

Lab Guide for Database Services in GCP

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Day-7 Assignments

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Additional Assignments

Context

This document contains assignments to be completed as part of the hands on session for the course

Guidelines

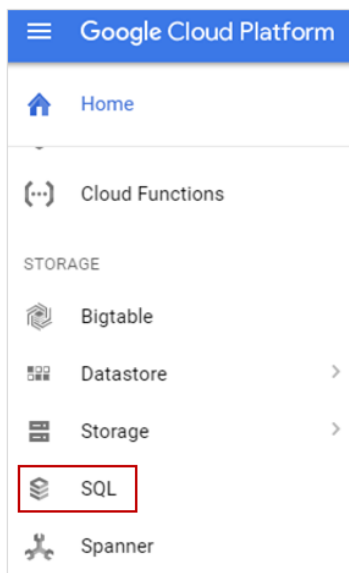
- The lab guide has been designed to give hands on experience to map the concepts learnt in the theory session with real life business oriented case studies/assignments.

Assignment 1: MySQL instance creation

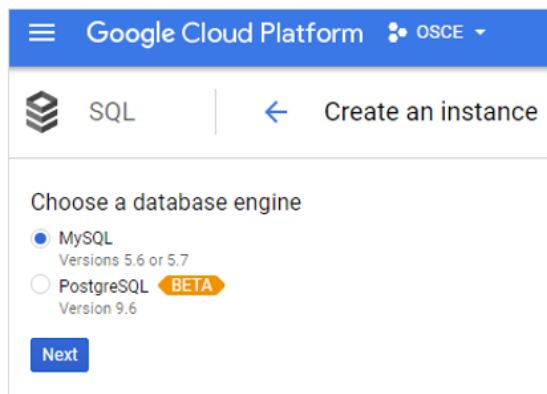
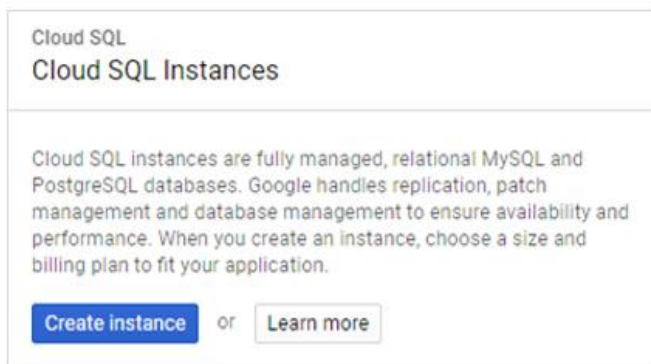
Objective: To create a SQL instance with MySQL database engine on GCP

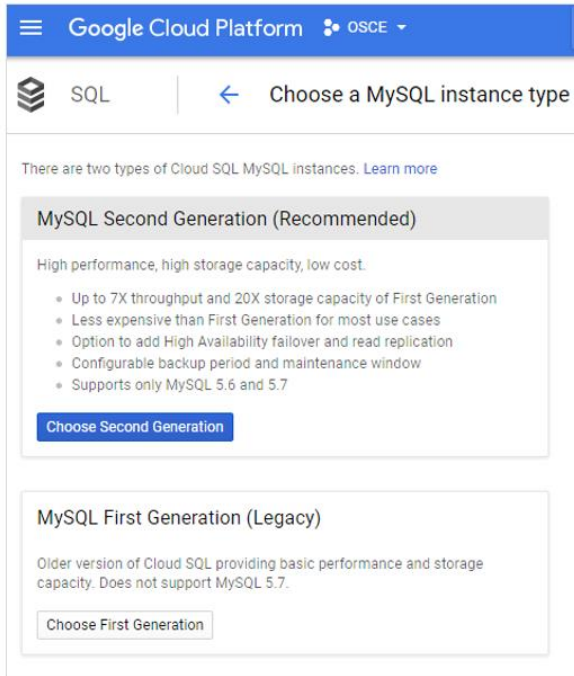
Solution:

Step 1: To access the Cloud SQL service, choose SQL under drop down menu on the GCP management console.

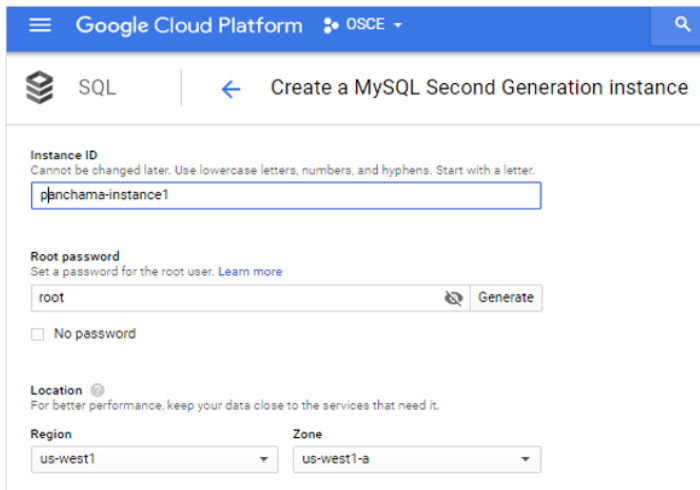


Step 2: In the navigation pane, click on *Create instances*. Select MySQL 5.7 second generation instance as shown in the below screen.





Step 3: Provide an appropriate instance name and set the root password. Choose your region and zone locations nearby to majority of your customers.



Google Cloud Platform OSCE

SQL Create a MySQL Second Generation instance

Instance ID
Cannot be changed later. Use lowercase letters, numbers, and hyphens. Start with a letter.
panchama-instance1

Root password
Set a password for the root user. [Learn more](#)
root Generate
☐ No password

Location
For better performance, keep your data close to the services that need it.

Region **Zone**
us-west1 us-west1-a

Step 4: Various options are provided to change the configuration in terms of storage, machine type, backup and maintenance window etc. Explore them.

Configuration options

☒ Choose database version
MySQL 5.7

☒ Configure machine type and storage
Machine type is db-n1-standard-1. Storage type is SSD. Storage size is 10 GB, and will automatically scale as needed.

☒ Enable auto backups and high availability
Automatic backups enabled. Binary logging enabled. Not highly available.

☒ Authorize networks
No networks authorized.

☒ Add Cloud SQL flags
No flags set.

☒ Set maintenance schedule
Updates may occur any day of the week. Cloud SQL chooses the maintenance timing.

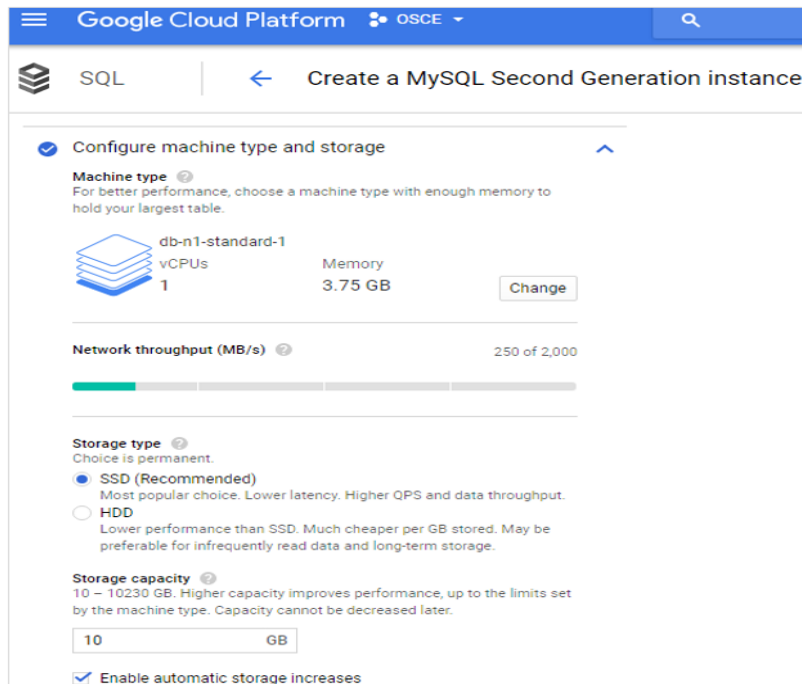
☒ Add Cloud SQL labels
No labels set.

[Hide configuration options](#)

Create

Cancel

Step 5: Select appropriate machine type and storage based on Panchama's requirements. As one of Panchama's requirement is having low latency, select SSD as storage types instead of HDDs.



Step 6: The power of using a fully managed service by GCP is reducing administrative task. One of them is automated backups. Choose a 4-hour window slot from the drop down. Check the 'Enable binary logging' box to ensure replication and recovery is smooth for a point in time due to some failures.

It also gives an option to create fail over replicas to make it highly available. Select the option in case of Disaster recovery plan and Multi zone deployment requirement. Usually fail over replicas takes the base instance name and appends a fail over word to ease billing process.

Google Cloud Platform

OSCE

SQL

Create a MySQL Second Generation instance

3

Enable auto backups and high availability

Backups and binary logging

Both options add a small performance cost.

☒ Automate backups

2:30 PM – 6:30 PM

Choose a window for automated backups. May continue outside window until complete. Time is your local time (UTC+5:30).

☒ Enable binary logging (for point-in-time recovery and replication)

High availability

☒ Create failover replica

Enter an ID for your failover replica. ID is permanent. Use lowercase letters, numbers and hyphens. Start with a letter.

panchama-instance1-failover

Close

Step 7: Select an appropriate 1-hour maintenance window according to project needs. Or leave it with any to allow GCP to choose the same. Earlier in the drop down gets updates for test instance on new version before even getting updates for production instances.

6 Set maintenance schedule

Maintenance window ?

Sunday

3:00 AM – 4:00 AM

Hours shown in your local time zone (UTC+5:30).

Maintenance timing ?

Earlier

Close

Step 8: It takes a couple of mins and both master database instance and fail over instance will be up. Observe the fail over instance being deployed in a different zone other than the master.

Google Cloud Platform OSCE						
SQL Instances CREATE INSTANCE						
Filter instances						
Instance ID	Type	IP address	Instance connection name	High availability	Location	
<input checked="" type="checkbox"/> panchama-instance1	MySQL 2nd Gen 5.7	35.197.42.222	osce-159707:us-west1:panchama-instance1	Enabled	us-west1-s	
<input type="checkbox"/> panchama-instance1-failover	MySQL 2nd Gen failover	35.199.153.254	osce-159707:us-west1:panchama-instance1-failover	—	us-west1-c	

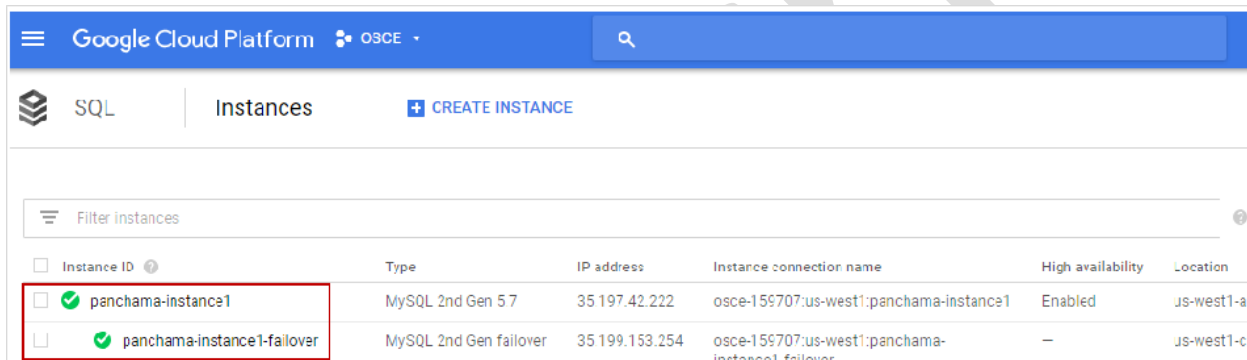
Summary of this assignment: In this assignment, you have learnt to create a MySQL instance in GCP.

Assignment 2: Interact with MySQL instance through GCP

Objective: To connect, load, and interact with MySQL instance

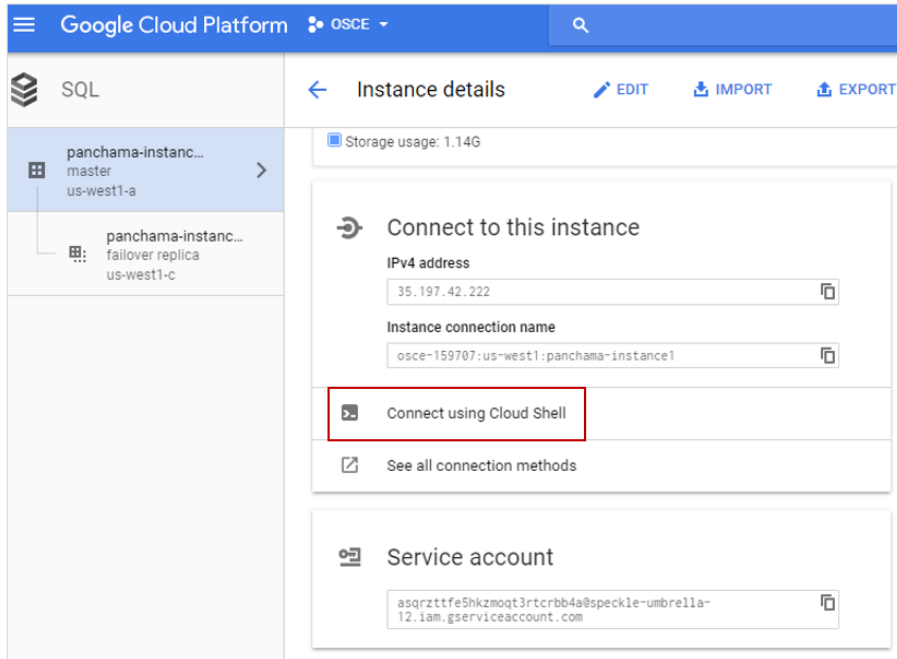
Solution:

Step 1: Select the main instance that is running and click on Connect using Cloud Shell option. This will open up a cloud shell with the command to connect auto typed

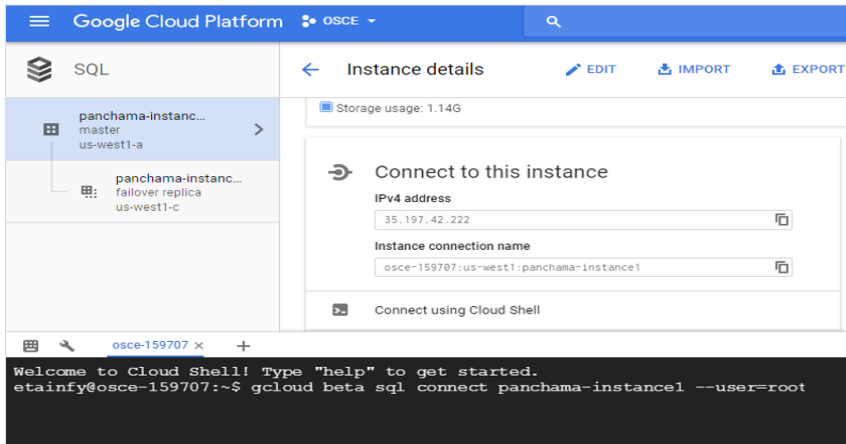


The screenshot shows the Google Cloud Platform console for SQL instances. The 'Instances' tab is selected, and a table lists two MySQL instances. The first instance, 'panchama-instance1', is highlighted with a red box. It is a MySQL 2nd Gen 5.7 instance with IP address 35.197.42.222, located in us-west1-a. The second instance, 'panchama-instance1-failover', is a MySQL 2nd Gen failover instance with IP address 35.199.153.254, located in us-west1-c.

Instance ID	Type	IP address	Instance connection name	High availability	Location
panchama-instance1	MySQL 2nd Gen 5.7	35.197.42.222	osce-159707:us-west1:panchama-instance1	Enabled	us-west1-a
panchama-instance1-failover	MySQL 2nd Gen failover	35.199.153.254	osce-159707:us-west1:panchama-instance1-failover	—	us-west1-c



Step 2: It will whitelist the IP for incoming connection and prompt to provide the root password. Provide the same to enter MySQL prompt

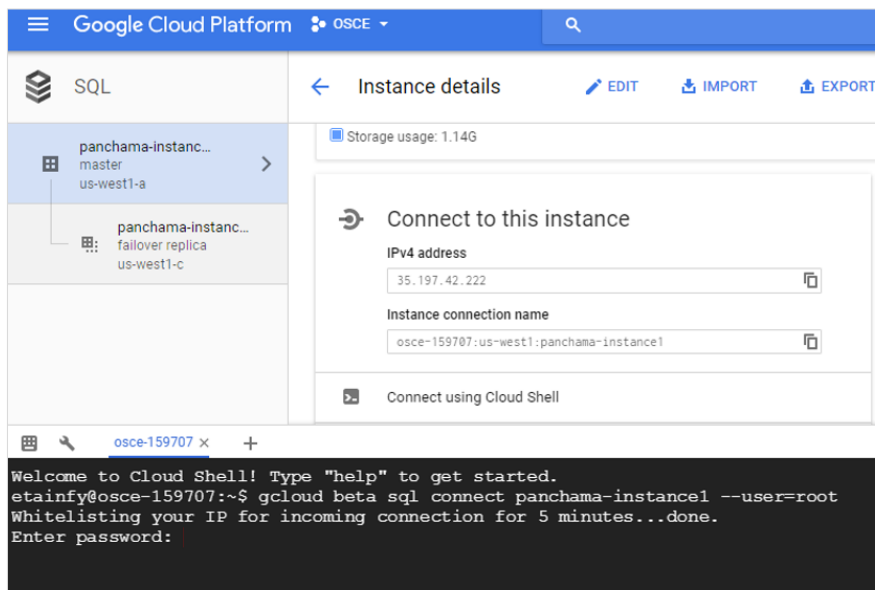


The screenshot shows the Google Cloud Platform console. On the left, a sidebar lists SQL instances: 'panchama-instance1' (master, us-west1-a) and 'panchama-instance2' (failover replica, us-west1-c). The main panel displays the 'Instance details' for 'panchama-instance1'. It shows 'Storage usage: 1.14G' and a 'Connect to this instance' section with the following fields:

- IPv4 address: 35.197.42.222
- Instance connection name: osce-159707:us-west1:panchama-instance1

Below these fields is a 'Connect using Cloud Shell' button. At the bottom, a terminal window shows the command:

```
Welcome to Cloud Shell! Type "help" to get started.
etainfy@osce-159707:~$ gcloud beta sql connect panchama-instance1 --user=root
```



This screenshot is similar to the one above, but the terminal window shows the next step in the connection process:

```
Welcome to Cloud Shell! Type "help" to get started.
etainfy@osce-159707:~$ gcloud beta sql connect panchama-instance1 --user=root
Whitelisting your IP for incoming connection for 5 minutes...done.
Enter password:
```

Step 3: MySQL prompt shows that the connection is successful and let us now interact with the DB by loading data and querying the same. Create a database & use it for any interactions. Create necessary tables and load the data.

The screenshot displays the Google Cloud Platform console for a MySQL instance named 'panchama-instance1'. The left sidebar shows the instance hierarchy: 'panchama-instance1' (master, us-west1-a) and 'panchama-instance2' (failover replica, us-west1-c). The main panel shows the 'Instance details' for 'panchama-instance1', including the IPv4 address '35.197.42.222' and the instance connection name 'osce-159707:us-west1:panchama-instance1'. Below this, there is a 'Connect using Cloud Shell' button. The terminal window at the bottom shows the command 'gcloud beta sql connect panchama-instance1 --user=root' being executed, resulting in a successful connection to the MySQL monitor. The terminal output includes the MySQL version '5.7.14-google-log' and a prompt 'mysql>'.

```

etainfy@osce-159707:~$ gcloud beta sql connect panchama-instance1 --user=root
Whitelisting your IP for incoming connection for 5 minutes...done.
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 1028
Server version: 5.7.14-google-log (Google)

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
mysql>

```

Step 4: Query the tables using select statement. Querying is the same way that normal MySQL interaction happens through command prompt or MySQL workbench third party external tool. Google Cloud shell offers an easiest way to interact with the DB.

```
mysql> CREATE DATABASE Panchama;
Query OK, 1 row affected (0.13 sec)

mysql> USE Panchama;
Database changed
mysql> CREATE TABLE customers (guestName VARCHAR(255), country VARCHAR(255),
-> entryID INT NOT NULL AUTO_INCREMENT, PRIMARY KEY(entryID));
Query OK, 0 rows affected (0.14 sec)

mysql> INSERT INTO customers (guestName, country) values ("Poorvi", "India");
Query OK, 1 row affected (0.12 sec)

mysql> INSERT INTO customers (guestName, country) values ("Samuel", "US");
Query OK, 1 row affected (0.13 sec)

mysql> INSERT INTO customers (guestName, country) values ("Chao sun", "Japan");
Query OK, 1 row affected (0.13 sec)

mysql> INSERT INTO customers (guestName, country) values ("Pranav", "India");
Query OK, 1 row affected (0.13 sec)

mysql>
```

```
mysql> select * from customers;
+-----+-----+-----+
| guestName | country | entryID |
+-----+-----+-----+
| Poorvi    | India   | 1       |
| Samuel    | US      | 2       |
| Chao sun  | Japan   | 3       |
| Pranav    | India   | 4       |
+-----+-----+-----+
4 rows in set (0.12 sec)

mysql>
```

Summary of this assignment: *In this assignment, you have learnt to interact with MySQL instance in GCP.*

Additional Assignments:

- 1) [Datastore: Qwik Start](#)
- 2) [BigQuery: Qwik Start - Command Line](#)
- 3) [Using BigQuery in the GCP Console](#)
- 4) [Exploring Your Ecommerce Dataset with SQL in Google BigQuery](#)