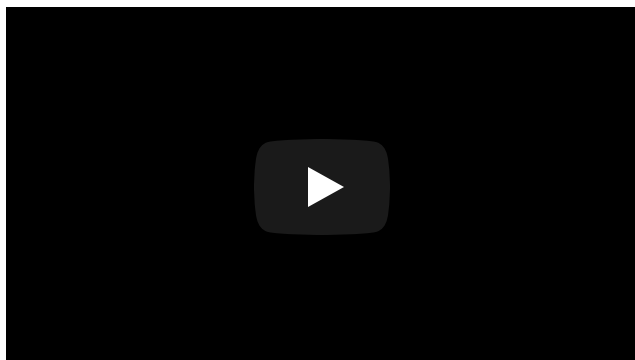Cloud SQL (https://cloud.google.com/sql/)
Documentation (https://cloud.google.com/sql/docs/)
MySQL (https://cloud.google.com/sql/docs/mysql/) Guides

Connecting a MySQL client from Compute Engine

MySQL | PostgreSQL (https://cloud.google.com/sql/docs/postgres/connect-compute-engine) | SQL Server

This page describes how to use the mysql client, installed on a Compute Engine instance, to connect to Cloud SQL.

If you are connecting to a Second Generation instance, you can use private IP, public IP, the Cloud SQL Proxy, or the proxy Docker image.

If you are connecting to a First Generation instance, you must use a public IPv4 address.

Note: Second Generation is replacing First Generation; support for First Generation instances ends January 30, 2020. To upgrade a First Generation instance to Second Generation, see Upgrading a First Generation Instance to Second Generation (https://cloud.google.com/sql/docs/mysql/upgrade-2nd-gen).

Before you begin

Before you can connect to your Cloud SQL instance, you must have a default database user (root) on the instance.

This task does not include instructions for setting up your Compute Engine instance. If you need help with creating and configuring a Compute Engine instance, see the Compute Engine documentation (https://cloud.google.com/compute/docs/instances/create-start-instance).

Connecting using private IP

To connect to Cloud SQL from a Compute Engine instance using private IP, private services access must be set up for your environment and your Cloud SQL instance must be configured to use private IP. Your Compute Engine instance must be in the same region as your Cloud SQL instance, and on the network configured for a private connection. Learn more (https://cloud.google.com/sql/docs/mysql/configure-private-ip).

1. Configure your instance to use private IP, using the instructions in Configuring Private IP Connectivity (https://cloud.google.com/sql/docs/mysql/configure-private-ip).

2. Open a terminal connection to your Compute Engine instance.

   Use the appropriate instructions, depending on the instance's operating system:

   - For Linux, see Connecting to Linux Instances (https://cloud.google.com/compute/docs/instances/connecting-to-instance#gcetools).

   - For Windows, see Connecting to Windows Instances (https://cloud.google.com/compute/docs/instances/connecting-to-instance#windows).

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

DEBIAN/UBUNTU	MORE ▾

   Install the MySQL client from the package manager:

   ```
   sudo apt-get update
   sudo apt-get install mysql-client
   ```

   For more information about installing MySQL, see the MySQL Reference Manual Installing and Upgrading MySQL (https://dev.mysql.com/doc/refman/5.7/en/installing.html).

4. Connect with the mysql client.

   ```
   mysql --host=[CLOUD_SQL_PRIVATE_IP_ADDR] --user=root --password
   ```

Connecting using a public IP address

1. Add a static IPv4 IP address to the Compute Engine instance, if it does not already have one. You cannot connect to Compute Engine using IPv6. For information about adding a static IP address, see Reserving a new static external IP address
   (https://cloud.google.com/compute/docs/configure-instance-ip-addresses#reserve_new_static) in the Compute Engine documentation.

2. Authorize the static IP address of the Compute Engine instance as a network that can connect to your Cloud SQL instance.
   For more information, see Configuring access for IP connections
   (https://cloud.google.com/sql/docs/mysql/connect-external-app#appaccessIP).

   ⚠️ **Note**: You should grant authorization only for *static* IP addresses. Ephemeral IP addresses are temporary; granting them access to your instance creates a security risk because they could be reassigned to a different Compute Engine user later.

3. Open a terminal connection to your Compute Engine instance.

   Use the appropriate instructions, depending on the instance's operating system:

   - For Linux, see Connecting to Linux Instances
     (https://cloud.google.com/compute/docs/instances/connecting-to-instance#gcetools).

   - For Windows, see Connecting to Windows Instances
     (https://cloud.google.com/compute/docs/instances/connecting-to-instance#windows).

4. Install the mysql client on the Compute Engine instance, if it is not already installed.

   DEBIAN/UBUNTU   MORE ▾

   Install the MySQL client from the package manager:

   ```
   sudo apt-get update
   sudo apt-get install mysql-client
   ```

   For more information about installing MySQL, see the MySQL Reference Manual
   Installing and Upgrading MySQL (https://dev.mysql.com/doc/refman/5.7/en/installing.html).

5. Connect with the mysql client.

   ```
   mysql --host=[CLOUD_SQL_PUBLIC_IP_ADDR] --user=root --password
   ```

Run the following gcloud command to find the CLOUD_SQL_PUBLIC_IP_ADDR:

```
gcloud sql instances list
```

For an example of how to connect using SSL, see Connecting with SSL
(https://cloud.google.com/sql/docs/mysql/connect-admin-ip#connect-ssl).

6. You should see the mysql prompt.

7. If you are connecting to a First Generation instance, and you need to keep unused
   connections alive, set the TCP keepalive
   (http://tldp.org/HOWTO/TCP-Keepalive-HOWTO/usingkeepalive.html).

★ **Note:** Second Generation is replacing First Generation; support for First Generation instances ends
January 30, 2020. To upgrade a First Generation instance to Second Generation, see Upgrading a First
Generation Instance to Second Generation
(https://cloud.google.com/sql/docs/mysql/upgrade-2nd-gen).

For more information, see Communicating between your instances and the Internet
(https://cloud.google.com/compute/docs/troubleshooting#communicatewithinternet) in the
Compute Engine documentation.

Connections are kept alive automatically for Second Generation instances.

Need help? For help troubleshooting the proxy, see Troubleshooting Cloud SQL Proxy
connections (https://cloud.google.com/sql/docs/mysql/sql-proxy#troubleshooting). Or, see our Cloud
SQL Support page (https://cloud.google.com/sql/docs/mysql/support).

Connecting using the Cloud SQL Proxy

Note: The Cloud SQL Proxy is available only for Second Generation instances.

1. Enable the Cloud SQL Admin API.

   ENABLE THE API (HTTPS://CONSOLE.CLOUD.GOOGLE.COM/FLOWS/ENABLEAPI?APIID=SQLADMIN&

2. Create a service account for the proxy.

★ **Note:** If your Compute Engine instance has either the **Full API access** or **Cloud SQL API** scope, you can skip this step; you do not need to provide a certificate file when you start the proxy.

★ **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.

   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

   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.

3. If the Compute Engine instance is in a different project than the Cloud SQL instance, ensure that its service account has the proper permissions in the project that contains the

Cloud SQL instance:

   a. Go to the Compute Engine instances listing in the Google Cloud Console.

     GO TO THE COMPUTE ENGINE INSTANCES LISTING (HTTPS://CONSOLE.CLOUD.GOOGLE.COM

   b. If needed, select the project associated with the Compute Engine instance.

   c. Select the Compute Engine instance to display its properties.

   d. In the Compute Engine instance properties, copy the name of the service account.

   e. Go to the **IAM & Admin Projects** page in the Google Cloud Console.

     GO TO THE IAM & ADMIN PROJECTS PAGE (HTTPS://CONSOLE.CLOUD.GOOGLE.COM/IAM-AD

   f. Select the project that contains the Cloud SQL instance.

   g. Search for the service account name.

   h. If the service account is already there, and it has a role that includes the
     `cloudsql.instances.connect` permission, you can proceed to step 4 (#open-terminal).

     The `Cloud SQL Client`, `Cloud SQL Editor` and `Cloud SQL Admin` roles all provide the
     necessary permission, as do the legacy `Editor` and `Owner` project roles.

   i. Otherwise, add the service account by clicking **Add**.

   j. In the **Add members** dialog, provide the name of the service account and select a
     role that include the `cloudsql.instances.connect` permission (any Cloud SQL
     predefined role other than Viewer will work).

     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.

   k. Click **Add**.

     You should now see the service account listed with the specified role.

4. Open a terminal connection to your Compute Engine instance.

  Use the appropriate instructions, depending on the instance's operating system:

    • For Linux, see Connecting to Linux Instances
     (https://cloud.google.com/compute/docs/instances/connecting-to-instance#gcetools).

- For Windows, see <u>Connecting to Windows Instances</u>
  (https://cloud.google.com/compute/docs/instances/connecting-to-instance#windows).

5. If your Compute Engine instance is running either an RHEL or a CentOS public image,
   SELinux might block the proxy connection. If this happens, you must configure the
   SELinux feature to allow the connection.

   For more information about SELinux for RHEL, see <u>the RHEL documentation</u>
   (https://access.redhat.com/documentation/en-
   us/red_hat_enterprise_linux/7/html/selinux_users_and_administrators_guide/index)
   . For more information about SELinux for CentOS, see <u>the CentOS documentation</u>
   (https://wiki.centos.org/HowTos/SELinux).

6. Install the mysql client on the Compute Engine instance, if it is not already installed.

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   Install the MySQL client from the package manager:

   ```
   sudo apt-get update
   sudo apt-get install mysql-client
   ```

   For more information about installing MySQL, see the MySQL Reference Manual
   <u>Installing and Upgrading MySQL</u> (https://dev.mysql.com/doc/refman/5.7/en/installing.html).

7. Install the Cloud SQL Proxy on the Compute Engine instance.

LINUX 64-BIT LINUX 32-BIT	MORE ▾

   a. Download the proxy:

   ```
   wget https://dl.google.com/cloudsql/cloud_sql_proxy.linux.amd64 -O cloud
   ```

   b. Make the proxy executable:

   ```
   chmod +x cloud_sql_proxy
   ```

   If your operating system isn't included here, you can also <u>compile the proxy from source</u>
   (http://github.com/GoogleCloudPlatform/cloudsql-proxy).

8. Start the proxy.

★   **Note:** If your Compute Engine instance has either the **Full API access** or **Cloud SQL API** scope, you do not need to provide a certificate file when you start the proxy.

Depending on your language and environment, you can start the proxy using either TCP sockets or Unix sockets.

TCP SOCKETS   UNIX SOCKETS

a. Copy your instance connection name from the **Instance details** page.

For example: `myproject:us-central1:myinstance`.

b. If you are using a service account to authenticate the proxy, note the location on your client machine of the private key file that was created when you created the service account.

c. Start the proxy.
Some possible proxy invocation strings:

- Using Cloud SDK authentication:

```
./cloud_sql_proxy -instances=<INSTANCE_CONNECTION_NAME>=tcp:3306
```

The specified port must not already be in use, for example, by a local database server.

- Using a service account and explicit instance specification (recommended for production environments):

```
./cloud_sql_proxy -instances=<INSTANCE_CONNECTION_NAME>=tcp:3306 \
                  -credential_file=<PATH_TO_KEY_FILE> &
```

For more information about proxy options, see Options for authenticating the proxy (https://cloud.google.com/sql/docs/mysql/sql-proxy#authentication-options) and Options for specifying instances (https://cloud.google.com/sql/docs/mysql/sql-proxy#instances-options).

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

TCP SOCKETS   UNIX SOCKETS

a. Start the mysql client:

```
mysql -u <USERNAME> -p --host 127.0.0.1
```

When you connect using TCP sockets, the proxy is accessed through `127.0.0.1`.

b. Enter the password.

c. You should see the mysql prompt.

Need help? For help troubleshooting the proxy, see Troubleshooting Cloud SQL Proxy connections (https://cloud.google.com/sql/docs/mysql/sql-proxy#troubleshooting). Or, see our Cloud SQL Support page (https://cloud.google.com/sql/docs/mysql/support).

What's next

- Get help troubleshooting connection issues (https://cloud.google.com/sql/docs/mysql/sql-proxy#troubleshooting) for the Cloud SQL Proxy.

- Create users (https://cloud.google.com/sql/docs/mysql/create-manage-users) and databases (https://cloud.google.com/sql/docs/mysql/create-manage-databases).

- Learn more about private IP (https://cloud.google.com/sql/docs/mysql/private-ip).

- Learn about options for connecting to your instance from your application (https://cloud.google.com/sql/docs/mysql/external-connection-methods).

- Learn about the mysql client (https://dev.mysql.com/doc/refman/5.7/en/mysql.html).

- Learn about other MySQL administration tools (https://cloud.google.com/sql/docs/mysql/admin-tools).

- Learn about options for support (https://cloud.google.com/sql/docs/support).