

Monitoring and Logging for Cloud Functions | Google Cloud Skills Boost

Qwiklabs : 11-13 minutes

GSP092



Google Cloud Self-Paced Labs

Overview

In this lab you use Cloud Monitoring to view Cloud Functions details in the Google Cloud console. The Cloud Function details include execution times and counts, and memory usage.

Setup and requirements

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 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.

To complete this lab, you need:

- Access to a standard internet browser (Chrome browser recommended).

Note: Use an Incognito or private browser window to run this lab. This prevents any conflicts between your personal account and the Student account, which may cause extra charges incurred to your personal account.

- Time to complete the lab---remember, once you start, you cannot pause a lab.

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

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 the **Lab Details** panel with the following:
 - The **Open Google Console** button
 - Time remaining

- The temporary credentials that you must use for this lab
- Other information, if needed, to step through this lab

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

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

Note: If you see the **Choose an account** dialog, click **Use Another Account**.

3. If necessary, copy the **Username** from the **Lab Details** panel and paste it into the **Sign in** dialog. Click **Next**.

4. Copy the **Password** from the **Lab Details** panel and paste it into the **Welcome** dialog. Click **Next**.

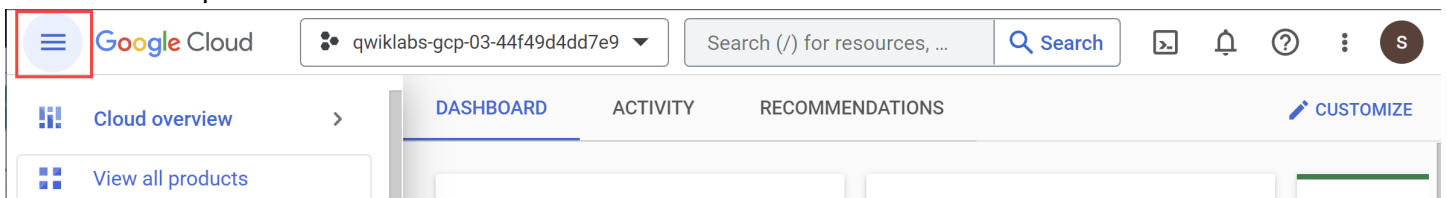
Important: You must use the credentials from the left panel. Do not use your Google Cloud Skills Boost credentials. **Note:** Using your own Google Cloud account for this lab may incur extra charges.

5. 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.

1. Click **Activate Cloud Shell**  at the top of the Google Cloud console.

When you are connected, you are already authenticated, and the project is set to your **PROJECT_ID**. The output contains a line that declares the **PROJECT_ID** for this session:

Your Cloud Platform project in this session is set to YOUR_PROJECT_ID

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

2. (Optional) You can list the active account name with this command:

gcloud auth list

3. Click **Authorize**.

4. Your output should now look like this:

Output:

ACTIVE: * ACCOUNT: student-01-xxxxxxxxxxxx@qwiklabs.net To set the active account, run: \$ gcloud config set account `ACCOUNT`

5. (Optional) 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 **Note:** For full documentation of gcloud, in Google Cloud, refer to [the gcloud CLI overview guide](#).

Task 1. Viewing Cloud Function logs & metrics in Cloud Monitoring

Before you collect logs and alerts, you need something to monitor. In this section, you create a Hello World cloud function to monitor.

1. In the Cloud Console, select **Navigation menu** (☰) > **Cloud Functions**, and then **Create function**.
2. Set the following:
 - **Function Name:** helloWorld
 - **Region:**
 - **Trigger type:** HTTP
 - **Authentication:** check the box next to **Allow unauthenticated invocations**
3. Click **Save**.
4. Expand **Runtime, build, connections and security settings**. Under *Autoscaling*, set the **Maximum number of instances** to 5.
5. Click **Next**.
6. Click **Deploy**.

The cloud function automatically deploys and is listed on the Cloud Function page. This takes a few minutes. When you see a green check mark next to the name, the cloud function is complete.

Test completed task

Click **Check my progress** to verify your performed task. If you have completed the task successfully you will be granted an assessment score.

Creating a Cloud Function

7. In Cloud Shell, run the following to get a tool called **vegeta** that will let you send some test traffic to your cloud function:

```
curl -LO 'https://github.com/tsenart/vegeta/releases/download/v6.3.0/vegeta-v6.3.0-linux-386.tar.gz'
```

8. Unpack the **vegeta** tool by running the following:

```
tar xvzf vegeta-v6.3.0-linux-386.tar.gz
```

9. Still in the Cloud Functions page, click the name of your function, and then click on the **Trigger** tab. Click the **Trigger URL** for your function.

If you see **Hello World!** in the new browser tab that opens, you're up and running!

10. Now send traffic to your cloud function. Run the following in Cloud Shell.

```
echo "GET https://{{{ project_0.default_region }}}-{{{ project_0.project_id }}}.cloudfunctions.net/helloWorld" |  
./vegeta attack -duration=300s > results.bin
```

Task 2. Create logs-based metric

Now you'll create a **Distribution** type logs based metric using a regular expression to extract the value of latency from the log entries **textPayload** field.

1. In the Console, select **Navigation menu > Logging > Logs Explorer**. The Cloud Logging opens in the Console.
2. To look at just the logs from your Cloud Function, in the **Resource** dropdown, select **Cloud Function > helloWorld** then click **Apply**. In the **Log name** dropdown, select **cloud-functions** checkbox then click **Apply**.
3. Click **Run query**.
4. Click **Create metric**.
5. In the *Create logs metric*:
 - Change the Metric Type to **Distribution**.
 - Name your metric **CloudFunctionLatency-Logs**.
 - Enter **textPayload** for Field name.
 - Enter the following in the **Regular Expression** field:

```
execution took (\d+)
```

The Create logs metric should look like this:

Create logs metric

Filter selection

[PREVIEW LOGS](#)

Define your logs-based metric

Build filter *

```
1 resource.type="cloud_function" resource.labels.  
  function_name="helloWorld"  
2 logName="projects/qwiklabs-gcp-01-331e0d8b7719/logs/  
  cloudfunctions.googleapis.com%2Fcloud-functions"
```

Field name *

textPayload

Select the name of the log entry field from which the metric value is retrieved

Regular expression

execution took (\d+)

Extracts a value from the field that must contain exactly one regex group ()

Labels

Labels allow logs-based metrics to contain multiple time series [Learn more](#) 

[+ ADD LABEL](#)

 **ADVANCED**

CREATE METRIC

CANCEL

6. Click **Create metric**.

Now you'll see your user-defined metric added to your Logs-based Metrics page.

Test completed task

Click **Check my progress** to verify your performed task. If you have completed the task successfully you will be granted an assessment score.

Create logs-based metric

Task 3. Metrics Explorer

Next, use Metrics Explorer to look at the data for your cloud function.

Create a Monitoring Metrics Scope

Set up a Monitoring Metrics Scope that's tied to your Google Cloud Project. The following steps create a new account that has a free trial of Monitoring.

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

When the Monitoring **Overview** page opens, your metrics scope project is ready.

1. In the left menu, click **Metrics explorer**.
2. Start typing executions into the **Select a Metric** dropdown, and then select **Cloud Function > Function > Executions** from the suggested metrics and click **Apply**.
3. Change the graph type to **Stacked bar chart** using the dropdown menu above the graph.
4. Explore other graph options, try a different metric. For example, click your current **Cloud function - Executions** metric to open the dropdown, select **Execution times**, and change the graph type to **Heatmap chart**.
5. Continue to explore and experiment. For example, go back to the **Executions** metric and change the aggregator to the **95th percentile**. Select the graph type **Line chart**.

Task 4. Create charts on the Monitoring Overview window

Creating charts on the Monitoring Overview window is a great way to track metrics that are important to you. In this section, you set up the same charts you created in the previous section, but now they'll be saved into the Monitoring Overview window.

1. In the left menu, click **Dashboards**.
2. Click on **+ Create dashboard**.
3. Click on **+ Add chart**.
4. In the dropdown menu, select **Stacked bar**.

Note: If the **Add chart** option is grayed out then delete existing charts from the overview page.

5. In the **Resource & Metric** section, select the default **VM instance - CPU utilization** metric to open the dropdown and change the metric.
6. Start typing executions into the **Select a Metric** dropdown, and then select **Cloud Function > Function > Executions** from the suggested metrics and click **Apply**.
7. After you create the first chart, click **+ ADD CHART > Heatmap** to create the next one.
8. In the **Resource & Metric** section, select the default **VM INSTANCE - RTT LATENCIES** metric to open the dropdown and change the metric.
9. Start typing execution times into the **Select a Metric** dropdown, and then select **Cloud Function > Function > Execution times** from the suggested metrics and click **Apply**.

By default, the charts name themselves after the metric you're using, but you can rename them.

For a quick reference, to see these charts click **Dashboards** in the left panel of the Monitoring page.

Task 5. Test your understanding

Below are multiple-choice questions to reinforce your understanding of this lab's concepts. Answer them to the best of your abilities.

Congratulations!

Finish your quest

This self-paced lab is part of the [Google Cloud's Operations Suite](#) and [Cloud Logging](#) quests. A quest is a series of related labs that form a learning path. Completing a quest earns you a badge 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 any quest that contains this lab and get immediate completion credit. Refer to the [Google Cloud Skills Boost catalog](#) for all available quests.

Take your next lab

Continue your quest with [Autoscaling an Instance Group with Custom Cloud Monitoring Metrics](#), or check out these suggestions:

- [Cloud Monitoring: Qwik Start](#)
- [Monitoring Multiple Projects with Cloud Monitoring](#)

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