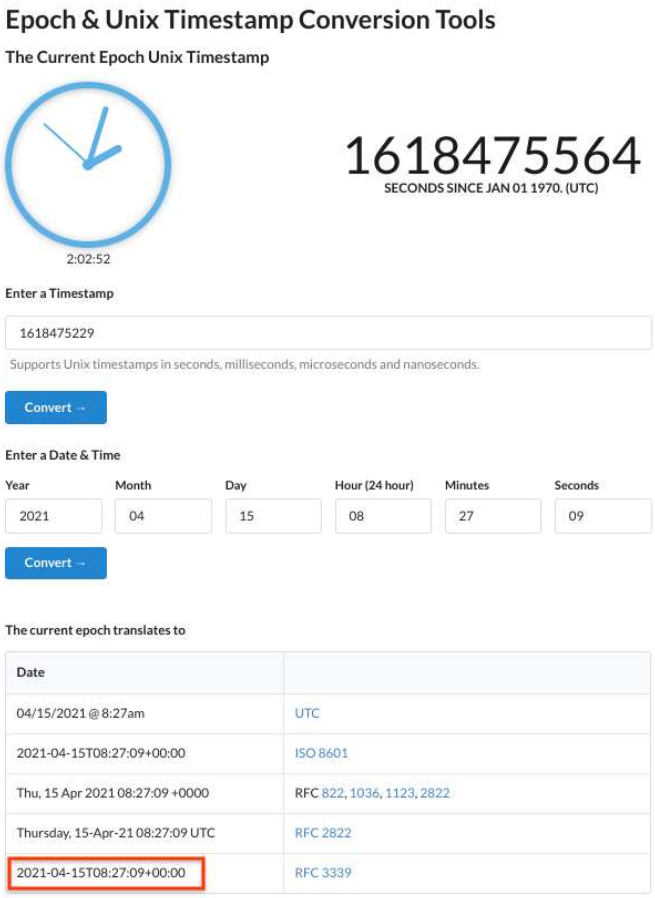
Use this link to navigate to Cloud Monitoring API.
From the left `APIs & Reference` section, navigate to **All APIs and references** > **Cloud Monitoring API v3** > **REST API reference** > **projects.timeSeries** > **list** to `projects.timeSeries.list` method or use this link to lists time series.
For this method, the `name` is specified as a string with in the format `projects/Your_Project_ID`.

The monitoring `filter` specifies which time series should be returned. The `filter` must specify a single metric type and can additionally specify a metric label and other information.

For this lab specify “gce_instance” as the resource type and “cpu/usage_time” as the metric type. Add the following string in the `filter` box:

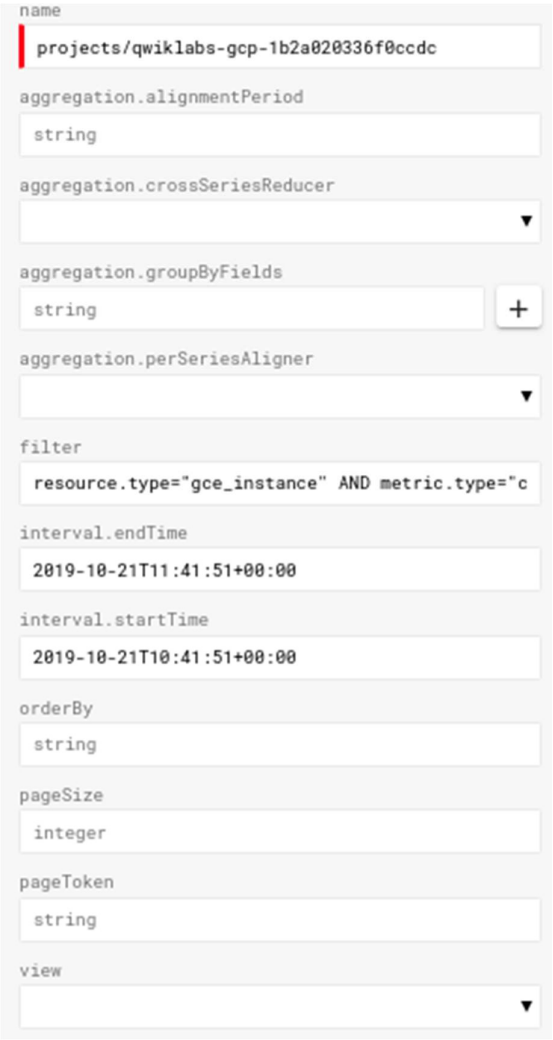
```
resource.type="gce_instance" AND
metric.type="compute.googleapis.com/instance/cpu/usage_time"
```

`interval.endTime` and `interval.startTime`: You will need to calculate RFC-3339 timestamps to filter the timeseries returned by APIs Explorer. You can use https://www.unixtimestamp.com/ to get the current time.
Copy the last RFC 3339 timestamp and add it to `interval.endTime`:

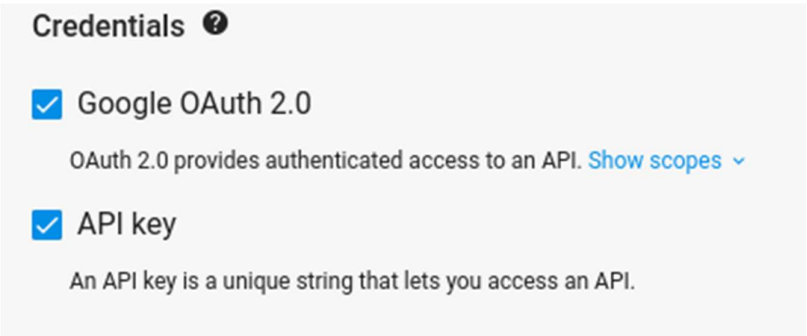


Subtract one hour from your timestamp time, and add that value to `interval.startTime`.

Your form should look like this:

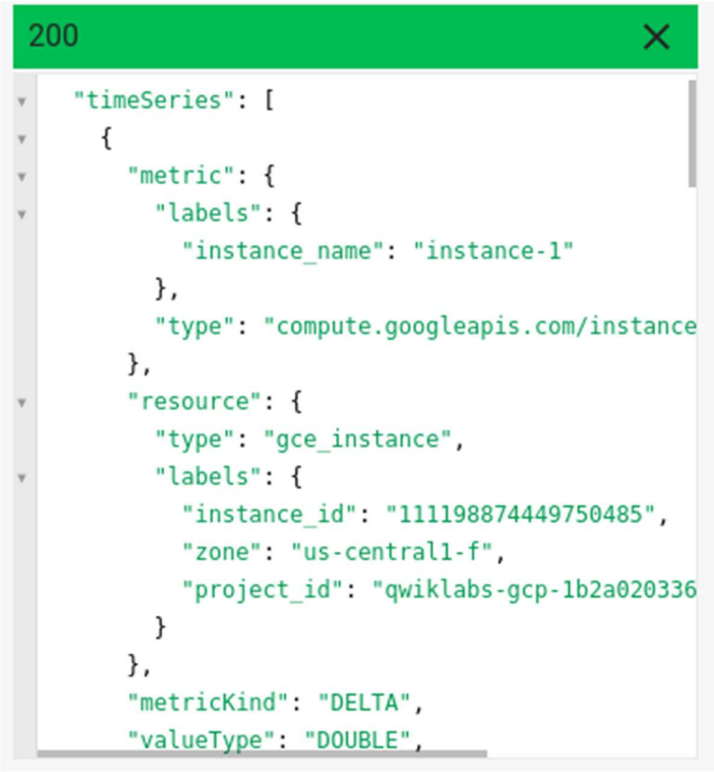


Make sure that **Google OAuth 2.0** and **API key** checkboxes are selected under **Credentials** section.



Note: To view **Credentials FAQs**, click on question mark icon next to **Credentials** title.

Make sure that there are no trailing spaces in any of the fields. Now scroll down and click **Execute**.


200
"timeSeries": [
{
"metric": {
"labels": {
"instance_name": "instance-1"
},
"type": "compute.googleapis.com/instance
},
"resource": {
"type": "gce_instance",
"labels": {
"instance_id": "1111988744497504 85",
"zone": "us-central1-f",
"project_id": "qwiklabs-gcp-1b2a020336
}
},
"metricKind": "DELTA",
"valueType": "DOUBLE",

Bonus: See your metric in Cloud Monitoring

You can do the same exercise in Cloud Monitoring if you want. Open a Cloud monitoring workspace in the Cloud Console, then use the Metrics Explorer to monitor your VMs CPU usage.

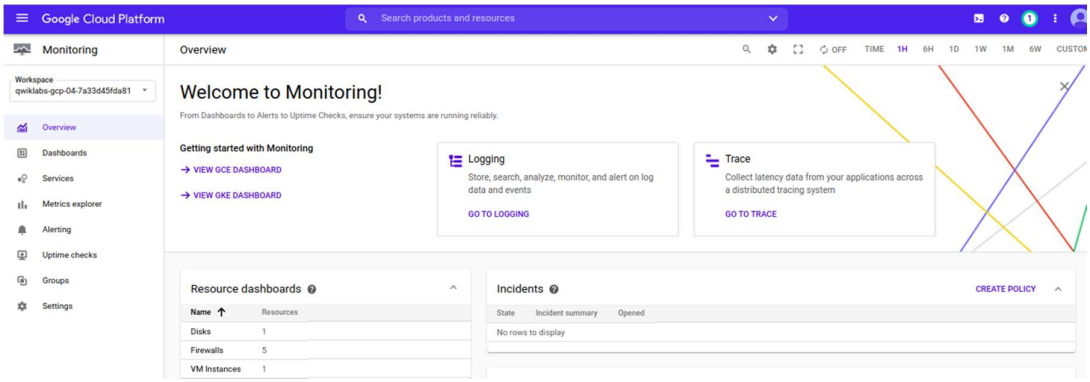
Create a Monitoring workspace

Now set up a Monitoring workspace that's tied to your Google Cloud Project. The following steps create a new account that has a free trial of Monitoring.

1. In the Cloud Console, click **Navigation menu** > **Monitoring**.

2. Wait for your workspace to be provisioned.

When the Monitoring dashboard opens, your workspace is ready.



Monitor CPU usage

In the left menu, click **Metrics Explorer**.

Resource Type: VM Instance (gce_instance)

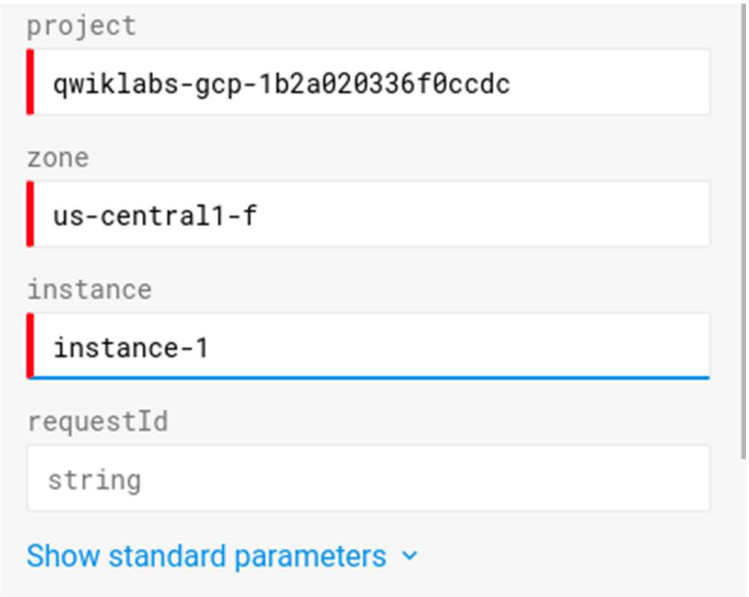
Metric: CPU Usage

Filter: instance_name (select your instance)

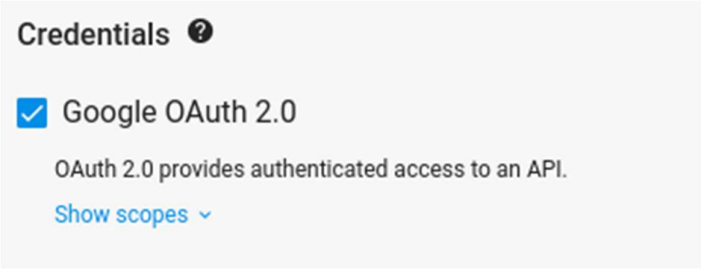
Delete your VM

Now use APIs Explorer to delete the instance you created.

Open Rest API Reference. This will open a new tab with the Rest API Reference page for the Compute Engine API.
From the left APIs & Reference section navigate to **All APIs and references** > **Compute Engine API** > **v1** > **instances** > **delete** to `instances.delete` method or use this link to delete a instance resource.
You'll add your `project`, `zone`, and `instance` name to the form:



Make sure that **Google OAuth 2.0** checkbox is selected under **Credentials** section.



Note: To view **Credentials FAQs**, click on question mark icon next to **Credentials** title.
Make sure that there are no trailing spaces in any of the fields. Now scroll down and click **Execute**.

Your Response will indicate that the deletion process has been started.

Navigate to **Compute Engine** with **Navigation menu** > **Compute Engine** and verify that your console resembles following:

Note: If your instance deletion process has been completed then you won't able to see an output as above. That means your instance has been removed.

Test Completed Task

Click **Check my progress** to verify your performed task. If you have successfully deleted your instance, you will see an assessment score.

Test your knowledge

Test your knowledge about the Google Cloud by taking our quiz.

You can create an instance using gcloud shell, google cloud console and through APIs Explorer.
True

Congratulations!

You have created an instance, monitored it's CPU usage, and removed an instance using APIs Explorer.

Finish Your Quest

This self-paced lab is part of the Qwiklabs Exploring APIs 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.

Next Steps / Learn More

- Read the Frequently Asked Questions page for APIs Explorer
- Creating API Requests and Handling Responses for Compute Engine API
- This lab is based on this Medium article by Daz Wilkin.

Google Cloud Training & Certification

...helps you make the most of Google Cloud technologies. Our classes include technical skills and best practices to help you get up to speed quickly and continue your learning journey. We offer fundamental to advanced level training, with on-demand, live, and virtual options to suit your busy schedule. Certifications help you validate and prove your skill and expertise in Google Cloud technologies.

Manual Last Updated April 15, 2021

Lab Last Tested April 15, 2021