MySQL (/sql/docs/mysql/connect-docker) | **PostgreSQL** | SQL Server

This page describes how to connect a psql client
to your Cloud SQL instance, from a client machine running Linux or Compute Engine Linux instance, using the Cloud SQL Proxy Docker image.

You must have:

- Installed the `gcloud` command-line tool. Learn more (/sdk/downloads).
- Authorized the `gcloud` tool. Learn more (/sdk/docs/authorizing).
- Set the default project for the `gcloud` tool. Learn more (/sdk/docs/managing-properties#setting_properties).
- Configured a database user on your Cloud SQL instance. Learn more (/sql/docs/postgres/users).

To connect using the proxy Docker image:

1. Enable the Cloud SQL Admin API.
   Enable the API (https://console.cloud.google.com/flows/enableapi?apiid=sqladmin&redirect=https://console.cloud.google.com)
2. If you are using a Compute Engine instance, prepare the instance:
   a. Display the Compute Engine instance properties:

   b. Verify the scopes enabled on the instance.
   Authenticating using scopes requires both of the following scopes:
   - `https://www.googleapis.com/auth/sqlservice.admin`
   - `https://www.googleapis.com/auth/devstorage.read_write`

   Alternatively, the `https://www.googleapis.com/auth/cloud-platform` scope enables all Google Cloud Platform APIs.

   If your Compute Engine instance does not have the proper scopes, you can update the instance to include them. For more information, see the Compute Engine documentation

(/compute/docs/access/create-enable-service-accounts-for-instances#changeserviceaccountandscopes).

c. Open a terminal connection to the instance, using the instructions at Connecting to Linux Instances (/compute/docs/instances/connecting-to-instance).

3. Install the psql client on the Compute Engine instance or client machine, if it is not already installed.

4. If needed, install the Docker client:

If you are using a container-optimized (/compute/docs/containers/vm-image/) Compute Engine instance, it already has the Docker client installed.

5. Install the Proxy Docker image from the Google Container Registry (/container-registry/).

6. If you are running the Proxy Docker image on a local machine (not a Compute Engine instance), or your Compute Engine instance does not have the proper scopes, create a Google Cloud Platform service account.

★ **Note:** To create a service account with the required permissions, you must have **`resourcemanager.projects.setIamPolicy`** permission. This permission is included in the Project Owner, Project IAM Admin, and Organization Administrator roles.
You must also have enabled the Cloud SQL Admin API.

When you use a service account to provide the credentials for the proxy, you must create it with sufficient permissions. If you are using the finer-grained Identity Access and Management (IAM) roles to manage your Cloud SQL permissions, you must give the service account a role that includes the cloudsql.instances.connect permission. The predefined Cloud SQL roles that include this permission are:

- Cloud SQL Client
- Cloud SQL Editor
- Cloud SQL Admin

If you are using the legacy project roles (Viewer, Editor, Owner), the service account must have at least the Editor role.

a. Go to the **Service accounts** page of the Google Cloud Console.

Go to the Service accounts page (https://console.cloud.google.com/iam-admin/serviceaccounts/)

b. Select the project that contains your Cloud SQL instance.

c. Click **Create service account**.

d. In the **Create service account** dialog, provide a descriptive name for the service account.

e. For **Role**, select one of the following roles:

- **Cloud SQL > Cloud SQL Client**
- **Cloud SQL > Cloud SQL Editor**
- **Cloud SQL > Cloud SQL Admin**

Alternatively, you can use the primitive Editor role by selecting **Project > Editor**, but the Editor role includes permissions across Google Cloud.

If you do not see these roles, your Google Cloud user might not have the `resourcemanager.projects.setIamPolicy` permission. You can check your permissions by going to the IAM page (https://console.cloud.google.com/iam-admin) in the Google Cloud Console and searching for your user id.

f. Change the **Service account ID** to a unique, easily recognizable value.

g. Click **Furnish a new private key** and confirm that the key type is `JSON`.

h. Click **Create**.

The private key file is downloaded to your machine. You can move it to another location. Keep the key file secure.

You provide the path to the key file as "PATH_TO_KEY_FILE" when you start the proxy.

7. Go to the Cloud SQL Instances page in the Google Cloud Console.
   Go to the Cloud SQL Instances page (https://console.cloud.google.com/sql/instances)
8. Select the instance to open its *Instance details* page and copy the **Instance connection name**.

   For example: `myproject:us-central1:myinstance`.
9. Start the proxy.
   Depending on your language and environment, you can start the proxy using either TCP sockets or Unix sockets. Unix sockets are not supported for applications written in the Java programming language or for the Windows environment.

10. Start the client:

    The connection string you use depends on whether you started the proxy using a TCP socket or a UNIX socket.

Need help? For help troubleshooting the proxy, see Troubleshooting Cloud SQL Proxy connections (/sql/docs/postgres/sql-proxy#troubleshooting). Or, see our Cloud SQL Support page (/sql/docs/postgres/support).

The Proxy Docker image is based on a specific version of the Cloud SQL Proxy. When a new version of the Cloud SQL Proxy becomes available, you should pull the new version of the Proxy Docker image to keep your environment up to date. You can see the current version of the Cloud SQL Proxy by checking the Cloud SQL Proxy GitHub releases page (https://github.com/GoogleCloudPlatform/cloudsql-proxy/releases). Future proxy releases will also be noted in the Google Groups Cloud SQL announce (https://groups.google.com/forum/#!forum/google-cloud-sql-announce) forum.

- Learn more about the Cloud SQL Proxy (/sql/docs/postgres/sql-proxy).
- Get help troubleshooting connection issues (/sql/docs/postgres/sql-proxy#troubleshooting) for the Cloud SQL Proxy.
- Create users (/sql/docs/postgres/create-manage-users) and databases (/sql/docs/postgres/create-manage-databases).
- Learn about options for connecting to your instance from your application (/sql/docs/postgres/external-connection-methods).
- Learn about Docker (https://www.docker.com/).
- Learn about the Google Container Registry (/container-registry/).
- Learn about options for support (/sql/docs/support).