

Bigtable: Qwik Start - Command Line

 cloudskillsboost.google/games/2854/labs/17205

GSP099



Google Cloud Self-Paced Labs

Cloud Bigtable is Google's NoSQL Big Data database service. It's the same database that powers many core Google services, including Search, Analytics, Maps, and Gmail. Bigtable is designed to handle massive workloads at consistent low latency and high throughput, so it's a great choice for both operational and analytical applications, including IoT, user analytics, and financial data analysis.

In this lab you'll learn how to use the `cbt` command line to connect to a Cloud Bigtable instance, perform basic administrative tasks, and read and write data in a table.

Setup and Requirements

Qwiklabs 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 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.

Cloud Console

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**.

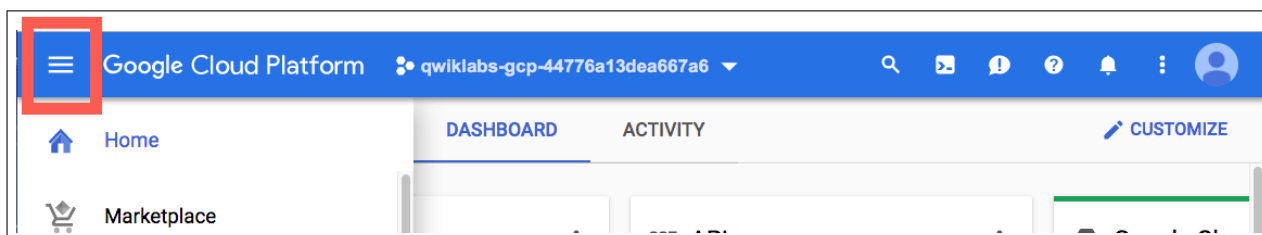
3. If necessary, copy the **Username** from the **Lab Details** panel and paste it into the **Sign in** dialog. Click **Next**.
4. Copy the **Password** from the **Lab Details** panel and paste it into the **Welcome** dialog. Click **Next**.

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.

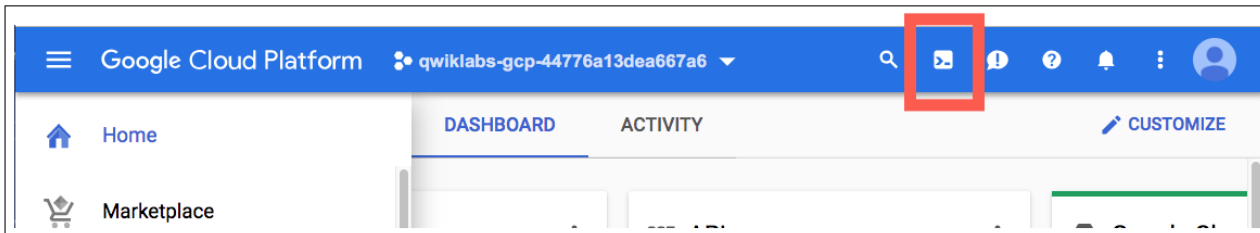


Cloud Shell

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



2. 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**. 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.

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

```
gcloud auth list
```

(Output)

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

4. (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 For full documentation of **gcloud**, in Google Cloud, Cloud SDK documentation, see the [gcloud command-line tool overview](#).

Task 1. Create a Cloud Bigtable instance

1. In the Cloud Console, go to **Navigation menu** menu, click on **Bigtable** in the Databases section, then click **Create instance**.
2. Fill in the fields for your instance as follows:

Field	Value
Instance name:	quickstart-instance
Instance ID:	quickstart-instance
Storage type:	SSD
Cluster ID:	quickstart-instance-c1
Region:	us-east1
Zone:	us-east1-c

Create an instance

A Cloud Bigtable instance is a container for your clusters. [Learn more](#)

1 Name your instance

Instance name *

quickstart-instance

For display purposes only

Instance ID *

quickstart-instance

ID is permanent

CONTINUE

A Cloud Bigtable instance is a container for your clusters. [Learn more](#)

✓ Name your instance

2 Select your storage type

Choice is permanent. Applies to all clusters. Affects cost.

☐ HDD

Higher latency for random reads. Good performance on scans and typically used for batch analytics, such as machine learning or data mining.

☒ SSD

Lower latency and more rows read per second. Typically used for real-time serving use cases, such as ad serving and mobile app recommendations.

CONTINUE

3 Configure your first cluster

A cluster handles application requests for an instance. It contains nodes which determine your cluster's performance and storage limit.

Additional clusters can be added at any time.

Select a cluster ID

ID is permanent

Cluster ID *
quickstart-instance-c1

Select a location

Choice is permanent. Determines where cluster data is stored. To reduce latency and increase throughput, store your data near the services that need it. [Learn more](#)

Region *
us-east1 (South Carolina) ▼

Zone *
us-east1-c ▼

Allocate nodes

Node count can be updated at any time to meet your cluster's need for data throughput, storage, and rows read per second. For better instance performance, keep your cluster's CPU utilization under the recommended threshold for your [app profile routing policy](#). [Contact us](#) if you need to increase your node quota. [Learn more](#)

Nodes *
1

3. Click **Create** to create the instance.

Task 2. Connect to your instance

1. In Cloud Shell, configure `cbt` to use your project and instance by modifying the `.cbtrc` file:

```
echo project = `gcloud config get-value project` > ~/.cbtrc  
echo instance = quickstart-instance >> ~/.cbtrc
```

Now you're ready to use the `cbt` command.

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

Create a Cloud BigTable instance

Task 3. Read and Write Data

Cloud Bigtable stores data in *tables*, which contain *rows*. Each row is identified by a *row key*.

Data in a row is organized into *column families*, or groups of columns. A *column qualifier* identifies a single column within a column family.

A *cell* is the intersection of a row and a column. Each cell can contain multiple *versions* of a value.

1. Create a table named `my-table` .

```
cbt createtable my-table
```

2. List your tables:

```
cbt ls
```

The command displays output similar to the following:

```
my-table
```

3. Add one column family named `cf1` :

```
cbt createfamily my-table cf1
```

4. List your column families:

```
cbt ls my-table
```

The command displays output similar to the following:

```
Family Name GC Policy ----- cf1 <never>
```

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

Create a table

5. Put the value `test-value` in the row `r1` , using the column family `cf1` and the column qualifier `c1` :

```
cbt set my-table r1 cf1:c1=test-value
```

6. Use the `cbt read` command to read the data you added to the table:

```
cbt read my-table
```

The shell displays output similar to the following:

```
----- r1 cf1:c1 @ 2016/10/31-15:05:38.840000 "test-value"
```

7. Delete the table `my-table` :

```
cbt deletetable my-table
```

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

Delete the table

You have now used the `cbt` command line to access Bigtable.

Congratulations!

Next Steps / Learn More

This lab is 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!

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