Lab Overview: Getting Started with Cloud SQL

Overview

In this lab you create a Compute Engine instance and a Cloud SQL instance. After creating the instances, you configure access to the Cloud SQL instance from the Compute Engine instance. Then, you deploy the Guestbook application to the Compute Engine instance. Once the application is deployed, you examine the application data stored in Cloud SQL.

Duration

The timing of this lab is as follows:

Component	Timing
Introduction	5 minutes
Lab	20 minutes
Total	**25 minutes**

What you need

To complete this lab, you need:

- The Google Cloud SDK installed and configured on your labs instance
- A Google Cloud project and project ID

What you will learn

In this lab, you:

- Create Compute Engine and Cloud SQL instances
- Configure access to the Cloud SQL instance from the Compute Engine instance
- Deploy the Guestbook application to a Compute Engine instance
- Examine application data stored in Cloud SQL

Python Lab: Getting Started with Cloud SQL

Overview

In this lab, you create Compute Engine and Cloud SQL instances using the Google Developer Console. You deploy the Guestbook application to the Compute Engine instance and application data is written to Cloud SQL. Once the application is deployed, you examine the application data in Cloud SQL.

Create a compute instance

To create the Compute Engine instance that hosts the Guestbook application:

Step	Action
1	Access the Google Developer Console by typing the following URL in your browser. https://console.developers.google.com
2	In the navigator pane, click the **Gallery** icon (to the left of Google Developers Console at the top of the page).
3	Click **Compute Engine** and then click **VM instances**.
4	Click the **New instance** icon.
5	On the **Create a new instance** page, in the **Name** field, type: **cp100-sql**.
6	For **ZONE**, choose the same zone you used when configuring the Cloud SDK (for example: **us-central1-b** or **europe-west1-c**).
7	For **Boot disk**, click **Change**.
8	On the 'Boot disk' page, on the **Preconfigured image** tab, choose the current version of the stable branch of CoreOS (for example, **CoreOS stable 766.4.0**) and then click **Select**.
9	In the **Firewall** section, check the option to **Allow HTTP traffic**.
10	Accept the remaining default values and click **Create**.

11	Clicking Create opens the **Activities** pop-up window. This window shows the status of the instance you created. The creation process will take a moment to complete.
12	Once the instance is launched, note the value in the **External IP** column. The External IP address is needed to give the instance to access your Cloud SQL instance. **Note**: You can right click **VM instances** and choose **Open Link in New Tab** to keep the IP address readily accessible.

Create a Cloud SQL instance

To create a Cloud SQL instance to store your application data:

Step	Action
1	In the Google Developers Console click **Gallery > SQL**.
2	Click **Create instance**.
3	For **Name**, type a name after the project name. For example: **<project_name>: cp100-sql**.
4	For **Region**, choose the same region used to create your Compute Engine instance.
5	Click the **Show advanced options** link.
6	In the **Options** section: ● For **Preferred location**, choose **Compute Engine zone**. ● Verify the **Compute Engine zone** field is set to the same zone you used previously for the compute instance. ● In the **IPv4 address** section, check **Assign an IPv4 address to my Cloud SQL instance**. This creates an external IP address and associates it with this Cloud SQL instance. ● In the **Authorized networks** section, click the **+ Add item** button and in the **Network** field, type

	the external IP address of the Compute Engine instance. You may leave the Name field blank. ● In the **Authorized App Engine applications** section, if an application appears in the **App Engine Application ID** field, hover over the right-side of the field and then click the Delete button (trash can). ● Accept the remaining default options and click **Create**.
7	Once the Cloud SQL instance is created, in the **Instance ID** column, click the instance name link to open the instance details page.
8	Note the value in the **IPv4 address** field.
9	Click the **Access Control** tab and then click the **Users** tab.
10	Click **Create user account**.
11	In the 'Create user account' dialog: ● For **Username**, type **root**. ● For **Password**, type your preferred value. ● Click **Create**.
12	Note the username and password. You need them later in this lab.

Create a Cloud SQL database

After creating the Cloud SQL instance, you must create the database and tables to store your application data. To create the Cloud SQL database:

Step	Action
1	In the Google Developers Console, click **Gallery > Compute Engine > VM instances**.
2	On the 'VM instances' page, to the right of the **cp100-sql** instance, in the **Connect** column, click **SSH**.

3	In the SSH window, type the following command to run a ready-made container that provides a MySQL client used to establish a connection to the Cloud SQL instance. Replace <Cloud_SQL_Instance_IP_Address> with the IP address of the Cloud SQL instance you noted previously. **`docker run -i -t tutum/mysql mysql \`** **`-u root -p -h <Cloud_SQL_Instance_IP_Address>`**
4	When prompted, type the password for the root username that you created for the Cloud SQL instance. When you are authenticated, you should see a `mysql>` prompt.
5	Type the following SQL statements to create a guestbook database and an entries table. **`CREATE DATABASE guestbook;`** **`CREATE TABLE guestbook.entries (id INT NOT NULL AUTO_INCREMENT PRIMARY KEY, entry VARCHAR(500));`**
6	Type the following command to exit the MySQL client prompt. **`quit;`**
7	Leave the SSH window open.

Deploy the app

To deploy the Guestbook application to your Compute Engine instance:

Step	Action
1	In the SSH window, type the following command to clone the Git repository containing the frontend for the Guestbook application. **`git clone \`** **`https://github.com/GoogleCloudPlatformTraining/cp100-cloud-sql-python.git`**

2	Type the following command to build the container for your application. **`docker build -t cp100/cloudsql-python cp100-cloud-sql-python`**
3	Type the following command to run the newly built container. Replace <x.x.x.x> with the IP address of your Cloud SQL instance and replace <password> with the password of the root user. **`docker run -e CLOUDSQL_IP=x.x.x.x \ -e CLOUDSQL_PWD=<password> -p 80:80 cp100/cloudsql-python`** The container is running when you see the following output: **`Running on http://0.0.0.0:80/`**

Examine the data

Once you have deployed the application, you can use the MySQL command-line client to query the application data in your Cloud SQL instance. To view data using the MySQL client:

Step	Action
1	Open a new browser tab and type the following URL to open the Guestbook application: **`http://x.x.x.x`**, where x.x.x.x is the external IP address of your **cp100-sql** Compute Engine instance. You can also click the External IP address link on the VM instances page.
2	Create a few entries in the Guestbook application.
3	Switch to your SSH window and press **Ctrl+C** to quit the application.
4	Type the following command to run a container that provides a MySQL client to establish a connection to the Cloud SQL instance. Replace <Cloud_SQL_Instance_IP_Address> with the IP address of the Cloud SQL instance you noted previously.

	`docker run -i -t tutum/mysql mysql \ -u root -p -h <Cloud_SQL_Instance_IP_Address>`
5	When prompted, type the password for the root username that you created for the Cloud SQL instance. When you are authenticated, you should see a `mysql>` prompt.
6	Type the following SQL statement to query the data created by your application in your Cloud SQL instance. **`SELECT * FROM guestbook.entries;`**
7	Type **`quit;`** to exit the mysql client.
8	Type **`exit`** to close the SSH window.

Clean up To remove the resources used in the lab:

Step	Action
1	Switch to the Google Developers Console window.
2	Click **Gallery > Compute Engine > VM instances**.
3	Click the check box to the left of the **cp100-sql** instance name. This will activate the Delete icon at the top of the page.
4	Click **Delete** to remove the Compute Engine instance.
5	Click **Gallery > SQL**.
6	Check the box to the left of the Cloud SQL instance ID.
7	Click **Delete**.
