

# APIs Explorer: Cloud Storage

GSP421



# Overview

The [Google APIs Explorer](#) is a tool that helps you explore various Google APIs interactively. With the APIs Explorer, you can:

- Browse quickly through available APIs and versions.
- See methods available for each API and what parameters they support along with inline documentation.
- Execute requests for any method and see responses in real-time.
- Make authenticated and authorized API calls.
- Search across all services, methods, and your recent requests to quickly find what you are looking for.

[Cloud Storage](#) allows world-wide storage and retrieval of any amount of data at any time. You can use Cloud Storage for a range of scenarios including serving website content, storing data for archival and disaster recovery, or distributing large data objects to users via direct download.

In this lab, you will use the APIs Explorer to make Cloud Storage API requests that create and delete Cloud Storage buckets. You will also learn how to copy and delete files in Cloud Storage.

## Objectives

In this lab, you will:

- Create Cloud Storage buckets using the APIs Explorer.
- Upload image files to your Cloud Storage bucket.
- Copy an image file and add it to a Cloud Storage bucket using the APIs Explorer.
- Delete image files from your Cloud Storage bucket using the APIs Explorer.
- Delete a Cloud Storage bucket using the APIs Explorer.

## Prerequisites

This is a **fundamental level** lab. You should be familiar with the basic functioning and architecture of APIs. Experience with Google Cloud Shell and command-line interface tools is recommended.

Familiarity with the APIs Explorer tool and Cloud Storage is recommended, so please at a minimum take the following labs before attempting this one:

- [APIs Explorer: Qwik Start](#)
- [Cloud Storage: Qwik Start - Console](#)

Once you're ready, scroll down and follow the steps below to get your lab environment set up.

# 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 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:

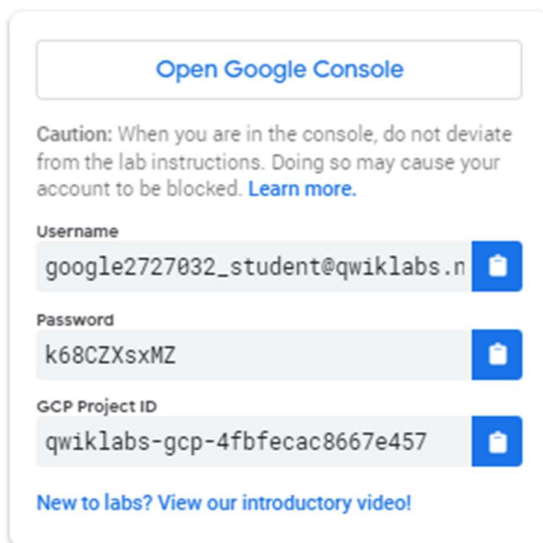
- Access to a standard internet browser (Chrome browser recommended).
- Time to complete the lab.

**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:

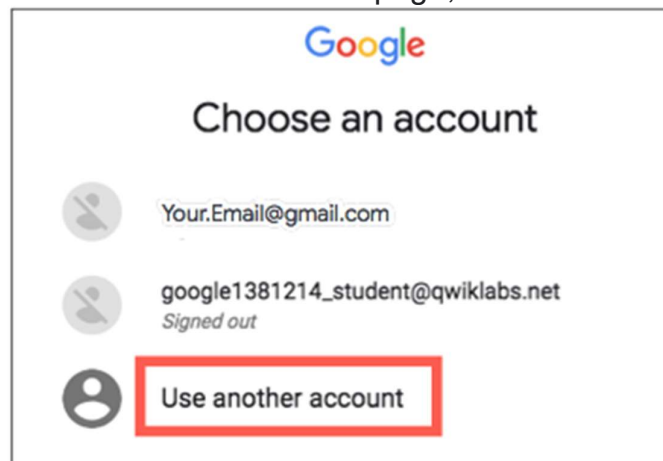
- A button at the top labeled "Open Google Console".
- A caution message: "Caution: When you are in the console, do not deviate from the lab instructions. Doing so may cause your account to be blocked. [Learn more.](#)"
- Three input fields, each with a copy icon to its right:
  - Username:** google2727032\_student@qwiklabs.n
  - 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).

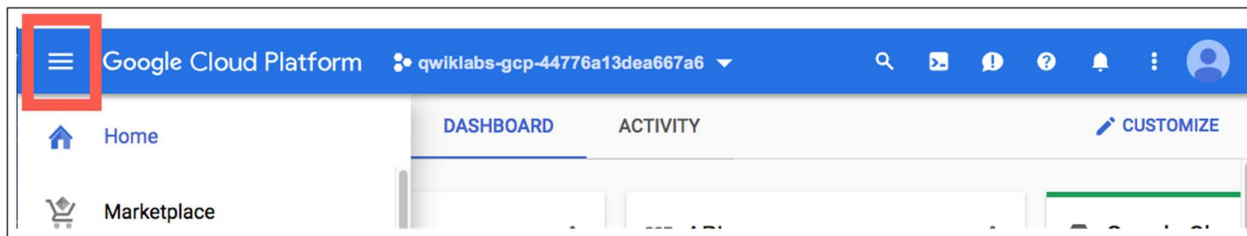
4. Click through the subsequent pages:

- 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.

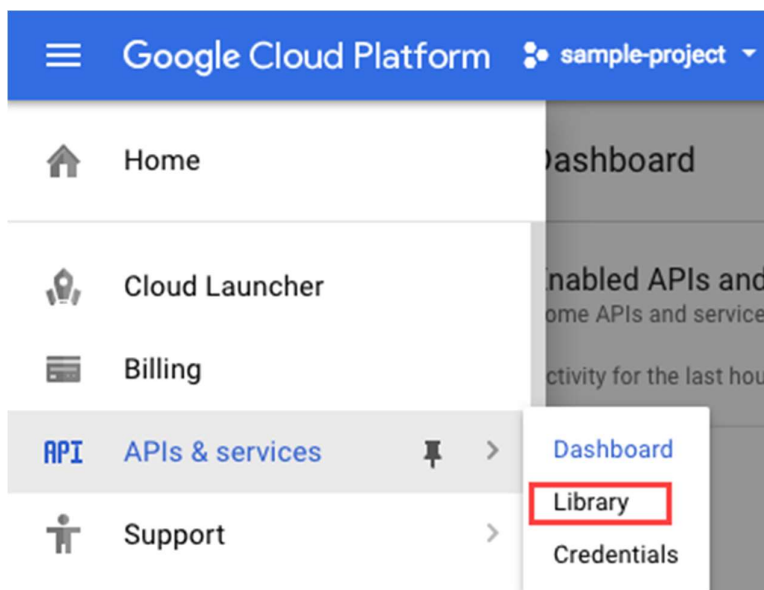
**Note:** You can view the menu with a list of Google Cloud Products and Services by clicking the **Navigation menu** at the top-

left.



## Create Cloud Storage Buckets

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



In the search bar, type **Cloud Storage**. Click on the **Cloud Storage JSON API** from the results list.

Make sure that API is enabled, if not click **Enable**. Now that you have verified the API's enablement, open [this link](#). This will open a new tab with the APIs Explorer page loaded. You will now be on the APIs Explorer page.

**Note:** In the next section you are using the `insert` method from **Cloud Storage JSON API**. You can view all API versions and its method on [Cloud Storage JSON API](#) link.

Now click on the request body from the right panel under Try this API and fill in the details for your storage bucket:

- **project:** add your Project ID.
- **Request body:** click inside the quotes next to the **name** key-value pair and give your Cloud Storage bucket a unique name that follows the [Cloud Storage bucket naming guidelines](#).

Your method should now resemble the following:

Request parameters

project

qwiklabs-gcp-2722fec8f5bbcc77

predefinedAcl

predefinedDefaultObjectAcl

projection

provisionalUserProject

string

userProject

string

Show standard parameters ▾

Request body

{

"name": "qwiklabs-bucket01"

}

For suggestions, press control+space or click one of the blue "add" circles.

**Note:** Make sure that there are no trailing spaces in the project ID field. Also, that **Google OAuth 2.0** and **API key** checkboxes are selected under **Credentials** section.

Credentials ?

☒ Google OAuth 2.0

OAuth 2.0 provides authenticated access to an API. [Show scopes ▾](#)

☒ API key

An API key is a unique string that lets you access an API.

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

Select the student account you started the lab with.

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

Your response should resemble the following:

```
{
  "kind": "storage#bucket",
  "id": "qwiklabs-bucket01",
  "selfLink": "https://www.googleapis.com/storage/v1/b/qwiklabs-bucket01",
  "projectNumber": "250399850182",
  "name": "qwiklabs-bucket01",
  "timeCreated": "2019-10-18T13:59:08.300Z",
  "updated": "2019-10-18T13:59:08.300Z",
  "metageneration": "1",
  "iamConfiguration": {
    "bucketPolicyOnly": {
      "enabled": false
    },
    "uniformBucketLevelAccess": {
      "enabled": false
    }
  },
  "location": "US",
  "locationType": "multi-region",
  "storageClass": "STANDARD",
  "etag": "CAE="
}
```

## Test Completed Task

Click **Check my progress** to verify your performed task. If you have successfully created a Cloud Storage Bucket, you will see an assessment score.

## Make a second Cloud Storage bucket

Now make another Cloud Storage bucket so you can get hands-on practice copying files between the two.

Still, in the `insert` method, ensure that your Qwiklabs Project ID is still in the project field. In the request body, for the **name** key-value pair, give your second bucket a unique name.

Make sure that there are no trailing spaces in any of the fields. Click the **Execute** button. Your response should resemble the following:

```
{
  "kind": "storage#bucket",
```

```

{id": "qwiklabs-bucket02",
"selfLink": "https://www.googleapis.com/storage/v1/b/qwiklabs-bucket02",
"projectNumber": "250399850182",
"name": "qwiklabs-bucket02",
"timeCreated": "2019-10-18T13:59:08.300Z",
"updated": "2019-10-18T13:59:08.300Z",
"metageneration": "1",
"iamConfiguration": {
  "bucketPolicyOnly": {
    "enabled": false
  },
  "uniformBucketLevelAccess": {
    "enabled": false
  }
},
"location": "US",
"locationType": "multi-region",
"storageClass": "STANDARD",
"etag": "CAE="
}

```

You have successfully created two buckets with the `insert` method. Next you'll find them in the Cloud Console.

## Test Completed Task

Click **Check my progress** to verify your performed task. If you have successfully created a second Cloud Storage Bucket, you will see an assessment score.

## View your Cloud Storage buckets in the Cloud Console

Return to the Cloud Console and from the **Navigation menu** go to **Storage**. to ensure that your Cloud Storage buckets were created.

From the **Navigation menu** select **Storage > Browser**. You should see your newly created buckets added:

Buckets

<input type="checkbox"/>	Name	Default storage class <sup>?</sup>	Location	Location Type	Public access <sup>?</sup>	Lifecycle <sup>?</sup>	Access control <sup>?</sup>
<input type="checkbox"/>	qwiklabs-bucket01	Standard	us (multiple regions in United States)	Multi-region	Per object	None	Bucket policy & ACLs
<input type="checkbox"/>	qwiklabs-bucket02	Standard	us (multiple regions in United States)	Multi-region	Per object	None	Bucket policy & ACLs

Remain in the Cloud Console for the following step. Keep the APIs Explorer tab open.



# Upload Files to Your Cloud Storage Bucket

You will now upload some files to your Cloud Storage bucket so you can get hands-on practice with methods housed in the APIs explorer.

Save the following image to your computer and name it **demo-image1.png**:



Now save this public domain image of [Ada Lovelace](#) to your computer and name it **demo-image2.png**:



In the Cloud Storage browser select the first bucket from the list. Click **Upload files** and select **demo-image1.png** and **demo-image2.png** from your computer. Your bucket should now have both image files added to it and should resemble the following:



qwklabs-bucket01

[Objects](#) [Overview](#) [Permissions](#) [Bucket Lock](#)

[Upload files](#) [Upload folder](#) [Create folder](#) [Manage holds](#) [Delete](#)

🔍 Filter by prefix...

[Buckets](#) / [qwklabs-bucket01](#)

<input type="checkbox"/>	Name	Size	Type	Storage class	Last modified	Public access ?	Encryption ?	Retention expiration date ?
<input type="checkbox"/>	 demo-image1.png	392.53 KB	image/png	Standard	10/18/19, 7:37:55 PM UTC+5:30	Not public	Google-managed key	–
<input type="checkbox"/>	 demo-image2.png	2 MB	image/png	Standard	10/18/19, 7:37:58 PM UTC+5:30	Not public	Google-managed key	–

## Test Completed Task

Click **Check my progress** to verify your performed task. If you have successfully uploaded files on Cloud Storage bucket, you will see an assessment score.

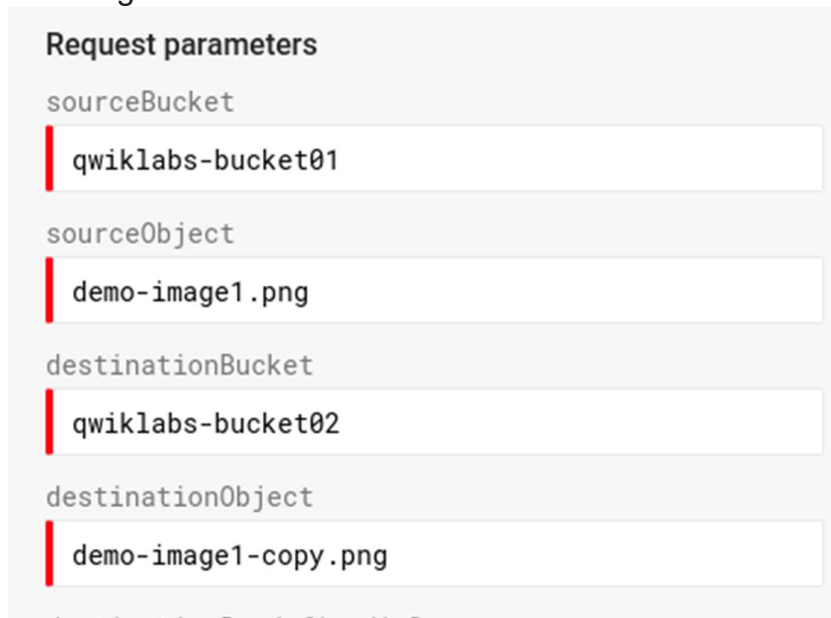
Next, you will copy one of the image files to your second Cloud Storage bucket.

# Copy files between Cloud Storage buckets

From the left APIs & Reference section navigate to **JSON API > API**

**reference > Objects > copy** to `copy` method or use [this link](#) to copy files between storage buckets using API Explorer.

- **sourceBucket:** type in the name of the bucket that contains the demo image files.
- **sourceObject:** enter in **demo-image1.png**.
- **destinationBucket:** enter in the name of your second (empty) bucket.
- **destinationObject:** type in **demo-image1-copy.png**. Your method should resemble the following:



**Request parameters**

sourceBucket

qwiklabs-bucket01

sourceObject

demo-image1.png

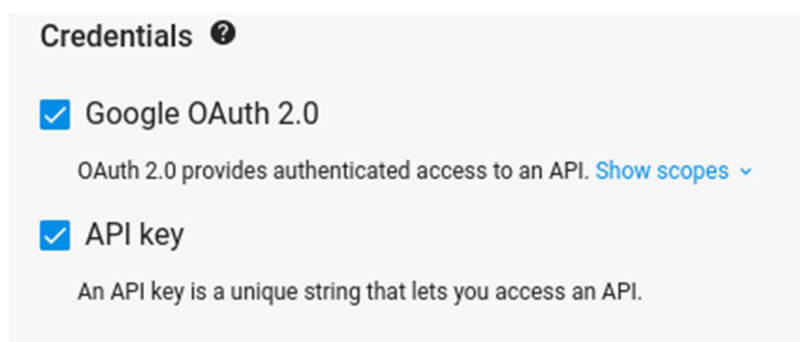
destinationBucket

qwiklabs-bucket02

destinationObject

demo-image1-copy.png

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



**Credentials** ?

☒ Google OAuth 2.0

OAuth 2.0 provides authenticated access to an API. [Show scopes](#) ▾

☒ API key

An API key is a unique string that lets you access an API.

**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**. You should receive a similar output:

```
{
  "kind": "storage#object",
  "id": "qwiklabs-bucket02/demo-image1-copy.png/1571408245199237",
  "selfLink": "https://www.googleapis.com/storage/v1/b/qwiklabs-bucket02/o/demo-image1-copy.png",
  "name": "demo-image1-copy.png",
```

```

"bucket": "qwiklabs-bucket02",
"generation": "1571408245199237",
"metageneration": "1",
"contentType": "image/png",
"timeCreated": "2019-10-18T14:17:25.198Z",
"updated": "2019-10-18T14:17:25.198Z",
"storageClass": "STANDARD",
"timeStorageClassUpdated": "2019-10-18T14:17:25.198Z",
"size": "401951",
"md5Hash": "LbpHpwhnApQKQx9IEXjTsQ==",
"mediaLink": "https://www.googleapis.com/download/storage/v1/b/qwiklabs-bucket02/o/demo-image1-copy.png?generation=1571408245199237&alt=media",
"owner": {
  "entity": "user-gcpstaging93416_student@qwiklabs.net"
},
"crc32c": "j5oPrg==",
"etag": "CIWjgvL/peUCEAE="
}

```

You have successfully copied a file from one bucket to another using the `objects.copy` method.

## Test Completed Task

Click **Check my progress** to verify your performed task. If you have successfully copied files between storage buckets, you will see an assessment score.

## View your updated bucket in the Cloud Console

Return to the Cloud Console for this step. You should have left off on your Cloud Storage bucket details page. From the left-hand menu, click **Browser** and select your second bucket. You should see the copy of **demo-image1.png** added:


qwiklabs-bucket02

Objects Overview Permissions Bucket Lock

Upload files Upload folder Create folder Manage holds Delete

Filter by prefix...

Buckets / qwiklabs-bucket02

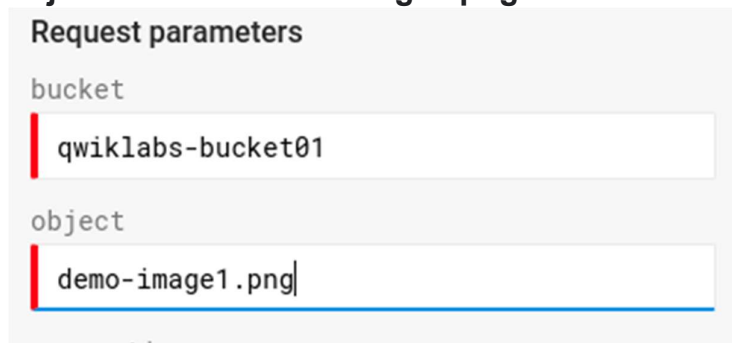
<input type="checkbox"/>	Name	Size	Type	Storage class	Last modified	Public access ?	Encryption ?
<input type="checkbox"/>	 demo-image1-copy.png	392.53 KB	image/png	Standard	10/18/19, 7:47:25 PM UTC+5:30	Not public	Google-managed key

# Delete Files from a Cloud Storage Bucket

From the left APIs & Reference section navigate to **JSON API > API reference > Objects > delete** or use [this link](#) to delete files from a Cloud Storage bucket using API Explorer.

Now you'll delete an image file from a Cloud Storage bucket.

- **bucket:** enter in the name of your bucket that contains both demo image files.
- **object:** enter in **demo-image1.png**. Your method should resemble the following:



Request parameters

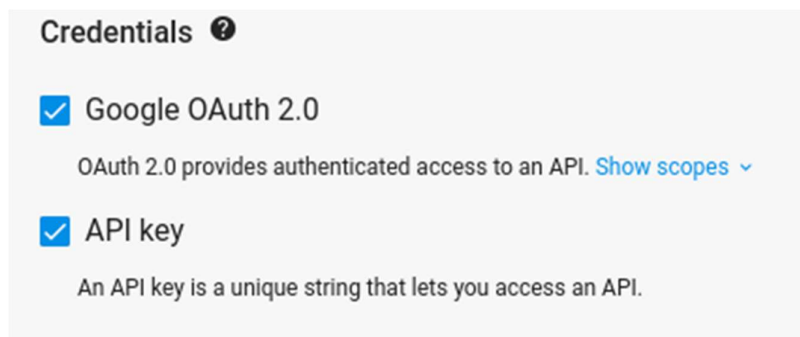
bucket

qwiklabs-bucket01

object

demo-image1.png

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



Credentials ?

☒ Google OAuth 2.0

OAuth 2.0 provides authenticated access to an API. [Show scopes](#) ▾

☒ API key

An API key is a unique string that lets you access an API.

**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**. You should receive a similar output as below:



204

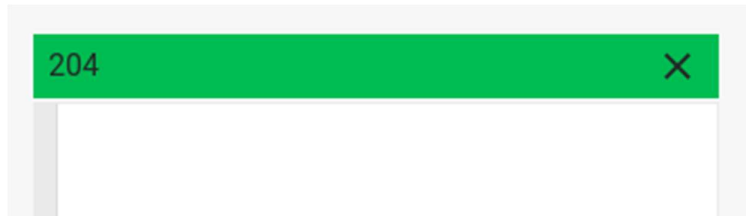
Now remove the second image from the Cloud Storage bucket. Still in the same method, for the **object** field, enter in **demo-image2.png**. Your bucket name will remain the same. Your method should resemble the following:

**Request parameters**

bucket

object

Now scroll down and click **Execute**. You should receive a similar output:



You have successfully deleted files from a bucket using the `objects.delete` method. You will now view your removed file in the Cloud Console.

## View your updated bucket in the Cloud Console

Return to the Cloud Console for this step. You should have left off on your Cloud Storage bucket details page. From the left-hand menu, click **Browser** and select your first bucket. You should see that both images have been removed:

qwiklabs-bucket01

[Objects](#) [Overview](#) [Permissions](#) [Bucket Lock](#)

[Upload files](#) [Upload folder](#) [Create folder](#) [Manage holds](#) [Delete](#)

[Buckets](#) / qwiklabs-bucket01

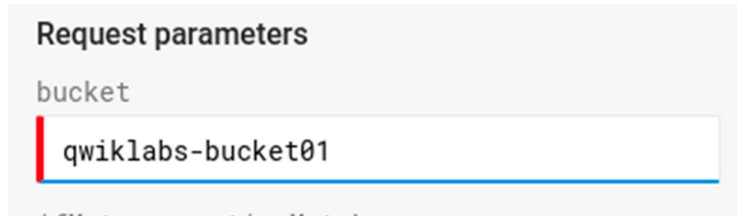
There are no live objects in this bucket. If you have object versioning enabled, this bucket may contain archived versions of objects, which aren't visible in the console. You can list archived object versions using [gsutil](#) or [the APIs](#).



# Delete Your Cloud Storage Bucket

From the left APIs & Reference section navigate to **JSON API > API reference > Buckets > delete** to `buckets.delete` method or use [this link](#) to delete a Cloud Storage bucket using API Explorer. You will now delete your first (empty) Cloud Storage bucket.

For the **bucket** field, enter in the name of your first bucket. Your method should resemble the following:

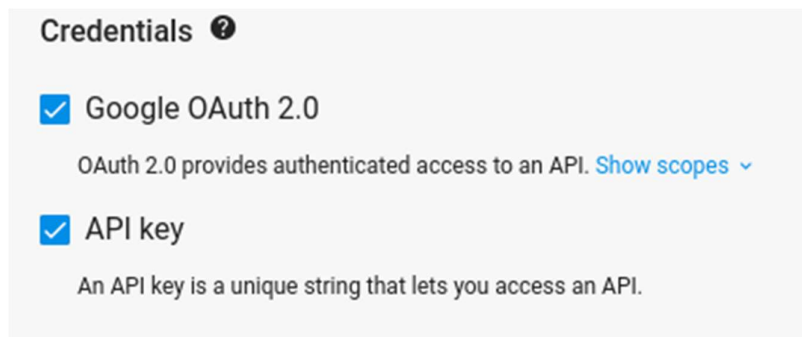


**Request parameters**

bucket

qwiklabs-bucket01

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

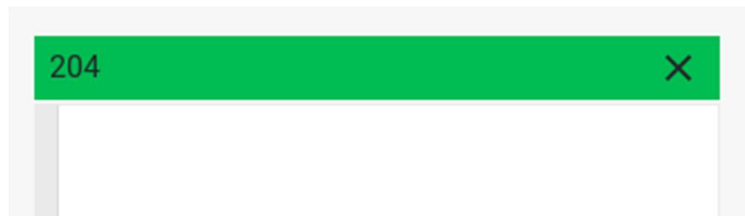


**Credentials** ?

☒ Google OAuth 2.0  
OAuth 2.0 provides authenticated access to an API. [Show scopes](#) v

☒ API key  
An API key is a unique string that lets you access an API.

**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**. You should receive a similar output:



204

You have successfully deleted a bucket using the `buckets.delete` method.

View your updated bucket in the Cloud Console

Return to the Cloud Console for this step. You should have left off on the Details page. From the left-hand menu, click **Browser**. You should see that your first bucket has been removed:

Columns ▾

Buckets

<input type="checkbox"/>	Name	Default storage class ?	Location	Location Type	Public access ?	Lifecycle ?
<input type="checkbox"/>	qwiklabs-bucket02	Standard	us (multiple regions in United States)	Multi-region	Per object	None

You have successfully completed all steps of the lab. You can end your lab here, or experiment with some new methods in the remaining time.

## 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.

Each bucket has a default storage class, which you can specify when you create your bucket.

True

Every bucket must have a unique name across the entire Cloud Storage namespace.

True

Cloud Storage offers four storage classes:

Multi-Regional Storage

Regional Storage

Nearline Storage

Coldline Storage



# Congratulations!

In this lab, you got hands-on practice creating Cloud Storage buckets with the APIs Explorer. You then learned how to copy and delete image files with specific APIs Explorer methods. After deleting image files, you learned how to delete an entire bucket with the `delete` method. At this point, you have a solid understanding of Cloud Storage and how you can provision this service's methods through the 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

Be sure to check out the following labs for more practice with the APIs Explorer:

- [APIs Explorer: IoT](#)

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options to suit your busy schedule. [Certifications](#) help you validate and prove your skill and expertise in Google Cloud technologies.

Manual Last Updated October 07, 2020

Lab Last Tested October 07, 2020

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