Connect to Cloud SQL for PostgreSQL from Cloud Shell

This page shows you how to create and connect to a PostgreSQL instance and perform basic SQL operations by using the Google Cloud console and a client. The resources created in this quickstart typically cost less than a dollar, assuming you complete the steps, including the cleanup, in a timely manner.

Before you begin

Note: The name you use for your project must be between 4 and 30 characters. When you type the name, the form suggests a project ID, which you can edit. The project ID must be between 6 and 30 characters, with a lowercase letter as the first character. You can use a dash, lowercase letter, or digit for the remaining characters, but the last character cannot be a dash.

1. Start by creating a Google Cloud account. With this account, you get $300 in free credits, plus free usage of over 20 products, up to monthly limits.

   Create an account (https://console.cloud.google.com/freetrial)

2. In the Google Cloud console, on the project selector page, select or create a Google Cloud project.

   ★ **Note**: If you don't plan to keep the resources that you create in this procedure, create a project instead of selecting an existing project. After you finish these steps, you can delete the project, removing all resources associated with the project.

   Go to project selector (https://console.cloud.google.com/projectselector2/home/dashboard)

3. Make sure that billing is enabled for your Google Cloud project (/billing/docs/how-to/verify-billing-enabled#console).

4. Enable the necessary Google Cloud APIs.

In the Google Cloud console, go to the **APIs** page.

Go to APIs (https://console.cloud.google.com/apis)

Enable the Cloud SQL Admin API.

Create a Cloud SQL instance

In this quickstart, you use the Google Cloud console. To use the gcloud CLI (/sdk/gcloud), cURL, or PowerShell, see Create instances (/sql/docs/postgres/create-instance).

1. In the Google Cloud console, go to the **Cloud SQL Instances** page.

   Go to Cloud SQL Instances (https://console.cloud.google.com/sql)

2. Click **Create Instance**.

3. Click **Choose PostgreSQL**.

4. Enter `myinstance` for **Instance ID**.

5. Enter a password for the `postgres` user.

6. Click **Create**.

   You're returned to the instances list. You can click the new instance right away to see the details, but it won't be available for other operations until it initializes and starts.

★ **Note:** In this example, the instance is created using default settings, including a public IP address.

Connect to your instance

In this quickstart, we'll use the psql client in Cloud Shell to connect to your instance.

Note: Cloud Shell doesn't work with a private IP address. These instructions are only for an instance with a public IP address.

1. Optional: If you're running a local instance of PostgreSQL, stop it before connecting to your Cloud SQL instance. Otherwise, you might encounter errors such as `address already in use`.

2. In the Google Cloud console (https://console.cloud.google.com/), click the Cloud Shell icon (
   `>_`
) in the upper right corner.

   When Cloud Shell finishes initializing, a message, such as the following one, appears: following one, appears:

   ```
   Welcome to Cloud Shell! Type "help" to get started.
   Your Cloud Platform project in this session is set to sample-project.
   Use "gcloud config set project [PROJECT_ID]" to change to a different pro
   username@sample-project:~ (sample-project)$
   ```

3. At the Cloud Shell prompt, connect to your Cloud SQL instance. Use the `gcloud sql connect` command as follows. Replace the instance name if your instance name is different.

   ```
   gcloud sql connect myinstance ✏ --user=postgres
   ```

4. Click **Authorize** in the message box to authorize Cloud Shell to make API calls.

   A message indicates that your IP is being allowlisted for incoming connections, after which you're prompted to enter your password.

5. Enter your postgres password.

   The `psql` prompt appears.

Create a database and upload data

1. Create a SQL database on your Cloud SQL instance:

```
CREATE DATABASE guestbook;
```

2. Connect to the database by entering the following command and specifying your password.

```
\connect guestbook;
```

3. Insert sample data into the database:

```
CREATE TABLE entries (guestName VARCHAR(255), content VARCHAR(255),
                      entryID SERIAL PRIMARY KEY);
INSERT INTO entries (guestName, content) values ('first guest', 'I got he
INSERT INTO entries (guestName, content) values ('second guest', 'Me too!
```

4. Retrieve the data:

```
SELECT * FROM entries;
```

The result is:

```
  guestname    |   content    | entryid
---------------+--------------+---------
 first guest   | I got here!  |       1
 second guest  | Me too!      |       2
(2 rows)
postgres=>
```

Clean up

To avoid incurring charges to your Google Cloud account for the resources used on this page, follow these steps.

1. In the Google Cloud console, go to the **Cloud SQL Instances** page.

   [Go to Cloud SQL Instances](https://console.cloud.google.com/sql) (https://console.cloud.google.com/sql)

2. Select the `myinstance` instance to open the **Instance details** page.

3. In the icon bar at the top of the page, click **Delete**.

4. In the **Delete instance** window, type your instance's name and then click **Delete**.

Optional cleanup steps

If you're not using the APIs that were enabled as part of this quickstart, you can disable them.

- APIs that were enabled within this quickstart:

  - Cloud SQL Admin API

1. In the Google Cloud console, go to the **APIs** page.

   [Go to APIs](https://console.cloud.google.com/apis) (https://console.cloud.google.com/apis)

2. Select the Cloud SQL Admin API and then click the **Disable API** button.

What's next

- Learn about creating Cloud SQL instances (/sql/docs/postgres/create-instance).

- Learn about creating PostgreSQL users (/sql/docs/postgres/create-manage-users) and databases (/sql/docs/postgres/create-manage-databases) for your Cloud SQL instance.

- See the Cloud SQL pricing information (/sql/docs/postgres/pricing).

- In this quickstart you connected to the instance by using Cloud Shell. Learn about all of the connectivity options (/sql/docs/postgres/connect-overview#connection_options) in Cloud SQL. How you connect depends on your networking configuration, such as if your Cloud SQL instance has a public or private IP address. See how to configure your Cloud SQL instance with a public IP (/sql/docs/postgres/configure-ip) and a private IP (/sql/docs/postgres/configure-private-ip) address.

- Learn about connecting to a Cloud SQL instance from other Google Cloud applications:

    - From an application running on the App Engine standard environment (/sql/docs/postgres/connect-app-engine)

    - From an application running on Compute Engine (/sql/docs/postgres/connect-compute-engine)

    - From an application running on GKE (/sql/docs/postgres/connect-kubernetes-engine)

    - From Cloud Run functions (/sql/docs/postgres/connect-functions)

    - From Cloud Run (/sql/docs/postgres/connect-run)

Last updated 2024-09-19 UTC.